MARYLAND DEPARTMENT OF THE ENVIRONMENT

Land and Materials Administration • Resource Management Program
1800 Washington Boulevard • Suite 610 • Baltimore Maryland 21230-1719
410-537-3314 • 800-633-6101 x3314 • www.mde.maryland.gov

NOTICE OF INTENT

General Discharge Permit for Animal Feeding Operations (AFOs) (19AF, MDG01)
Land and Materials Administration – Resource Management Program
Issued Pursuant to Title 9, Environment Article, *Annotated Code of Maryland*, and Code of Maryland Regulations (COMAR) 26.08.04

Submission of this Notice of Intent (NOI) constitutes notice that the person identified in this form intends to operate under and comply with all terms and conditions of the State/NPDES General Discharge Permit for AFOs (AFO Permit). The discharge of animal waste, including manure, poultry litter, and process wastewater to waters of the State is prohibited unless an AFO has been registered under the AFO Permit by the Maryland Department of the Environment ("MDE"). A person shall hold a CAFO discharge permit issued by MDE before beginning construction on any part of a new CAFO.

General Information

AI Number: 139686

1. **LEGAL Name of Applicant** *(must match name on required plan)*:
   Ryan Rhodes Family Farm LLC

2. **AFO Type** *(circle one)*: (CAFO) / MAFO

3. **Applying for** *(check one)*:
   - ☐ New Coverage
   - ☐ Continuation of Coverage (renewal)
   - ☒ Modification of 19AF Coverage

4. **Reason for NOI** *(please fill out corresponding column)*:

A. New Coverage	B. Continuation of Coverage (renewal)	C. Modification of 19AF Coverage
☐ New owner/operator ☐ Proposed operation *(NO construction may begin until permit coverage is obtained)* • Date of anticipated start of AFO operation: _____	☐ No changes in operation ☐ There has been a change in one or more of the following *(please indicate)*: o Size or number of houses o Animal number, resulting in change of size category o CAFO to MAFO, MAFO to CAFO o No-Land to Land, Land to No-Land o Conventional operation to Organic	☐ Expanding ☐ Change in animal number, resulting in change of size category ☐ Change from CAFO to MAFO ☐ Change from MAFO to CAFO ☒ Change from no-land to land ☐ Change from land to no-land ☒ Change from conventional to organic operation

Applicant (Owner/Operator Information)

5. **Mailing Address of Applicant:** 2308 Church Hill Rd
   City: Centreville **State:** MD **Zip Code:** 21617

6. **Telephone Number(s) of Applicant:** (Home)
   (Cell) [redacted]

7. **Email of Applicant:** [redacted]

Farm Information

Please attach a topographic map including the production area as well as the land application area (if applicable)

8. **Farm Name:** ☒ Same as Legal Name
   ☐ Other *(please specify)*: _____

9. **Farm Address:** 724 Brick Schoolhouse Rd
   City: Centreville **County:** Queen Annes **Zip Code:** 21617

10. **Watershed/Hydrologic Unit Code (HUC)** (12-digit): 021305080399

11. **Latitude/Longitude of Production Area** (Deg/Min/Sec): 39-05-43.2N 76-01-13.9W

12. **Animal Information:**

A. Animal Type(s) *(from AFO size chart)*	B. Maximum Number of Animals *at any given time* *(For poultry, please indicate bird type and number per flock)*	C. Operation Size *(consult AFO size chart)*	D. Animal Confinement Type *(e.g. house, feedlot, barn, milking parlor, pen)*
Chickens / Dry	~~102,000~~ 102,400 NBD	Large	House

13. **Number of poultry houses:** 5

14. **Combined square footage of *all* poultry houses:** 107,536

15. **Date(s) poultry houses constructed:** 12-1994 3+4-2016, 5-2017

16. **Integrator** *(check one)*:
   ☐ Allen-Harim ☐ Mountaire
   ☐ Amick ☐ Perdue
   ☒ Coleman ☐ Tyson
   ☐ Other *(please specify)*: _____

   Contact Information:
   Phone No.: _____
   Address: _____

Manure/Mortality Management

17. Total Manure/Litter/Wastewater generated *annually*: 550 *circle one:* (tons / lbs / gallons)

18. Total Manure/Litter/Wastewater transported offsite *annually*: 350 *circle one:* (tons / lbs / gallons)

19. **Total number of acres controlled by applicant available for land application of manure/litter/process wastewater: *Owned:* 170.3 *Leased:* 7.7

***40 CFR Parts 122.23(b)(3) and 412.2(e) define "land application area" as all land under the control of the AFO owner/operator, whether by ownership, lease, or agreement, to which manure, litter or process wastewater is or may be applied.*

20. Manure Storage *(please list individually)*:

A. Type *(e.g. shed, lagoon, pit)*	B. Capacity *(ft^3, gal)*	C. Solid/Liquid
Shed	4,800	solid

21. Mortality Management Method:

- ☒ Compost
- ☐ Freeze
- ☐ Render
- ☐ Incinerate
- ☐ Other *(please specify)*: _____

Environmental Justice (EJ) Score

The EJ Score is an overall evaluation of an area's environment and existing environmental justice indicators including pollution burden exposure, pollution burden environmental effects, sensitive populations, and socioeconomic factors. Provide the EJ Score resulting from the use of a Maryland EJ tool for the census tract where an applicant is seeking a permit. The EJ Score can be generated using MDE's EJ Screening Tool at:

22. EJ Score:	27.57

CAFOs Only - Fees

Once a completed NOI is received by MDE and processed, MDE will invoice the applicant for any permit fees owed pursuant to COMAR 26.08.04.09-1.

Required Plan

CAFO permit application requirements at 40 CFR §122.21(i)(1)(x) specify that applications for coverage (including NOIs) must include nutrient management plans (NMPs) that at a minimum satisfy the requirements specified in 40 §122.42(e). Comprehensive Nutrient Management Plans (CNMPs), as defined in the General Discharge Permit for Animal Feeding Operations (AFOs) (19AF, MDG01), satisfy these requirements. An application will not be processed until a completed NOI form and a current CNMP are received. A CNMP must be developed by a certified and licensed plan writer, and in addition to the federal requirements, must satisfy the nutrient management requirements in COMAR 15.20.07 and 15.20.08.

Certification

By signing this form, I the applicant or duly authorized representative, do solemnly affirm under the penalties of perjury that the contents of this application are true to the best of my knowledge, information, and belief. I hereby authorize the representatives of MDE to have access to the AFO and associated lots/facilities (farms) for inspection and to records relating to this application at any reasonable time. I acknowledge that depending on the type of permit applied for, other permits or approvals may be required. The personal information requested on this form is intended to be used in processing your NOI. This Notice is provided pursuant to Title 4 of the General Provisions Article, Annotated Code of Maryland. Your NOI may not be processed if you fail to provide all requested information. You have the right to inspect, amend, or correct this form. MDE is a public agency and subject to the Maryland Public Information Act (Md. Code Ann., Gen. Prov. §§ 4-101, et seq.). This form may be made available on the Internet via MDE's website and is subject to inspection or copying, in whole or in part, by the public and other governmental agencies, if not otherwise protected by federal or State law.

Ryn RM — **Signature of Applicant / duly authorized representative**

11/8/2024 — **Date**

Ryan Rhodes — **Printed Name of Applicant / duly authorized representative**

owner — **Title**

AFO Size Chart

Animal Type	Circumstances under which Animal Feeding Operations Require Permit Coverage		
	CAFO or MAFO Registration Required	CAFO/MAFO Registration Required under Certain Circumstances	Registration Needed Only if Designated
	Large	Medium	Small
Cattle (includes heifers)	1000 or more animals	300—999 animals	less than 300 animals
Dairy cattle	700 or more animals	200—699 animals	less than 200 animals
Horses	500 or more animals	150—499 animals	less than 150 animals
Veal	1000 or more animals	300—999 animals	less than 300 animals
Swine ≥ 55 pounds	2500 or more animals	750—2499 animals	less than 750 animals
Swine < 55 pounds	10,000 or more animals	3,000—9,999 animals	less than 3,000 animals
Sheep and lambs	10,000 or more animals	3,000—9,999 animals	less than 3,000 animals
Ducks with liquid manure handling+	5,000 or more animals	1,500—4,999 animals	less than 1,500 animals
Chickens with liquid manure handling	30,000 or more animals	9,000—29,999 animals	less than 9,000 animals
Ducks with dry manure handling	30,000 or more animals	10,000—29,999 animals	less than 10,000 animals
Laying hens with dry manure handling	82,000 or more animals	25,000—81,999 animals	less than 25,000 animals
Chickens (other than laying hens) with dry manure handling	125,000 or more animals or greater than or equal to total house size of 100,000 ft²	37,500—124,999 animals *and* less than total house size of 100,000 ft²	less than 37,500 animals
Turkeys	55,000 or more animals	16,500—54,999 animals	less than 16,500 animals

+A separate discharge permit is required for large category duck CAFOs

COMPREHENSIVE NUTRIENT MANAGEMENT PLAN

Ryan Rhodes Family Farm, LLC

Ryan S Rhodes

710 Brick Schoolhouse Road

Centreville, Maryland 21617

MAILING ADDRESS

2308 Church Hill Rd

Centreville, Maryland 21617

PREPARED IN COOPERATION WITH THE

Maryland Department of Agriculture
Office of Resource Conservation

AND THE

Queen Anne's Soil Conservation District

211 East Water Street

Centreville, MD 21617

Prepared by: Nicole Davis

Plan Date: March 2025

Poultry - Organic Operation (Land Plan)

Concentrated Animal Feeding Operation (CAFO) M.D.E. Agency Interest # **139686**

COMPREHENSIVE NUTRIENT MANAGEMENT PLAN

FOR

Ryan Rhodes Family Farm, LLC

Ryan S Rhodes

LOCATION ADDRESS

710 Brick Schoolhouse Road

Centreville, Maryland 21617

MAILING ADDRESS

2308 Church Hill Rd

Centreville, Maryland 21617

PREPARED BY

Queen Anne's Soil Conservation District

211 East Water Street

Centreville, MD 21617

Plan Date:
March 2025

SECTION 1: CNMP Purpose and Agreement

The Comprehensive Nutrient Management Plan (CNMP) is an important part of the conservation management system (CMS) for your Animal Feeding Operation (AFO). This CNMP documents the planning decisions and operation and maintenance for the AFO. This plan has been prepared in accordance with NRCS standards and specifications for a Comprehensive Nutrient Management Plan 102.

This CNMP is valid as long as there are no major changes to the operation. A plan revision will be needed when the numbers of animals deviates by 10% from the planned amount or when the operation changes from one type of livestock to another. Annual revisions will be necessary for the nutrient management system in order to account for crop changes and soil sample result changes.

This CNMP was developed paying special attention to the USEPA's required nine minimum practices for water quality protection. This plan when implemented by Ryan S Rhodes will ensure clean runoff is diverted from manure storage and production areas and livestock are prevented from making direct contact with waters.

Owner/Operator

As the owner/operator of this CNMP, I, as the decision-maker, I have been involved in the planning process and agree that the items/practices listed in each element of the CNMP are needed. I understand that I am responsible for keeping all necessary records associated with the implementation of this CNMP. It is my intent to implement/accomplish this CNMP in a timely manner as described in the plan.

Ryan S Rhodes — Date: 2/25/25

Certified Comprehensive Nutrient Management Plan (CNMP) Planner

As an approved Comprehensive Nutrient Management Plan (CNMP) Planner, I certify that I have reviewed the Comprehensive Nutrient Management Plan and that the elements of the documents are technically compatible, reasonable and can be implemented.

Nicole Davis — Date: 2/25/25

NRCS Planner Certification # 0

Nutrient Management Certification # 4288

Queen Anne's Soil Conservation District

As the Queen Anne's Soil Conservation District Manager, I certify that I have reviewed this CNMP and concur that the plan meets the Queen Anne's Soil Conservation District's conservation goals.

Anthony Riggi — Date: March 10th, 2025

SECTION 2: Farmstead (Production Area)

This element addresses the components and activities associated with the production facility, feedlot or animal loafing facilities, manure and wastewater storage and treatment structures and areas, animal mortality facilities, feed and other raw material storage areas, and any areas used to facilitate transfer of manure and wastewater.

Farm Locations

Farm Name	Owner	Tax Account ID	Farm #	Tract #	Account ID Acres	Watershed
Shore Pleasure	Ryan S Rhodes	[redacted]	1058	487	60.7	02-13-05-08-0398
Woelpper	Ryan S Rhodes	[redacted]	1721	6664	20.0	02-13-05-08-0398
Hillsdale	Ryan S Rhodes	[redacted]	2236	488	270.0	02-13-05-08-0398

Description of Operation / Additional Information

This organic poultry operation is owned by Ryan Rhodes and is an existing well vegetated and well maintained land poultry operation in Queen Anne's County Maryland. It consists of five poultry houses with a capacity of 102,400 broilers per flock, producing 5.5 flocks per year. This parcel consists of 7.47 acres of production area, 3.03 acres of poultry pasture, 37.37 acres of cropland, 1.3 acres of residential area, and 11.52 acres of woodland. Ryan owns or rents and additional 141.3 acres of cropland where the manure generated on the poultry operation will applied to selected fields.

When the poultry pasture (PP) is in use, weekly inspections must be made for any visible pollutant accumulations in the PP (such as manure, poultry litter, or process wastewater), with special attention paid to any excessive concentration of pollutants or pollutants in areas that are not vegetated. A minimum cover of 75% vegetation predominantly in grass or grass legume mix and legumes during the entire period that poultry have access to the PP must be maintained. This provides for nutrient assimilation based on the nutrient requirements of the vegetation in the PP.

To prevent the discharge of pollutants from the poultry pasture, birds may have access to the pasture area for approximately 50 days per year. The time may vary due to climate and age limitations. Birds weigh approximately three lbs. before having access to the PP. It is estimated that birds will have access to the PP for six (6) hours per day. At any given time, it is estimated that 1% of the birds will be accessing the pasture area. Information on the amount of manure deposited on the PP, manure analysis and soil test information and the type of vegetation in the PP are included in the "Estimate of Manure Deposited on Poultry Pasture for Integrated Organic Poultry Operations" worksheet included in the nutrient management plan.

Sensitive Environmental Information

Name of nearest regulatory waterbody	Distance to nearest regulatory waterbody (ft.)	Distance to nearest regulatory wetland (ft.)
unnamed tributary of Granny Finley Branch	518.4	73.1

Account ID	12 Digit Watershed	Watershed Name	Tier II High Quality Waters Watershed	Impairments			
				Nitrogen	Phosphorus	Bacteria (e.coli, enterocci or fecal)	Sediment
[redacted]	)2-13-05-08-0398	Southeast Creek	Yes	Yes	Yes	Yes	No
[redacted]	02-13-05-08-0398	Southeast Creek	Yes	Yes	Yes	Yes	No
[redacted]	02-13-05-08-0398	Southeast Creek	Yes	Yes	Yes	Yes	No

Animal Production

Poultry

Bird Type	Average Bird Weight (lbs)	Number of Houses	Total Number of Birds (All Houses)	Number of Flocks per year
Broiler	6	5	102,400	5.5

* See poultry litter quantity estimation sheets in the "Nutrient Management" section of this plan.

Operators must keep records of the actual:

1. Quantity estimate of litter removed from production and/or storage facility; and
2. Date of removal of litter from production and/or storage facility.

Manure Collection

Mr. Rhodes windrows the manure in the houses between flocks. No manure is collected in this process. The houses' centers are cut each spring removing 50% of the accumulated manure. The last complete cleanout took place in 2021. The next complete cleanout is expected in 2034. Manure that is collected from the houses throughout the year is stored in the poultry waste storage structure until it can be exported off farm.

Manure Storage

Composted manure and crusted manure will be removed from houses and placed in the poultry waste storage structure until it can be removed by the receiving operator(s) for use in land application.

Current / Proposed Manure Storage Conditions

Animal Type	Storage Structure	Size of Storage Structure	Storage Capacity	Date Constructed
Poultry - Organic	Manure Shed	40x120	24000 cu ft	9/10/1998

IMPORTANT! Manure should not be stockpiled or staged anywhere in the production area other than permanent manure storage structure for any length of time.

Transfer Information (Farm(s) receiving exported manure)

Animal Type	Name	Address
Poultry - Organic	C. Temple Rhodes, JR	180 Chestnut Vale Farm Ln, Centreville, Maryland 21617
Poultry - Organic	Chris Rhodes	2401 4-H Park Rd, Centreville, Maryland 21617
Poultry - Organic	Shore Pleasure Farm, LLC	2308 Church Hill Rd, Centreville, Maryland 21617

Animal Mortality Disposal

Animals die because of disease, injury, or other causes in any confined livestock operation. The mortality rate is generally highest for newborn animals because of their vulnerability.

Catastrophic mortality can occur if an epidemic infects and destroys a large portion of the herd or flock in a short time, or if a natural disaster, such as a flood or excessive heat strikes. There are also incidences when an entire herd or flock must be destroyed to protect human health or other farms in the area.

Methods for managing mortality include:

1. Rendering
2. Composting
3. Incineration*
4. Sanitary landfills
5. Burial**
6. Disposal pits**

* Incineration may only be used with proper equipment and permits must be obtained by the producer.
** Burial and Disposal pits should only be considered for catastrophic mortality if all other methods are not possible. Ryan S Rhodes will follow local and state guidance if it is determined that burial is an acceptable means of disposal.

Typical Mortality Management

Current Normal Mortality Disposal Method(s)

Animal Type	Disposal Method	Number of Bins/Capacity	Location of Disposal/Facility
Poultry - Organic	Composting - Bins/Channels	16' x 48' channels	On north side of PWSS

Catastrophic Mortality Management

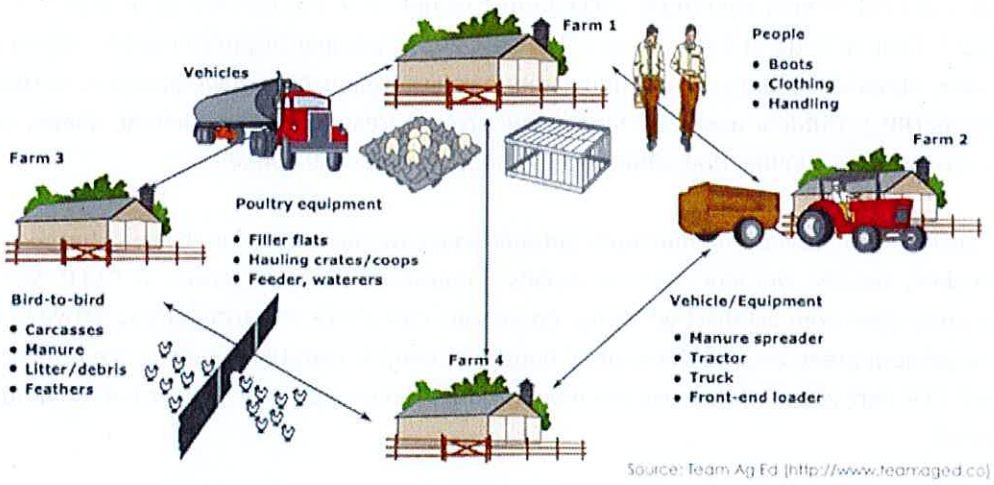
In the event of catastrophic mortality, the operator will notify MDE, contact the integrator and compost the mortalities by windrow composting or mix and pile composting in the Poultry Waste Storage Structure or in the houses. Refer to UMD-Ext fact sheets #723 and #801 for instructions.

Biosecurity

Biosecurity means doing everything possible to protect the health of livestock by preventing the transmission of disease. An outbreak of animal disease could not only harm your livestock, it could affect other nearby animals and quickly spread through your area. The economic consequences of a disease outbreak could be devastating. Taking common sense precautions to prevent disease from coming onto

your farm is the best investment you can make.

How Diseases Spread (Example - Poultry Operation)



Steps to Take to Avoid Disease Spread

To reduce the risk of introducing disease entering into an animal feeding operation, maintain a biosecurity barrier (physical barrier, personal hygiene, and equipment sanitation) between wildlife, animals, animal containment areas, and other commercial facilities. Some examples of good biosecurity practices include:

1. Permit only essential workers and vehicles on the premises.
2. Give germs the boot
   a. Keep a pair of shoes or boots to wear only around your animals.
   b. Clean and disinfect your shoes often.
   c. Always ask visitors and employees to clean their boots and shoes.
3. Don't haul home disease
   a. Always clean and disinfect vehicles used for moving animals.
   b. Limit traffic of incoming people, products and vehicles that could bring in a disease.
   c. Clean and disinfect all equipment that comes in contact with your animals.
4. Keep your farm secure
   a. Restrict access to your property and animals.
   b. Keep doors and gates locked.
   c. Have tracking records on animals.
   d. Give germs space - Newly acquired animals should be isolated for at least two weeks to ensure you don't introduce disease to your main herd or flock. As an added protection, isolate and quarantine new animals for 30 days before putting them with your other animals. Keep show animals segregated for at least two weeks after they've been to a fair or exhibit.
5. Look for signs
   a. Unusual animal health symptoms or behavior
   b. Sudden, unexplained death loss in the herd or flock
   c. Severe illness affecting a high percentage of animals
   d. Blisters around an animal's mouth, nose, teats or hooves
   e. Staggering, falling or central nervous system disorders that prevent animals from rising or walking normally.
   f. Large number of dead insects, rodents or wildlife
6. Don't wait - call in signs of disease immediately. Do not self-diagnose. Seek veterinary services, as early detection is your best protection. If you have animals with signs of suspect disease, call your local veterinarian, UMD extension agent () or the state veterinarian. Rapid response and investigation are the only ways to control and eliminate disease and stop large numbers of

casualties or damage to our economic system.

Organic Poultry Pasture Operational Guidance in Maryland

Organic poultry animal feeding operations (AFOs) must comply with the USDA organic standards established by 7 Code of Federal Regulations (CFR) Part 205 - National Organic Program. When weather, age (3+ weeks), predator security, health and safety permit, organic birds have access to outdoor areas [Poultry Pasture*(PP)]. Outdoor areas are fenced and provide fresh air, direct sunlight, shade, vegetative cover, and exercise opportunities that allow birds to engage in natural behaviors.

The PPs are designed to provide the minimum outdoor space requirements for chickens based on maximum stocking density. Outdoor stocking density requirements are referenced in 7 CFR Part 205. Poultry AFOs converted from established broiler operations can utilize vegetated areas between poultry houses and vegetated areas beyond the ends of houses to comply with USDA vegetative organic standards of 7 CFR Part 205. These areas are monitored and managed daily to limit potential nutrient and sediment run-off.

The following actions and documentation are required to mitigate risk and ensure comprehensive compliance & monitoring:

1. To ensure that the PP has the ability to assimilate nutrients deposited by poultry, the PP must be allowed to "rest" or lie fallow for at least 3 weeks between flocks to allow for vegetative nutrient uptake.
2. The PP must maintain a minimum cover of 75% vegetation predominantly in grass or grass legume mix and legumes during the entire period that poultry have access to the PP. Soil type(s) must be identified and considered for the selection of grass or grass legume mix and legumes for the successful establishment of the vegetation and capability to assimilate nutrients in the PP.
3. Except for a tall grass type selected and managed for the purpose of providing tall shade in designated areas at 10% or less tall grass area of total area in the PP, the maximum height of the vegetation shall be maintained not to exceed 10 inches during the period that poultry have access to the PP.
4. Vegetation in the PP must never become denuded to the extent that it cannot be sustained during its normal growing season.
5. The PP must have no ponding or standing water for more than 24 hours.
6. The permittee must maintain records during the operating period of the poultry pasture including:
    a. Record of all days when the PP is in use. The record of all days when the PP is in use can be recorded on a calendar or the same calendar already in use by the producer.
    b. Record of weekly inspections of soil conditions in the PP, including instances of ponding or standing water, runoff or saturated soil.
    c. Record of weekly inspections of the vegetative conditions in the PP.
    d. Record of weekly inspections for any visible pollutant accumulations in the PP (such as manure, poultry litter, or process wastewater), with special attention paid to any excessive concentration of pollutants or pollutants in areas that are not vegetated.
    e. Record of mortality disposal from within the PP including date of mortality, number of deceased animals and method of disposal. The record of mortality disposal within the PP can be recorded on an animal mortality record sheet for the poultry houses.
    f. Record of laboratory soil sample analysis results** for the PP to establish a nutrient baseline and monitor soil fertility values over time. Soil sampling and analysis protocols shall be consistent with Maryland's technical standards at COMAR 15.20.07 and 15.20.08 and, in following UMD guidance for soil sampling, sampling for each management unit (PP). The record of laboratory soil sample results can be contained in the Nutrient Management Plan (NMP).
7. The Comprehensive Nutrient Management Plan (CNMP) shall include a narrative that provides a description of the management and use of the PP designed to prevent the discharge of pollutants to waters of the State. The narrative may include but not be limited to the estimated schedule of poultry managed on the PP, the number of flocks managed on the PP in a calendar year, the type of

vegetation and/or tree species established, and best management practices installed and implemented. A conservation plan map shall delineate the boundaries of the PP and be included in the CNMP.

8. The Nutrient Management Plan (NMP) shall include a worksheet to calculate the manure deposited on the PP on a yearly basis. The "Estimate of Manure Deposited on Poultry Pasture For Integrated Organic Poultry Operations" has been developed by the University of Maryland Extension and may be used to provide this calculation.
9. Organic matter or carbon amendments, synthetic or non-synthetic materials, or practices as referenced in 7 CFR Part 205 may be applied or used in the PP for the purposes of improving soil organic matter content, improving organic crop production, and maintaining vegetative growth and vigor to maximize nutrient assimilation from the manure deposited by poultry. Crop fertility recommendations for the PP must be generated and followed in accordance with a NMP as required in COMAR 15.20.07 and 15.20.08.

* Poultry Pasture defined by 19AF NPDES Permit No. MDG01 (page 9 of 35): "means an area of an organic poultry CAFO or MAFO where chickens are allowed access to areas outside a poultry house. The Poultry Pasture allows for raising poultry on pasture in addition to indoor confinement. The Poultry Pasture is not considered part of the production area as long as the pasture area is managed to sustain vegetation during the normal vegetative growing season."

** The laboratory soil sample results may include analysis of soil organic matter to evaluate PP management decisions for the improvement of soil aeration, root growth, nutrient holding capacity, infiltration, and biological activity.

References:

Agricultural Nutrient Management Program. (2023, August). Pastured Poultry Litter Quantity Estimation (July 2020 Update). University of Maryland Extension.
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Natural Resources Conservation Service (NRCS)-Maryland. (2023, November). Maryland Conservation Planting Guide (December 2022). United States Department of Agriculture, NRCS Field Office Technical Guide.
https://efotg.sc.egov.usda.gov/references/public/MW/MD_Conservation_Planting_Guide_12_20_22.pdf

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https://mda.maryland.gov/resource_conservation/Documents/15.20.07.pdf

Nutrient Management Program. (2023, August). Content & Criteria for a Nutrient Management Plan 15.20.08. Maryland Department of Agriculture, The Office of Resource Conservation.
https://mda.maryland.gov/resource_conservation/Documents/15.20.08.pdf

Nutrient Management Program. (2023, August). Nutrient Application Requirements. Maryland Department of Agriculture, The Office of Resource Conservation.
https://mda.maryland.gov/resource_conservation/Documents/nm_manual/1-D1-1-1D1-6.pdf

Farm Contact Information

The following tables contain important contact information specific to this CNMP for Ryan S Rhodes.

Emergency Contact Information

Farm Name	Ryan Rhodes Family Farm, LLC
Farm Address	710 Brick Schoolhouse Road, Centreville, Maryland 21617
Mailing Address	2308 Church Hill Rd, Centreville, Maryland 21617
Directions to the farm	Turn right onto Brick Schoolhouse Rd off of Route 213 N (Church Hill Rd). Proceed approximately 0.7 miles down the road and the farm is located on the left.

Farm Contacts

	Name	Farm Phone	Cell Phone
Farm Owner	Ryan S Rhodes		[redacted]
Farm Operator	Ryan S Rhodes		[redacted]
Fire or Ambulance	911		

State Agency Contacts

	Phone	Emergency
Natural Resources Conservation Service	410-757-0861	410-757-0861
MDA Nutrient Management	410-841-5959	1-800-492-5590
Maryland Department of the Environment	1-800-633-6101	1-866-633-4686
USDA Veterinary Services State Veterinarian	1-866-536-7593	301-854-5699

Queen Anne's County Agency Contacts

	Day Phone	Emergency Number
MDA Regional Nutrient Management (Region)	410-279-4003	410-279-4003
Health Department	410-758-0720	
Sheriff's Office	410-758-0770	911
University of Maryland Extension Office (Centreville)	410-758-0166	410-758-0166

Integrator Information

Name	Address	Phone
Perdue-Coleman	PO Box 1537 Salisbury, MD 21802	

Implementation Schedule for Land Treatment Area

This element addresses the need for and implementation of appropriate conservation practices to meet the quality criteria for soil erosion, air and water quality.

Practice and Facility Implementation Schedule

Description	Date
All resource concerns have been addressed and no additional best management practices are recommended or required at this time.	January 2025

The schedule of conservation practices presented here has been reviewed by Ryan S Rhodes, who is responsible for compliance with the requirements of the agricultural farm operation.

I, Ryan S Rhodes, certify that as the decision-maker, I have been involved in the planning process and agree that the items/practices listed in the table above are needed on my farm operation. I understand that I am responsible for implementing these practices according to the scheduled above. Should I not be able to implement any of the above items according to the schedule, I will contact the Queen Anne's Soil Conservation District and have this schedule revised.

Ryan S Rhodes

2/25/25

Date

SECTION 4: Nutrient Management

This element addresses the Nutrient Management component of the CNMP. The nutrient management plan is developed by a Maryland Department of Agriculture certified nutrient management consultant.

Soil Sampling and Testing

Maryland Department of Agriculture regulations require up-to-date soil analyses be included in the Nutrient Management Plan. To fulfill this requirement you must follow these guidelines:

1. Soil test(s) are required to be taken every 3 years or sooner for each management unit;
2. It is recommended that soil sampling be conducted consistently at the same time of the year;
3. Soil sampling depth for P and K shall be 8 inches;
4. pH testing sampling depth for no-till is only 4 inches.

Soil testing shall include analysis for any nutrients for which specific information is needed to develop the plan. The minimum analysis for Maryland is to include: pH, organic matter, phosphorus, potassium, calcium, magnesium, and CEC.

Manure and Wastewater Testing/Analysis

Maryland Department of the Environment and the Environmental Protection Agency require an analysis of manure generated on your operation be obtained to meet conditions in a General Discharge Permit for Animal Feeding Operations under CAFO regulations. If you land-apply manure, it is a required component of your NMP according to MDA regulations. To fulfill this requirement you may do one of the following:

1. Collect a sample of manure and obtain an analysis OR
2. If exported, obtain a copy of the manure analysis from one of the farmers who will be receiving the manure from your operation

Manure should be analyzed on an annual basis from each storage structure for: % Solids or % Moisture, Total N, Organic N, NH_4 or NH_3, P_2O_5, K_2O, and pH. These analyses are part of the required Record Keeping and are stored under the Record Keeping element of this CNMP.

Description of Chemical Handling:

1. All chemicals are stored in proper containers. Expired chemicals and empty containers are properly disposed of in accordance with state and federal regulations. Pesticides and associated refuse are disposed of in accordance with the FIFRA label.
2. Chemical storage areas are self-contained with no drains or other pathways that will allow spilled chemicals to exit the storage area.
3. Chemical storage areas are covered to prevent chemical contact with rain or snow.
4. Emergency procedures and equipment are in place to contain and clean up chemical spills.

Date: 10/30/2024

WATER CONVEYANCE MAP

Client(s): RYAN RHODES
Approximate Acres: 61.60

Assisted By: NICOLE DAVIS
QUEEN ANNE'S COUNTY SERVICE CENTER

0 165 Feet

Practice Schedule PLUs

Prepared with assistance from USDA-Natural Resources Conservation Service

USDA

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SECTION 5: Additional Documentation

This section is included if there are additional documents needed for the Comprehensive Nutrient Management Plan.

The following documents are located in this section:

- Water Conveyance Map Around Production Area
- Nutrient Land Application Form
- Weekly Storage Form
- Manure Litter Storage Form
- Manure Application Form
- Manure Litter Transfer Form
- Daily Waterline Form

Type	Maintain Records of:	Frequency	Applicable to Liquid/Dry Manure Handling or Both
Land & No-Land	Any transfers of manure, litter, and process wastewater, will include the following information: 1.) Name and address of recipient and 2.) Date and quantity transferred. The permittee shall supply the recipient of the animal waste with the most recent annual nutrient analysis of the manure, litter, or process wastewater. If the recipient performs the analysis, the permittee shall obtain a copy and maintain it as part of the permittee's records.	Each occurrence	Both
Land	Each application event where manure, litter, or process wastewater is applied. Including 1.) Fields where animal waste is distributed, using field names consistent with those in the required plan, 2.) Application method, rate, time and date, 3.) Soil conditions, including instances of ponding or runoff, saturated soil, and frozen ground or snow covered ground and 4.) Weather conditions, including precipitation and temperature at the time of application and precipitation 24 hours prior to, and following, application.	Each land application event	Both
No-Land	Manure samples shall include the following information, 1.) Date sample taken, 2.) Test methods used to sample and analyze manure, litter, and process wastewater; and 3.) Results from manure, litter, and process wastewater sampling.	Annually	Both
Land & No-Land	Mortality disposal including date, numbers of animals, and method of disposal	As necessary	Both
Land & No-Land	Inspections conducted, including date, of the animal waste storage areas	Weekly	Both
Land	The results of manure samples and soil samples, including the following information, 1.) Date sample taken, 2.) Test methods used to sample and analyze manure, litter, process wastewater, and soil, 3.) Results from manure, litter, process wastewater, and soil sampling and 4.) Total amount of nitrogen and phosphorus actually applied to each field, including documentation of calculations for the total amount applied.	Annually for manure samples, at least once every three years for soil samples	Both
Land	Manure application equipment inspections, including the following information, 1.) Date inspection conducted and 2.) Calibration date; and iii. Maintenance of equipment used for manure application.	At least annually	Both
Land & No-Land	Inspections, including date, of the storm water routing structures	Weekly	Both
Land & No-Land	Inspections, including date, for all indoor and outdoor water lines, including drinking or cooling water lines	Daily	Both
Land & No-Land	The depth of manure and process wastewater, including date of reading, as indicated by the depth marker in all liquid animal waste impoundments	Weekly	Liquid
Land & No-Land	Inspections, including date, of all wastewater operations and pumps	Weekly	Liquid
Land & No-Land	All manure, litter, and wastewater storage structures including the following information, 1.) Date inspection conducted, 2.) Volume for solids accumulation, 3.) Design treatment volume, 4.) Total design storage volume, 5.) Days of storage capacity and 6.) Structural stability inspection of all earthen embankment structures.	As necessary	Liquid
Land & No-Land	Any additional self – inspection and recordkeeping activities required by this General Permit	As necessary	Both

Self-Inspection and Recordkeeping for CAFOs/MAFOs that DO NOT Land Apply (No-Land Operations):
The permittee that transports all and/or some of its manure, litter, or process wastewater to an area that is not under the control of the owner or operator of the no-land operation shall maintain no-land operation records on-site for five years. The records shall be available for inspection by the Maryland Department of the Environment personnel upon request. The record shall also include a notation of periods when the facility is not in operation (out of production).

Nutrient Land Application Log Sheet

Facility Name: _____ **NPDES Permit No.:** _____

Instructions:
For each land application for each field, provide the following information in the table below:

- Date: the date you applied the manure/litter/process wastewater to the field
- Field ID: the field where you applied manure/litter/process wastewater. Use the same field identification that is used in your nutrient management plan
- Method: how you applied the manure/litter/process wastewater (e.g. surface w/incorporation, surface w/out incorporation, subsurface injection…)
- Application Rate: the number of tons or gallons *actually* applied per acre
- Acres Applied: the number of acres the manure/litter/process wastewater was applied to on the field
- Total N: the total amount of nitrogen you applied to the field from animal waste
- Total P: the total amount of phosphorous you applied to the field from animal waste

Date	Field ID	Method	Actual Application Rate	Acres Applied	Total N	Total P

Date	Field ID	Method	Actual Application Rate	Acres Applied	Total N	Total P

Weather and Soil Condition Documentation

When land applying manure/litter/process wastewater, you also need to document the **weather and soil conditions**. Please provide this information in the following table:

Date	Field ID	Weather Conditions			Soil Conditions
		24 hours before	*During*	*24 hours after*	

Weekly Storage and Containment Structure Inspections Log Sheet

Facility Name: _____ NPDES Permit No.: _____

Instructions:
Use this form to keep records of weekly visual inspections of the structures you use to store or contain manure/litter/process wastewater. Use a separate form for each structure.

**Any deficiencies observed must be corrected within 30 days*

Storage or Containment Structure: _____

	Date	**Initials**	**Depth Marker Reading** (N/A for dry manure handling)	**OK** (√ if no problems)	**Description of any Deficiencies Observed** (put "N/A" if none observed)	**Date Deficiency Corrected***
Week 1						
Week 2						
Week 3						
Week 4						
Week 5						
Week 6						
Week 7						

	Date	**Initials**	**Depth Marker Reading** (N/A for dry manure handling)	**OK** (√ if no problems)	**Description of any Deficiencies Observed** (put "N/A" if none observed)	**Date Deficiency Corrected***
Week 8						
Week 9						
Week 10						
Week 11						
Week 12						
Week 13						
Week 14						
Week 15						
Week 16						
Week 17						
Week 18						
Week 19						

	Date	Initials	**Depth Marker Reading** (N/A for dry manure handling)	**OK** (√ if no problems)	**Description of any Deficiencies Observed** (put "N/A" if none observed)	**Date Deficiency Corrected***
Week 20						
Week 21						
Week 22						
Week 23						
Week 24						
Week 25						
Week 26						
Week 27						
Week 28						
Week 29						
Week 30						
Week 31						

	Date	Initials	**Depth Marker Reading** (N/A for dry manure handling)	**OK** (√ if no problems)	**Description of any Deficiencies Observed** (put "N/A" if none observed)	**Date Deficiency Corrected***
Week 32						
Week 33						
Week 34						
Week 35						
Week 36						
Week 37						
Week 38						
Week 39						
Week 40						
Week 41						
Week 42						
Week 43						

	Date	Initials	**Depth Marker Reading** (N/A for dry manure handling)	**OK** (√ if no problems)	**Description of any Deficiencies Observed** (put "N/A" if none observed)	**Date Deficiency Corrected***
Week 44						
Week 45						
Week 46						
Week 47						
Week 47						
Week 49						
Week 50						
Week 51						
Week 52						

Manure, Litter, and Wastewater Storage Structures Documentation

Facility Name: _____ NPDES Permit No.: _____

Instructions:
For each storage structure, provide the following information in the table below:

- Structure Type: the type of storage structure (e.g. roofed storage shed, storage pond, anaerobic lagoon…)
- Total Design Storage Volume: the total capacity the storage structure was designed to hold (e.g. 100 ft^3 or 1000 gallons)
- Design Treatment Volume: **(*N/A for dry manure storage)** the treatment capacity the structure was designed to treat
- Days of Storage Capacity: **(*N/A for dry manure storage)** the number of days the structure can accommodate its contents at the rate the operation places waste in it
- Volume for Solids Accumulation: the capacity of the structure available to accumulate solids

Structure Type	**Total Design Storage Volume**	**Design Treatment Volume** (N/A for dry manure storage)	**Days of Storage Capacity** (N/A for dry manure storage)	**Volume for Solids Accumulation**
Manure Shed	40x120		24000 cu ft	

Manure Application Equipment Inspection and Calibration Record

Facility Name: _____ NPDES Permit No.: _____

Instructions:
Use this form to keep records of your manure equipment inspections. For each inspection, provide the following information in the table below:

- Inspection/Calibration Date: the date of the inspection/calibration
- Calibration Method: method used for calibration (e.g. weight-area method, load-area method…)
- Inspection/Calibration Results: provide statements such as "recalibrated equipment" or "equipment in calibration"
- Date Calibration Corrected: the date that any observed deficiencies were fixed **must be corrected within 30 days*

Inspection/Calibration Date	Calibration Method	Inspection/Calibration Results	Date Re-Calibrated or Fixed*

Maryland
Department of
the Environment

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor

Ben Grumbles, Secretary
Horacio Tablada, Deputy Secretary

Manure, Litter, and Wastewater Transfer Record Keeping Form

Facility Name: _____ NPDES Permit No.: _____

Use this sheet any time that manure or poultry litter is removed from a production or storage area and transferred to other persons (not under the control of your CAFO). Use additional sheets as necessary.

Date of Transfer (indicate whether import or export)	**Manure Type** (e.g. litter, wastewater)	**Name and Address of Person(s) Received From or Transferred To**	**Quantity Transported** (tons/gallons)

Maryland
Department of
the Environment

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor

Ben Grumbles, Secretary
Horacio Tablada, Deputy Secretary

Daily Water Line Inspection Log Sheet

Facility Name: _____ NPDES Permit No.:_____

Instructions:

- Initial the form *each day* after the inspection is complete
- If a leak is detected, place a check in the "leak detected" column

January, 20____		
Day	Initials	√ if Leak Detected
1		
2		
3		
4		
5		
6		
7		
8		
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31		
February, 20____		
Day	Initials	√ if Leak Detected
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March, 20____		
Day	Initials	√ if Leak Detected
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April, 20____		
Day	Initials	√ if Leak Detected

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May, 20____

Day	Initials	√ if Leak Detected
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30		
31		

June, 20____

Day	Initials	√ if Leak Detected
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July, 20____

Day	Initials	√ if Leak Detected
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August, 20____

Day	Initials	√ if Leak Detected
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September, 20____

Day	Initials	√ if Leak Detected
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October, 20____		
Day	Initials	√ if Leak Detected
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November, 20____		
Day	Initials	√ if Leak Detected
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December, 20____		
Day	Initials	√ if Leak Detected
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Documentation of Records

Operators should maintain the following records to document plan implementation, as applicable.

Record	Description	Agency Requiring
Animal Mortality & Disposal	Date and number of dead animals collected and disposal method.	MDE
Documentation of Manure Storage Conditions	Design volume and days of capacity; any deficiencies in the manure handling system and actions taken to correct (for example: damage due to fire or storm, date occurred, how damage was fixed and date of repair)	MDE
Documentation of Discharges	Date, time, and estimated quantity of any discharges and steps taken to correct	MDE
Manure Available for Use and/or Removal	Estimate of removal of manure from poultry house (crust-out, total cleanout, center cut, etc) and destination (manure shed or export)	MDA/MDE
Manure Analysis	Copy of laboratory nutrient analysis of sample of manure produced on-farm (taken annually)	MDA/MDE
Animal Information	Type and number of animals kept on-farm and any changes in animal numbers	MDA/MDE
Manure Export/Transfer	Record of manure that leaves the farm – date, quantity (tons/gallons), and destination (Name/Address)	MDA/MDE
Comprehensive Nutrient Management Plan (CNMP)	Retain approved CNMP and documentation related to updates or changes to your CNMP	MDA/MDE
Nutrient Management Plan (NMP)	Retain certified Maryland NMP and documentation related to updates or changes to your NMP for a minimum of 3 years.	MDA/MDE
Calibration Record for Spreading Equipment	Time of year, calibration method used (load area, weight area). Must calibrate annually.	MDA
Soil test results	Who collected the samples and when, appropriate mgt. units	MDA/MDE
Results of Pre-Side Dress Nitrogen, Fall Nitrate Test, and/or Tissue Testing	Any alternative sampling technique used to address specific crop requirements that lead to a change in the applied amounts should be documented.	MDA
Crop records	Crops planted and planting/harvesting dates by field.	MDA
Nutrient Application Summary by Field	Nutrient Application records for each application event, including commercial fertilizers that are applied to supplement manure.	MDA
Reviews by third parties	Records associated with any reviews by NRCS, third-party consultants, or representatives of regulatory agencies.	MDE
Annual Implementation Report	Annual reports which summaries nutrient application activities	MDA/MDE

Conservation Map

Client(s): RYAN RHODES
Farm 1058 Tract 487
Approximate Acres: 61.57
Cropland Acres: 37.37

Assisted By: Casey Foreman
QUEEN ANNE'S SCD

Date: 5/7/2021

0 220 Feet

Prepared with assistance from USDA-Natural Resources Conservation Service

Practice Schedule PLUs

Conservation Practice Points

- Amendments for the Treatment of Agricultural Waste (591)
- FARMSTEAD ENERGY IMPROVEMENT (374)
- Lighting System Improvement (670)
- Building Envelope Improvement (672)
- Agricultural Energy Management Plan - Written (128)

Conservation Practice Lines

- Hedgerow Planting (422)

Conservation Practice Polygons

- Animal Mortality Facility (316)/ Waste Storage Facility (313)
- Critical Area Planting (342)
- Heavy Use Area Protection (561)

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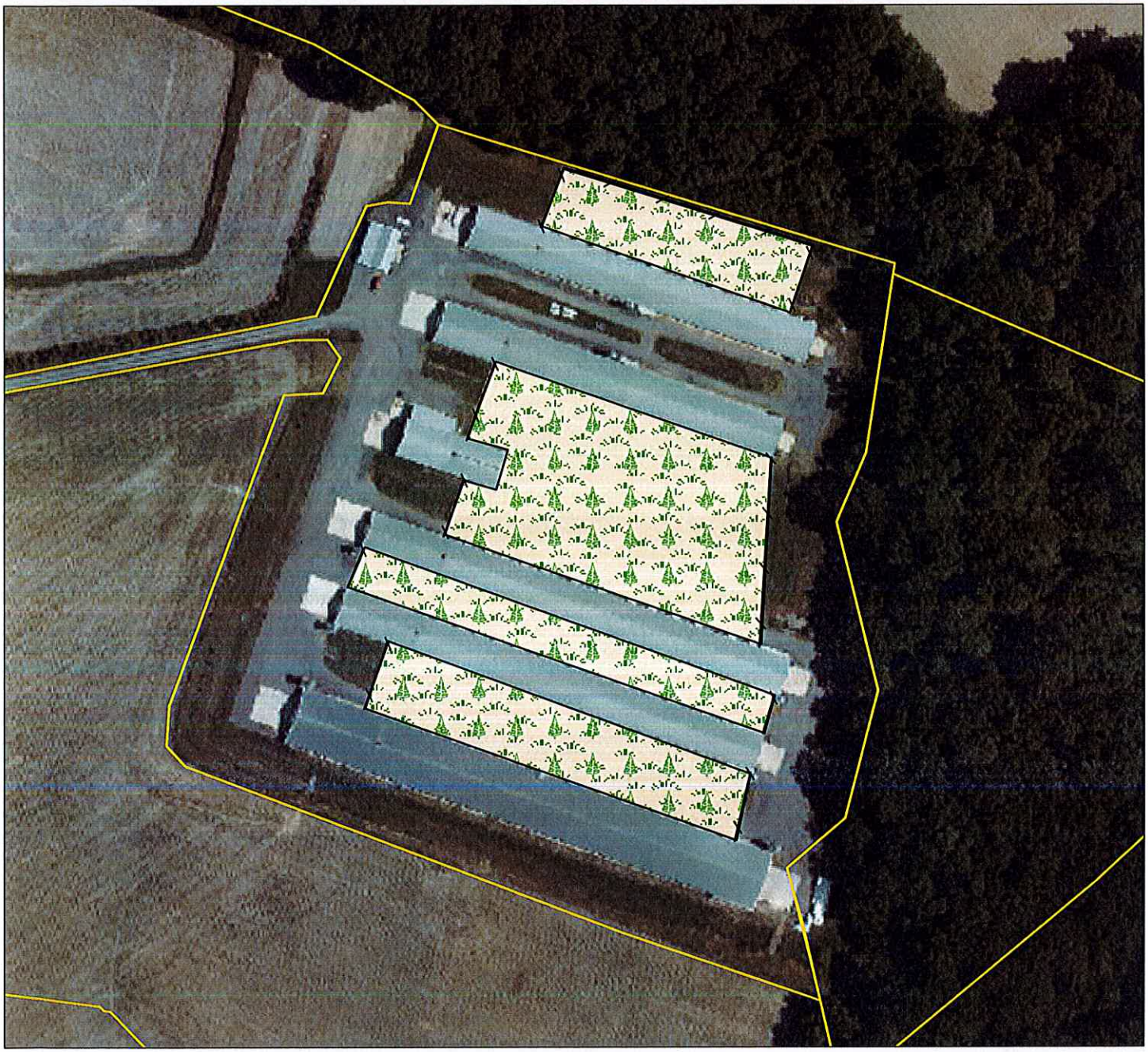
USDA

Date: 1/2/2025

Production Area Map

Client(s): RYAN RHODES
Approximate Acres: 61.60

Assisted By: NICOLE DAVIS
QUEEN ANNE'S COUNTY SERVICE CENTER



Prepared with assistance from USDA-Natural Resources Conservation Service

0 165 Feet

Conservation Practice Lines
- Fence (382)

Conservation Practice Polygons
- Pasture and Hay Planting (512) — Poultry (16A)
- Practice Schedule PLUs

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USDA

AFO RESOURCE CONCERNS EVALUATION WORKSHEET

Name:	Ryan S Rhodes			**Agency Interest #:**	139686
Planner:	Nicole Davis			**Farm # / Tract #:**	1058 / 487
Site Visit Date:	10/28/2024			**Total Acres:**	60.7
County:	Queen Anne's			**Production Area Acres:**	10.5
RESOURCE CONCERN		**YES**	**NO**	**Assessment**	
a.	Biosecurity measures	☐	☒	The operator is following biosecurity measures as outlined by the integrator and MDA Animal Health.	
b.	Chemical handling	☐	☒	Chemicals related to poultry production are stored in the appropriate designated storage area.	
c.	Cultural resources	☐	☒	The production area is established and there are no proposed ground disturbance activities scheduled for the area.	
d.	Feedlot area	☐	☒	No feedlot resource concerns have been identified. BMPs have been constructed to mitigate the potential for discharges.	
e.	Floodplains	☐	☒	This is an existing operation and the production area is not located in the FEMA-100 Year Floodplain as per the on-line resources available.	
f.	Gully erosion	☐	☒	No gully erosion was identified in the production area or associated water conveyances.	
g.	Livestock travel lanes	☐	☒	Not Applicable.	
h.	Nutrient discharge	☐	☒	There are no observable nutrient discharges occurring from the production area.	
i.	Objectionable odors	☐	☒	Normal poultry or livestock odors associated with this the type of operation or facility were noted.	
j.	Particulate matter emissions	☐	☒	Normal particulate emissions associated with a facility of this size.	
k.	Ponding, flooding, seasonal high water table	☐	☒	No abnormal ponding, flooding or high water table issues were identified.	
l.	Sediment	☐	☒	No obvious and observable sediment discharges are occurring from the production area.	
m.	Streambank/shoreline erosion	☐	☒	No streambank or shoreline areas are present in the production area.	
n.	Threatened/endangered species	☐	☒	A positive geospatial buffer was found, on the property, for Federal-listed species. The production area is established. There are no ground disturbing activities scheduled in or near these areas. No further review is required.	
o.	Waste storage	☐	☒	There are no resource concerns identified for waste storage. Existing waste storage facilities are adequately sized for the operation and are consistent with the waste management system plan.	
p.	Waterways	☐	☒	Maryland regulated waterways have been identified on the property and are greater than 100 feet from the production facilities. This is an existing facility with all required BMPs. No further action is required.	
q.	Wetlands	☐	☒	Maryland regulated wetlands have been identified on the property less than 100 feet from the production facilities, in the woodland areas, on the east side. This is an existing facility with all required BMPs. No further action is required.)	

Implementation Schedule for Farmstead

This element addresses the need for and implementation of appropriate conservation practices to meet the quality criteria for soil erosion, air and water quality.

Practice and Facility Implementation Schedule

Description	Date
All resource concerns have been addressed and no additional best management practices are recommended or required at this time.	January 2025

The schedule of conservation practices presented here has been reviewed by Ryan S Rhodes, who is responsible for compliance with the requirements of the agricultural farm operation.

I, Ryan S Rhodes, certify that as the decision-maker, I have been involved in the planning process and agree that the items/practices listed in the table above are needed on my farm operation. I understand that I am responsible for implementing these practices according to the scheduled above. Should I not be able to implement any of the above items according to the schedule, I will contact the Queen Anne's Soil Conservation District and have this schedule revised.

Ryan S Rhodes

2/25/25

Date

Operation and Maintenance for BMP's in Farmstead

This section addresses the operation and maintenance for the structural, non-structural, and land treatment measures for your farm. These documented measures require effort and expenditures throughout the life of the practice to maintain safe conditions and assure proper functioning. Operation includes the administration, management, and performance of non-maintenance actions needed to keep a completed practice safe and functioning as planned. Maintenance includes work to prevent deterioration of practices, repairing damage, or replacement of the practice if one or more components fail.

Amendments for Treatment of Agricultural Waste (591)

- The use of amendments must be consistent with the purposes of the practice, safety considerations, label directions, and other instructions provided by the vendor.
- Follow required safety precautions when handling the specific chemicals or biological amendments.
- Use record keeping worksheets to document the product applied, the date, location, rate, and method of application.

Animal Mortality Facility (316)

- Facilities for normal mortality will be operated or used on a regular basis. At each operation or use, inspect the facility to note any maintenance needs or indicators of operation problems, and promptly make repairs or adjustments to operation of the facility.
- Follow the management plan requirements for:
- The mix proportions, moisture requirements, and materials used.
- The sizing requirements.
- The timing of the disposal/utilization process including loading, unloading, and turning or aeration of the material.
- Temperature monitoring requirements, including a temperature log.
- What must be done to prevent scavenging animals and leachate problems.
- Bio-security requirements.
- If catastrophic mortality occurs, contact NRCS or the Soil Conservation District for assistance concerning proper disposal of the mortality.

Critical Area Planting (342)

- For seeded areas, evaluate the site within several months of seeding. If the stand is uniform but too thin (50 to 80% ground cover), plant additional seed during the next optimum seeding period. Apply seed at one-half the original rate with a no-till drill, grain drill, or hydro-seeder as site conditions dictate. Sites with an establishment rate of less than fifty percent (50%) should be reseeded in accordance with the original planting plan. Determine the reasons for planting failure and incorporate corrective measures into the remedial planting.
- If soil moisture becomes critically deficient, irrigate the site if feasible.
- For sodded areas, water sod as needed for the first 30 days after placement.
- Inspect the planting at least twice during the establishment year, then at least annually thereafter. Shape and replant areas damaged by heavy rainfall, livestock, chemicals, tillage, or equipment traffic, and any other areas where the vegetation is not adequate.
- Check for insects and diseases, and if an incidence threatens stand survival, take corrective action to keep the pest under control.
- Control undesirable plants by pulling, mowing, or spraying with a selective herbicide. Control noxious weeds as required by state law.
- Protect the planting from wildfire and damage from livestock, wildlife, and equipment, to the extent feasible.
- Where wildlife habitat is a concern, do not mow during the primary nesting season (April 15 to August 15).
- Remove temporary diversions, silt fences, etc. after the area is stabilized.
- Apply soil amendments periodically, based on soil test results, if needed to maintain ground cover density at the desired level (usually 90% or greater). At a minimum, test the soil at least once every five years, or more often if indicated by periodic inspections of the site. If woody plants are included in the planting, do not fertilize in the first year because the plants will develop too much top growth compared to the roots. If fertilizer is used, it must be applied in compliance with Maryland nutrient management regulations, as applicable.
- Comply with acceptable uses (e.g., flash grazing, haying, etc.) and time of year or frequency of use restrictions, if any. Pay particular attention to program requirements as they relate to acceptable vs. restricted uses and other management restrictions.

Building Envelope Improvement (672)

- Check for leaks in the building envelope, especially along edges of energy screen seals.
- Regularly inspect insulation to ensure it evenly covers building envelope spaces and repair damaged material and components as necessary.
- Periodically check for tears and repair or replace torn vapor barrier or energy screen material.

- Identify critical control devices associated with the building envelope system. Inspect regularly and perform maintenance as necessary.
- Maintain records to document the implementation of energy improvements. Retain and update records for a minimum of three years from the installation of the building envelope improvement. Recommended records to be retained include:
- Utility bills, fuel purchases, and yield of agricultural commodities produced in the building.
- Documentation of maintenance conducted on the building envelope improvement and related components or devices.

Lighting System Improvement (670)

- The producer/client is responsible for maintaining the lighting system. Provide operation and maintenance instructions that include the following:
- Inspect lamps, ballasts, fixtures, wiring, and controls regularly. Replace burned out lamps promptly, and repair or replace other system components as appropriate to ensure the system is functioning properly.
- Clean lamps, fixtures, and room surfaces regularly to ensure a high-quality light environment is maintained.

Farmstead Energy Improvement (374)

- Replacement or retrofit systems and related components or devices shall be operated and maintained in accordance with the manufacturer's recommendations.
- Maintain records to document the implementation of energy improvements. Retain and update records for a minimum of five years from the beginning of operation of measure implementation. Recommended records to be retained include:
- Monthly utility bills, fuel purchases, and yield of agricultural commodities.
- Documentation of maintenance conducted on the replacement, or retrofitted system and related components or devices.

Heavy Use Area Protection (561)

- Inspect the Heavy Use Area at least twice a year and after severe storm events.
- Scrape the surface as needed to remove excess manure and/or sediment.
- Repair paved areas by repairing holes and replacement of paving materials.
- Replace loose surfacing material such as gravel, cinders, sawdust, tanbark, etc. as needed when removed by livestock, equipment traffic, or scraping.
- Repair any deteriorating areas.
- Maintain all vegetation that is part of the plan by fertilizing and liming according to soil test recommendations and reseeding or replanting as necessary.
- Inspect inlets and outlets of pipes and culverts and remove any obstructions present.
- Maintain flow into filter areas by removing accumulated solids, reconstructing waterbars, etc.

Hedgerow Planting (422)

- Inspect the hedgerow at least annually. Shape and replant areas damaged by heavy rainfall, animals, chemicals, tillage, or equipment traffic, and any other areas where the vegetation is not adequate.
- For areas planted to grasses:
- Maintain vegetation in a vigorous condition. Apply soil amendments periodically, if needed based on soil test results. Follow the maintenance recommendations in appropriate fact sheet(s) for further instructions.
- Where wildlife habitat is a concern, do not mow during the primary nesting season (April 15 to August 15).
- For areas planted to trees and/or shrubs:
- If survival is less than expected during the first two years, replant as needed to achieve the intended purpose of the practice. If native trees and/or shrubs (other than what was planted) become established, and this cover meets the intended purpose of the practice, the cover should be considered adequate. Follow the maintenance recommendations in the appropriate fact sheet for additional information.
- Nutrients may be applied after the first year, but only if needed based on soil test results.
- If tree shelters are used, remove them before they impede the growth of the trunk. Removal should not occur until the seedling has adequate girth to support itself (usually 3 to 5 years after planting).
- Check for insects and diseases, and if an incidence threatens stand survival, take corrective action to keep the pest under control.
- Control undesirable plants by pulling, mowing, or spraying with a selective herbicide. Control noxious weeds as required by state law.
- Protect the planting from wildfire and damage from livestock, wildlife, and equipment, to the extent feasible.
- Describe the acceptable uses (e.g., occasional removal of some tree and shrub products, haying, etc.) and time of year or frequency of use restrictions, if any. Pay particular attention to program requirements as they relate to acceptable vs. restricted uses and other management restrictions.

Waste Storage Facility (313)

- Check backfill areas around the structure (concrete, steel, timber, etc.) frequently for excessive settlement. Determine if the settlement is caused by backfill consolidation, piping, or failure of the structure walls or floor. Necessary repairs must be made.
- Check walls and floors often - minimum of 2 times a year when facility is empty - for cracks and/or separations. Make needed repairs immediately.
- Outlets of foundations and sub-drains should be checked frequently and kept open. The outflow from these drains should be

checked when the facility is being used to determine if there is leakage from the storage structure into these drains. Leakage may be detected by the color and smell of the out-flowing liquid, by lush dark-green growth of vegetation around the outlet, by the growth of algae in the surface ditch, or by the vegetation being killed by the out-flowing liquid. If leakage is detected, repairs should be planned and made to prevent the possible contamination of groundwater. To prevent erosion, a good vegetative cover should be established and maintained on berms and embankments. Plantings should be clipped 3 times a year to kill noxious weeds and encourage vigorous growth. If the vegetation is damaged, berms and embankments will need to be re-vegetated as soon as possible.

- Fences should be inspected and maintained in order to exclude livestock from the berms and embankments and to exclude unauthorized entry by people.
- Check the channels and berms of the clean water diversions around the barnyard, buildings and storage structure frequently. Channels must be protected from erosion and berms must be maintained at the proper height to ensure adequate capacity. These channels and berms should not be used as haul roads unless they are designed and constructed for this purpose.
- Check frequently for burrowing animals around buildings, structures, and in the berms and embankments. Remove them when they are found and repair any damage.
- Inspect haul roads and approaches to and from the storage facility frequently to determine the need for stone, gravel or other stabilizing material.
- Do not allow runoff from loading areas and from spills to flow into streams or road ditches.
- Examine and repair all warning and hazard signs as needed.
- Install and maintain a marking gauge post that clearly shows the design levels of one-half and full for manure storage pits, ponds, and lagoons.
- Clear blockages from roof gutters and outlets as needed.
- Notify the Soil Conservation District of any major problems or repairs needed.
- The roof must be maintained to operate as intended for the life of the practice (15 years). The function of the roof is critical because the manure storage facility is sized accordingly.

Fence (382)

- Inspect fences at least annually for structural integrity. Fences located near trees should be inspected after severe weather. In areas that flood, inspect fences after each storm event. Perform maintenance in a timely manner and promptly repair worn or otherwise damaged sections.
- Control the encroachment of weeds, brush, and trees along fences by mechanical or chemical methods to prevent them from damaging or otherwise impacting the life and function of the fence.
- For electric fences:
- Inspect insulators, energizers (chargers), and other components frequently (and especially after lightning storms) for proper function. Replace worn, damaged, or otherwise nonfunctional components.
- Keep all metallic implements away from electric fence lines. Do not tether animals with chains near any electric fences.
- Warn children that electric fencing is being used and let neighbors know where and how to shut off the current. Post warning signs every 150 – 200 feet in areas with public access.

Forage and Biomass Planting (512)

- Evaluate forage and biomass stands at least once each season, or more frequently as needed to determine appropriate management to achieve the desired purpose(s) of the planting.
- Apply soil amendments periodically, based on soil test results, to meet desired yield goals, promote plant regrowth, and help maintain the life of the stand. The use of commercial fertilizer and other forms of plant nutrients must be in compliance with Maryland nutrient management regulations.
- Control undesirable plants by mowing or spraying with a selective herbicide. To the extent feasible, "spot" spray or mow to control weeds, so that desirable plants are not destroyed unnecessarily. Noxious weeds must be controlled as required by state law.
- Control insects and/or diseases when an infestation threatens stand survival. Follow a pest management plan concerning the timing and methods of treatment.
- When optimum wildlife habitat is desired, do not mow, burn, or mechanically harvest fields during the nesting season. For Maryland, the primary nesting season is April 15 through August 15. Infrequent grazing may be allowed during the primary nesting season, provided the area is not grazed below 6 to 8 inches. During the establishment period, mowing may be needed during the nesting season to reduce heavy competition from annual weeds.
- Comply with time of year or frequency of use restrictions, if any. Pay particular attention to program requirements as they relate to acceptable vs. restricted uses and other management restrictions.

SECTION 3: Land Treatment Area (Crop and/or Pasture)

This element addresses evaluation and implementation of appropriate conservation practices on sites proposed for land application of manure and organic by-products from an Animal Feeding Operation. On fields where manure and organic by-products are applied as beneficial nutrients, it is essential that runoff and soil erosion be minimized to allow for plant uptake of these nutrients.

The following documents are located in this section:

- Conservation Plan
- Conservation Plan Map
- RUSLE2 Soil Loss Calculations

UNIVERSITY OF MARYLAND EXTENSION

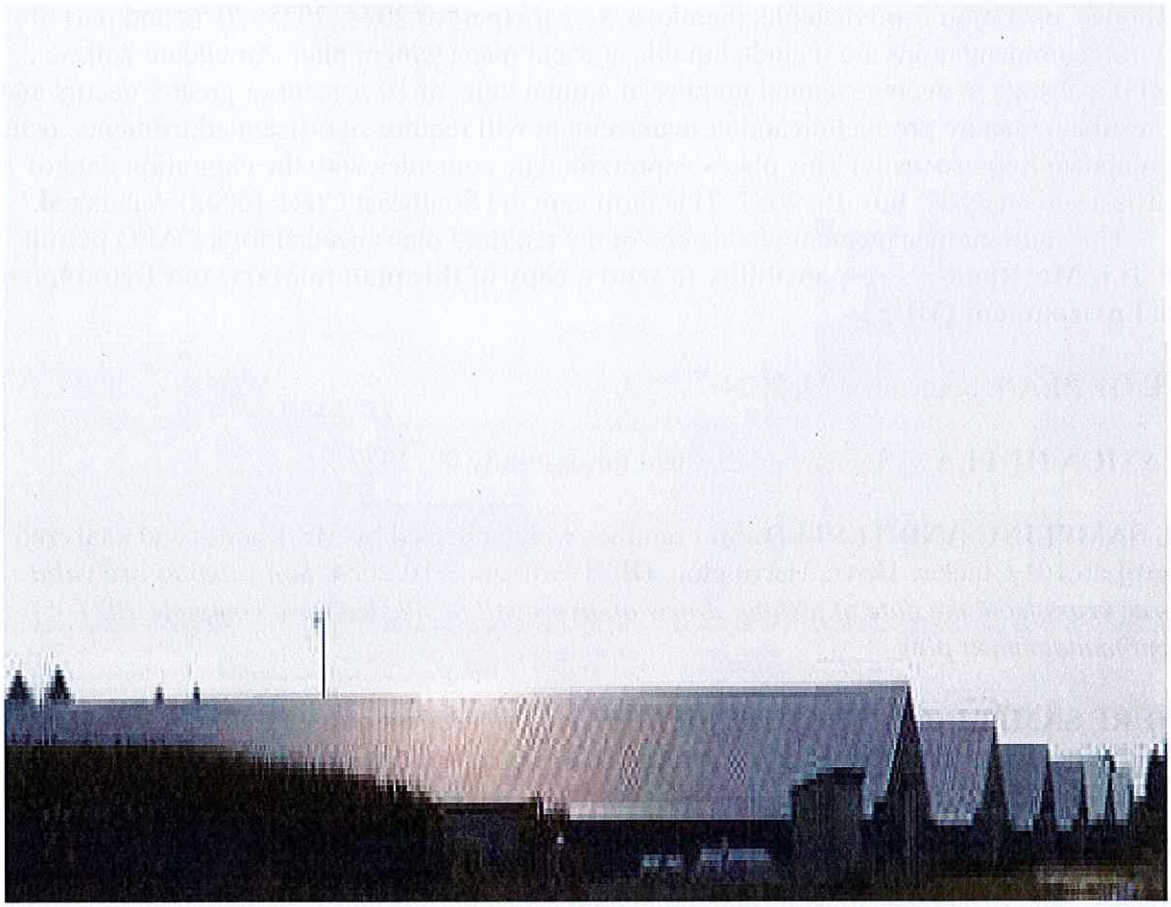
Queen Anne's County
505 Railroad Avenue. Suite 4
Centreville, MD 21617
Phone: (410) 758-0166
Fax: (410) 758-3687

Queen Anne's County

NUTRIENT MANAGEMENT PLAN

FOR

Ryan Rhodes
Ryan Rhodes Family Farm, LLC
2308 Church Hill Road
Centreville, MD 21617



September 25, 2024 through July 09, 2027

NUTRIENT MANAGEMENT PLAN
for
Ryan Rhodes
Ryan Rhodes Family Farm, LLC
2308 Church Hill Road
Centreville, MD 21617

BRIEF DESCRIPTION OF OPERATION: This organic poultry operation is located in Queen Anne's County and consists of five poultry houses. The houses have a holding capacity of 102,400 broilers per flock, raising 5.5 flocks per year, 563,200 chickens annually. All poultry litter is exported off the farm. There are 2.99 acres divided into 4 pastures for organic chickens. Mr. Rhodes' operation is predictable, therefore, 3-years (part of 2024, 2025, 2026, and part of 2027) of recommendations are included in this nutrient management plan. An update will be needed if a change in average annual number of animal units of 10 percent or greater occurs and if the resultant manure production and/or management will require significant adjustments. (refer to Plan update Requirements) This plan's expiration date coincides with the expiration date of the earliest soil analysis, July 10, 2027. This farm is in the Southeast Creek (0048) watershed.

This nutrient management plan is one of the required plans needed for a CAFO permit 19AF. **It is Mr. Rhodes's responsibility to send a copy of this plan to Maryland Department of the Environment (MDE).**

DATE OF PLAN: September 23, 2024

DURATION OF PLAN: September 25, 2024 through July 09, 2027

SOIL SAMPLING AND TESTED: Soil samples were collected by Mr. Rhodes and analyzed by AgroLab,101 Cluckey Drive, Harrington, DE. 19952, on 7/10/2024. *Soil samples are valid for three years from the date of testing. A new analysis will be needed for a complete 2027 nutrient management plan.*

MANURE SAMPLING AND TESTING: Maryland Department of the Environment and the Environmental Protection Agency require that CAFO operations have a copy of an analysis of the manure generated on the operation in their records. Operator may either collect a sample of manure before it is transported off-farm and obtain an analysis or obtain a copy of the manure analysis from one of the farmers who will be receiving the manure from the operation. A copy of each year's manure analysis must be submitted with each year's Annual Implementation Report (AIR). Mr. Rhodes collected a sample and it was analyzed by AgroLab, 101 Clucket Drive, Harrington, DE. 19952 on 2/15/2024. That analysis is included in this nutrient management plan.

MANURE MANAGEMENT: Mr. Rhodes windrows the manure in the houses between flocks. No manure is collected in this process. The houses centers are cut each spring removing 50% of the accumulated manure. The last complete cleanout took place in 2021. Mr. Rhodes' manure management will not make another complete cleanout necessary. Manure that is collected from the houses throughout the year is stored in the manure storage shed until it can be exported.

The operator must keep records of the quantity, date, and destination of manure removed from the houses and off the farm. **Manure is exported to the following receiving farms as available:**

C. Temple Rhodes, Jr.
180 Chestnut Vale Farm Lane
Centreville, MD. 21617.

Chris Rhodes
2401 4-H Park Rd.
Centreville, MD. 21617

Shore Pleasure Farm, LLC
2308 Church Hill Rd.
Centreville, MD. 21617

OUTDOOR PASTURE AREA FOR ORGANIC POULTRY OPERATIONS: Outdoor poultry 'pastures' shall be managed to limit soil erosion and runoff such that manure and associated nutrients are not discharged to waters of the state. Management practices may include, but are not limited to, maintenance of full vegetative cover, installation of vegetated buffers, and removal of manure in concentrated areas.

FIELD STORAGE OF LITTER: Refer to the *General Discharge Permit for Animal Feeding Operations* for information for the requirements for field storage or stacking of litter.

BEST MANAGEMENT PRACTICES: Mr. Rhodes' must consult either the USDA-Comprehensive Nutrient Management Plan (CNMP) or Soil Conservation Water Quality Plan for this information.

BASIS OF RECOMMENDATIONS: Nutrient recommendations are both nitrogen & phosphorus based, as required by State of Maryland regulations.

UM-PHOSPHORUS MANAGEMENT TOOL (UM-PMT): A UM-PMT risk assessment is not required at this time as no fields have a Fertility Index Value (FIV -P) greater than or equal to 150.

RECORD KEEPING REQUIREMENTS: The Water Quality Improvement Act requires that producers maintain records on manure management, animal numbers, and manure quantity.

The operator must keep records of the quantity, date, and destination of litter as it is removed from the production houses to either storage sheds or off-farm locations. Maryland Department of Agriculture (MDA) requires operators to report this information in their Annual

Implementation Report (AIR) due to MDA March 1 each year. The *Litter Removal Data Sheet* in the **Recordkeeping** section of this plan can be used for tracking movement of litter.

Refer to the *General Discharge Permit for Animal Feeding Operations* for information for the type of records that are required by MDE and EPA.

Farm Identification Summary

Farm Name	Tax Account ID Numbers	Watershed Location Code	Total Acres Farmed (Cropland and Pastures)
Ryan Rhodes Family Farm, LLC	[redacted]	0048	2.99

Animal Type and Number (Per/year)	Total Manure Generation (Tons/yr)*	Manure Avail. for Utilization (Tons/yr)*	Manure Storage Capacity/Conditions	Timing of Application
Broilers 563,200	2024: 1205 2025: 1294 2026: 1359 2027: 1371	2024: 603 2025: 647 2026: 680 2026: 686	Manure Storage 40' x 120' Channel Compost 16' x 48'	All manure will be exported

*See manure generation sheets

Plan Update Requirements

As stated in the cover sheet, this plan was developed for use from

September 25, 2024 through July 09, 2027

The following is a list of situations that will impact whether or not the attached Nutrient Management Plan will need updating **before** the end of the time period for which the plan was developed.

1) A change to the **planned crop or cropping rotation**, or introduction of a **new crop** not currently addressed in the existing nutrient management plan.

2) A change in **nutrient source or soil test results**.

3) A change in **acreage** managed of 10 percent or greater, or 30 acres, whichever is less.

4) A change in **animal units** of 10 percent or greater if resultant manure production will require significant management adjustments.

Jennifer L. Rhodes
Agricultural Science Educator
Certification # 1368
License # 2030

Jeff Moore
Nutrient Management Advisor
Certification # 4465
License # 2030

NUTRIENT APPLICATION SETBACKS FROM SURFACE WATER:

(5-19-15)

Setbacks for Nutrient Application are required in the development of nutrient management plans. Application and livestock setback regulations are contained under the Nutrient Application Requirements, Maryland Department of Agriculture 2012, COMAR 15.20.07.02, Maryland Nutrient Management Manual, 1-D1.

A minimum of a 10' vegetative setback must be in place next to surface water. The chart below indicates if surface water is present that requires a setback on any farm/operation and identifies the fields that are required to have a nutrient application setback. **An application of crop nutrients using a broadcast method either with or without incorporation requires a 35'setback. A directed spray application or the injection of crop nutrients only requires a 10'setback.** Excepting perennial forage crops grown for hay and pasture, vegetation in the 10' setback area may not include plants that would be considered part of the crop grown in the field (i.e. row crops). Pastures and hayfields are subject to a 10' and/or a 35' nutrient application setback depending on application methods. Nutrients may not be applied within the 10' setback.

Livestock on pasture are required to meet the minimum 10' setback by means of fencing unless a Best Management Practice (BMP) is approved by MDA or a Soil Conservation and Water Quality Plan is developed and implemented that prescribes an alternative to fencing animals 10' from surface water. Alternative BMP's may include stream crossings, watering facilities, pasture management, or other practices that are equally protective of water quality. Sacrifice lots for livestock require a 35' setback from surface water.

If nutrients are custom-applied, it is the operator's responsibility to inform the applicator of the setback distance based on the method of application.

Farm Name(s)	Is Surface Water Present on the farm that requires a setback (Yes or No)	Field(s) requiring a Nutrient Application Setback*	Nutrient Application Setback Required (Indicate with "Yes" in appropriate column(s).)		
			Livestock on Pasture ≥ 10 ft.	Directed Application** ≥ 10 ft.	Broadcast Application or Sacrifice Lots*** ≥ 35 ft.
Shore Pleasures LLC	No				

***If a field contains multiple sources of surface water (i.e. a pond and a stream), list each separately or identify on the map.**

****Directed Application** = Directed Spray Application (Vertical Fan or Drop Nozzle), Air Flow Application, Knifed/Injected application of Nutrients, Planter Applied nutrients

*****Broadcast Application or Sacrifice Lots** = Spinner Spreaders (Manure or Fertilizer), High Volume Horizontal Nozzles, Manure Spreaders (Box type with beaters, Splasher plates for liquid, Side Discharge V-Type)

MARYLAND DEPARTMENT OF THE ENVIRONMENT
1800 Washington Boulevard • Suite 605 • Baltimore, Maryland 21230-1719
410-537-3375 • 800-633-6101 x3375 • http://www.mde.state.md.us
Land Management Administration • Solid Waste Program

Maryland Setback Standards and Approved Alternatives Consistent with CAFO/MAFO Requirements

Introduction:

The Maryland Department of the Environment (MDE) current Regulations Governing the Control of Water Pollution to address permit requirements for Concentrated Animal Feeding Operations (CAFOs) and Maryland Animal Feeding Operations (MAFO) include options for manure application setback standards in the Code of Maryland Regulations (COMAR) 26.08.03.09b(1). These setbacks for CAFOs are also included in 40 CFR Part 412.4(c)(5).

As written in Part IVB8 of the General Discharge (GD) Permit for Animal Feeding Operations (NPDES Permit No. MDG01, Maryland Permit No 09AF), the current "Protocols for the Land Application of Manure and Wastewater" include, for both CAFOs and MAFOs, the following setback provisions:

a. A **setback** of at least 100' from waters of the State, including field ditches, other conduits, intermittent streams, and drinking water wells, shall be maintained; or an **approved alternative** may be substituted for the 100' setback.
b. A setback of at least 100' from property lines shall be maintained, unless an approved alternative setback for property lines is established with the consent of the adjacent property owner.

I. Alternative Setback Option Applicable to Poultry MAFOs ONLY which is included in the GD Permit:

For slopes of 2% or less, a MAFO may satisfy the land application setback and buffer requirements of this permit by maintaining: 1) a vegetated filter strip at least 10 feet wide along field ditches and in the final 35 feet of the field ditches (applicable to ditch embankments and, to the maximum extent practicable, the channel) adjoining the receiving waters or the facility boundary, whichever occurs first, 2) a 35' vegetated filter strip or 3) a 50' setback from all other surface waters of the State.

II. Approved Alternative Setback Options to the Requirement in COMAR 26.08.03.09B(1)(a) for all CAFOs and MAFOs.

The following are the approved alternatives to the 100-foot setback, which have been established by MDE in consultation with the Maryland Department of Agriculture (MDA), Natural Resources Conservation Service (NRCS) and the University of Maryland Extension (UME).

Option 1: A 35-foot vegetative buffer strip established in accordance with the NRCS Practice Standards 390, 391, or 393, or systems as approved by MDE in coordination with the MDA, NRCS and UME which is included in the GD Permit.

The buffer strip shall consist of a permanent vegetative planting that is not part of a cropland or pasture rotation. The location, layout, and density of the buffer strip shall reflect the intended purpose of the practice, conditions of the site, and the objectives of the land user. Site preparation and planting to establish the buffer strip shall be done at a time and manner to insure survival and growth of the selected species. Select plant species that are native to Maryland, or are introduced and are non-invasive (i.e., not likely to spread beyond the planted area and displace native species). See Maryland NRCS 390, 391, and 393 Conservation Practice Standards for more details. Existing naturally vegetated areas may also qualify as buffers if they meet the criteria in the applicable standard.

Date: March 30, 2011

Note: For any fields with slopes 8% or above, the NRCS approved soil loss prediction tool shall be used to determine risk. If significant risk (above tolerable soil loss) is determined, the appropriate Best Management Practices to reduce soil loss risk will be implemented according to NRCS standards.

Option 2: 10-foot no nutrient application zone from Surface Waters Plus One of Three Land Treatment Practices

The producer (CAFO or MAFO) shall maintain a minimum 10-foot setback from surface waters on which no manure, chemical fertilizer or any other nutrient containing soil amendments are applied AND must implement at least ONE additional of the following Best Management Practices:

Option 2A: Winter crop establishment including small grains, brassicas, or other species in accordance with MDA Nutrient Management Plan (NMP) requirements with no nitrogen or phosphorus applications before March 1st.

Such crops shall be planted during the fall in the year manure application took place. The winter crop shall be applied to the entire field that received manure.

Option 2B: Subsurface injection or surface application of manure with incorporation within three days (72 hours) of manure or wastewater surface application.

If vertical tillage is used to minimally incorporate manure with surface residue, soil loss needs to be "T" or less as determined by RUSLE 2. Plug or spike aerators (such as Aerway®), seed bed conditioners and vertical till (such as Turbotill ™) may be used for incorporation.

Option 2C: Dry Manure Injection.

Injection of poultry litter and dry manure application (Subsurfer®).

Option 3: Other – Must be approved in writing by MDE in coordination with NRCS, UME and MDA. Applicant must demonstrate to the satisfaction of MDE and the other agencies that this option conserves and protects public health, natural resources, and the environment of the State, and controls water and land pollution to at least the same extent as would be obtained by compliance with the applicable requirements.

Policy for Part IV B(8b) of the GD Permit for Animal Feeding Operations

In accordance with 40 CFR Part 412.4(c)(5), and Part IV B(8b) of the GD Permit for Animal Feeding Operations, which states: "Protocols for the Land Application of Manure and Wastewater ... the following requirements for setbacks shall be maintained: ... b. A setback of at least 100' from property lines shall be maintained, unless an approved alternative setback for property lines is established with the consent of the adjacent property owner."

Policy: If the property line is coincident with a hydrologic conveyance to the waters of the State, then the setback requirements of Part IV B(8a) apply: A setback of at least 100' from waters of the State, including field ditches, other conduits, intermittent streams, and drinking water wells shall be maintained; or an approved alternative including options 1 through 5 may be substituted for the 100' setback."

AgroLab
Serving Agriculture and Soil Fertility Professionals

Account No. : 128

Soil Analysis Report

Invoice No. : 1152214
Date Received : 07/09/2024
Date Analyzed: 07/10/2024
Lab Number : 13266

QAC EAC
UME -- QUEEN ANNE COUNTY 128
505 RAILROAD AVE, SUITE 4
CENTREVILLE MD 21617

Results For : RYAN RHODES
Location : CENTREVILLE
Sample ID : PASTURE HOUSE 5

Extraction Method: Mehlich 3

Organic Matter, %	1.71
Est. Organic Carbon, %	0.99
Aluminum, ppm Al	793.5
Iron, ppm Fe	173.3

- Split apply Nitrogen in the fall (Sept) and spring (March) at rates less than 1lb/1,000 square feet per application. Lime applications should not exceed 50 lbs/1,000 square feet per application.

Recommendations
In Actual Pounds of Plant Nutrients per 1000 sq. ft.

Crop : (AgroLab) Lawn. Unit/A	
Sub-S	
N	
2.4	
Crop :	
Sub-S	
N	
2.9	

Maryland nutrient management regulations require that nutrient management plans utilize University of Maryland crop nutrient recommendations for N, P/P205, and K/K20. The recommendations on this page for N, P/P205, and K/K20 are not consistent with the regulations and should be disregarded.

Reviewed By : L.D. Severson - AgroLab/Matrix S 7/11/2024 **Copy : 1** **Page 8 of 8**

Bus: 302/566-6094
Email: admin@agrolab.us
web site
www.agrolab.us
101 Clukey Dr.
Harrington, DE 19952

UNIVERSITY OF
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Department of Environmental Science
and Technology

Agricultural Nutrient Management Program

Soil Test Levels (FIVs), Soil Test Category and Yield Response

Soil Test Fertility Index Value (FIV)	Soil Test Category	Likelihood of Yield Response
0-25	low	yield response likely
26-50	medium	yield response possible
51-100	optimum	yield response unlikely
>100	excessive	yield response very unlikely

Your soil tests have been converted to the Maryland Fertility Index Value (FIV) scale.

Not all soil testing laboratories use the same extraction methods. There are also a number of ways in which the results can be reported (i.e., pounds per acre or ppm; P or P_2O_5). Converting soil test results from several laboratories to a common scale simplifies the process of making recommendations for agricultural crops grown in Maryland.

For more information about converting soil test results to the FIV scale and the basis for the conversions, please consult Soil Fertility Management 4 (SFM-4), *Converting Among Soil Test Analyses Frequently Used in Maryland.*

9/7/11

(301) 405-1319 ▪ FAX (301) 314-7375

1145 COLE STUDENT ACTIVITIES BUILDING ▪ COLLEGE PARK, MARYLAND 20742-1038

2024 Recommendations

Poultry Litter Removal Data Collection Sheet

OPERATOR NAME: Ryan Rhodes **DATE:** _____

FARM NAME: Ryan Rhodes Family Farm, LLC

A	B	C	D	E	F	G	H
Date (mm/dd/yr)	Removal From (house or shed)	Load Description*	Load Weight (Tons)**	Number of Loads	Total Removed (D) x (E) = (F) (Tons)	Destination (on-farm shed, on-farm field or if exported; name/address of receiving party)	Quantity Received (if other than total removed)

* identify type of equipment used to remove waste (i.e. truck, spreader, etc)

** if load weight is unknown, calculate it based on the following estimates: 1 cu.ft. litter = 28 lbs; 1 bushel litter = 35 lbs

1) Measure the equipment volume in cu. ft. or bushels
2) Load weight (lbs) = equipment volume in cu. ft. or bushels X lbs per cu. ft. or bushel
3) Load weight (tons) = load weight (lbs) divided by 2,000

UMCP-ANMP
07/09

The Agricultural Nutrient Management Program is funded by the Maryland Department of Agriculture.

Fertilizer Recommendations

Farmer/Operator		Ryan Rhodes				Plan Year			2024					
Street Address		710 Brick Schoolhouse Lane				MDA operator no.			1					
City, State, Zip, County		Centreville MD 21617 Queen Anne's				Date Plan Prepared			9-19-2024					
Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Ryan Rhodes	Pas 1 2024 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	0.42 Acres	2.0 T/A	100-32-66 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	32 #/A	66 #/A		1.5 t/A
									~~tpdrs@ green-up~~	~~0 #/A~~	~~32 #/A~~	~~33 #/A~~		
									~~tpdrs post hvst#1~~	~~50 #/A~~	~~0 #/A~~	~~0 #/A~~		
									~~tpdrs late summer~~	~~0 #/A~~	~~0 #/A~~	~~33 #/A~~		
									tpdrs late fall	50 #/A	0 #/A	0 #/A		
Ryan Rhodes	Pas 2 & 3 2024 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	1.33 Acres	2.0 T/A	100-20-44 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	20 #/A	44 #/A		1.5 t/A
									~~tpdrs@ green-up~~	~~0 #/A~~	~~20 #/A~~	~~44 #/A~~		
									~~tpdrs post hvst#1~~	~~50 #/A~~	~~0 #/A~~	~~0 #/A~~		
									~~tpdrs late summer~~	~~0 #/A~~	~~0 #/A~~	~~0 #/A~~		
									tpdrs late fall	50 #/A	0 #/A	0 #/A		
Ryan Rhodes	Pas 4 2024 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	0.46 Acres	2.0 T/A	100-39-134 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	39 #/A	134 #/A		1.1 t/A
									~~tpdrs@ green-up~~	~~0 #/A~~	~~39 #/A~~	~~67 #/A~~		
									~~tpdrs post hvst#1~~	~~50 #/A~~	~~0 #/A~~	~~0 #/A~~		
									~~tpdrs late summer~~	~~0 #/A~~	~~0 #/A~~	~~67 #/A~~		
									tpdrs late fall	50 #/A	0 #/A	0 #/A		

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

[*] - indicates primary recommendation used for the PMT calculation.

Fertilizer Recommendations

Farmer/Operator	Ryan Rhodes	Plan Year	2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Ryan Rhodes	Pas 5 2024 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	0.78 Acres	2.0 T/A	100-20-109 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	20 #/A	109 #/A		1.5 t/A
									~~tpdrs@ green-up~~	~~0 #/A~~	~~20 #/A~~	~~55 #/A~~		
									~~tpdrs post-hvst#1~~	~~50 #/A~~	~~0 #/A~~	~~0 #/A~~		
									~~tpdrs late-summer~~	~~0 #/A~~	~~0 #/A~~	~~54 #/A~~		
									tpdrs late fall	50 #/A	0 #/A	0 #/A		

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

[*] - indicates primary recommendation used for the PMT calculation.

Notes

armer/Operator	Ryan Rhodes	Plan Year	2024
treet Address	710 Brick Schoolhouse Lane	MDA operator no.	1
ity, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

4. If topdressing ag-lime without tillage, reduce the total amount of oxides recommended by 50 percent. When topdressing ag-lime, and soil mixing is not possible, do not apply more than 1500 lbs per acre of oxides in any one application. The balance can be applied the next year. It would be best to do a soil test before making the second application.

6. Split-application of nitrogen is required for optimal production and nitrogen use efficiency of established pasture and hay land and for the protection of ground water resources.

7. Magnesium will be recommended when the soil test indicates a low or very low level. Use dolomitic lime as a liming material when magnesium is recommended AND when lime is needed to correct soil acidity. The magnesium (Mg) recommendation is expressed as elemental Mg when lime is not required.

53. (See related 70, 71, 88 & 89) For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canarygrass (4 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 150-200 lbs per acre. Topdress 35-50 lbs per acre at greenup. In addition, topdress 40-50 lbs per acre after the first harvest, 35-50 lbs in late summer, and 40-50 lbs per acre in late fall.

60. If the nitrogen requirement is met by surface broadcasting UAN either prior to or at planting, use of proven urease and nitrification inhibitors is recommended to minimize nitrogen loss via volatilization and/or denitrification pathways.

70. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canary grass (5 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 200-250 lbs per acre. Topdress 60-80 lbs per acre at greenup. In addition, topdress 50-60 lbs per acre after the first harvest, 50-60 lbs per acre in late summer, and 40-50 lbs per acre in late fall.

71. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or canary grass (6 tons per acre yield goal, and up), the TOTAL nitrogen recommendation ranges from 250-300 lbs per acre. Topdress 80-100 lbs per acre at greenup. In addition, topdress 65-75 lbs per acre after the first harvest, 65-75 lbs per acre in late summer, and 40-50 lbs per acre in late fall.

88. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canarygrass (up to 2 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 75-100 lbs per acre. Topdress 35-50 lbs per acre after the first harvest. In addition, topdress 40-50 lbs per acre in late fall.

Notes

Farmer/Operator	Ryan Rhodes	Plan Year	2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

89. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canarygrass (3 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 100-150 lbs per acre. Topdress 30-50 lbs per acre after the first harvest. In addition, topdress 30-50 lbs per acre in late summer and 30-40 lbs in late fall.

92. If UAN is dribbled or streamed on the soil surface, use a proven urease inhibitor to help minimize nitrogen loss via volatilization.

93. If nitrogen source is granular urea, use a proven urease inhibitor to help minimize loss via volatilization.

184. For each yield goal, the combined nitrogen (N) from the split applications must not exceed the maximum total N recommendation.

185. The late summer topdress application for fescue, orchardgrass, reed canarygrass, bromegrass, timothy, and perennial ryegrass, should be applied between mid-August and early September, depending on sufficient rainfall to move the nitrogen into the soil.

186. Late fall nitrogen application (mid- to late October in the mountains of western Maryland and late October to mid-November elsewhere in Maryland, (approximately the killing frost date) stimulates root growth and leads to a more vigorous stand. This application must be a commercial nitrogen source where all N is readily available. Manure or other organic sources of nitrogen are not recommended for the late fall application. If late fall application is not made, add 40-50 lb.N/acre to the greenup application.

2025 Recommendations

Poultry Litter Removal Data Collection Sheet

OPERATOR NAME: Ryan Rhodes **DATE:** _____

FARM NAME: Ryan Rhodes Family Farm

A	B	C	D	E	F	G	H
Date (mm/dd/yr)	Removal From (house or shed)	Load Description*	Load Weight (Tons)**	Number of Loads	Total Removed (D) x (E) = (F) (Tons)	Destination (on-farm shed, on-farm field or if exported; name/address of receiving party)	Quantity Received (if other than total removed)

* identify type of equipment used to remove waste (i.e. truck, spreader, etc)

** if load weight is unknown, calculate it based on the following estimates: 1 cu.ft. litter = 28 lbs; 1 bushel litter = 35 lbs

1) Measure the equipment volume in cu. ft. or bushels
2) Load weight (lbs) = equipment volume in cu. ft. or bushels X lbs per cu. ft. or bushel
3) Load weight (tons) = load weight (lbs) divided by 2,000

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The Agricultural Nutrient Management Program is funded by the Maryland Department of Agriculture.

Fertilizer Recommendations

Farmer/Operator		Ryan Rhodes				Plan Year			2025					
Street Address		710 Brick Schoolhouse Lane				MDA operator no.			1					
City, State, Zip, County		Centreville MD 21617 Queen Anne's				Date Plan Prepared			9-19-2024					
Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Ryan Rhodes	HS 1 2025 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	0.42 Acres	2.0 T/A	100-32-66 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	32 #/A	66 #/A		1.5 t/A
									tpdrs@ green-up	0 #/A	32 #/A	33 #/A		
									tpdrs post hvst#1	50 #/A	0 #/A	0 #/A		
									tpdrs late summer	0 #/A	0 #/A	33 #/A		
									tpdrs late fall	50 #/A	0 #/A	0 #/A		
Ryan Rhodes	HS 2 & 3 2025 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	1.33 Acres	2.0 T/A	100-20-44 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	20 #/A	44 #/A		1.5 t/A
									tpdrs@ green-up	0 #/A	20 #/A	44 #/A		
									tpdrs post hvst#1	50 #/A	0 #/A	0 #/A		
									tpdrs late summer	0 #/A	0 #/A	0 #/A		
									tpdrs late fall	50 #/A	0 #/A	0 #/A		
Ryan Rhodes	HS 4 2025 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	0.46 Acres	2.0 T/A	100-39-134 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	39 #/A	134 #/A		1.1 t/A
									tpdrs@ green-up	0 #/A	39 #/A	67 #/A		
									tpdrs post hvst#1	50 #/A	0 #/A	0 #/A		
									tpdrs late summer	0 #/A	0 #/A	67 #/A		
									tpdrs late fall	50 #/A	0 #/A	0 #/A		

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

[*] - indicates primary recommendation used for the PMT calculation.

Fertilizer Recommendations

Farmer/Operator		Ryan Rhodes				Plan Year			2025					
Street Address		710 Brick Schoolhouse Lane				MDA operator no.			1					
City, State, Zip, County		Centreville MD 21617 Queen Anne's				Date Plan Prepared			9-19-2024					
Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Ryan Rhodes	HS 5 2025 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	0.78 Acres	2.0 T/A	100-20-109 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	20 #/A	109 #/A		1.5 t/A
									tpdrs@ green-up	0 #/A	20 #/A	55 #/A		
									tpdrs post hvst#1	50 #/A	0 #/A	0 #/A		
									tpdrs late summer	0 #/A	0 #/A	54 #/A		
									tpdrs late fall	50 #/A	0 #/A	0 #/A		

Lime recommendations are valid for the duration of the soil analysis. ~~This is not an annual~~ recommendation. Subtract any applications made since the soil analysis from this recommendation.

[*] - indicates primary recommendation used for the PMT calculation.

Notes

Farmer/Operator	Ryan Rhodes	Plan Year	2025
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

4. If topdressing ag-lime without tillage, reduce the total amount of oxides recommended by 50 percent. When topdressing ag-lime, and soil mixing is not possible, do not apply more than 1500 lbs per acre of oxides in any one application. The balance can be applied the next year. It would be best to do a soil test before making the second application.

6. Split-application of nitrogen is required for optimal production and nitrogen use efficiency of established pasture and hay land and for the protection of ground water resources.

7. Magnesium will be recommended when the soil test indicates a low or very low level. Use dolomitic lime as a liming material when magnesium is recommended AND when lime is needed to correct soil acidity. The magnesium (Mg) recommendation is expressed as elemental Mg when lime is not required.

53. (See related 70, 71, 88 & 89) For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canarygrass (4 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 150-200 lbs per acre. Topdress 35-50 lbs per acre at greenup. In addition, topdress 40-50 lbs per acre after the first harvest, 35-50 lbs in late summer, and 40-50 lbs per acre in late fall.

60. If the nitrogen requirement is met by surface broadcasting UAN either prior to or at planting, use of proven urease and nitrification inhibitors is recommended to minimize nitrogen loss via volatilization and/or denitrification pathways.

70. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canary grass (5 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 200-250 lbs per acre. Topdress 60-80 lbs per acre at greenup. In addition, topdress 50-60 lbs per acre after the first harvest, 50-60 lbs per acre in late summer, and 40-50 lbs per acre in late fall.

71. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or canary grass (6 tons per acre yield goal, and up), the TOTAL nitrogen recommendation ranges from 250-300 lbs per acre. Topdress 80-100 lbs per acre at greenup. In addition, topdress 65-75 lbs per acre after the first harvest, 65-75 lbs per acre in late summer, and 40-50 lbs per acre in late fall.

88. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canarygrass (up to 2 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 75-100 lbs per acre. Topdress 35-50 lbs per acre after the first harvest. In addition, topdress 40-50 lbs per acre in late fall.

Notes

Farmer/Operator	Ryan Rhodes	Plan Year	2025
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

89. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canarygrass (3 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 100-150 lbs per acre. Topdress 30-50 lbs per acre after the first harvest. In addition, topdress 30-50 lbs per acre in late summer and 30-40 lbs in late fall.

92. If UAN is dribbled or streamed on the soil surface, use a proven urease inhibitor to help minimize nitrogen loss via volatilization.

93. If nitrogen source is granular urea, use a proven urease inhibitor to help minimize loss via volatilization.

184. For each yield goal, the combined nitrogen (N) from the split applications must not exceed the maximum total N recommendation.

185. The late summer topdress application for fescue, orchardgrass, reed canarygrass, bromegrass, timothy, and perennial ryegrass, should be applied between mid-August and early September, depending on sufficient rainfall to move the nitrogen into the soil.

186. Late fall nitrogen application (mid- to late October in the mountains of western Maryland and late October to mid-November elsewhere in Maryland, (approximately the killing frost date) stimulates root growth and leads to a more vigorous stand. This application must be a commercial nitrogen source where all N is readily available. Manure or other organic sources of nitrogen are not recommended for the late fall application. If late fall application is not made, add 40-50 lb.N/acre to the greenup application.

2026 Recommendations

Poultry Litter Removal Data Collection Sheet

OPERATOR NAME: Ryan Rhodes **DATE:** _____

FARM NAME: Rhodes Family Farm LLC

A	B	C	D	E	F	G	H
Date (mm/dd/yr)	Removal From (house or shed)	Load Description*	Load Weight (Tons)**	Number of Loads	Total Removed (D) x (E) = (F) (Tons)	Destination (on-farm shed, on-farm field or if exported; name/address of receiving party)	Quantity Received (if other than total removed)

* identify type of equipment used to remove waste (i.e. truck, spreader, etc)

** if load weight is unknown, calculate it based on the following estimates: 1 cu.ft. litter = 28 lbs; 1 bushel litter = 35 lbs

1) Measure the equipment volume in cu. ft. or bushels
2) Load weight (lbs) = equipment volume in cu. ft. or bushels X lbs per cu. ft. or bushel
3) Load weight (tons) = load weight (lbs) divided by 2,000

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07/09

The Agricultural Nutrient Management Program is funded by the Maryland Department of Agriculture.

Fertilizer Recommendations

Farmer/Operator		Ryan Rhodes				Plan Year			2026					
Street Address		710 Brick Schoolhouse Lane				MDA operator no.			1					
City, State, Zip, County		Centreville MD 21617 Queen Anne's				Date Plan Prepared			9-19-2024					
Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Ryan Rhodes	HS 1 2026 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	0.42 Acres	2.0 T/A	100-32-66 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	32 #/A	66 #/A		1.5 t/A
									tpdrs@ green-up	0 #/A	32 #/A	33 #/A		
									tpdrs post hvst#1	50 #/A	0 #/A	0 #/A		
									tpdrs late summer	0 #/A	0 #/A	33 #/A		
									tpdrs late fall	50 #/A	0 #/A	0 #/A		
Ryan Rhodes	HS 2 & 3 2026 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	1.33 Acres	2.0 T/A	100-20-44 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	20 #/A	44 #/A		1.5 t/A
									tpdrs@ green-up	0 #/A	20 #/A	44 #/A		
									tpdrs post hvst#1	50 #/A	0 #/A	0 #/A		
									tpdrs late summer	0 #/A	0 #/A	0 #/A		
									tpdrs late fall	50 #/A	0 #/A	0 #/A		
Ryan Rhodes	HS 4 2026 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	0.46 Acres	2.0 T/A	100-39-134 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	39 #/A	134 #/A		1.1 t/A
									tpdrs@ green-up	0 #/A	39 #/A	67 #/A		
									tpdrs post hvst#1	50 #/A	0 #/A	0 #/A		
									tpdrs late summer	0 #/A	0 #/A	67 #/A		
									tpdrs late fall	50 #/A	0 #/A	0 #/A		

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

[*] - indicates primary recommendation used for the PMT calculation.

Fertilizer Recommendations

Farmer/Operator	Ryan Rhodes	Plan Year	2026
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Ryan Rhodes	HS 5 2026 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	0.78 Acres	2.0 T/A	100-20-109 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	20 #/A	109 #/A		1.5 t/A
									tpdrs@ green-up	0 #/A	20 #/A	55 #/A		
									tpdrs post hvst#1	50 #/A	0 #/A	0 #/A		
									tpdrs late summer	0 #/A	0 #/A	54 #/A		
									tpdrs late fall	50 #/A	0 #/A	0 #/A		

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

[*] - indicates primary recommendation used for the PMT calculation.

Notes

Farmer/Operator	Ryan Rhodes	Plan Year	2025
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

4. If topdressing ag-lime without tillage, reduce the total amount of oxides recommended by 50 percent. When topdressing ag-lime, and soil mixing is not possible, do not apply more than 1500 lbs per acre of oxides in any one application. The balance can be applied the next year. It would be best to do a soil test before making the second application.

6. Split-application of nitrogen is required for optimal production and nitrogen use efficiency of established pasture and hay land and for the protection of ground water resources.

7. Magnesium will be recommended when the soil test indicates a low or very low level. Use dolomitic lime as a liming material when magnesium is recommended AND when lime is needed to correct soil acidity. The magnesium (Mg) recommendation is expressed as elemental Mg when lime is not required.

53. (See related 70, 71, 88 & 89) For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canarygrass (4 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 150-200 lbs per acre. Topdress 35-50 lbs per acre at greenup. In addition, topdress 40-50 lbs per acre after the first harvest, 35-50 lbs in late summer, and 40-50 lbs per acre in late fall.

60. If the nitrogen requirement is met by surface broadcasting UAN either prior to or at planting, use of proven urease and nitrification inhibitors is recommended to minimize nitrogen loss via volatilization and/or denitrification pathways.

70. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canary grass (5 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 200-250 lbs per acre. Topdress 60-80 lbs per acre at greenup. In addition, topdress 50-60 lbs per acre after the first harvest, 50-60 lbs per acre in late summer, and 40-50 lbs per acre in late fall.

71. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or canary grass (6 tons per acre yield goal, and up), the TOTAL nitrogen recommendation ranges from 250-300 lbs per acre. Topdress 80-100 lbs per acre at greenup. In addition, topdress 65-75 lbs per acre after the first harvest, 65-75 lbs per acre in late summer, and 40-50 lbs per acre in late fall.

88. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canarygrass (up to 2 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 75-100 lbs per acre. Topdress 35-50 lbs per acre after the first harvest. In addition, topdress 40-50 lbs per acre in late fall.

Notes

Farmer/Operator	Ryan Rhodes	Plan Year	2025
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

89. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canarygrass (3 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 100-150 lbs per acre. Topdress 30-50 lbs per acre after the first harvest. In addition, topdress 30-50 lbs per acre in late summer and 30-40 lbs in late fall.

92. If UAN is dribbled or streamed on the soil surface, use a proven urease inhibitor to help minimize nitrogen loss via volatilization.

93. If nitrogen source is granular urea, use a proven urease inhibitor to help minimize loss via volatilization.

184. For each yield goal, the combined nitrogen (N) from the split applications must not exceed the maximum total N recommendation.

185. The late summer topdress application for fescue, orchardgrass, reed canarygrass, bromegrass, timothy, and perennial ryegrass, should be applied between mid-August and early September, depending on sufficient rainfall to move the nitrogen into the soil.

186. Late fall nitrogen application (mid- to late October in the mountains of western Maryland and late October to mid-November elsewhere in Maryland, (approximately the killing frost date) stimulates root growth and leads to a more vigorous stand. This application must be a commercial nitrogen source where all N is readily available. Manure or other organic sources of nitrogen are not recommended for the late fall application. If late fall application is not made, add 40-50 lb.N/acre to the greenup application.

2027 Recommendations

Poultry Litter Removal Data Collection Sheet

OPERATOR NAME: Ryan Rhodes **DATE:** _____

FARM NAME: Ryan Rhodes Family Farms, LLC

A	B	C	D	E	F	G	H
Date (mm/dd/yr)	Removal From (house or shed)	Load Description*	Load Weight (Tons)**	Number of Loads	Total Removed (D) x (E) = (F) (Tons)	Destination (on-farm shed, on-farm field or if exported; name/address of receiving party)	Quantity Received (if other than total removed)

* identify type of equipment used to remove waste (i.e. truck, spreader, etc)

** if load weight is unknown, calculate it based on the following estimates: 1 cu.ft. litter = 28 lbs; 1 bushel litter = 35 lbs

1) Measure the equipment volume in cu. ft. or bushels
2) Load weight (lbs) = equipment volume in cu. ft. or bushels X lbs per cu. ft. or bushel
3) Load weight (tons) = load weight (lbs) divided by 2,000

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07/09

The Agricultural Nutrient Management Program is funded by the Maryland Department of Agriculture.

Fertilizer Recommendations

Farmer/Operator		Ryan Rhodes				Plan Year			2027						
Street Address		710 Brick Schoolhouse Lane				MDA operator no.			1						
City, State, Zip, County		Centreville MD 21617 Queen Anne's				Date Plan Prepared			9-19-2024						
Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime	
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg		
Ryan Rhodes	HS 1 2027 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	0.42 Acres	2.0 T/A	100-32-66 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	32 #/A	66 #/A		1.5 t/A	
									tpdrs@ green-up	0 #/A	32 #/A	33 #/A			
									tpdrs post hvst#1	50 #/A	0 #/A	0 #/A			
									~~tpdrs late summer~~	~~0 #/A~~	~~0 #/A~~	~~33 #/A~~			
									~~tpdrs late fall~~	~~50 #/A~~	~~0 #/A~~	~~0 #/A~~			
Ryan Rhodes	HS 2 & 3 2027 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	1.33 Acres	2.0 T/A	100-20-44 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	20 #/A	44 #/A		1.5 t/A	
									tpdrs@ green-up	0 #/A	20 #/A	44 #/A			
									tpdrs post hvst#1	50 #/A	0 #/A	0 #/A			
									~~tpdrs late summer~~	~~0 #/A~~	~~0 #/A~~	~~0 #/A~~			
									~~tpdrs late fall~~	~~50 #/A~~	~~0 #/A~~	~~0 #/A~~			
Ryan Rhodes	HS 4 2027 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	0.46 Acres	2.0 T/A	100-39-134 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	39 #/A	134 #/A		1.1 t/A	
									tpdrs@ green-up	0 #/A	39 #/A	67 #/A			
									tpdrs post hvst#1	50 #/A	0 #/A	0 #/A			
									~~tpdrs late summer~~	~~0 #/A~~	~~0 #/A~~	~~67 #/A~~			
									~~tpdrs late fall~~	~~50 #/A~~	~~0 #/A~~	~~0 #/A~~			

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

[*] - indicates primary recommendation used for the PMT calculation.

Fertilizer Recommendations

Farmer/Operator		Ryan Rhodes			Plan Year			2027						
Street Address		710 Brick Schoolhouse Lane			MDA operator no.			1						
City, State, Zip, County		Centreville MD 21617 Queen Anne's			Date Plan Prepared			9-19-2024						
Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Ryan Rhodes	HS 5 2027 [*]	75 Fescue; Maint (NOT accumulated for late fall/winter grazing) 7 4 6 53 60 70 71 88 89 92 93 184 185 186	0.78 Acres	2.0 T/A	100-20-109 #/A	0 #/A	0 #/A	0 #/A	Total	100 #/A	20 #/A	109 #/A		1.5 t/A
									tpdrs@ green-up	0 #/A	20 #/A	55 #/A		
									tpdrs post hvst#1	50 #/A	0 #/A	0 #/A		
									~~tpdrs late summer~~	~~0 #/A~~	~~0 #/A~~	~~54 #/A~~		
									~~tpdrs late fall~~	~~50 #/A~~	~~0 #/A~~	~~0 #/A~~		

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

[*] - indicates primary recommendation used for the PMT calculation.

Notes

Farmer/Operator	Ryan Rhodes	Plan Year	2027
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

4. If topdressing ag-lime without tillage, reduce the total amount of oxides recommended by 50 percent. When topdressing ag-lime, and soil mixing is not possible, do not apply more than 1500 lbs per acre of oxides in any one application. The balance can be applied the next year. It would be best to do a soil test before making the second application.

6. Split-application of nitrogen is required for optimal production and nitrogen use efficiency of established pasture and hay land and for the protection of ground water resources.

7. Magnesium will be recommended when the soil test indicates a low or very low level. Use dolomitic lime as a liming material when magnesium is recommended AND when lime is needed to correct soil acidity. The magnesium (Mg) recommendation is expressed as elemental Mg when lime is not required.

53. (See related 70, 71, 88 & 89) For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canarygrass (4 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 150-200 lbs per acre. Topdress 35-50 lbs per acre at greenup. In addition, topdress 40-50 lbs per acre after the first harvest, 35-50 lbs in late summer, and 40-50 lbs per acre in late fall.

60. If the nitrogen requirement is met by surface broadcasting UAN either prior to or at planting, use of proven urease and nitrification inhibitors is recommended to minimize nitrogen loss via volatilization and/or denitrification pathways.

70. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canary grass (5 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 200-250 lbs per acre. Topdress 60-80 lbs per acre at greenup. In addition, topdress 50-60 lbs per acre after the first harvest, 50-60 lbs per acre in late summer, and 40-50 lbs per acre in late fall.

71. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or canary grass (6 tons per acre yield goal, and up), the TOTAL nitrogen recommendation ranges from 250-300 lbs per acre. Topdress 80-100 lbs per acre at greenup. In addition, topdress 65-75 lbs per acre after the first harvest, 65-75 lbs per acre in late summer, and 40-50 lbs per acre in late fall.

88. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canarygrass (up to 2 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 75-100 lbs per acre. Topdress 35-50 lbs per acre after the first harvest. In addition, topdress 40-50 lbs per acre in late fall.

Notes

Farmer/Operator	Ryan Rhodes	Plan Year	2027
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

89. For the maintenance of fescue (not accumulated for late fall/winter grazing), orchardgrass or reed canarygrass (3 tons per acre yield goal), the TOTAL nitrogen recommendation ranges from 100-150 lbs per acre. Topdress 30-50 lbs per acre after the first harvest. In addition, topdress 30-50 lbs per acre in late summer and 30-40 lbs in late fall.

92. If UAN is dribbled or streamed on the soil surface, use a proven urease inhibitor to help minimize nitrogen loss via volatilization.

93. If nitrogen source is granular urea, use a proven urease inhibitor to help minimize loss via volatilization.

184. For each yield goal, the combined nitrogen (N) from the split applications must not exceed the maximum total N recommendation.

185. The late summer topdress application for fescue, orchardgrass, reed canarygrass, bromegrass, timothy, and perennial ryegrass, should be applied between mid-August and early September, depending on sufficient rainfall to move the nitrogen into the soil.

186. Late fall nitrogen application (mid- to late October in the mountains of western Maryland and late October to mid-November elsewhere in Maryland, (approximately the killing frost date) stimulates root growth and leads to a more vigorous stand. This application must be a commercial nitrogen source where all N is readily available. Manure or other organic sources of nitrogen are not recommended for the late fall application. If late fall application is not made, add 40-50 lb.N/acre to the greenup application.

Organic Poultry Pasture Operational Guidance in Maryland

March 2024

Organic poultry animal feeding operations (AFOs) must comply with the USDA organic standards established by 7 Code of Federal Regulations (CFR) Part 205 – National Organic Program. When weather, age (3+ weeks), predator security, health and safety permit, organic birds have access to outdoor areas [Poultry Pasture*(PP)]. Outdoor areas are fenced and provide fresh air, direct sunlight, shade, vegetative cover, and exercise opportunities that allow birds to engage in natural behaviors.

The PPs are designed to provide the minimum outdoor space requirements for chickens based on maximum stocking density. Outdoor stocking density requirements are referenced in 7 CFR Part 205. Poultry AFOs converted from established broiler operations can utilize vegetated areas between poultry houses and vegetated areas beyond the ends of houses to comply with USDA vegetative organic standards of 7 CFR Part 205. These areas are monitored and managed daily to limit potential nutrient and sediment run-off.

The following actions and documentation are required to mitigate risk and ensure comprehensive compliance & monitoring:

1. To ensure that the PP has the ability to assimilate nutrients deposited by poultry, the PP must be allowed to "rest" or lie fallow for at least 3 weeks between flocks to allow for vegetative nutrient uptake.
2. The PP must maintain a minimum cover of 75% vegetation predominantly in grass or grass legume mix and legumes during the entire period that poultry have access to the PP. Soil type(s) must be identified and considered for the selection of grass or grass legume mix and legumes for the successful establishment of the vegetation and capability to assimilate nutrients in the PP.
3. Except for a tall grass type selected and managed for the purpose of providing tall shade in designated areas at 10% or less tall grass area of total area in the PP, the maximum height of the vegetation shall be maintained not to exceed 10 inches during the period that poultry have access to the PP.
4. Vegetation in the PP must never become denuded to the extent that it cannot be sustained during its normal growing season.
5. The PP must have no ponding or standing water for more than 24 hours.
6. The permittee must maintain records during the operating period of the poultry pasture including:
    a. Record of all days when the PP is in use. The record of all days when the PP is in use can be recorded on a calendar or the same calendar already in use by the producer.
    b. Record of weekly inspections of soil conditions in the PP, including instances of ponding or standing water, runoff or saturated soil.
    c. Record of weekly inspections of the vegetative conditions in the PP.
    d. Record of weekly inspections for any visible pollutant accumulations in the PP (such as manure, poultry litter, or process wastewater), with special attention paid to any excessive concentration of pollutants or pollutants in areas that are not vegetated.

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www.mde.maryland.gov

e. Record of mortality disposal from within the PP including date of mortality, number of deceased animals and method of disposal. The record of mortality disposal within the PP can be recorded on an animal mortality record sheet for the poultry houses.

f. Record of laboratory soil sample analysis results** for the PP to establish a nutrient baseline and monitor soil fertility values over time. Soil sampling and analysis protocols shall be consistent with Maryland's technical standards at COMAR 15.20.07 and 15.20.08 and, in following UMD guidance for soil sampling, sampling for each management unit (PP). The record of laboratory soil sample results can be contained in the Nutrient Management Plan (NMP).

7. The Comprehensive Nutrient Management Plan (CNMP) shall include a narrative that provides a description of the management and use of the PP designed to prevent the discharge of pollutants to waters of the State. The narrative may include but not be limited to the estimated schedule of poultry managed on the PP, the number of flocks managed on the PP in a calendar year, the type of vegetation and/or tree species established, and best management practices installed and implemented. A conservation plan map shall delineate the boundaries of the PP and be included in the CNMP.

8. The Nutrient Management Plan (NMP) shall include a worksheet to calculate the manure deposited on the PP on a yearly basis. The "Estimate of Manure Deposited on Poultry Pasture For Integrated Organic Poultry Operations" has been developed by the University of Maryland Extension and may be used to provide this calculation.

9. Organic matter or carbon amendments, synthetic or non-synthetic materials, or practices as referenced in 7 CFR Part 205 may be applied or used in the PP for the purposes of improving soil organic matter content, improving organic crop production, and maintaining vegetative growth and vigor to maximize nutrient assimilation from the manure deposited by poultry. Crop fertility recommendations for the PP must be generated and followed in accordance with a NMP as required in COMAR 15.20.07 and 15.20.08.

* Poultry Pasture defined by 19AF NPDES Permit No. MDG01 (page 9 of 35): "means an area of an organic poultry CAFO or MAFO where chickens are allowed access to areas outside a poultry house. The Poultry Pasture allows for raising poultry on pasture in addition to indoor confinement. The Poultry Pasture is not considered part of the production area as long as the pasture area is managed to sustain vegetation during the normal vegetative growing season."

** The laboratory soil sample results may include analysis of soil organic matter to evaluate PP management decisions for the improvement of soil aeration, root growth, nutrient holding capacity, infiltration, and biological activity.

References:

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Nutrient Application Requirements

NUTRIENT APPLICATION REQUIREMENTS

Maryland Department of Agriculture June 2022

Authority: Agriculture Article, §§ 8-801—8-806; COMAR 15.20.07.02

I. GENERAL GUIDELINES

A. This document addresses (1) Setbacks for Nutrient Application, (2) Application Timing for all nutrients, organic and chemical, and (3) Temporary Field Stockpiling (staging) of Organic Materials. Application of nutrients may vary depending on the crop, season, nutrient source, and weather conditions. A person applying nutrients shall use best management practices, including following these "Nutrient Application Requirements," to maximize plant utilization efficiency as described in Section I-B of the *Maryland Nutrient Management Manual*, and minimize the potential for nutrient movement to sensitive areas and losses to surrounding water bodies, including surface and groundwater.

B. This document does not supersede Maryland Department of the Environment (MDE) Animal Feeding Operations regulations in COMAR 26.08.01 and 26.08.03.09, or the MDE Sewage Sludge Management regulations in COMAR 26.04.06 regarding the requirements for sewage sludge (biosolids) storage, buffer zones, and the incorporation of biosolids into the soil by the end of each working day.

C. All materials that provide primary crop nutrients shall be included in, and managed by, a Nutrient Management Plan. These materials include chemical fertilizer, organic materials such as animal manure, biosolids, food processing wastes and residuals, spent mushroom substrate, spray irrigation from wastewater treatment plants, composts, other waste streams containing nutrients, and soil conditioners/amendments.

D. Imported organic fertilizer materials that provide primary nutrients such as food processing wastes and residuals, spent mushroom substrate, spray irrigation from wastewater treatment plants, composted wastes, other waste streams containing nutrients shall have a current registration with the Maryland Department of Agriculture (MDA) State Chemist as required by COMAR 15.18.03.02 and COMAR15.18.03.04

E. These Nutrient Application Requirements shall be followed by certified consultants in the development of nutrient management plans, and by operators and applicators during plan implementation in order to comply with COMAR 15.20.08.05H and .05I

II. DEFINITIONS

A. "Cover Crop" means a cereal grain or cereal grain mix planted in accordance with the "Maryland Winter Cover Crop Program Requirements" for seeding rates, planting dates, and planting methods, as published on the MDA website.

B. "Food Processing Residual" means an organic material generated by processing agricultural commodities for human or animal consumption. The term includes food residuals, food coproducts, food processing wastes, food processing sludges, or any other incidental material whose characteristics are derived from processing agricultural products for human consumption or animal consumption.

C. "Food Processing Residual" does not include:

1. Digester Digestate;
2. Animal and Poultry Manures;
3. Class A & B Biosolids, as defined by MDE;
4. Compost;
5. Spent Mushroom Soil; or
6. Water Plant Residuals.

III. SETBACKS FOR NUTRIENT APPLICATION

A. "Nutrient Application Setback" means a vegetated area of a prescribed width where nutrient-containing material may not be applied, as measured from the edge of surface water, including perennial and intermittent streams. An intermittent stream means a stream or the reach of a stream that is below the local water table for at least some part of the year, and obtains its flow from both surface runoff and groundwater discharge. Surface water does not include:

1. Ephemeral streams (defined as streams which flow only in direct response to precipitation in the immediate watershed and which have a channel bottom that is always above the local water table);

2. Irrigation and treatment ditches, as defined under "waters" in COMAR 15.20.08.03(B)(39), and

3. Field ditches, which, for purposes of this exception, are defined as channelized waterways that, as provided in the USDA-NRCS National Cooperative Soil Survey, are not within:
   a. A floodplain soil mapping unit;
   b. A hydric soil unit and mapped as a narrow, elongated feature in a fluvial/floodplain position; or
   c. A soil mapping unit that has a "B" slope class or steeper.

B. Effective January 1, 2014, a person who uses nutrients shall implement the following nutrient application setback requirements:

1. An application of crop nutrients using a broadcast method (e.g., spinners, splashers) either with or without incorporation requires a 35-foot setback.

2. A directed spray application or the injection of crop nutrients requires a 10-foot setback.

3. Excepting perennial forage crops grown for hay or pasture, vegetation in the 10-foot setback area may not include plants that would be considered part of the crop grown in the field.

4. Pastures and hayfields are subject to a 10-foot nutrient application setback.

5. Nutrients may not be applied mechanically within the setback. Except as provided in subsection III.B.6, livestock shall be excluded from the setback to prevent direct deposition of nutrients within the setback.

6. As an alternative to fencing livestock from the setback area, a person shall work with the soil conservation district to develop and implement a Soil Conservation and Water Quality Plan. The plan shall include Best Management Practices (BMPs) such as stream crossings, alternative watering facilities, pasture management or other MDA-approved BMPs that are considered to be equally protective of water quality and stream health.

7. As an alternative to a nutrient application setback, MDA may approve other BMPs that it finds equally protective of water quality and stream health.

8. Sacrifice lots (less than 75% grass or grass legume mix) shall maintain a 35-foot setback.

C. Operators are responsible for sediment and erosion control of stream crossing areas. Operators shall move livestock from one side of the stream to the other side only through stream crossings designed to prevent erosion and sediment loss. Operators shall gate crossing areas wider than 12 feet. Operators may allow livestock controlled access to streams for watering in accordance with USDA-NRCS Field Office Technical Guide standards and specifications.

IV. APPLICATION TIMING

A. The consultant, applicator, operator, and the certified farm operator shall comply with the following management requirements when recommending or applying nutrients throughout the year. These requirements separately address the use of (1) chemical fertilizers and (2) organic fertilizers. An organic fertilizer is derived from either a plant or animal product, and contains carbon, and one or more elements other than hydrogen and oxygen that are essential for plant growth. The consultant, applicator, operator, and certified farm operator shall follow the nutrient application recommendations for crops as specified in the Maryland Nutrient Management Manual Section I-B. Nutrients shall be applied as close to plant nutrient uptake period as possible.

B. **Spring (March 1 through June 30)**

1. A person may make a nutrient application during the spring time period (March 1 through June 30) for an existing crop or a crop to be planted during this time period in accordance with recommendations found in Section I-B of the Maryland Nutrient Management Manual.

2. Nutrient application is prohibited when the soil is saturated.

a. A person may not apply nutrients in areas of fields that have standing water because the water holding capacity of the soil has been exceeded.

b. A person may apply nutrients after the standing water has been absorbed by the soil.

3. Frozen or Snow-Covered Ground. A person may not make a nutrient application if the ground is covered with snow greater than one inch, or when the ground is hard-frozen greater than two inches.

4. Organic Nutrient Sources other than Food Processing Wastes and Residuals. Unless the farm operation is a no-till operation, a person shall directly inject the organic nutrient source into the soil or incorporate the material into the soil as soon as possible, but no later than 48 hours after application. If the farm is a no-till operation, MDA may direct the operation to incorporate the material into the soil dependent on such factors as weather, wind, and the severity of the odor caused by the material.

5. Food Processing Residuals. For all crops, except pastures and hayfields, a person applying food processing residuals shall: (a) directly inject the material into the soil; or (b) incorporate the material into the soil as soon as possible, but no later than the end of the day that the application is made. If incorporated, the incorporation must result in 95% soil coverage of the material and shall consist of heavy discing, chisel plowing, or use of other primary tillage equipment. Vertical tillage equipment may not be used to incorporate this material.

6. Pastures and Hay Fields. If a pasture or hay field has a minimum of 75% vegetation predominantly in grass or grass legume mix and legumes, a person may make a nutrient management application in accordance with recommendations found in Section I-B of the Maryland Nutrient Management Manual.

7. Emergency Situations. If a person faces an emergency situation due to an imminent overflow of a storage facility, the person shall manage the emergency in consultation with MDA. In these situations, the person shall contact the MDA regional nutrient management representative for guidance before nutrient application.

C. **Summer (July 1 through September 9)**

1. A person may make a nutrient application during the summertime (July 1 through September 9) period for an existing crop or a crop to be planted during this time period in accordance with recommendations found in Section I-B of the Maryland Nutrient Management Manual.

2. Nutrient application is prohibited when the soil is saturated.

a. A person may not apply nutrients in areas of fields that have standing water because the water holding capacity of the soil has been exceeded.

b. A person may apply nutrients after the standing water has been absorbed by the soil.

3. Organic Nutrient Sources other than Food Processing Wastes and Residuals. Unless the farm operation is a no-till operation, a person shall directly inject the organic nutrient source into the soil or incorporate the material into the soil as soon as possible, but no later than 48 hours after application. If the farm is a no-till operation, MDA may direct the operation to incorporate the material into the soil dependent on such factors as weather, wind, and the severity of the odor caused by the material.

4. Food Processing Residuals. For all crops, except pastures and hay fields, a person applying food processing residuals shall: (a) directly inject the material into the soil; or (b) incorporate the material into the soil as soon as possible, but no later than the end of the day that the application is made. If incorporated, the incorporation must result in 95% soil coverage of the material and shall consist of heavy discing, chisel plowing, or use of other primary tillage equipment. Vertical tillage equipment may not be used to incorporate this material. A person shall plant a harvestable crop or cover crop no later than fourteen (14) days after the application of the material to the field is complete.

5. Pastures and Hay Fields. If a pasture or hay field has a minimum of 75% vegetation predominantly in grass or grass legume mix and legumes, a person may make a nutrient management application in accordance with recommendations found in Section I-B of the Maryland Nutrient Management Manual.

6. Emergency Situations. If a person faces an emergency situation due to an imminent overflow of a storage facility, the person shall manage the emergency in consultation with MDA. Operators in such situations shall contact the MDA regional nutrient management representative for guidance before nutrient application.

D. **Fall Application (September 10 through December 15)**

1. Chemical Fertilizers. A person may make a fall application of a chemical fertilizer for an existing crop or a crop to be planted during this time period (September 10 through December 15) in accordance with recommendations found in Section I-B of the Maryland Nutrient Management Manual.

2. General Rules for Application of Organic Nutrient Sources.

a. Application of Organic Nutrient Sources other than Poultry Litter. A person may make a fall application of an organic nutrient source other than poultry litter for an existing crop or a crop to be planted either during this time period (September 10 through December 15) or the following spring (no later than June 1) provided that, for each such crop, the rates and applications are made in accordance with paragraph 2(b) of this subsection and the recommendations found in Section I-B of the *Maryland Nutrient Management Manual.*

b. Application of Poultry Litter. A person may make a fall application of poultry litter for an existing crop or a crop to be planted during this time period (September 10 through December 15) provided that, for each such crop, the rates and applications are made in accordance with paragraph 2(b) of this subsection and the recommendations found in Section I-B of the Maryland Nutrient Management Manual.

3. General Conditions for Application of Organic Nutrient Sources.

a. Nutrient application is prohibited when the soil is saturated.

(i) A person may not apply nutrients in areas of fields that have standing water because the water holding capacity of the soil has been exceeded.

(ii) A person may apply nutrients after the standing water has been absorbed by the soil.

b. Frozen or Snow-Covered Ground. A person may not make a nutrient application if the ground is covered with snow greater than one inch, or when the ground is hard-frozen greater than two inches.

c. Organic Nutrient Sources other than Food Processing Wastes and Residuals. Unless the farm operation is a no-till operation, a person shall directly inject the organic nutrient source into the soil or incorporate the material into the soil as soon as possible, but no later than 48 hours after application. If the farm is a no-till operation, MDA may direct the operation to incorporate the material into the soil dependent on such factors as weather, wind, and the severity of the odor caused by the material.

d. Food Processing Residuals.

(i) September 10 through October 31 Time Period. For all crops, except pastures and hayfields, a person applying food processing residuals shall: (a) directly inject the material into the soil; or (b) incorporate the material into the soil as soon as possible, but no later than the end of the day that the application is made. If incorporated, the incorporation must result in 95% soil coverage of the material and shall consist of heavy discing, chisel plowing, or use of other primary tillage equipment. Vertical tillage equipment may not be used to incorporate this material. A person shall plant a harvestable crop or cover crop no later than fourteen (14) days after the application of the material to the field is complete.

(ii) November 1 through the end of February Time Period.

(aa) Non-Injectable Food Processing Residuals. From November 1 through the last calendar day of February of the following year, a person may not apply non-injectable food processing residuals to land but instead, must be properly stored.

(bb) Injectable Food Processing Residuals. From November 1 through December 15, a person may only inject food processing residuals that are injectable into soil growing an existing crop or cover crop. From December 16 through the last calendar day of February of the following year, a person must properly store this material.

e. Fallow Cropland. A person making a fall-application of an organic nutrient source to fallow cropland shall plant a cover crop as soon as possible after application, following the recommendations found in Section I-B of the Maryland Nutrient Management Manual. The cover crop planting shall occur no later than November 15 and be maintained until March 1

f. The rate of nutrient application shall be determined based on recommendations outlined in Section I-B of the Maryland Nutrient Management Manual using either nitrogen or phosphorus–based criteria.

g. If the application is phosphorus-based, the phosphorus application rate:

(i) For a fall-seeded crop, shall be based on the phosphorus recommendations for that crop;

(ii) For crops to be planted the following spring (no later than June 1), may not exceed the one-year crop removal rate of phosphorus for the spring-planted crop;

(iii) Shall follow the provisions of the Phosphorus Management Tool, as they may otherwise apply; and

(iv) Shall result in an application rate of plant available nitrogen not exceeding 50 lbs. per acre.

(h) If the application is nitrogen-based, the rate of application for a fall-seeded crop shall be based on recommendations for plant available nitrogen as outlined in Section I-B of the Maryland Nutrient Management Manual. If the application is

related to a crop that is to be planted the following spring (no later than June 1), the application of nitrogen may not exceed 50 lbs. of plant available nitrogen per acre.

4. Emergency Situations. If a person faces an emergency situation due to an imminent overflow of a storage facility, the person shall manage the emergency in consultation with MDA. Operators in such situations shall contact the MDA regional nutrient management representative for guidance before nutrient application.

E. Winter Application (December 16 through the last calendar day of February of the following year)

1. Chemical Fertilizers. A person may not make a winter application of a chemical fertilizer for an existing crop or to cropland. However, for small grains and perennial forage crops, a person may apply nitrogen at green-up when tillering begins as recommended in the Maryland Nutrient Management Manual Section I-B. In addition, a person may apply certain nutrients for greenhouse production and for other vegetable and small fruit crops listed in the Maryland Nutrient Management Manual Section I-B. The restriction on the application of chemical fertilizers during winter also does not apply to potash or liming materials.

2. Organic Nutrient Sources. Except as provided in §E.4 below, a person may not make a winter application of an organic nutrient source for an existing crop or to cropland. Instead, operators and generators of organic nutrient sources shall make plans for adequate storage to eliminate the need for a winter application.

3. Imported Organic Nutrient Sources.

A person may not make a winter application of an imported organic nutrient source to an existing crop or to cropland. This prohibition includes an organic nutrient source combined from on-farm generated organic fertilizers and imported organic fertilizers. In emergency situations, MDA may allow relocation of manure/organics to the best available options.

4. Emergency Situations pertaining to imminent overflow of on-farm generated nutrient sources.

a. A person may make a winter application of an organic nutrient source to an existing crop or cropland only if:

(i) The operation has inadequate storage for on-farm generated organic nutrient source (i.e., the liquid storage capacity will be exceeded before the March 1 winter application restriction);

(ii) The nutrient source is non-stackable (greater than 75% moisture content); and

(iii) There is no other reasonable option to manage it.

b. Applications required in emergency situations due to an imminent overflow of a storage facility from on-farm generated organic nutrient source(s) shall be managed in consultation with MDA before nutrient application.

c. Operators in such situations shall contact the MDA regional office for guidance and verification of the necessary application.

d. Any such application shall be made in accordance with Section I-B of the Maryland Nutrient Management Manual.

e. The following restrictions apply to any such winter application:

(i) Nutrient application is prohibited during the winter if the organic nutrient source is stackable (equal to or less than 75% moisture content, such as poultry litter) or adequate storage is available.

(ii) Nutrient application is prohibited when the soil is saturated.

(aa) A person may not apply nutrients in areas of fields that have standing water because the water holding capacity of the soil has been exceeded.

(bb) A person may apply nutrients after the standing water has been absorbed by the soil.

(iii) Frozen or snow-covered ground. A person may not make a nutrient application if the ground is covered with snow greater than one inch or when the ground is hard-frozen greater than two inches.

(iv) Nutrient application is prohibited to land with a slope greater than 7 percent.

(v) Rates of application shall be minimized and available acreage used to the greatest extent practical. In no case shall the application rate per acre exceed the one-year phosphorus removal rate or 50# of plant available nitrogen per acre for the next harvested crop. Any winter applied nutrients will be deducted from the recommendations of the next harvested crop.

(vi) Winter applications shall be made on existing vegetative cover, small grain crops, or established hay fields and pastures and maintained as such until March 1st.

(vii) A setback of at least 100 feet from all surface waters shall be maintained, unless best management practices providing water quality protection equivalent to such a setback are in place. (Surface water is defined as any permanent or intermittent, continuous, physical conduit for transporting water. Shovel ditches and water leads are not included as surface waters for purposes of this policy).

V. TEMPORARY FIELD STOCKPILING (STAGING) FOR STACKABLE ORGANIC NUTRIENT SOURCE MATERIALS (EQUAL TO OR LESS THAN 75% MOISTURE CONTENT)

A. General Provisions

1. When other immediate use options and alternatives are not available, temporary field stockpiling (staging) of organic nutrient source-materials (equal to or less than 75% moisture content) is allowed. Temporary field stockpiling (staging) provides greater environmental protection than a fall or winter application of nutrients or applying nutrients too far ahead of normal planting time and crop uptake.

2. To minimize the duration of temporary field stockpiling (staging), operators shall coordinate with integrators to schedule cleanouts as close to spring planting as possible, thereby providing a source of nutrients that is in phase with crop nutrient needs.

3. Existing storage shall be fully used prior to stockpiling material in the field.

4. Any material staged in a temporary field stockpile shall be land applied in the first spring season (no later than June 30) following the placement of the stockpile.

B. The temporary field stockpiling (staging) shall be located:

1. If a vegetated buffer is not in place, at least 100 feet from any surface water as defined in COMAR 15.20.08.03(B)(39) and any irrigation or treatment ditches; and if a vegetated buffer is in place, at least 35 feet from any such water;

2. At least 100 feet from wells, springs, and wetlands; however, if the well is located down gradient from the temporary field stockpiling (staging) area, at least 300 feet from the well;

3. At least 200 feet from any residence outside the operator's property;

4. Outside flood prone areas and areas subject to ponding;

5. If located on more than a 3% grade slope and no diversion installed, no farther than 150 feet from the top of the slope.

C. All organic nutrient source materials shall be stacked at least 6 feet high and peaked to prevent precipitation from soaking into the pile.

D. Materials shall be field stockpiled (staged) temporarily in a manner that prevents nutrient runoff.
Temporary field stockpiling (staging) locations for subsequent piles should stay at the same location, rather than be moved from place to place.

F. All organic nutrient source materials shall be removed from the temporary field (staged) stockpile and the ground area thoroughly scraped or cleaned when the application of the materials takes place.

G. Temporary field stockpile (staged) areas shall be restored to its original condition and, if necessary, reseeded with grass or an agronomic crop to facilitate nutrient uptake.

Record Keeping, Application Variances & Inspection (MDA)

MARYLAND NUTRIENT MANAGEMENT PROGRAM

Agricultural Operation Record Keeping Requirements

(January 2003)

The Maryland Nutrient Management Program (MNMP) has developed a new record keeping system, which enables operators to evaluate crop management and nutrient management decisions, and helps consultants make more accurate nutrient recommendations. Included in the new system is a ***Field-By-Field Nutrient Application Record*** form, a ***Grain Yield Calculation*** sheet and a ***Forage Yield Calculation*** sheet.

According to the Water Quality Improvement Act (WQIA) of 1998, the application of nutrients on a farm operation must be documented, and certain records must be maintained by the operator for either 3 or 5 years (See Table 1). It may, at times, be necessary to make these records available to a Maryland Department of Agriculture (MDA) Nutrient Management Specialist when he/she evaluates the implementation of a nutrient management plan.

Table 1.

For 3 years, the following records/plan information must be kept:

- Nutrient management plan prepared by certified consultant
- Receipts for nutrients purchased
- Manure analysis laboratory report and management information (if applicable)
- Soil analysis laboratory report
- Documentation of field-by-field nutrient quantity, rates, timing, type and analysis
- Documentation justifying past revisions or adjustments to the nutrient management plan

For 5 years, the following records must be kept:

- Crop yields and support of crop yield data each year for 5 years

For nurseries or out -of-ground producers, the following records must be kept:

- Description of production cycles and nutrients applied, description of substrate, analysis of organic materials used as a source of nutrients in the substrate, and any monitoring information on run-off testing
- Documented nutrient use for crops without yield goals

In addition to documenting nutrient applications, it is important to document any adjustments to the nutrient management plan. These adjustments include:

- Change in land base
- Change in crops
- Change in nutrient source
- Change in the number of animals
- Change due to manure analysis

Some adjustments are beyond the operator's control, however they still must be documented. These kinds of adjustments include:

- Natural disasters
- Animal mortality or disease
- Economic factors (market changes)
- Weather

Field-by-Field Nutrient Application Record Form

On the new ***Field-by-Field Nutrient Application Record*** form, operators can easily document the application of nutrients on their farm operations, and account for each farm that they manage on an annual basis. Operators can also keep track of one or more fields that are planted with the same crop and managed similarly.

This form contains two separate areas for recording nutrient applications based on either the same field with different crops in a cropping year or different fields with different crops or management considerations. Each nutrient application can be documented by date, or if the applications are similar, multiple applications can be recorded with several dates on one row.

Other information recorded on this form include the application type (such as chemical fertilizer, animal manure or bio-solids), analysis, rate, total amount applied, method of application and acres applied. Lime application can also be recorded on this form although it is not required by the regulations. Operators can also record any notes specific to the application activity as needed.

Copies of the ***Field-by-Field Nutrient Application Record*** form can be made by the operator or obtained by contacting the MNMP. Questions regarding this form, record keeping in general or the MNMP can be directed to the county's Extension Agent in Agricultural Science or MDA's Nutrient Management Program at 410-841-5959.

Grain and Forage Yield Calculation Sheets

Two other forms that have been developed by the MNMP are the ***Grain Yield Calculation Sheet*** and ***Forage Yield Calculation Sheet***. These two forms are designed to help operators estimate their crop yields.

Yield information is based on each farm by crop per year. Multiple fields having similar soil characteristics and management for growing a particular crop can be combined to obtain a representative yield. The harvest of a crop can be documented on one or more dates and be based on a similar unit of weight for hay and percent moisture for grain. Once all of the crop harvest information is final, calculations are provided to determine yield estimates.

Grain factors are provided based on information from the University of Maryland Extension and the Penn State Agronomy Guide. On the bottom of each sheet there is a reminder to operators to include determined yields into their nutrient management plan record keeping requirements.

Field-By-Field Nutrient Application Record Form
Definitions

Farm Name: Name of the farm receiving nutrients, lime or pesticides.

Operator: Name of the person who manages the agricultural operation.

Year: The year in which nutrients have been applied.

Field or Field Strips: An area sharing common characteristics, including soil type, nutrient content and plant type or crop produced, such that the nutrients can be recommended and managed in a uniform and consistent manner.

Crop: Primary and/or cover crop grown.

Acres: Total acres representative of the crop grown.

Actual Yield: Crop yield achieved at the time of crop harvest.

Application Date: The date that the nutrient application was made. Any information recorded on the form will be relative to this date.

Nutrient Type: The type of nutrient application such as commercial fertilizer (ammonium nitrate, etc.), animal manure (dairy, beef, etc.), biosolids (lime stabilized, anaerobically digested, etc.), or lime made on the application date. Use additional rows for multiple types of applications on the same date.

Analysis N-P-K: The chemical composition of the applied material as reported by a credited laboratory, or the product label measuring the percentage of nitrogen, phosphorus and potassium.

Application Rate (per acre): Rate of nutrient application measured in wet tons or gallons.

Total Amount Applied: The total quantity of nutrients applied; measured in wet tons or gallons per acre.

Application Method: The method in which the nutrient application is made, such as surface application, surface with incorporation and injection.

Acres Applied: The total number of acres that received the nutrient application.

Notes: Any specific information or occurrences useful for future management of a particular field including notation of variation from NMP recommendations.

FIELD BY FIELD NUTRIENT APPLICATION RECORD

January-03

FARM NAME:_____ OPERATOR:_____

YEAR:_____

FIELD ID/CROPPING INFORMATION:

Field or Field Strips:	Crop:	Acres:	Actual Yield:

Application Types: Fertilizer, Animal Manure, Biosolids, Lime

Application Date	*Nutrient Type*	*Analysis N-P-K*	*Application Rate Per Acre*	*Total Amount Applied*	*Application Method*	*Acres Applied*

Notes:

Field or Field Strips:	Crop:	Acres:	Actual Yield:

Application Types: Fertilizer, Animal Manure, Biosolids, Lime

Application Date	*Nutrient Type*	*Analysis N-P-K*	*Application Rate Per Acre*	*Total Amount Applied*	*Application Method*	*Acres Applied*

Notes:

All records on this sheet, except for lime information, is required for Nutrient Management Regulations

Maryland Nutrient Management Program

Variance for Commercial Fertilizer Nutrient Application

(August 2004)

Occasionally operators may need to group a number of fields within a close level (short range) of soil fertility and prepare a fertilizer blend for each group rather than field specific nutrient recommendation rates developed by the software programs. This guidance document will be used by MDA Nutrient Management Program Specialists during an implementation evaluation to evaluate the degree of variance between planned recommendation rates and actual applied rates for operators using commercial fertilizer sources.

Variance in Nutrient Application Rates for Commercial Fertilizer

Nitrogen:

Total application of commercial nitrogen should not exceed the recommended rate by more than #10/acre. Any rate over the recommended rate or the 10#/acre must be justified and is subject to be in non-compliance.

Phosphorus and Potassium

Recommended rates of commercial phosphorus and potassium can be applied at one rate when the plan recommends various rates for different fields. When using a blended fertilizer material containing phosphorus and potassium, the combined rates **cannot exceed** the phosphorus requirements. The following guidance should be used when evaluating the grouping of recommended nutrient rates.

Phosphorus

Maryland soil test FIV's will be used as a guide for what recommended rates can be grouped at one rate. Any soil test FIV's for phosphorus with the same rating (example: low, medium, optimum) can be managed at one rate. The rate should not exceed the highest recommended rate given in your nutrient management plan for that crop in that soil test range. The rate **cannot** exceed the upper limit of the nutrient recommended for that crop and yield goal within that soil test range, given in the Maryland Nutrient Management Manual, Section I-B1 and I-B2. (See two examples below)

Example 1: An operator has 3 corn fields with a yield goal of 140 bushel/acre. The three fields all have different rates of phosphorus recommendations from NuMan. Field 1 recommends #30/acre, field 2 recommends #50/acre, and field 3 recommends #0/acre. Any of these three fields with the same soil test FIV rating can be grouped together and applied at one rate , not to exceed the upper limit recommended within the plan for these crops in the given soil test FIV range. Fields 1 & 2 have a recommendation of #30 and #50/acre and have a soil test FIV rating of medium. Therefore fields 1 and 2 can be applied at the same rate, of up to #50 (the highest recommended rate). Field 3's recommendation is #0/acre, with an excessive soil test FIV rating, and cannot be grouped with fields 1 & 2. Field 3 would be allowed a starter fertilizer of up to #30/acre (provided the P-FIV is less than 150 or a P-Site evaluation has been done) however, the operator **cannot** exceed this rate.

The consultant or person grouping the fields should stay within the lower range when grouping recommendations for one rate when a high range is provided in the manual.

Example 2: An operator again has 3 corn fields with a yield goal of 140 bushel/acre. The three fields all have different rates of phosphorus recommendations from NuMan. Field 1 recommends #120/acre, field 2 recommends #130/acre, and field 3 recommends #70/acre. According to the Maryland Nutrient Management Manual, Section I-B1, these three fields all have the same soil test FIV rating of Low and could be grouped together. However, MDA suggests that the fields be grouped together within the particular range as close to the recommendation as possible. In this case, field 3 should be treated separate from fields 1 and 2 since the FIV range of field 3 is almost half the recommendation of fields 1 and 2. Fields 1 and 2 can be grouped together not to exceed #130/acre.

Potassium Requirement #1

The same guidance of grouping fields together is used for potassium. Any fields with the same soil test FIV ratings for potassium can be managed at one rate. The rate should not exceed the highest recommended rate given in your nutrient management plan for that crop in that soil test range.

Potassium Requirement #2

If the operator has recommended rates of potassium that are lower than what can be achieved because of equipment limitations or product availability, they may apply **up to** the recommended rates of that crop and the crop to follow (will require a 2 year crop plan). However, the operator **must** account for the over application with the following crop.

Example: The operator has a recommendation for #30/acre of potassium for their soybean crop, however, they are unable to achieve this rate based on equipment limitations. They plan to follow this crop with wheat/beans which has a recommendation for #60/acre potassium. Therefore the operator may apply **up to** #90/acre potassium at anytime during that 2 year/2 crop rotation. This is only if the operator has equipment limitation issues. If there are no equipment limitations, the operator will need to follow Requirement No. 1.

All applications of nutrients and any reasoning for exceeding the recommended plan rates must be documented. Any applications that exceed the above guidance are subject to be in non-compliance unless prior approval has been granted by the Department.

Maryland Nutrient Management Program

Variance for Animal Manure Nutrient Application

(August 2004)

Many operators throughout the state apply some form of animal manures to their fields to help meet crop nutrient requirements. Realizing the tremendous variability within organic nutrient sources such as the type of material, nutrient content, composition, along with various other factors such as equipment limitations, application methods and operator judgment, the following guidance was developed. This guidance document will be used by MDA Nutrient Management Program Specialists to evaluate past animal manure nutrient applications during a plan implementation review of a farm.

Variance in Nutrient Application Rates for Animal Manures

Nitrogen-based Plan: 10#/acre maximum allowance for nitrogen application *(per field)*
Operators who have over applied their animal manure based on the organic N recommended rate for any field, and **have not** met their total crop N requirement through the application of animal manure, will need to make the necessary adjustments in their commercial N recommended rate prior to applying commercial N. The total N application (organic and commercial) should not exceed the total recommended N rate for any field in the plan by more than 10#/acre. Any nutrient application over the recommended rate or the 10#/acre allowance must be justified and is subject to be in non-compliance.

Example:
A dairy producer's plan recommends 140 lbs/acre of Nitrogen for a particular field which will be planted in corn. The plan recommends 5,000 gal/acre of liquid dairy manure along with 40 lbs/acre of commercial N to meet the 140 lbs/acre N recommendation for that field. Due to an error in application, the operator actually applied 6,000 gal/acre. Because of this error, the operator will now need to adjust their commercial N application accordingly. Assuming the liquid dairy manure provided 20 lbs of PAN per 1000 gallons, the operator would need to reduce their commercial N application rate to 20 lbs/acre instead of the original 40 lbs/acre.

Nitrogen and Phosphorus-based plan: 10% maximum variance for N and P application *(per field)*
Operators who intend to meet the total crop N requirement in a field through the application of animal manures, or those operations that are applying to fields restricted to a P- based planning rate (FIV 150 or over and P-Site Index completed), should not exceed the total recommended rate by more than 10 percent. Any rate over the recommended rate, or the 10 percent variance, must be justified and is subject to be in non-compliance.

Example:
A poultry producer's plan recommends 140 lbs/acre of Nitrogen for a particular field which will be planted in corn. The plan recommends 3 tons of poultry litter/acre to meet the 140 lbs/acre N recommendation for a field, or is under a P-based plan restriction of 3 tons of litter/acre. The operator will need to keep their total organic nutrient application rate within 10% of the recommended rate. In this scenario, they would be allowed up to 3.3 tons/acre. This variance is given for equipment variability and possible operator error.

UNIVERSITY OF MARYLAND EXTENSION

Queen Anne's County
505 Railroad Avenue. Suite 4
Centreville, MD 21617
Phone: (410) 758-0166
Fax: (410) 758-3687

Queen Anne's County

NUTRIENT MANAGEMENT PLAN
FOR
Ryan Rhodes
Shore Pleasure Farm LLC
710 Brick School House Road
Centreville, MD 21617

January 18, 2023 through January 08, 2025.

Nutrient Management Program (NMP)
Maryland Department of Agriculture
50 Harry S Truman Parkway, Suite 201 - 203
Annapolis, MD 21401-7080
Phone: (410) 841-5959
(March 15, 2023)

Dwight Dotterer, Program Administrator	410-841-5877	dwight.dotterer@maryland.gov
Bryan Harris, Implementation Coordinator	410-841-5951	bryan.harris@maryland.gov
Debby Freburger, Administrative Officer	410-841-5958	debby.freburger@maryland.gov
Judy McGowan, Urban NM Specialist	410-980-9084	judy.mcgowan@maryland.gov
Tim Zang, NM Specialist	410-991-3288	timothy.zang@maryland.gov
Tia Randall-Murray, Administrative Specialist	410-841-5957	tia.randall-murray1@maryland.gov

REGIONAL OFFICES

Region 1: ALLEGANY, GARRETT, and WASHINGTON COUNTIES
Ashby Ruddle, Nutrient Management Specialist — ashby.ruddle@maryland.gov
Tel: 410-279-3506
P.O. Box 459, Hancock, MD 21750

Region 2a: CARROLL, and FREDERICK COUNTIES
Moana Himes, Nutrient Management Specialist — moana.himes@maryland.gov
Tel: 410-353-4320
92 Thomas Johnson Drive, Suite 110, Frederick, MD 21702

Region 2b: ANNE ARUNDEL, HOWARD, and MONTGOMERY COUNTIES
Kenny Favorite, Nutrient Management Specialist — kenny.favorite@maryland.gov
Tel: 410-507-4811
92 Thomas Johnson Drive, Suite 110, Frederick, MD 21702

Region 3: CALVERT, CHARLES, PRINCE GEORGES and ST. MARYS COUNTIES
Weylin Anderson, Nutrient Management Specialist — weylin.anderson@maryland.gov
Tel: 410-980-9479
P.O. Box 652, Leonardtown, MD 20650

Region 4a: BALTIMORE, and HARFORD COUNTIES
Emilee Smith, Nutrient Management Specialist — emilee.smith@maryland.gov
Tel: 443-223-0403
P.O. Box 850, Bel Air, MD 21014

Region 4b: CECIL and KENT COUNTIES
Nick Miller, Nutrient Management Specialist — nicholas.miller@maryland.gov
Tel: 410-991-3114
50 Harry S Truman Parkway, Annapolis MD 21401

Region 5a: CAROLINE, QUEEN ANNES, and TALBOT COUNTIES
Howard Callahan, Nutrient Management Specialist — howard.callahan@maryland.gov
Tel: 410-279-4003
P.O. Box 549, Cordova, MD 21625

Region 5b: DORCHESTER, SOMERSET, WICOMICO, and WORCESTER COUNTIES
Steve Szelestei, Nutrient Management Specialist — steve.szelestei@maryland.gov
Tel: 410-353-5660
P.O. Box 340, Marydel, MD 21649

Region 6: CAFO – STATEWIDE
Robin Culver, Nutrient Management Specialist — robin.culver@maryland.gov
Tel: 410-507-4949
27722 Nanticoke Road, Unit #2, Salisbury, MD 21801

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Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor
Joseph Bartenfelder, Secretary
Julianne A. Oberg, Deputy Secretary

The Wayne A. Cawley, Jr. Building
50 Harry S. Truman Parkway
Annapolis, Maryland 21401
www.mda.maryland.gov

410.841.5959 Baltimore/Washington
410.841.5950 Fax
800.492.5590 Toll Free

Plan Implementation Review Process for Operators

(September 2007, updated October 2015)

This document explains the process of a nutrient management plan implementation review and provides the operator with information about preparing for a review.

Selection Method

Nutrient management specialists either randomly select an operation for a review, arrange a review in response to a complaint, schedule a follow-up to a previous review, and/or to discuss questions /concerns with submitted AIRs or other non-compliance issues.

Notification

Nutrient management specialists notify the selected operator by letter or telephone to schedule a plan implementation review. The letter may propose a given date and time to visit at the operation site. MDA may provide the operator the option to confirm or reschedule the meeting date and/or location for the operator's convenience.

Operator Requirements

A specialist from the MDA nutrient management program will conduct the review. The operator must make available for review the current **and** two prior years' nutrient management plans and any records associated with these plans. The specialist will randomly select one or more year's worth of plans and associated records, and compare them against nutrient application records and fertilizer receipts. The specialist will examine several fields or management units representative of the operation. P-Site Index calculations and implementation of any resulting best management practices will be verified. Following the review, the specialist will give the operator a copy of the plan implementation evaluation report which will include any necessary follow-up action.

Use these checklists to prepare for your Nutrient Management Plan Implementation Review.

Necessary Records (retain for 3 years):

From All Nutrient Management Plans for the Operation

- ☐ Updated operation information used for required reporting to MDA
- ☐ Operation map or aerial photo
- ☐ Soil analysis results (original lab test results)
- ☐ Manure analysis and management information (if applicable, original lab test results)
- ☐ Summary nutrient recommendations (by field and specific to the crop)
- ☐ Phosphorus Site Index calculations (if applicable)
- ☐ Required Best Management Practices (for P-Site Index only)

From Actual Implementation Records

- ☐ **Nutrient Type(s)** Type of nutrients applied such as fertilizer, animal manure, biosolid, etc.
- ☐ **Analysis/Nutrient content** N-P-K analysis of nutrients applied
- ☐ **Rates & Quantity** Pounds, gallons, or tons applied per acre and total amount applied per total crop acres per timing period
- ☐ **Application Timing & Method** Date(s) applied and method such as banded, sidedress, topdress, etc.
- ☐ **Manure Management Information**: Manure type, date of removal from production and/or storage facility, location stored, where applied, name and location of receiver if moved off-site, and quantity estimate
- ☐ **Actual Yield**: Specific field or management unit yield information **for the last 5 years**
- ☐ **Applicator voucher or certificate number**: Individual(s) applying or supervising application of nutrients on the operation
- ☐ **Receipts for nutrients purchased:** Receipts for all nutrients purchased and applied (all organic and inorganic sources)

All applications of nutrients must follow the guidelines and standards documented in the *Maryland Nutrient Management Manual* Section I - Nutrient Recommendations, D - Timing of Nutrient Application. Any reasoning for exceeding the recommended plan application rates must be documented. Any applications of nutrients that exceed the above guidance are subject to be in non-compliance unless prior approval has been granted by the Department.

Note: This guidance document does not serve as a tool for those operations using biosolids as a nutrient source. The application of biosolids as a crop nutrient source is regulated under the Maryland Department of the Environment sewage sludge regulations. However, MDA does have planning guidance for the application of biosolids in the *Maryland Nutrient Management Manual* Fact Sheet Series # 6 entitled Nutrient Management Planning Guidance for Biosolid Use.

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Queen Anne's County
505 Railroad Avenue, Suite 4
Centreville, MD 21617
Phone: (410) 758-0166
Fax: (410) 758-3687

NUTRIENT MANAGEMENT PLAN
FOR
Shore Pleasure Farm LLC
710 Brick Schoolhouse Lane
Centreville, MD 21617

BRIEF DESCRIPTION OF OPERATION: Shore Pleasure Farm LLC is a cash grain operation consisting of 3 farms, totaling 178 acres in Queen Anne's County. Animals are not a part of this operation. This is a two-year plan with options for corn, soy and wheat double crop beans and fall cover crop, assumed to be small grain. Poultry litter is expected to be applied. In the writing of this plan it was assumed that small grained cover cropping would occur. Small-grain cover crops remove nitrogen credits from previously planted soybeans and previously applied manure. If Mr. Rhodes does not plant a fall small grain seek an addendum to this plan so that soy- and manure-based nitrogen credits can be determined.

DATE OF PLAN: January 18, 2023.

DURATION OF PLAN: This plan is valid from January 18, 2023 through January 08, 2025. An update will be required prior to the 2024 growing season.

SOIL SAMPLING AND TESTING: Soil samples were collected by Mr. Rhodes and analyzed by Agro Lab of Harrington, DE in November of 2022. Soil samples are valid for three years from date of testing. New samples will be required for all fields to update the 2025 nutrient management plan

MANURE SAMPLING AND TESTING: A manure sample was collected by Mr. Rhodes and analyzed by Agro Lab of Harrington, DE on January 09, 2023. *Manure should be sampled at least once a year.*

MANURE MANAGEMENT: Mr. Rhodes may import approximately 773.01 tons of poultry litter on 3 farms that total 178 acres. The manure is being imported **from Ryan Rhodes of 710 Brick Schoolhouse Lane Centreville, MD 21617.**

Maryland Department of Agriculture (MDA) requires that producers keep records of manure imports, including the name and address of the operation from which manure was imported, the quantity of manure imported, and the acreage to which it was applied. Operators must report this information in their Annual Implementation Report (AIR) due to MDA by March 1 each year.

Regulations that became effective in December 2016 require the incorporation of manure under many cropping situations. Shore Pleasure Farm LLC plans to incorporate within 48 hours. They are aware that the Maryland Department of Agriculture reserves the right to require incorporation of organic nutrient sources on a case-by-case basis.

BASIS OF RECOMMENDATIONS: Nutrient recommendations are both nitrogen & phosphorus based, as required by State of Maryland regulations.

UM-PHOSPHORUS MANAGEMENT TOOL (UM-PMT): A Phosphorus Management Tool risk assessment is not required at this time as no fields have a Fertility Index (FIV-P) greater than or equal to 150.

NUTRIENT APPLICATION EQUIPMENT CALIBRATION: Application equipment must be calibrated to estimate actual application rates for all nutrient applications. Equipment must be recalibrated when equipment settings, ground speed, consistency or density of a product varies from the original calibration. Documentation of the calibrations must be recorded and made available during an implementation review conducted by MDA. This documentation must include any of the necessary calculations to demonstrate the nutrient rate that was determined.

SOURCE OF YIELD GOAL INFORMATION: Yield goals were determined by Mr. Rhodes. No records were offered for observation.

TIMING: Guidance on the timing of fertilizer applications is included on the recommendations sheet(s). Also note that nutrient application is prohibited when the soil is saturated, when the ground is covered with snow greater than one inch, or when the ground is hard-frozen greater than two inches. Additional information of a general nature is included in the "NUTRIENT APPLICATION REQUIREMENTS" and "GENERAL PRINCIPLES OF NUTRIENT MANAGEMENT" sections of this plan.

BEST MANAGEMENT PRACTICES: Mr. Rhodes will contact the Soil Conservation District about obtaining a Soil Conservation Water Quality Plan. Seek an addendum to this plan if a field did not get a fall-planted small grain. If a field did not get a fall-planted small grain the spring cash crop may need to be provided a nitrogen credit that would lower the needed nitrogen application and sayve Mr. Rhodes money in inorganic N fertilizer.

CUSTOM APPLICATION OF NUTRIENTS: If any nutrient sources are custom-applied, it is imperative that the farmer/operator inform the custom applicator(s) of the recommendations contained in this plan as well as any setbacks that are required. The farmer/operator is solely responsible for ensuring that the nutrient recommendations and setback requirements contained in this plan are followed by all hired contractors and employees.

RECORD KEEPING REQUIREMENTS: The Water Quality Improvement Act requires that producers keep records on fertilizer and/or manure usage. Consult the model form and directions included in the record keeping section of this plan.

Farm Name Farm Identification Summary	Tax Account ID Numbers	the type of Watershed Location Code	Total Acres Farmed (Cropland and Pastures)
Shore Pleasure	[redacted]	0048	37
Wolepepper	[redacted]	0048	7.7
Hillsdale	[redacted]	0048	133.6

Plan Update Requirements

As stated in the cover sheet, this plan was developed for use from

January 18, 2023 through January 08, 2025.

The following is a list of situations that will impact whether or not the attached Nutrient Management Plan will need updating **before** the end of the time period for which the plan was developed.

1) A change to the **planned crop or cropping rotation,** or introduction of a **new crop** not currently addressed in the existing nutrient management plan.

2) A change in **nutrient source or soil test results.**

3) A change in **acreage** managed of 10 percent or greater, or 30 acres, whichever is less.

4) A change in **animal units** of 10 percent or greater if resultant manure production will require significant management adjustments.

5) This plan has been written assuming the fall planting of small grains in every field. Consult Jeff Moore if on any field a fall planting of small grains does not occur.

Jennifer L. Rhodes
Agricultural Science Educator
Certification # 1368
License # 2030

David E. Ruppert for Jeff Moore
Nutrient Management Advisor
Certification # 4423
License # 2030

NUTRIENT APPLICATION SETBACKS FROM SURFACE WATER:

(5-19-15)

Setbacks for Nutrient Application are required in the development of nutrient management plans. Application and livestock setback regulations are contained under the Nutrient Application Requirements, Maryland Department of Agriculture 2012, COMAR 15.20.07.02, Maryland Nutrient Management Manual, 1-D1.

A minimum of a 10' vegetative setback must be in place next to surface water. The chart below indicates if surface water is present that requires a setback on any farm/operation and identifies the fields that are required to have a nutrient application setback. **An application of crop nutrients using a broadcast method either with or without incorporation requires a 35'setback. A directed spray application or the injection of crop nutrients only requires a 10'setback.** Excepting perennial forage crops grown for hay and pasture, vegetation in the 10' setback area may not include plants that would be considered part of the crop grown in the field (i.e. row crops). Pastures and hayfields are subject to a 10' and/or a 35' nutrient application setback depending on application methods. Nutrients may not be applied within the 10' setback.

Livestock on pasture are required to meet the minimum 10' setback by means of fencing unless a Best Management Practice (BMP) is approved by MDA or a Soil Conservation and Water Quality Plan is developed and implemented that prescribes an alternative to fencing animals 10' from surface water. Alternative BMP's may include stream crossings, watering facilities, pasture management, or other practices that are equally protective of water quality. Sacrifice lots for livestock require a 35' setback from surface water.

If nutrients are custom-applied, it is the operator's responsibility to inform the applicator of the setback distance based on the method of application.

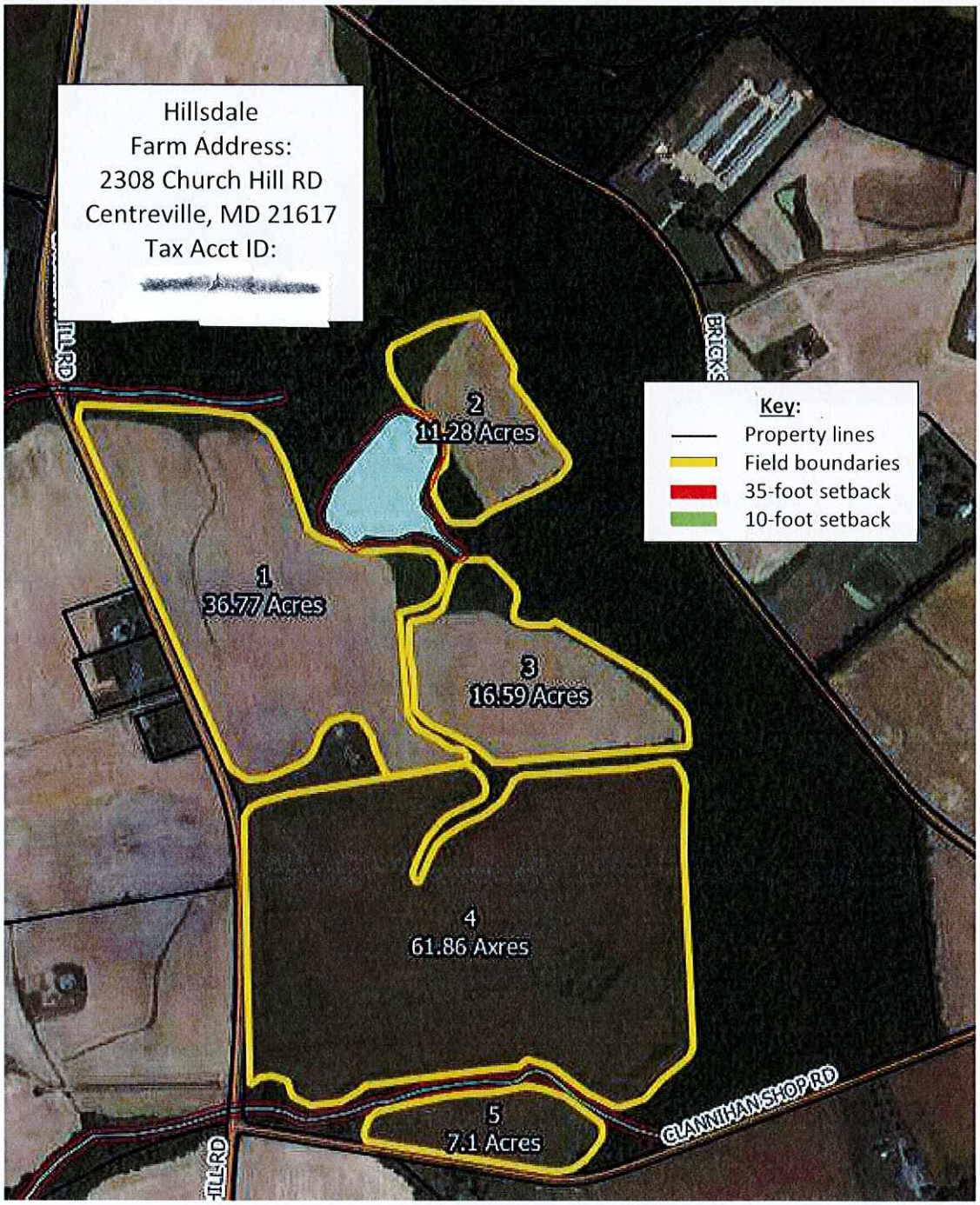
Farm Name(s)	Is Surface Water Present on the farm that requires a setback (Yes or No)	Field(s) requiring a Nutrient Application Setback*	Nutrient Application Setback Required (Indicate with "Yes" in appropriate column(s).)		
			Livestock on Pasture ≥ 10 ft.	Directed Application** ≥ 10 ft.	Broadcast Application or Sacrifice Lots*** ≥ 35 ft.
Shore Pleasure	Yes	1		Yes	Yes
Woelpper	Yes	1		Yes	Yes
Hillsdale	Yes	1		Yes	Yes
Hillsdale	Yes	2		Yes	Yes
Hillsdale	Yes	4		Yes	Yes
Hillsdale	Yes	5		Yes	Yes

***If a field contains multiple sources of surface water (i.e. a pond and a stream), list each separately or identify on the map.**

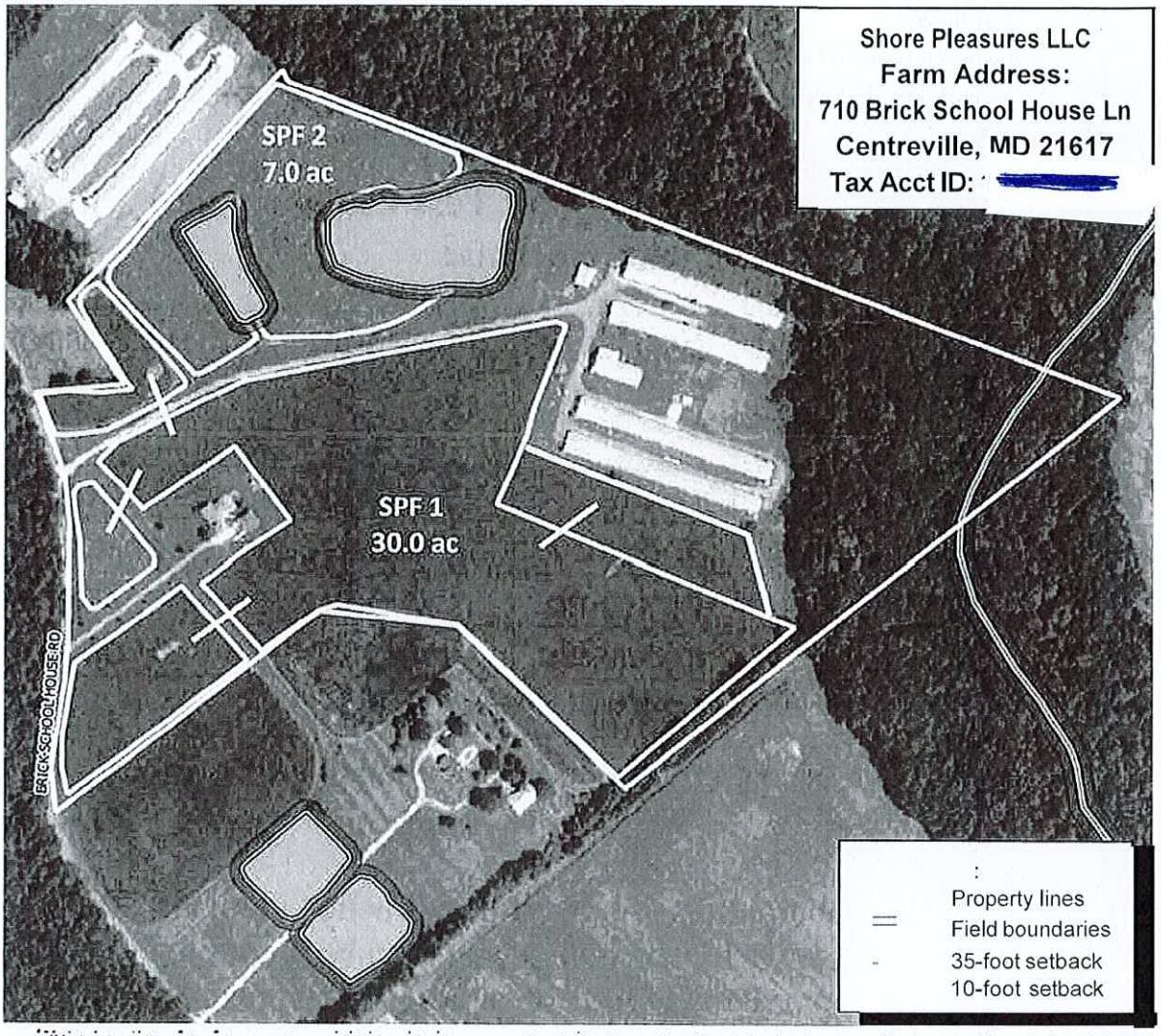
****Directed Application** = Directed Spray Application (Vertical Fan or Drop Nozzle), Air Flow Application, Knifed/Injected application of Nutrients, Planter Applied nutrients

*****Broadcast Application or Sacrifice Lots** = Spinner Spreaders (Manure or Fertilizer), High Volume Horizontal Nozzles, Manure Spreaders (Box type with beaters, Splasher plates for liquid, Side Discharge V-Type)

Additional Fields


Hillsdale
Farm Address:
2308 Church Hill RD
Centreville, MD 21617
Tax Acct ID:
[redacted]
Key:
Property lines
Field boundaries
35-foot setback
10-foot setback
2
11.28 Acres
1
36.77 Acres
3
16.59 Acres
4
61.86 Axres
5
7.1 Acres
CHURCH HILL RD
BRICKS
CHURCH HILL RD
GLANNIHAN SHOP RD

(Note: *Location of surface waters and their setbacks were estimated using national or state databases and/or personal knowledge of the Nutrient Management Advisor. Actual surface water locations moy be different than indicated on the mop. Refer to the Maryland Deportment of Agriculture's NUTRIENT APPLICATION SETBACKS FROM SURFACF WATFRform in your Nutrient Management Planfor more information.)*



Nate: Location of svrface waters and their setbacks were estimated vsing national or state databases and/or personal knowledge of the Nvtrient Management Advisor. Actval svrfoce water locations may be different than indicated on the map. Refer to the Maryland Department of Agriwltvre's NUTRIENT APPLICATION SETBACKS FROM SURFACE WATER form in yovr Nutrient Management Planfor more information.)

Field Information Sheet

Farmer/Operator	Ryan Rhodes	Plan Year	2023- 2024
Street Address	710 Brick Schoolhouse Lane	Tier - Phase	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	

Tract No. / Farm Name	Field No.	Area	Crops	Yield Goal	Tillage Method	Past Legume N Credit	Nutrient Source Manure/Sludge Field History Last Year	
							Type	Rate
Hillsdale	1	36.8 Acres	Corn grain, conservation till	220	Cons tillage, res 30-70%	0 CC		
Hillsdale	2	11.28 Acres	Corn grain, conservation till	220	Cons tillage, res 30-70%	0 CC		
Hillsdale	3	16.6 Acres	Corn grain, conservation till	220	Cons tillage, res 30-70%	0 CC		
Hillsdale	4	61.86 Acres	Corn grain, conservation till	220	Cons tillage, res 30-70%	0 CC		
Hillsdale	5	7.10 Acres	Corn grain, conservation till	220	Cons tillage, res 30-70%	0 CC		
Shore Pleasure	1	30.00 Acres	Corn grain, conservation till	220	Cons tillage, res 30-70%	0 CC		
Shore Pleasure	2	7.00 Acres	Corn grain, conservation till	220	Cons tillage, res 30-70%	0 CC		
Wolepepper	1	7.70 Acres	Corn grain, conservation till	220	Cons tillage, res 30-70%	0 CC		

Annual **Fertilizer Recommendations**

Farmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-23-2023

Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Hillsdale	1 2023 [*]	2 Corn grain, conservation till 7 1 2 3 27 60 92 93	36.77 Acres	220 Bu/A	220-53-140 #/A	0 CC	0 CC	0 CC	Total	220 #/A	53 #/A	140 #/A		1.0 t/A
									broadcast	30 #/A	27 #/A	100 #/A		
									banded w/planter	30 #/A	26 #/A	40 #/A		
									sidedress	160 #/A	0 #/A	0 #/A		
Hillsdale	2 2023 [*]	2 Corn grain, conservation till 1 2 3 27 60 92 93	11.28 Acres	220 Bu/A	220-133-137 #/A	0 CC	0 CC	0 CC	Total	220 #/A	133 #/A	137 #/A		0.0 t/A
									broadcast	30 #/A	93 #/A	97 #/A		
									banded w/planter	30 #/A	40 #/A	40 #/A		
									sidedress	160 #/A	0 #/A	0 #/A		
Hillsdale	3 2023 [*]	2 Corn grain, conservation till 7 1 2 3 27 60 92 93	16.59 Acres	220 Bu/A	220-124-173 #/A	0 CC	0 CC	0 CC	Total	220 #/A	124 #/A	173 #/A		1.2 t/A
									broadcast	30 #/A	84 #/A	133 #/A		
									banded w/planter	30 #/A	40 #/A	40 #/A		
									sidedress	160 #/A	0 #/A	0 #/A		

Follow recommendations on this page if you decide to use commercial fertilizer only rather than manure on any fields

Subtract 15 #/acre N from the given recommendation if corn follows soybeans without an intervening small grain.

Further alterations may be necessary given manure history.

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

[*] - indicates primary recommendation used for the PMT calculation.

Annual **Fertilizer Recommendations**

Farmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-23-2023

Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Hillsdale	4 2023 [*]	2 Corn grain, conservation till 7 1 2 3 27 60 92 93	61.86 Acres	220 Bu/A	220-95-143 #/A	0 CC	0 CC	0 CC	Total	220 #/A	95 #/A	143 #/A		1.1 t/A
									broadcast	30 #/A	55 #/A	103 #/A		
									banded w/planter	30 #/A	40 #/A	40 #/A		
									sidedress	160 #/A	0 #/A	0 #/A		
Hillsdale	5 2023 [*]	2 Corn grain, conservation till 7 1 2 3 27 60 92 93	7.10 Acres	220 Bu/A	220-112-143 #/A	0 CC	0 CC	0 CC	Total	220 #/A	112 #/A	143 #/A		0.8 t/A
									broadcast	30 #/A	72 #/A	103 #/A		
									banded w/planter	30 #/A	40 #/A	40 #/A		
									sidedress	160 #/A	0 #/A	0 #/A		
Shore Pleasure	1 2023 [*]	2 Corn grain, conservation till 1 2 3 27 60 92 93	30.00 Acres	220 Bu/A	220-45-91 #/A	0 CC	0 CC	0 CC	Total	220 #/A	45 #/A	91 #/A		0.0 t/A
									broadcast	30 #/A	23 #/A	51 #/A		
									banded w/planter	30 #/A	22 #/A	40 #/A		
									sidedress	160 #/A	0 #/A	0 #/A		

Follow recommendations on this page if you decide to use commercial fertilizer only rather than manure on any fields

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

Subtract 15 #/acre N from the given recommendation if corn follows soybeans ~~without an intervening small grain.~~
Further alterations may be necessary given manure history.

Annual **Fertilizer Recommendations**

Farmer/Operator		Ryan Rhodes				Plan Year			2023-2024					
Street Address		710 Brick Schoolhouse Lane				MDA operator no.								
City, State, Zip, County		Centreville MD 21617 Queen Anne's				Date Plan Prepared			1-23-2023					
Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Shore Pleasure	2 2023 [*]	2 Corn grain, conservation till 1 2 3 27 60 92 93	7.00 Acres	220 Bu/A	220-45-91 #/A	0 CC	0 CC	0 CC	Total	220 #/A	45 #/A	91 #/A		0.0 t/A
									broadcast	30 #/A	23 #/A	51 #/A		
									banded w/planter	30 #/A	22 #/A	40 #/A		
									sidedress	160 #/A	0 #/A	0 #/A		
Volepepper	1 2023 [*]	2 Corn grain, conservation till 1 2 3 27 60 92 93	7.70 Acres	220 Bu/A	220-51-75 #/A	0 CC	0 CC	0 CC	Total	220 #/A	51 #/A	75 #/A		0.0 t/A
									broadcast	30 #/A	26 #/A	38 #/A		
									banded w/planter	30 #/A	25 #/A	37 #/A		
									sidedress	160 #/A	0 #/A	0 #/A		
		Subtract 15 #/acre N from the given recommendation if corn follows soybeans without an intervening small grain. Further alterations may be necessary given manure history.			Follow recommendations on this page if you decide to use commercial fertilizer rather than manure on any fields.									

[*] - indicates primary recommendation used for the PMT calculation.

Notes

Farmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-23-2023

1. To satisfy TOTAL recommendation for many crops, it may be necessary to adjust SUGGESTED TIMING AND METHODS of application, (i.e. broadcast, topdress, sidedress, row, etc.) to be compatible with available equipment and materials.

2. These recommendations assume that the highest level of nitrogen (N) management will be utilized and that N losses due to leaching, volatilization and denitrification are minimized by utilizing to best management practices.

3. For conventional tillage, ag-lime recommendations are based upon the amount of oxides required for the surface 8" of soil. Lime should be thoroughly mixed with the soil by plowing and disking. If recommended amount of oxides exceeds 1.5 tons of lime per acre (assuming 50% total oxides), Â½ should be plowed down and the remainder applied after plowing and disked in thoroughly.

7. Magnesium will be recommended when the soil test indicates a low or very low level. Use dolomitic lime as a liming material when magnesium is recommended AND when lime is needed to correct soil acidity. The magnesium (Mg) recommendation is expressed as elemental Mg when lime is not required.

27. If soil test FIV-P is 150 or greater, a phosphorus risk assessment (Phosphorus Site Index [PSI] or Phosphorus Management Tool [PMT]) must first be conducted to determine if a starter containing phosphorus is allowed. A starter may be beneficial in stimulating early plant growth, especially on cold, wet soils. A good starter fertilizer should supply 20-30 lbs/A of N, P2O5, and K2O.

60. If the nitrogen requirement is met by surface broadcasting UAN either prior to or at planting, use of proven urease and nitrification inhibitors is recommended to minimize nitrogen loss via volatilization and/or denitrification pathways.

92. If UAN is dribbled or streamed on the soil surface, use a proven urease inhibitor to help minimize nitrogen loss via volatilization.

93. If nitrogen source is granular urea, use a proven urease inhibitor to help minimize loss via volatilization.

Annual **Fertilizer Recommendations**

Farmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-26-2023

Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Hillsdale	1 2023 [*]	10 Soybeans 7 3 4	36.77 Acres	80 Bu/A	0-73-173 #/A	0 CC	0 CC	0 CC	Total	0 #/A	73 #/A	173 #/A		1.0 t/A
									brdcst/band @plntg	0 #/A	73 #/A	173 #/A		
Hillsdale	2 2023 [*]	10 Soybeans 3 4	11.28 Acres	80 Bu/A	0-152-171 #/A	0 CC	0 CC	0 CC	Total	0 #/A	152 #/A	171 #/A		0.0 t/A
									brdcst/band @plntg	0 #/A	152 #/A	171 #/A		
Hillsdale	3 2023[*]	10 Soybeans 7 3 4	16.59 Acres	80 Bu/A	0-146-199 #/A	0 CC	0 CC	0 CC	Total	0 #/A	146 #/A	199 #/A		1.2 t/A
									brdcst/band @plntg	0 #/A	146 #/A	199 #/A		

Follow recommendations on this page if you decide to use commercial fertilizer rather than manure on any fields.

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

[*] - indicates primary recommendation used for the PMT calculation.

Annual **Fertilizer Recommendations**

Farmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-26-2023

Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Hillsdale	4 2023 [*]	10 Soybeans 7 3 4	61.86 Acres	80 Bu/A	0-122-175 #/A	0 CC	0 CC	0 CC	Total	0 #/A	122 #/A	175 #/A		1.1 t/A
									brdcst/band @plntg	0 #/A	122 #/A	175 #/A		
Hillsdale	5 2023 [*]	10 Soybeans 7 3 4	7.10 Acres	80 Bu/A	0-139-175 #/A	0 CC	0 CC	0 CC	Total	0 #/A	139 #/A	175 #/A		0.8 t/A
									brdcst/band @plntg	0 #/A	139 #/A	175 #/A		
Shore Pleasure	1 2023 [*]	10 Soybeans 3 4	30.00 Acres	80 Bu/A	0-53-100 #/A	0 CC	0 CC	0 CC	Total	0 #/A	53 #/A	100 #/A		0.0 t/A
									brdcst/band @plntg	0 #/A	53 #/A	100 #/A		

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Follow recommendations on this page if you decide to use commercial fertilizer rather than manure on any fields.

Annual **Fertilizer Recommendations**

Farmer/Operator		Ryan Rhodes				Plan Year			2023-2024						
Street Address		710 Brick Schoolhouse Lane				MDA operator no.									
City, State, Zip, County		Centreville MD 21617 Queen Anne's				Date Plan Prepared			1-26-2023						
Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied						Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg		
Shore Pleasure	2 2023 [*]	10 Soybeans 3 4	7.00 Acres	80 Bu/A	0-53-100 #/A	0 CC	0 CC	0 CC	Total	0 #/A	53 #/A	100 #/A			0.0 t/A
									brdcst/band @plntg	0 #/A	53 #/A	100 #/A			
Volepepper	1 2023 [*]	10 Soybeans 3 4	7.70 Acres	80 Bu/A	0-68-91 #/A	0 CC	0 CC	0 CC	Total	0 #/A	68 #/A	91 #/A			0.0 t/A
									brdcst/band @plntg	0 #/A	68 #/A	91 #/A			

Follow recommendations on this page if you decide to use commercial fertilizer rather than manure on any fields.

[*] - indicates primary recommendation used for the PMT calculation.

Notes

Farmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-23-2023

3. For conventional tillage, ag-lime recommendations are based upon the amount of oxides required for the surface 8" of soil. Lime should be thoroughly mixed with the soil by plowing and disking. If recommended amount of oxides exceeds 1.5 tons of lime per acre (assuming 50% total oxides), Â½ should be plowed down and the remainder applied after plowing and disked in thoroughly.

4. If topdressing ag-lime without tillage, reduce the total amount of oxides recommended by 50 percent. When topdressing ag-lime, and soil mixing is not possible, do not apply more than 1500 lbs per acre of oxides in any one application. The balance can be applied the next year. It would be best to do a soil test before making the second application.

7. Magnesium will be recommended when the soil test indicates a low or very low level. Use dolomitic lime as a liming material when magnesium is recommended AND when lime is needed to correct soil acidity. The magnesium (Mg) recommendation is expressed as elemental Mg when lime is not required.

Annual **Fertilizer Recommendations**

Farmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-24-2023

Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Hillsdale	1 2023 [*]	15 Wheat/Double Crop Soybeans 7 3 4 30 41 44 142	36.77 Acres	100 Bu/A 60 Bu/A	100-95-164 #/A	0 CC	0 CC	0 CC	Total	100 #/A	95 #/A	164 #/A		1.0 t/A
									tpdrs@ green-up	50 #/A	95 #/A	164 #/A		
									tpdrs @ Feekes 5-6	50 #/A	0 #/A	0 #/A		
Hillsdale	2 2023 [*]	15 Wheat/Double Crop Soybeans 3 4 30 41 44 142	11.28 Acres	100 Bu/A 60 Bu/A	100-207-161 #/A	0 CC	0 CC	0 CC	Total	100 #/A	207 #/A	161 #/A		0.0 t/A
									tpdrs@ green-up	50 #/A	207 #/A	161 #/A		
									tpdrs @ Feekes 5-6	50 #/A	0 #/A	0 #/A		
Hillsdale	3 2023 [*]	15 Wheat/Double Crop Soybeans 7 3 4 30 41 44 142	16.59 Acres	100 Bu/A 60 Bu/A	100-190-203 #/A	0 CC	0 CC	0 CC	Total	100 #/A	190 #/A	203 #/A		1.2 t/A
									tpdrs@ green-up	50 #/A	190 #/A	203 #/A		
									tpdrs @ Feekes 5-6	50 #/A	0 #/A	0 #/A		
									The amount of N to apply in the fall is determined by FSNT (Fall soil nitrate test)					

Follow recommendations on this page if you decide to use commercial fertilizer rather than manure on any fields.

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

[*] - indicates primary recommendation used for the PMT calculation.

Annual **Fertilizer Recommendations**

Farmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-24-2023

Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Hillsdale	4 2023 [*]	15 Wheat/Double Crop Soybeans 7 3 4 30 41 44 142	61.86 Acres	100 Bu/A 60 Bu/A	100-142-168 #/A	0 CC	0 CC	0 CC	Total	100 #/A	142 #/A	168 #/A		1.1 t/A
									tpdrs@ green-up	50 #/A	142 #/A	168 #/A		
									tpdrs @ Feekes 5-6	50 #/A	0 #/A	0 #/A		
Hillsdale	5 2023 [*]	15 Wheat/Double Crop Soybeans 7 3 4 30 41 44 142	7.10 Acres	100 Bu/A 60 Bu/A	100-169-168 #/A	0 CC	0 CC	0 CC	Total	100 #/A	169 #/A	168 #/A		0.8 t/A
									tpdrs@ green-up	50 #/A	169 #/A	168 #/A		
									tpdrs @ Feekes 5-6	50 #/A	0 #/A	0 #/A		
Shore Pleasure	1 2023 [*]	15 Wheat/Double Crop Soybeans 3 4 30 41 44 142	30.00 Acres	100 Bu/A 60 Bu/A	100-43-114 #/A	0 CC	0 CC	0 CC	Total	100 #/A	43 #/A	114 #/A		0.0 t/A
									tpdrs@ green-up	50 #/A	43 #/A	114 #/A		
									tpdrs @ Feekes 5-6	50 #/A	0 #/A	0 #/A		

Follow recommendations on this page if you decide to use commercial fertilizer rather than manure on any fields.

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

The amount of N to apply in the fall is determined by FSNT (Fall soil nitrate test)

[*] - indicates primary recommendation used for the PMT calculation.

Annual **Fertilizer Recommendations**

armer/Operator		Ryan Rhodes				Plan Year			2023 -2024					
treet Address		710 Brick Schoolhouse Lane				MDA operator no.								
ity, State, Zip, County		Centreville MD 21617 Queen Anne's				Date Plan Prepared			1-24-2023					
ract No. / arm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Shore Pleasure	2 2023 [*]	15 Wheat/Double Crop Soybeans 3 4 30 41 44 142	7.00 Acres	100 Bu/A 60 Bu/A	100-43-114 #/A	0 CC	0 CC	0 CC	Total	100 #/A	43 #/A	114 #/A		0.0 t/A
									tpdrs@ green-up	50 #/A	43 #/A	114 #/A		
									tpdrs @ Feekes 5-6	50 #/A	0 #/A	0 #/A		
olepepper	1 2023 [*]	15 Wheat/Double Crop Soybeans 3 4 30 41 44 142	7.70 Acres	100 Bu/A 60 Bu/A	100-82-87 #/A	0 CC	0 CC	0 CC	Total	100 #/A	82 #/A	87 #/A		0.0 t/A
									tpdrs@ green-up	50 #/A	82 #/A	87 #/A		
									tpdrs @ Feekes 5-6	50 #/A	0 #/A	0 #/A		

Follow recommendations on this page if you decide to use commercial fertilizer rather than manure on any fields.

The amount of N to apply in the fall is determined by FSNT (Fall soil nitrate test)

[*] - indicates primary recommendation used for the PMT calculation.

Notes

Farmer/Operator	Ryan Rhodes	Plan Year	2023-2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-23-2023

1. To satisfy TOTAL recommendation for many crops, it may be necessary to adjust SUGGESTED TIMING AND METHODS of application, (i.e. broadcast, topdress, sidedress, row, etc.) to be compatible with available equipment and materials.

2. These recommendations assume that the highest level of nitrogen (N) management will be utilized and that N losses due to leaching, volatilization and denitrification are minimized by utilizing to best management practices.

3. For conventional tillage, ag-lime recommendations are based upon the amount of oxides required for the surface 8" of soil. Lime should be thoroughly mixed with the soil by plowing and disking. If recommended amount of oxides exceeds 1.5 tons of lime per acre (assuming 50% total oxides), Â½ should be plowed down and the remainder applied after plowing and disked in thoroughly.

4. If topdressing ag-lime without tillage, reduce the total amount of oxides recommended by 50 percent. When topdressing ag-lime, and soil mixing is not possible, do not apply more than 1500 lbs per acre of oxides in any one application. The balance can be applied the next year. It would be best to do a soil test before making the second application.

7. Magnesium will be recommended when the soil test indicates a low or very low level. Use dolomitic lime as a liming material when magnesium is recommended AND when lime is needed to correct soil acidity. The magnesium (Mg) recommendation is expressed as elemental Mg when lime is not required.

27. If soil test FIV-P is 150 or greater, a phosphorus risk assessment (Phosphorus Site Index [PSI] or Phosphorus Management Tool [PMT]) must first be conducted to determine if a starter containing phosphorus is allowed. A starter may be beneficial in stimulating early plant growth, especially on cold, wet soils. A good starter fertilizer should supply 20-30 lbs/A of N, P2O5, and K2O.

28. Proper timing of nutrient applications is important. Apply nutrient sources as close to planting or nutrient demand as possible so that nutrients are absorbed by plants quickly and not allowed to runoff into surface water or leach into ground water.

30. For small grains, and small grains double cropped with soybeans, the total phosphate and potash recommendations are shown with both the fall and spring recommendations for the crop, depending on when the operator prefers to apply. Subtract any P2O5 or K2O applied in the fall from what is recommended in the spring, to prevent over-application of phosphorus and potassium.

Notes

Farmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-23-2023

41. For wheat, barley, including malting barley; and wheat and barley double cropped with soybeans, the fall nitrogen rate depends on the residual soil nitrate concentration. Consult University of Maryland Extension Brief, EBR-15 for more details. If the Fall Soil Nitrate Test indicates nitrogen insufficiency, up to 30 pounds of nitrogen may be applied.

44. The total spring nitrogen (N) recommendation for wheat, barley, including malting barley; and wheat and barley double cropped with soybeans averages 1 pound of N per bushel of expected yield per acre. Nitrogen application rate ranges from 0.8 pound nitrogen per bushel for fine-textured soils such as silt loams and all clay loams to 1.2 pounds nitrogen per bushel for coarse-textured soils such as sandy loams and loamy sands.

60. If the nitrogen requirement is met by surface broadcasting UAN either prior to or at planting, use of proven urease and nitrification inhibitors is recommended to minimize nitrogen loss via volatilization and/or denitrification pathways.

92. If UAN is dribbled or streamed on the soil surface, use a proven urease inhibitor to help minimize nitrogen loss via volatilization.

93. If nitrogen source is granular urea, use a proven urease inhibitor to help minimize loss via volatilization.

142. Topdress half of the spring nitrogen recommendation at 300 GDU-32 (base 32 degrees F) accumulation from Janaury 1. Apply second half at Feekes growth stage 5-6 or 700 GDU-32 accumulation from January 1.

Annual **Fertilizer Recommendations**

Farmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-23-2023

Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Hillsdale	1 2023 [*]	51 Cover crop for water quality	36.77 Acres	0.0 T/A	0-0-0 #/A	0 CC	0 CC	0 CC	Total	0 #/A	0 #/A	0 #/A		1.0 t/A
Hillsdale	2 2023 [*]	51 Cover crop for water quality	11.28 Acres	0.0 T/A	0-0-0 #/A	0 CC	0 CC	0 CC	Total	0 #/A	0 #/A	0 #/A		0.0 t/A
Hillsdale	3 2023 [*]	51 Cover crop for water quality	16.59 Acres	0.0 T/A	0-0-0 #/A	0 CC	0 CC	0 CC	Total	0 #/A	0 #/A	0 #/A		1.2 t/A

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

[*] - indicates primary recommendation used for the PMT calculation.

Annual **Fertilizer Recommendations**

Farmer/Operator		Ryan Rhodes				Plan Year			2023 -2024					
Street Address		710 Brick Schoolhouse Lane				MDA operator no.								
City, State, Zip, County		Centreville MD 21617 Queen Anne's				Date Plan Prepared			1-23-2023					
Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Hillsdale	4 2023 [*]	51 Cover crop for water quality	61.86 Acres	0.0 T/A	0-0-0 #/A	0 CC	0 CC	0 CC	Total	0 #/A	0 #/A	0 #/A		1.1 t/A
Hillsdale	5 2023 [*]	51 Cover crop for water quality	7.10 Acres	0.0 T/A	0-0-0 #/A	0 CC	0 CC	0 CC	Total	0 #/A	0 #/A	0 #/A		0.8 t/A
Shore Pleasure	1 2023 [*]	51 Cover crop for water quality	30.00 Acres	0.0 T/A	0-0-0 #/A	0 CC	0 CC	0 CC	Total	0 #/A	0 #/A	0 #/A		0.0 t/A

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

[*] - indicates primary recommendation used for the PMT calculation.

Annual **Fertilizer Recommendations**

Farmer/Operator	Ryan Rhodes	Plan Year	2023-2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-23-2023

Tract No. / Farm Name	Field No.	Crops & Note Numbers	Area	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Fertilizer To Be Applied					Lime
						Leg.	Man.	Slu.	Method	N	P2O5	K2O	Mg	
Shore Pleasure	2 2023 [*]	51 Cover crop for water quality	7.00 Acres	0.0 T/A	0-0-0 #/A	0 CC	0 CC	0 CC	Total	0 #/A	0 #/A	0 #/A		0.0 t/A
Wolcpepper	1 2023 [*]	51 Cover crop for water quality	7.70 Acres	0.0 T/A	0-0-0 #/A	0 CC	0 CC	0 CC	Total	0 #/A	0 #/A	0 #/A		0.0 t/A

[*] - indicates primary recommendation used for the PMT calculation.

Nutrient Application Requirements

NUTRIENT APPLICATION REQUIREMENTS

Source: Maryland Department of Agriculture 2016
Regulatory Citation: COMAR 15.20.07.02

I. GENERAL GUIDELINES

A. This document addresses (1) Setbacks for Nutrient Application, (2) Application Timing for all nutrients, organic and chemical, and (3) Temporary Field Stockpiling (staging) of Organic Materials. Application of nutrients may vary depending on the crop, season, nutrient source, and weather conditions. A person applying nutrients shall use best management practices, including following these "Nutrient Application Requirements," to maximize plant utilization efficiency as described in Section I-B of the *Maryland Nutrient Management Manual*, and minimize the potential for nutrient movement to sensitive areas and losses to surrounding water bodies, including surface and groundwater.

B. This document does not supersede Maryland Department of the Environment Animal Feeding Operations regulations in COMAR 26.08.01 and 26.08.03.09, or the Maryland Department of the Environment Sewage Sludge Management regulations in COMAR 26.04.06 regarding the requirements for sewage sludge storage, buffer zones, and the incorporation of sewage sludge into the soil by the end of each working day.

C. All materials that provide primary crop nutrients shall be included in, and managed by, a Nutrient Management Plan. These materials include chemical fertilizer, organic materials such as animal manure, sewage sludge, food processing wastes/residuals, spray irrigation from wastewater treatment plants, other waste streams containing nutrients, and soil conditioners/amendments.

D. These Nutrient Application Requirements shall be followed by certified consultants in the development of nutrient management plans, and by operators and applicators during plan implementation in order to comply with COMAR 15.20.08.05H and .05I

II. SETBACKS FOR NUTRIENT APPLICATION

A. "Nutrient Application Setback" means a vegetated area of a prescribed width where nutrient-containing material may not be applied, as measured from the edge of surface water, including perennial and intermittent streams. An intermittent stream means a stream or the reach of a stream that is below the local water table for at least some part of the year, and obtains its flow from both surface runoff and ground water discharge. Surface water does not include:

1. Ephemeral streams (defined as streams which flow only in direct response to precipitation in the immediate watershed and which have a channel bottom that is always above the local water table);

2. Irrigation and treatment ditches, as defined under "waters" in COMAR 15.20.08.03(B)(39), and

3. Field ditches, which, for purposes of this exception, are defined as channelized waterways that, as provided in the USDA-NRCS National Cooperative Soil Survey, are not within:
   a. A floodplain soil mapping unit;
   b. A hydric soil unit and mapped as a narrow, elongated feature in a fluvial/floodplain position; or
   c. A soil mapping unit that has a "B" slope class or steeper.

B. Effective January 1, 2014, a person who uses nutrients shall implement the following nutrient application setback requirements:

1. An application of crop nutrients using a broadcast method (e.g., spinners, splashers) either with or without incorporation requires a 35-foot setback.

2. A directed spray application or the injection of crop nutrients requires a 10-foot setback.

3. Excepting perennial forage crops grown for hay or pasture, vegetation in the 10-foot setback area may not include plants that would be considered part of the crop grown in the field.

4. Pastures and hayfields are subject to a 10-foot nutrient application setback.

5. Nutrients may not be applied mechanically within the setback. Except as provided in subsection II.B.6, livestock shall be excluded from the setback to prevent direct deposition of nutrients within the setback.

6. As an alternative to fencing livestock from the setback area, a person shall work with the soil conservation district to develop and implement a Soil Conservation and Water Quality Plan. The plan shall include Best Management Practices (BMPs) such as stream crossings, alternative watering facilities, pasture management or other MDA-approved BMPs that are considered to be equally protective of water quality and stream health.

7. As an alternative to a nutrient application setback, MDA may approve other BMPs that it finds equally protective of water quality and stream health.

8. Sacrifice lots (less than 75% grass or grass legume mix) shall maintain a 35-foot setback.

C. Operators are responsible for sediment and erosion control of stream crossing areas. Operators shall move livestock from one side of the stream to the other side only through stream crossings designed to prevent erosion and sediment loss. Operators shall gate crossing areas wider than 12 feet. Operators may allow livestock controlled access to streams for watering in accordance with USDA-NRCS Field Office Technical Guide standards and specifications.

III. APPLICATION TIMING

A. The consultant, applicator, operator, and the certified farm operator shall comply with the following management requirements when recommending or applying nutrients throughout the year. These requirements separately address the use of (1) chemical fertilizers and (2) organic fertilizers. An organic fertilizer is derived from either a plant or animal product, and contains carbon, and one or more elements other than hydrogen and oxygen that are essential for plant growth. The consultant, applicator, operator, and certified farm operator shall follow the nutrient application recommendations for crops as specified in the Maryland Nutrient Management Manual Section I-B. Nutrients shall be applied as close to plant nutrient uptake period as possible.

B. Spring and Summer (March 1 through September 9)

1. A person may make a nutrient application during the spring-summer time period for an existing crop or a crop to be planted either during this time period or in the fall provided that, for each such crop, the rates and applications are made in accordance with recommendations found in Section I-B of the Maryland Nutrient Management Manual.

2. Nutrient application is prohibited when the soil is saturated, when the ground is covered with snow greater than one inch, or when the ground is hard-frozen greater than two inches.

3. Organic nutrient sources shall be injected or incorporated as soon as possible, but no later than 48 hours after application, except those farm operations that choose to manage their farms to obtain the benefits of no-till farming will not be required to incorporate.

a. MDA reserves the right to require incorporation of organic nutrient sources on a case by case basis.

C. Fall Application (September 10 through December 15)

1. Chemical Fertilizers

A person may make a fall application of a chemical fertilizer for an existing crop or a crop to be planted during this time period provided that, for each such crop, the rates and applications are made in accordance with recommendations found in Section I-B of the Maryland Nutrient Management Manual.

2. Organic Fertilizers

a. General Rules for Fall Application of Organic Sources

(i) Excepting poultry litter, a person may make a fall application of an organic nutrient source for an existing crop or a crop to be planted either during this time period or the following spring (before June 1) provided that, for each such crop, the rates and applications are made in accordance with paragraph 2(b) of this subsection and the recommendations found in Section I-B of the *Maryland Nutrient Management Manual*.

(ii) A person may make a fall application of poultry litter for an existing crop or a crop to be planted during this time period provided that, for each such crop, the rates and applications are made in accordance with paragraph 2(b) of this subsection and the recommendations found in Section I-B of the Maryland Nutrient Management Manual.

b. General Conditions Relating to the Fall Application of Organic Nutrient Sources

(i) A person may make a fall-application on pasture land, hay-land or other acreage under vegetative cover.

(ii) Organic nutrient sources shall be injected or incorporated as soon as possible, but no later than 48 hours after application, except those farm operations that choose to manage their farms to obtain the benefits of no-till farming will not be required to incorporate.

(a) MDA reserves the right to require incorporation of organic nutrient sources on a case by case basis

(iii) A person making a fall-application of an organic nutrient source to fallow cropland shall plant a cover crop as soon as possible after application. The cover crop planting shall occur no later than November 15; and

(iv) The rate of nutrient application shall be determined based on recommendations outlined in Section I-B of the Maryland Nutrient Management Manual using either nitrogen or phosphorus–based criteria.

(v) If the application is phosphorus-based, the phosphorus application rate:

(aa) For a fall-seeded crop, shall be based on the phosphorus recommendations for that crop;

(bb) For crops to be planted the following spring (no later than June 1), may not exceed the one year crop removal rate of phosphorus for the spring-planted crop;

(cc) Shall follow the provisions of the Phosphorus Site Index, as they may otherwise apply; and

(dd) Shall result in an application rate of plant available nitrogen not exceeding 50 lbs. per acre.

(vi) If the application is nitrogen-based, the rate of application for a fall-seeded crop shall be based on recommendations for plant available nitrogen as outlined in Section I-B of the Maryland Nutrient Management Manual. If the application is related to a crop that is to be planted the following spring (before June 1), the application of nitrogen may not exceed 50 lbs. of plant available nitrogen per acre.

(vii) Nutrient application is prohibited when the soil is saturated, when the ground is covered with snow greater than one inch, or when the ground is hard-frozen greater than two inches.

3. Emergency Situations

Applications required in emergency situations due to an imminent overflow of a storage facility shall be managed in consultation with the Maryland Department of Agriculture. Operators in such situations shall contact the MDA regional nutrient management representative for guidance.

D. Winter Application (December 16 through February 28 of the following year)

1. Chemical Fertilizer

As a general rule, a person may not make a winter application of a chemical fertilizer to cropland. However, for small grains and perennial forage crops, a person may apply nitrogen at green-up when tillering begins as recommended in the Maryland Nutrient Management Manual section I-B. In addition, a person may apply certain nutrients for greenhouse production and for other vegetable and small fruit crops listed in the Maryland Nutrient Management Manual Section I-B. The restriction on the application of chemical fertilizers during winter also does not apply to potash or liming materials.

2. Organic Fertilizer

a. A person may make a winter application of an organic nutrient source to cropland only if:

(i) The operation has inadequate storage (i.e., the storage capacity will be exceeded before the March 1

winter application restriction);

(ii) The nutrient source is non-stackable; and

(iii) There is no other reasonable option to manage it.

b. Any such application shall be made in accordance with Section I-B of the Maryland Nutrient Management Manual.

c. Operators and generators of organic nutrient sources shall make plans for adequate storage to eliminate the need for a winter application before deadlines described in III. E.

d. The following restrictions apply to any such winter application:

(i) Nutrient application is prohibited during the winter if the organic nutrient source is stackable (equal to or less than 60 percent moisture content, such as poultry litter) or adequate storage is available.

(ii) Nutrient application is prohibited when the soil is saturated, when the ground is covered with snow greater than one inch or when the ground is hard-frozen greater than two inches.

(iii) Nutrient application is prohibited to land with a slope greater than 7 percent.

(iv) Rates of application shall be minimized and available acreage used to the greatest extent practical. In no case shall the application rate per acre exceed the one-year phosphorus removal rate or 50# of plant available nitrogen per acre for the next harvested crop. Any winter applied nutrients will be deducted from the recommendations of the next harvested crop.

(v) Winter applications shall be made on existing vegetative cover, small grain crops, or established hay fields and pastures and maintained as such until March 1st .

(vi)A setback of at least 100 feet from all surface waters shall be maintained, unless best management practices providing water quality protection equivalent to such a setback are in place. (Surface water is defined as any permanent or intermittent, continuous, physical conduit for transporting water. Shovel ditches and water leads are not included as surface waters for purposes of this policy.

(vii) Applications required in emergency situations due to an imminent overflow of a storage facility from on farm generated organic fertilizer shall be managed in consultation with the Maryland Department of Agriculture. Operators in such situations shall contact the MDA regional nutrient management representative for guidance. Operators will be required to enter into an agreement of intent with the Soil Conservation District or private entity that is a certified Technical Service Provider approved by NRCS.

E. Prohibition against Winter Application

1. Except as provided in subsections E.2 and, E.3 and E.4, after July 1, 2016, a person may not make a winter application of a nutrient source to agricultural land.

2. a. The prohibition against making a winter application after July 1, 2016 does not apply to a nutrient source that originates from:

(i) A dairy or livestock operation with less than 50 animal units; or

(ii) A municipal wastewater treatment plant with a design flow capacity of less than 0.5 million gallons per day.

b. This exception to the general prohibition referenced in subsection E.1 expires after the winter application that ends on February 28, 2020.

3. The prohibition against making a winter application does not apply to potash, liming materials, or manure deposited directly by livestock. A person may make a winter application of certain nutrients for greenhouse production and for certain vegetable crops, small fruit crops, small grain crops, and cool season grass sod production listed in the Maryland Nutrient Management Manual Section I-B.

4. Applications required in emergency situations due to an imminent overflow of a storage facility from on farm generated organic fertilizer shall be managed AS PROVIDED IN III D.2 [and] in consultation with the Maryland Department of Agriculture. Operators in such situations shall contact the MDA regional nutrient management representative for guidance. Operators will be required to enter into an agreement of intent with the Soil Conservation District or private entity that is a certified Technical Service Provider approved by NRCS.

IV. TEMPORARY FIELD STOCKPILING (STAGING) FOR STACKABLE ORGANIC NUTRIENT SOURCES (EQUAL TO OR LESS THAN 60% MOISTURE CONTENT)

A. General Provisions

1. When other immediate use options and alternatives are not available, temporary field stockpiling (staging) of organic nutrient sources is allowed. Temporary field stockpiling (staging) provides greater environmental protection

than a fall or winter application of nutrients or applying nutrients too far ahead of normal planting time and crop uptake.

2. To minimize the duration of temporary field stockpiling (staging), operators shall coordinate with integrators to schedule cleanouts as close to spring planting as possible, thereby providing a source of nutrients that is in phase with crop nutrient needs.

3. Existing storage shall be fully used prior to stockpiling material in the field.

4. Any material staged in a temporary field stockpile shall be land applied in the first spring season following the placement of the stockpile.

B. The temporary field stockpiling (staging) shall be located:

1. If a vegetated buffer is not in place, at least 100 feet from any surface water as defined in COMAR 15.20.08.03(B)(39) and any irrigation or treatment ditches; and if a vegetated buffer is in place, at least 35 feet from any such water;

2. At least 100 feet from wells, springs, and wetlands; however, if the well is located down gradient from the temporary field stockpiling (staging) area, at least 300 feet from the well;

3. At least 200 feet from any residence outside the operator's property;

4. Outside flood prone areas and areas subject to ponding;

5. If located on more than a 3 percent grade slope and no diversion installed, no farther than 150 feet from the top of the slope.

C. Poultry litter and other materials shall be stacked at least 6 feet high and peaked to prevent precipitation from soaking into the pile.

D. Materials shall be field stockpiled (staged) temporarily in a manner that prevents nutrient runoff. Temporary field stockpiling (staging) locations for subsequent piles should stay at the same location, rather than be moved from place to place.

F. All nutrients shall be removed from the temporary field (staged) stockpile and the ground area thoroughly scraped or cleaned when the application of the nutrients takes place.

G. Temporary field stockpile (staged) areas shall be restored to its original condition and, if necessary, reseeded with grass or an agronomic crop to facilitate nutrient uptake.

Record Keeping, Application Variances & Inspection (MDA)

MARYLAND NUTRIENT MANAGEMENT PROGRAM

Agricultural Operation Record Keeping Requirements

(January 2003)

The Maryland Nutrient Management Program (MNMP) has developed a new record keeping system, which enables operators to evaluate crop management and nutrient management decisions, and helps consultants make more accurate nutrient recommendations. Included in the new system is a ***Field-By-Field Nutrient Application Record*** form, a ***Grain Yield Calculation*** sheet and a ***Forage Yield Calculation*** sheet.

According to the Water Quality Improvement Act (WQIA) of 1998, the application of nutrients on a farm operation must be documented, and certain records must be maintained by the operator for either 3 or 5 years (See Table 1). It may, at times, be necessary to make these records available to a Maryland Department of Agriculture (MDA) Nutrient Management Specialist when he/she evaluates the implementation of a nutrient management plan.

Table 1.

For 3 years, the following records/plan information must be kept:

- Nutrient management plan prepared by certified consultant
- Receipts for nutrients purchased
- Manure analysis laboratory report and management information (if applicable)
- Soil analysis laboratory report
- Documentation of field-by-field nutrient quantity, rates, timing, type and analysis
- Documentation justifying past revisions or adjustments to the nutrient management plan

For 5 years, the following records must be kept:

- Crop yields and support of crop yield data each year for 5 years

For nurseries or out -of-ground producers, the following records must be kept:

- Description of production cycles and nutrients applied, description of substrate, analysis of organic materials used as a source of nutrients in the substrate, and any monitoring information on run-off testing
- Documented nutrient use for crops without yield goals

In addition to documenting nutrient applications, it is important to document any adjustments to the nutrient management plan. These adjustments include:

- Change in land base
- Change in crops
- Change in nutrient source
- Change in the number of animals
- Change due to manure analysis

Some adjustments are beyond the operator's control, however they still must be documented. These kinds of adjustments include:

- Natural disasters
- Animal mortality or disease
- Economic factors (market changes)
- Weather

Field-by-Field Nutrient Application Record Form

On the new ***Field-by-Field Nutrient Application Record*** form, operators can easily document the application of nutrients on their farm operations, and account for each farm that they manage on an annual basis. Operators can also keep track of one or more fields that are planted with the same crop and managed similarly.

This form contains two separate areas for recording nutrient applications based on either the same field with different crops in a cropping year or different fields with different crops or management considerations. Each nutrient application can be documented by date, or if the applications are similar, multiple applications can be recorded with several dates on one row.

Other information recorded on this form include the application type (such as chemical fertilizer, animal manure or bio-solids), analysis, rate, total amount applied, method of application and acres applied. Lime application can also be recorded on this form although it is not required by the regulations. Operators can also record any notes specific to the application activity as needed.

Copies of the ***Field-by-Field Nutrient Application Record*** form can be made by the operator or obtained by contacting the MNMP. Questions regarding this form, record keeping in general or the MNMP can be directed to the county's Extension Agent in Agricultural Science or MDA's Nutrient Management Program at 410-841-5959.

Grain and Forage Yield Calculation Sheets

Two other forms that have been developed by the MNMP are the ***Grain Yield Calculation Sheet*** and ***Forage Yield Calculation Sheet***. These two forms are designed to help operators estimate their crop yields.

Yield information is based on each farm by crop per year. Multiple fields having similar soil characteristics and management for growing a particular crop can be combined to obtain a representative yield. The harvest of a crop can be documented on one or more dates and be based on a similar unit of weight for hay and percent moisture for grain. Once all of the crop harvest information is final, calculations are provided to determine yield estimates.

Grain factors are provided based on information from the University of Maryland Extension and the Penn State Agronomy Guide. On the bottom of each sheet there is a reminder to operators to include determined yields into their nutrient management plan record keeping requirements.

Field-By-Field Nutrient Application Record Form
Definitions

Farm Name: Name of the farm receiving nutrients, lime or pesticides.

Operator: Name of the person who manages the agricultural operation.

Year: The year in which nutrients have been applied.

Field or Field Strips: An area sharing common characteristics, including soil type, nutrient content and plant type or crop produced, such that the nutrients can be recommended and managed in a uniform and consistent manner.

Crop: Primary and/or cover crop grown.

Acres: Total acres representative of the crop grown.

Actual Yield: Crop yield achieved at the time of crop harvest.

Application Date: The date that the nutrient application was made. Any information recorded on the form will be relative to this date.

Nutrient Type: The type of nutrient application such as commercial fertilizer (ammonium nitrate, etc.), animal manure (dairy, beef, etc.), biosolids (lime stabilized, anaerobically digested, etc.), or lime made on the application date. Use additional rows for multiple types of applications on the same date.

Analysis N-P-K: The chemical composition of the applied material as reported by a credited laboratory, or the product label measuring the percentage of nitrogen, phosphorus and potassium.

Application Rate (per acre): Rate of nutrient application measured in wet tons or gallons.

Total Amount Applied: The total quantity of nutrients applied; measured in wet tons or gallons per acre.

Application Method: The method in which the nutrient application is made, such as surface application, surface with incorporation and injection.

Acres Applied: The total number of acres that received the nutrient application.

Notes: Any specific information or occurrences useful for future management of a particular field including notation of variation from NMP recommendations.

FIELD BY FIELD NUTRIENT APPLICATION RECORD

January-03

FARM NAME:_____ OPERATOR:_____

YEAR:_____

FIELD ID/CROPPING INFORMATION:

Field or Field Strips:	Crop:	Acres:	Actual Yield:

Application Types: Fertilizer, Animal Manure, Biosolids, Lime

Application Date	*Nutrient Type*	*Analysis N-P-K*	*Application Rate Per Acre*	*Total Amount Applied*	*Application Method*	*Acres Applied*

Notes:

Field or Field Strips:	Crop:	Acres:	Actual Yield:

Application Types: Fertilizer, Animal Manure, Biosolids, Lime

Application Date	*Nutrient Type*	*Analysis N-P-K*	*Application Rate Per Acre*	*Total Amount Applied*	*Application Method*	*Acres Applied*

Notes:

All records on this sheet, except for lime information, is required for Nutrient Management Regulations

GRAIN YIELD CALCULATION SHEET

(April 2001)

Farm: _____ **Year:** _____

Field/Mgmt Unit: _____ **Crop:** _____

Date(s)	Ticket #(s)	% Actual Moisture	Grain Harvested (lbs)	Acres Harvested

% Average Moisture	Total Grain Harvested (lbs)	Total Acres Harvested

GRAIN FACTORS

Crop	Grain Factor (lbs/bu)	% Standard Storage Moisture
Shelled Corn	56	15.5
Ear Corn	*70	15.5
Soybeans	60	13
Wheat	60	12.5
Barley	48	12.5
Rye	56	12.5
Oats	32	12.5

*Factor is derived from the 1999-2000 Penn State Agronomy Guide
All other factors are derived from the University of Maryland Cooperative Extension (1997)

GRAIN YIELD CALCULATION

$$\frac{\text{(Total Grain Harvested / Grain Factor) X (100 - \% Average Moisture)}}{\text{(100 - \% Standard Storage Moisture)}} = \text{Total bu/field}$$

Total bu/field

$$\frac{\text{Total bu/field}}{\text{Total Acres Harvested}} = \text{Grain Yield (bu/acre)}$$

Grain Yield (bu/acre)

IMPORTANT:

- *Attach all weight tickets and/or receipts to this sheet*
- *Yield information on this report page needs to be retained for 5 years*
- *Multiple fields should be recorded together as one management unit if similar crop management practices/harvesting were done*
- *Information on calculating yields for corn silage can be obtained from your county Cooperative Extension office*

Maryland Nutrient Management Program

Variance for Commercial Fertilizer Nutrient Application

(August 2004)

Occasionally operators may need to group a number of fields within a close level (short range) of soil fertility and prepare a fertilizer blend for each group rather than field specific nutrient recommendation rates developed by the software programs. This guidance document will be used by MDA Nutrient Management Program Specialists during an implementation evaluation to evaluate the degree of variance between planned recommendation rates and actual applied rates for operators using commercial fertilizer sources.

Variance in Nutrient Application Rates for Commercial Fertilizer

Nitrogen:

Total application of commercial nitrogen should not exceed the recommended rate by more than #10/acre. Any rate over the recommended rate or the 10#/acre must be justified and is subject to be in non-compliance.

Phosphorus and Potassium

Recommended rates of commercial phosphorus and potassium can be applied at one rate when the plan recommends various rates for different fields. When using a blended fertilizer material containing phosphorus and potassium, the combined rates **cannot exceed** the phosphorus requirements. The following guidance should be used when evaluating the grouping of recommended nutrient rates.

Phosphorus

Maryland soil test FIV's will be used as a guide for what recommended rates can be grouped at one rate. Any soil test FIV's for phosphorus with the same rating (example: low, medium, optimum) can be managed at one rate. The rate should not exceed the highest recommended rate given in your nutrient management plan for that crop in that soil test range. The rate **cannot** exceed the upper limit of the nutrient recommended for that crop and yield goal within that soil test range, given in the Maryland Nutrient Management Manual, Section I-B1 and I-B2.
(See two examples below)

Example 1: An operator has 3 corn fields with a yield goal of 140 bushel/acre. The three fields all have different rates of phosphorus recommendations from NuMan. Field 1 recommends #30/acre, field 2 recommends #50/acre, and field 3 recommends #0/acre. Any of these three fields with the same soil test FIV rating can be grouped together and applied at one rate , not to exceed the upper limit recommended within the plan for these crops in the given soil test FIV range. Fields 1 & 2 have a recommendation of #30 and #50/acre and have a soil test FIV rating of medium. Therefore fields 1 and 2 can be applied at the same rate, of up to #50 (the highest recommended rate). Field 3's recommendation is #0/acre, with an excessive soil test FIV rating, and cannot be grouped with fields 1 & 2. Field 3 would be allowed a starter fertilizer of up to #30/acre (provided the P-FIV is less than 150 or a P-Site evaluation has been done) however, the operator **cannot** exceed this rate.

The consultant or person grouping the fields should stay within the lower range when grouping recommendations for one rate when a high range is provided in the manual.

Example 2: An operator again has 3 corn fields with a yield goal of 140 bushel/acre. The three fields all have different rates of phosphorus recommendations from NuMan. Field 1 recommends #120/acre, field 2 recommends #130/acre, and field 3 recommends #70/acre. According to the Maryland Nutrient Management Manual, Section I-B1, these three fields all have the same soil test FIV rating of Low and could be grouped together. However, MDA suggests that the fields be grouped together within the particular range as close to the recommendation as possible. In this case, field 3 should be treated separate from fields 1 and 2 since the FIV range of field 3 is almost half the recommendation of fields 1 and 2. Fields 1 and 2 can be grouped together not to exceed #130/acre.

Potassium Requirement #1

The same guidance of grouping fields together is used for potassium. Any fields with the same soil test FIV ratings for potassium can be managed at one rate. The rate should not exceed the highest recommended rate given in your nutrient management plan for that crop in that soil test range.

Potassium Requirement #2

If the operator has recommended rates of potassium that are lower than what can be achieved because of equipment limitations or product availability, they may apply **up to** the recommended rates of that crop and the crop to follow (will require a 2 year crop plan). However, the operator **must** account for the over application with the following crop.

Example: The operator has a recommendation for #30/acre of potassium for their soybean crop, however, they are unable to achieve this rate based on equipment limitations. They plan to follow this crop with wheat/beans which has a recommendation for #60/acre potassium. Therefore the operator may apply **up to** #90/acre potassium at anytime during that 2 year/2 crop rotation. This is only if the operator has equipment limitation issues. If there are no equipment limitations, the operator will need to follow Requirement No. 1.

All applications of nutrients and any reasoning for exceeding the recommended plan rates must be documented. Any applications that exceed the above guidance are subject to be in non-compliance unless prior approval has been granted by the Department.

Maryland Nutrient Management Program

Variance for Animal Manure Nutrient Application

(August 2004)

Many operators throughout the state apply some form of animal manures to their fields to help meet crop nutrient requirements. Realizing the tremendous variability within organic nutrient sources such as the type of material, nutrient content, composition, along with various other factors such as equipment limitations, application methods and operator judgment, the following guidance was developed. This guidance document will be used by MDA Nutrient Management Program Specialists to evaluate past animal manure nutrient applications during a plan implementation review of a farm.

Variance in Nutrient Application Rates for Animal Manures

Nitrogen-based Plan: 10#/acre maximum allowance for nitrogen application *(per field)*
Operators who have over applied their animal manure based on the organic N recommended rate for any field, and **have not** met their total crop N requirement through the application of animal manure, will need to make the necessary adjustments in their commercial N recommended rate prior to applying commercial N. The total N application (organic and commercial) should not exceed the total recommended N rate for any field in the plan by more than 10#/acre. Any nutrient application over the recommended rate or the 10#/acre allowance must be justified and is subject to be in non-compliance.

Example:
A dairy producer's plan recommends 140 lbs/acre of Nitrogen for a particular field which will be planted in corn. The plan recommends 5,000 gal/acre of liquid dairy manure along with 40 lbs/acre of commercial N to meet the 140 lbs/acre N recommendation for that field. Due to an error in application, the operator actually applied 6,000 gal/acre. Because of this error, the operator will now need to adjust their commercial N application accordingly. Assuming the liquid dairy manure provided 20 lbs of PAN per 1000 gallons, the operator would need to reduce their commercial N application rate to 20 lbs/acre instead of the original 40 lbs/acre.

Nitrogen and Phosphorus-based plan: 10% maximum variance for N and P application *(per field)*
Operators who intend to meet the total crop N requirement in a field through the application of animal manures, or those operations that are applying to fields restricted to a P- based planning rate (FIV 150 or over and P-Site Index completed), should not exceed the total recommended rate by more than 10 percent. Any rate over the recommended rate, or the 10 percent variance, must be justified and is subject to be in non-compliance.

Example:
A poultry producer's plan recommends 140 lbs/acre of Nitrogen for a particular field which will be planted in corn. The plan recommends 3 tons of poultry litter/acre to meet the 140 lbs/acre N recommendation for a field, or is under a P-based plan restriction of 3 tons of litter/acre. The operator will need to keep their total organic nutrient application rate within 10% of the recommended rate. In this scenario, they would be allowed up to 3.3 tons/acre. This variance is given for equipment variability and possible operator error.

All applications of nutrients must follow the guidelines and standards documented in the *Maryland Nutrient Management Manual* Section I - Nutrient Recommendations, D - Timing of Nutrient Application. Any reasoning for exceeding the recommended plan application rates must be documented. Any applications of nutrients that exceed the above guidance are subject to be in non-compliance unless prior approval has been granted by the Department.

Note: This guidance document does not serve as a tool for those operations using biosolids as a nutrient source. The application of biosolids as a crop nutrient source is regulated under the Maryland Department of the Environment sewage sludge regulations. However, MDA does have planning guidance for the application of biosolids in the *Maryland Nutrient Management Manual* Fact Sheet Series # 6 entitled Nutrient Management Planning Guidance for Biosolid Use.

Maryland
Department of Agriculture

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Office of Resource Conservation

Nutrient Management Program

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor
Joseph Bartenfelder, Secretary
Julianne A. Oberg, Deputy Secretary

The Wayne A. Cawley, Jr. Building
50 Harry S. Truman Parkway
Annapolis, Maryland 21401
www.mda.maryland.gov

410.841.5959 Baltimore/Washington
410.841.5950 Fax
800.492.5590 Toll Free

Plan Implementation Review Process for Operators

(September 2007, updated October 2015)

This document explains the process of a nutrient management plan implementation review and provides the operator with information about preparing for a review.

Selection Method

Nutrient management specialists either randomly select an operation for a review, arrange a review in response to a complaint, schedule a follow-up to a previous review, and/or to discuss questions /concerns with submitted AIRs or other non-compliance issues.

Notification

Nutrient management specialists notify the selected operator by letter or telephone to schedule a plan implementation review. The letter may propose a given date and time to visit at the operation site. MDA may provide the operator the option to confirm or reschedule the meeting date and/or location for the operator's convenience.

Operator Requirements

A specialist from the MDA nutrient management program will conduct the review. The operator must make available for review the current **and** two prior years' nutrient management plans and any records associated with these plans. The specialist will randomly select one or more year's worth of plans and associated records, and compare them against nutrient application records and fertilizer receipts. The specialist will examine several fields or management units representative of the operation. P-Site Index calculations and implementation of any resulting best management practices will be verified. Following the review, the specialist will give the operator a copy of the plan implementation evaluation report which will include any necessary follow-up action.

Use these checklists to prepare for your Nutrient Management Plan Implementation Review.

Necessary Records (retain for 3 years):

From All Nutrient Management Plans for the Operation

- ☐ Updated operation information used for required reporting to MDA
- ☐ Operation map or aerial photo
- ☐ Soil analysis results (original lab test results)
- ☐ Manure analysis and management information (if applicable, original lab test results)
- ☐ Summary nutrient recommendations (by field and specific to the crop)
- ☐ Phosphorus Site Index calculations (if applicable)
- ☐ Required Best Management Practices (for P-Site Index only)

From Actual Implementation Records

- ☐ **Nutrient Type(s)** Type of nutrients applied such as fertilizer, animal manure, biosolid, etc.
- ☐ **Analysis/Nutrient content** N-P-K analysis of nutrients applied
- ☐ **Rates & Quantity** Pounds, gallons, or tons applied per acre and total amount applied per total crop acres per timing period
- ☐ **Application Timing & Method** Date(s) applied and method such as banded, sidedress, topdress, etc.
- ☐ **Manure Management Information**: Manure type, date of removal from production and/or storage facility, location stored, where applied, name and location of receiver if moved off-site, and quantity estimate
- ☐ **Actual Yield**: Specific field or management unit yield information **for the last 5 years**
- ☐ **Applicator voucher or certificate number**: Individual(s) applying or supervising application of nutrients on the operation
- ☐ **Receipts for nutrients purchased:** Receipts for all nutrients purchased and applied (all organic and inorganic sources)

Nutrient Management Program (NMP)
Maryland Department of Agriculture
50 Harry S Truman Parkway, Suite 201 - 203
Annapolis, MD 21401-7080
Phone: (410) 841-5959
(August 24, 2020)

Dwight Dotterer, Program Administrator	410-841-5877	dwight.dotterer@maryland.gov
Bryan Harris, Implementation Coordinator	410-841-5951	bryan.harris@maryland.gov
Louise Woodruff, Administrative Officer	410-841-5954	louise.woodruff@maryland.gov
Micheal Webster, Administrative Specialist	410-841-5957	mike.webster@maryland.gov
Debby Freburger, Administrative Specialist	410-841-5958	debby.freburger@maryland.gov
Judy McGowan, Urban NM Specialist	410-980-9084	judy.mcgowan@maryland.gov
Tim Zang, NM Specialist	410-991-3288	timothy.zang@maryland.gov
Kendra Keeney, NM Trainee	301-695-2803 (x 8599)	kendra.keeney@maryland.gov

REGIONAL OFFICES

Region 1: ALLEGANY, GARRETT, and WASHINGTON COUNTIES
Keith Potter, Nutrient Management Specialist — keith.potter@maryland.gov
Tel: 410-279-3506 — Fax: Not available at this time.
P.O. Box 459, Hancock, MD 21750

Region 2a: CARROLL, and FREDERICK COUNTIES
Moana Himes, Nutrient Management Specialist — moana.himes@maryland.gov
Tel: 410-353-4320 — Fax: Not available at this time.
92 Thomas Johnson Drive, Suite 110, Frederick, MD 21702

Region 2b: ANNE ARUNDEL, HOWARD, and MONTGOMERY COUNTIES
Kenny Favorite, Nutrient Management Specialist — kenny.favorite@maryland.gov
Tel: 410-507-4811 — Fax: Not available at this time.
92 Thomas Johnson Drive, Suite 110, Frederick, MD 21702

Region 3: CALVERT, CHARLES, PRINCE GEORGE'S and ST. MARY'S COUNTIES
Weylin Anderson, Nutrient Management Specialist — weylin.anderson@maryland.gov
Tel: 410-980-9479 — Fax: Not available at this time.
P.O. Box 652, Leonardtown, MD 20650

Region 4: BALTIMORE, CECIL, and HARFORD COUNTIES
Darren Alles, Nutrient Management Specialist — darren.alles@maryland.gov
Tel: 410-991-3114 — Fax: Not available at this time.
P.O. Box 850, Bel Air, MD 21014

Region 5a: KENT, QUEEN ANNE'S, and TALBOT COUNTIES
Howard Callahan, Nutrient Management Specialist — howard.callahan@maryland.gov
Tel: 410-279-4003 — Fax: Not available at this time.
P.O. Box 549, Cordova, MD 21625

Region 5b: CAROLINE, and DORCHESTER COUNTIES
Steve Szelestei, Nutrient Management Specialist — steve.szelestei@maryland.gov
Tel: 410-353-5660 — Fax: Not available at this time.
P.O. Box 340, Marydel, MD 21649

Region 6: SOMERSET, WICOMICO, and WORCESTER COUNTIES
Robin Culver, Nutrient Management Specialist — robin.culver@maryland.gov
Tel: 410-507-4949 — Fax: Not available at this time.
27722 Nanticoke Road, Unit #2, Salisbury, MD 21801

General Nutrient Management Information

UNIVERSITY OF MARYLAND EXTENSION
Solutions in your community

Agricultural Nutrient Management Program
Department of Environmental Science and Technology
1145 Cole Student Activities Bldg.
College Park, MD 20742-1038
TEL 301-405-1319
FAX 301-314-7375
www.anmp.umd.edu

General Principles of Nutrient Management

Both farm profitability and water quality can be improved through efficient nutrient use. Manure and biosolids should be considered valuable fertilizer materials and managed in the same manner as commercial fertilizers. Soil testing is very important for the development of nutrient application rates.

Please refer to the appropriate issue of the *Nutrient Manager* (the newsletter of the ***University of Maryland Extension Agricultural Nutrient Management Program***) for more information on soil testing, nitrogen, phosphorus, potassium, sulfur, and pH and liming.

I. Nutrient Recommendations

A) *Nitrogen*:

1) Nitrogen recommendations for many crops are based on yield goals for those crops. It is important to establish realistic yield goals for each field based upon historical yield data (the average yield for the best 3 out of the last 5 years, 6 of 10, etc.).

2) Recommended application rates for nitrogen should not be exceeded.

3) The use of the Pre-Sidedress Nitrogen Test (PSNT) is recommended in the early summer after forage legumes or manure and biosolids applications to corn in order to determine if additional nitrogen is needed.

4) Residual values for nitrogen available from legumes in rotation or previous applications of manure or sludge are deducted from gross nitrogen recommendations.

5) Growing a winter cover crop is a very effective practice for reducing nitrate losses from cropland during a time of the year when leaching potential is high.

B) *Phosphorus and other nutrients*:

1) Recommendations for phosphorus, potassium and micronutrients are based on soil test values, yield goals and crop rotation. When soil test levels are high, additional nutrients, other than an in-row starter fertilizer, are not recommended for most crops.

2) Soil pH influences nutrient availability, particularly phosphorus. Soil pH should be adjusted to the level recommended for the crop to be grown.

II. Recommendations for application of all nutrient sources

A) Proper timing of nutrient applications is important. Apply nutrient sources as close to planting or nutrient demand as possible so that nutrients are taken up by plants quickly and not allowed to runoff into surface water or leach into ground water.

B) Avoid application of nutrient sources to frozen ground and during periods of high potential for leaching and runoff. Application in late fall or winter of any nitrogen source for a spring-planted crop should be avoided whenever possible.

C) Avoid application of nutrient sources to sensitive areas, wetlands, sinkholes, and steep slopes.

D) Calibrate nutrient application equipment accurately to insure that recommended rates are applied. Accurate and uniform applications of nutrients are necessary to maximize the nutrient potential of the fertilizer materials.

III. Recommendations for Manure Applications

A) *Testing*:

1) Manures vary tremendously in nutrient content depending upon animal species, rations, and storage conditions. The nutrient content of manure can be determined through laboratory testing.

2) Whenever possible manure should be sampled at least 6 weeks before planned application to allow time for analysis and plan development.

3) A consistent baseline for nutrient content may be established and based on analyses taken at least twice a year until a uniform value is confirmed, and then every second year thereafter to verify its consistency. If significant changes occur, including feed, management, animals, or storage, new samples should be collected for nutrient analysis.

B) *Application of manure*:

1) Nutrient applications should be made at times of the year that will minimize N and P losses to water and N volatilization loss to the atmosphere. Crop utilization of nutrients in manure and biosolids is maximized if these materials are applied in synchrony with periods of crop uptake. Storage of manure may be necessary to facilitate appropriate timing of nutrient applications.

2) **Nitrogen-based applications of manure will cause phosphorus soil test levels to increase over time.**

3) Winter application of manure is complicated. See the section on *MDA's Nutrient Application Guidelines*, which has information from Part I-D of the **Maryland Nutrient Management Manual** for details.

4) Application recommendations for daily haul operations include consideration of slope, crop and vegetative cover.

C) *Storage capacity:*

1) Optimal utilization of nutrients in manure and other nutrient sources is difficult without the ability to store manure for part of the year. Improving storage capacity available will minimize the potential for nutrient loss or runoff and will improve the possibility of proper timing of manure applications.

2) Contact your ***Soil Conservation District*** for advice on design and cost share programs for storage structures if you do not have manure storage capacity or if you need additional storage capacity.

IV. Erosion and Runoff Control

A) *Best Management Practices* should be used to minimize soil erosion and runoff, which can carry nutrients to surface waters. Advice on soil erosion control can be obtained from your ***Soil Conservation District.***

B) *Best Management Practices* around the barnyard area may need to be updated based on current regulations to reduce likelihood of nutrient loss from the area. Consult with your ***Soil Conservation District*** for details.

C) *Phosphorus Site Index*

The addition of any P-bearing material (fertilizer or manure) to fields whose P soil test levels are greater than or equal to FIV 150 will require evaluation of the risk of P movement.

The *Phosphorus Site Index* is a tool that is used to evaluate potential risk for phosphorus movement from agricultural land to surface waters. The *Phosphorus Site Index* includes determination of the limiting nutrient (nitrogen or phosphorus) and may also require additional restrictions of P fertilizer usage.

For a *Phosphorus Site Index* evaluation of your fields or for more information on the *Phosphorus Site Index* contact your Nutrient Management Advisor.

V. Record Keeping

The **Water Quality Improvement Act of 1998** legislation requires producers to keep the following records for at least 3 years (except for #2, crop yields).

1) Nutrient management plans
2) Record of crops planted and actual yield (**5** years of records needed in order to determine average)
3) Record of the timing, location and crop acreage of all nutrient applications
4) Analysis of the nutrient content of any fertilizer applied
5) Receipts related to the purchase of nutrients
6) Animal waste generation measurements and estimations
7) Documentation to justify any changes from the nutrient management plan as written

Soil Test Results

Farmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
Street Address	710 Brick Schoolhouse Lane	Tier - Phase	A - PMT
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-19-2023

Tract No.	Field No.	Lab	Test Date	Soil Texture	Test Number	pH	O.M	P	K	Mg	Ca
Hillsdale	1	AGL	11/15/22	SiL	32617	6.00	2.00	48	68	144	545
					Conversion to FIV	**6.00**	**2.00**	**55 (O)**	**42 (M)**	**112 (E)**	**42 (M)**
Hillsdale	2	AGL	11/15/22	SiL	32616	6.50	2.20	14	70	218	704
					Conversion to FIV	**6.50**	**2.20**	**18 (L)**	**44 (M)**	**168 (E)**	**62 (O)**
Hillsdale	3	AGL	11/15/22	SiL	32615	5.90	2.20	17	42	163	566
					Conversion to FIV	**5.90**	**2.20**	**21 (L)**	**25 (L)**	**126 (E)**	**45 (M)**
Hillsdale	4	AGL	11/15/22	SL	32613	5.80	2.00	33	66	123	450
					Conversion to FIV	**5.80**	**2.00**	**38 (M)**	**41 (M)**	**96 (O)**	**30 (M)**
Hillsdale	5	AGL	11/30/22	SiL	37545	6.10	2.10	22	66	179	552
					Conversion to FIV	**6.10**	**2.10**	**26 (M)**	**41 (M)**	**139 (E)**	**43 (M)**
Shore Pleasure	1	AGL	11/15/22	SiL	32614	6.30	2.20	84	83	132	791
					Conversion to FIV	**6.30**	**2.20**	**94 (O)**	**52 (O)**	**103 (E)**	**73 (O)**
Shore Pleasure	2	AGL	11/15/22	SL	32614	6.30	2.20	84	83	132	791
					Conversion to FIV	**6.30**	**2.20**	**94 (O)**	**52 (O)**	**103 (E)**	**73 (O)**
Wolepepper	1	AGL	11/15/22	SiL	32620	6.40	2.20	57	114	143	627
					Conversion to FIV	**6.40**	**2.20**	**64 (O)**	**72 (O)**	**111 (E)**	**52 (O)**

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Account No. : 128

Poultry Manure Analysis Report

QAC EAC
UME -- QUEEN ANNE COUNTY 128
505 RAILROAD AVE, SUITE 4
CENTREVILLE MD 21617

Invoice No. : 1139273
Date Received : 01/06/2023
Date Analyzed: 01/09/2023
Lab No. : 2608

Results For : RYAN RHODES
Sample ID : SHORE PLEASURE FARM

	Analysis Dry Basis	Analysis As Is Basis	Lbs / Ton Dry Basis	Lbs / Ton As Is Basis	Lbs / Ton Available First Year
Organic N, % N	3.36	2.54	67.2	50.9	27.0
Ammonium, % N	0.296	0.2240	5.9	4.5	4.3
Nitrate, % N	0.004	0.0030	0.1	0.1	0.1
Total N, % N	3.66	2.77	73.2	55.4	31.3
Phosphorus, % P_2O_5	2.87	2.17	57.3	43.4	39.1
Potassium, % K_2O	4.28	3.24	85.6	64.8	61.5
Sulfur, % S	0.57	0.43	11.5	8.7	3.5
Calcium, % Ca	2.35	1.78	47.1	35.6	24.9
Magnesium, % Mg	0.71	0.54	14.1	10.7	7.5
Sodium, % Na	0.75	0.57	15.1	11.4	11.4
Zinc, ppm Zn	539.6	408.4	1.1	0.8	0.6
Iron, ppm Fe	143.9	108.9	0.3	0.2	0.2
Manganese, ppm Mn	539.1	408.0	1.1	0.8	0.6
Copper, ppm Cu	456.6	345.6	0.9	0.5	0.7
Aluminum, ppm Al	365.0	276.2	0.7	0.6	0.4
Boron, ppm B	333.8	252.6	0.7	0.5	0.5
pH		9.1			
Moisture, %	24.32				
Dry Matter (TS), %	75.68				

Note: The available first year Ammonium-N is calculated based on maximum availability, or incorporation within 24 hours. Advise a nutrient consultant for adjustments beyond 24 hr incorporation.

Reviewed By : L.D. Severson - AgroLab Inc **1/9/2023** **Copy : 1** **Page 1 of 1**

Soil Test Results

Farmer/Operator	Ryan Rhodes	Plan Year	2026
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

Tract No.	Field No.	Lab	Test Date	Soil Texture	Test Number	pH	O.M	P	K	Mg	Ca	Al	Fe
Ryan Rhodes	HS 1	AGL	7/10/24	SiL	13262	5.30	2.39	37	70	83	370		
					Conversion to FIV	**5.30**	**2.39**	**43 (M)**	**44 (M)**	**66 (O)**	**20 (L)**		
Ryan Rhodes	HS 2 & 3	AGL	7/23/24	SiL	13488	5.20	2.49	50	97	98	414		
					Conversion to FIV	**5.20**	**2.49**	**57 (O)**	**61 (O)**	**77 (O)**	**26 (M)**		
Ryan Rhodes	HS 4	AGL	7/10/24	SL	13265	5.80	1.69	33	31	48	493		
					Conversion to FIV	**5.80**	**1.69**	**38 (M)**	**18 (L)**	**39 (M)**	**36 (M)**		
Ryan Rhodes	HS 5	AGL	7/10/24	SL	13266	5.20	1.71	59	42	50	255		
					Conversion to FIV	**5.20**	**1.71**	**67 (O)**	**25 (L)**	**41 (M)**	**6 (L)**		

Field Information Sheet

Farmer/Operator	Ryan Rhodes	Plan Year	2026
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

Tract No. / Farm Name	Field No.	Area	Crops	Yield Goal	Tillage Method	Past Legume N Credit	Nutrient Source Manure/Sludge Field History			
							Last Year		2 Years Ago	
							Type	Rate	Type	Rate
Ryan Rhodes	HS 1	0.42 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				
Ryan Rhodes	HS 2 & 3	1.33 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				
Ryan Rhodes	HS 4	0.46 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				
Ryan Rhodes	HS 5	0.78 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				

Soil Test Results

Farmer/Operator	Ryan Rhodes	Plan Year	2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

Tract No.	Field No.	Lab	Test Date	Soil Texture	Test Number	pH	O.M	P	K	Mg	Ca	Al	Fe
Ryan Rhodes	Pas 1	AGL	7/10/24	SiL	13262	5.30	2.39	37	70	83	370		
					Conversion to FIV	**5.30**	**2.39**	**43 (M)**	**44 (M)**	**66 (O)**	**20 (L)**		
Ryan Rhodes	Pas 2 & 3	AGL	7/23/24	SiL	13488	5.20	2.49	50	97	98	414		
					Conversion to FIV	**5.20**	**2.49**	**57 (O)**	**61 (O)**	**77 (O)**	**26 (M)**		
Ryan Rhodes	Pas 4	AGL	7/10/24	SL	13265	5.80	1.69	33	31	48	493		
					Conversion to FIV	**5.80**	**1.69**	**38 (M)**	**18 (L)**	**39 (M)**	**36 (M)**		
Ryan Rhodes	Pas 5	AGL	7/10/24	SL	13266	5.20	1.71	59	42	50	255		
					Conversion to FIV	**5.20**	**1.71**	**67 (O)**	**25 (L)**	**41 (M)**	**6 (L)**		

Field Information Sheet

Farmer/Operator	Ryan Rhodes	Plan Year	2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

Tract No. / Farm Name	Field No.	Area	Crops	Yield Goal	Tillage Method	Past Legume N Credit	Nutrient Source Manure/Sludge Field History			
							Last Year		2 Years Ago	
							Type	Rate	Type	Rate
Ryan Rhodes	Pas 1	0.42 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				
Ryan Rhodes	Pas 2 & 3	1.33 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				
Ryan Rhodes	Pas 4	0.46 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				
Ryan Rhodes	Pas 5	0.78 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				

Soil Test Results

Farmer/Operator	Ryan Rhodes	Plan Year	2025
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

Tract No.	Field No.	Lab	Test Date	Soil Texture	Test Number	pH	O.M	P	K	Mg	Ca	Al	Fe
Ryan Rhodes	HS 1	AGL	7/10/24	SiL	13262	5.30	2.39	37	70	83	370		
					Conversion to FIV	**5.30**	**2.39**	**43 (M)**	**44 (M)**	**66 (O)**	**20 (L)**		
Ryan Rhodes	HS 2 & 3	AGL	7/23/24	SiL	13488	5.20	2.49	50	97	98	414		
					Conversion to FIV	**5.20**	**2.49**	**57 (O)**	**61 (O)**	**77 (O)**	**26 (M)**		
Ryan Rhodes	HS 4	AGL	7/10/24	SL	13265	5.80	1.69	33	31	48	493		
					Conversion to FIV	**5.80**	**1.69**	**38 (M)**	**18 (L)**	**39 (M)**	**36 (M)**		
Ryan Rhodes	HS 5	AGL	7/10/24	SL	13266	5.20	1.71	59	42	50	255		
					Conversion to FIV	**5.20**	**1.71**	**67 (O)**	**25 (L)**	**41 (M)**	**6 (L)**		

Field Information Sheet

Farmer/Operator	Ryan Rhodes	Plan Year	2025
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

Tract No. / Farm Name	Field No.	Area	Crops	Yield Goal	Tillage Method	Past Legume N Credit	Nutrient Source Manure/Sludge Field History			
							Last Year		2 Years Ago	
							Type	Rate	Type	Rate
Ryan Rhodes	HS 1	0.42 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				
Ryan Rhodes	HS 2 & 3	1.33 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				
Ryan Rhodes	HS 4	0.46 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				
Ryan Rhodes	HS 5	0.78 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				

Soil Test Results

Farmer/Operator	Ryan Rhodes	Plan Year	2027
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

Tract No.	Field No.	Lab	Test Date	Soil Texture	Test Number	pH	O.M	P	K	Mg	Ca	Al	Fe
Ryan Rhodes	HS 1	AGL	7/10/24	SiL	13262	5.30	2.39	37	70	83	370		
					Conversion to FIV	**5.30**	**2.39**	**43 (M)**	**44 (M)**	**66 (O)**	**20 (L)**		
Ryan Rhodes	HS 2 & 3	AGL	7/23/24	SiL	13488	5.20	2.49	50	97	98	414		
					Conversion to FIV	**5.20**	**2.49**	**57 (O)**	**61 (O)**	**77 (O)**	**26 (M)**		
Ryan Rhodes	HS 4	AGL	7/10/24	SL	13265	5.80	1.69	33	31	48	493		
					Conversion to FIV	**5.80**	**1.69**	**38 (M)**	**18 (L)**	**39 (M)**	**36 (M)**		
Ryan Rhodes	HS 5	AGL	7/10/24	SL	13266	5.20	1.71	59	42	50	255		
					Conversion to FIV	**5.20**	**1.71**	**67 (O)**	**25 (L)**	**41 (M)**	**6 (L)**		

Field Information Sheet

Farmer/Operator	Ryan Rhodes	Plan Year	2027
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	1
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	9-19-2024

Tract No. / Farm Name	Field No.	Area	Crops	Yield Goal	Tillage Method	Past Legume N Credit	Nutrient Source Manure/Sludge Field History			
							Last Year		2 Years Ago	
							Type	Rate	Type	Rate
Ryan Rhodes	HS 1	0.42 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				
Ryan Rhodes	HS 2 & 3	1.33 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				
Ryan Rhodes	HS 4	0.46 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				
Ryan Rhodes	HS 5	0.78 Acres	Fescue; Maint (NOT accumulated for late fall/winter grazing)	2.0	No-till, res > 70%	0				

Annual **Recommendations using Organic Nutrient Sources**

Farmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-23-2023

Tract No. / Farm Name	Field No.	Area	Crops & Note Numbers	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Nutrient Sources to be Applied						
						Leg.	Man.	Slu.	Organic Nutrient Sources					Commercial Fertilizer N-P2O5-K2O	Lime
									Type / Source	Min. Rate	Applic. Rate [Time Inc.]	Organic Waste Applic- Basis	Available N-P2O5-K2O		
Hillsdale	1 2023 [*]	36.77 Acres	2 Corn grain, conservation till 7 28 1 2 3 27 60 92 93	220 Bu/A	220- 53- 140 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	3.0 tons/A [3 days]	Preset Rate	80- 130- 194 #/A	140- 0- 0 #/A	1.0 t/A
Hillsdale	2 2023 [*]	11.28 Acres	2 Corn grain, conservation till 28 1 2 3 27 60 92 93	220 Bu/A	220- 133- 137 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	3.0 tons/A [3 days]	Preset Rate	80- 130- 194 #/A	140- 3- 0 #/A	0.0 t/A
Hillsdale	3 2023 [*]	16.59 Acres	2 Corn grain, conservation till 7 28 1 2 3 27 60 92 93	220 Bu/A	220- 124- 173 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	3.0 tons/A [3 days]	Preset Rate	80- 130- 194 #/A	140- 0- 0 #/A	1.2 t/A
Hillsdale	4 2023 [*]	61.86 Acres	2 Corn grain, conservation till 7 28 1 2 3 27 60 92 93	220 Bu/A	220- 95- 143 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	3.0 tons/A [3 days]	Preset Rate	80- 130- 194 #/A	140- 0- 0 #/A	1.1 t/A
Hillsdale	5 2023 [*]	7.10 Acres	2 Corn grain, conservation till 7 28 1 2 3 27 60 92 93	220 Bu/A	220- 112- 143 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	3.0 tons/A [3 days]	Preset Rate	80- 130- 194 #/A	140- 0- 0 #/A	0.8 t/A
Shore Pleasure	1 2023 [*]	30.00 Acres	2 Corn grain, conservation till 28 1 2 3 27 60 92 93	220 Bu/A	220- 45- 91 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	3.0 tons/A [3 days]	Preset Rate	80- 130- 194 #/A	140- 0- 0 #/A	0.0 t/A
Shore Pleasure	2 2023 [*]	7.00 Acres	2 Corn grain, conservation till 28 1 2 3 27 60 92 93	220 Bu/A	220- 45- 91 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	3.0 tons/A [3 days]	Preset Rate	80- 130- 194 #/A	140- 0- 0 #/A	0.0 t/A
Wolepepper	1 2023 [*]	7.70 Acres	2 Corn grain, conservation till 28 1 2 3 27 60 92 93	220 Bu/A	220- 51- 75 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	3.0 tons/A [3 days]	Preset Rate	80- 130- 194 #/A	140- 0- 0 #/A	0.0 t/A

Subtract 15 #/acre N from the given recommendation if corn follows soybeans without an intervening small grain. Further alterations may be necessary given manure history.

Follow recommendations on this page if you decide to use manure as a nutrient source on any of these fields

Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.

Notes

Farmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
Street Address	710 Brick Schoolhouse Lane	MDA operator no.	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-23-2023

1. To satisfy TOTAL recommendation for many crops, it may be necessary to adjust SUGGESTED TIMING AND METHODS of application, (i.e. broadcast, topdress, sidedress, row, etc.) to be compatible with available equipment and materials.

2. These recommendations assume that the highest level of nitrogen (N) management will be utilized and that N losses due to leaching, volatilization and denitrification are minimized by utilizing to best management practices.

3. For conventional tillage, ag-lime recommendations are based upon the amount of oxides required for the surface 8" of soil. Lime should be thoroughly mixed with the soil by plowing and disking. If recommended amount of oxides exceeds 1.5 tons of lime per acre (assuming 50% total oxides), Â½ should be plowed down and the remainder applied after plowing and disked in thoroughly.

7. Magnesium will be recommended when the soil test indicates a low or very low level. Use dolomitic lime as a liming material when magnesium is recommended AND when lime is needed to correct soil acidity. The magnesium (Mg) recommendation is expressed as elemental Mg when lime is not required.

27. If soil test FIV-P is 150 or greater, a phosphorus risk assessment (Phosphorus Site Index [PSI] or Phosphorus Management Tool [PMT]) must first be conducted to determine if a starter containing phosphorus is allowed. A starter may be beneficial in stimulating early plant growth, especially on cold, wet soils. A good starter fertilizer should supply 20-30 lbs/A of N, P2O5, and K2O.

28. Proper timing of nutrient applications is important. Apply nutrient sources as close to planting or nutrient demand as possible so that nutrients are absorbed by plants quickly and not allowed to runoff into surface water or leach into ground water.

60. If the nitrogen requirement is met by surface broadcasting UAN either prior to or at planting, use of proven urease and nitrification inhibitors is recommended to minimize nitrogen loss via volatilization and/or denitrification pathways.

92. If UAN is dribbled or streamed on the soil surface, use a proven urease inhibitor to help minimize nitrogen loss via volatilization.

93. If nitrogen source is granular urea, use a proven urease inhibitor to help minimize loss via volatilization.

Annual **Recommendations using Organic Nutrient Sources**

rmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
reet Address	710 Brick Schoolhouse Lane	MDA operator no.	
ty, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-23-2023

act No. / rm Name	Field No.	Area	Crops & Note Numbers	Yield Goal	Plant Nutrients Needed N-P2O5-K2O	Nitrogen Credits			Nutrient Sources to be Applied						
						Leg.	Man.	Slu.	Organic Nutrient Sources					Commercial Fertilizer N-P2O5-K2O	Lime
									Type / Source	Min. Rate	Applic. Rate [Time Inc.]	Organic Waste Applic- Basis	Available N-P2O5-K2O		
lillsdale	1 2023 [*]	36.77 Acres	9 Soybeans with P or K based manure application 7 28 3 4	80 Bu/A	0- 73- 173 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	1.7 tons/A [3 days]	Phosphorus	45- 73- 109 #/A	0- 0- 64 #/A	1.0 t/A
lillsdale	2 2023 [*]	11.28 Acres	9 Soybeans with P or K based manure application 28 3 4	80 Bu/A	0- 152- 171 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	1.9 tons/A [3 days]	Phosphorus	50- 81- 121 #/A	0- 71- 50 #/A	0.0 t/A
lillsdale	3 2023 [*]	16.59 Acres	9 Soybeans with P or K based manure application 7 28 3 4	80 Bu/A	0- 146- 199 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	1.9 tons/A [3 days]	Phosphorus	50- 81- 121 #/A	0- 65- 78 #/A	1.2 t/A
illsdale	4 2023 [*]	61.86 Acres	9 Soybeans with P or K based manure application 7 28 3 4	80 Bu/A	0- 122- 175 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	1.9 tons/A [3 days]	Phosphorus	50- 81- 121 #/A	0- 41- 54 #/A	1.1 t/A
illsdale	5 2023 [*]	7.10 Acres	9 Soybeans with P or K based manure application 7 28 3 4	80 Bu/A	0- 139- 175 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	1.9 tons/A [3 days]	Phosphorus	50- 81- 121 #/A	0- 58- 54 #/A	0.8 t/A
Shore leasure	1 2023 [*]	30.00 Acres	9 Soybeans with P or K based manure application 28 3 4	80 Bu/A	0- 53- 100 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	1.2 tons/A [3 days]	Phosphorus	33- 53- 79 #/A	0- 0- 21 #/A	0.0 t/A
Shore leasure	2 2023 [*]	7.00 Acres	9 Soybeans with P or K based manure application 28 3 4	80 Bu/A	0- 53- 100 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	1.2 tons/A [3 days]	Phosphorus	33- 53- 79 #/A	0- 0- 21 #/A	0.0 t/A
lepepper	1 2023 [*]	7.70 Acres	9 Soybeans with P or K based manure application 28 3 4	80 Bu/A	0- 68- 91 #/A	0 CC	0 CC	0 CC	(1) Pltr, FR +B	0.50	1.6 tons/A [3 days]	Phosphorus	42- 68- 102 #/A	0- 0- 0 #/A	0.0 t/A
Follow recommendations on this page if you decide to use manure as a nutrient source on any of these fields					s					Lime recommendations are valid for the duration of the soil analysis. This is not an annual recommendation. Subtract any applications made since the soil analysis from this recommendation.					

Notes

rmer/Operator	Ryan Rhodes	Plan Year	2023 -2024
eet Address	710 Brick Schoolhouse Lane	MDA operator no.	
ty, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	1-23-2023

3. For conventional tillage, ag-lime recommendations are based upon the amount of oxides required for the surface 8" of soil. Lime should be thoroughly mixed with the soil by plowing and disking. If recommended amount of oxides exceeds 1.5 tons of lime per acre (assuming 50% total oxides), Â½ should be plowed down and the remainder applied after plowing and disked in thoroughly.

4. If topdressing ag-lime without tillage, reduce the total amount of oxides recommended by 50 percent. When topdressing ag-lime, and soil mixing is not possible, do not apply more than 1500 lbs per acre of oxides in any one application. The balance can be applied the next year. It would be best to do a soil test before making the second application.

7. Magnesium will be recommended when the soil test indicates a low or very low level. Use dolomitic lime as a liming material when magnesium is recommended AND when lime is needed to correct soil acidity. The magnesium (Mg) recommendation is expressed as elemental Mg when lime is not required.

28. Proper timing of nutrient applications is important. Apply nutrient sources as close to planting or nutrient demand as possible so that nutrients are absorbed by plants quickly and not allowed to runoff into surface water or leach into ground water.

UNIVERSITY OF MARYLAND EXTENSION

Updated: 12-4-19

Agricultural Nutrient Management Program
Department of Environmental Science and Technology
0116 Symons Hall
7998 Regents Dr.
College Park, MD 20742
TEL 301-405-1319 | FAX 301-314-7375
www.extension.umd.edu/anmp

Estimate of Manure Deposited on Poultry Pasture For Integrated Organic Poultry Operations

You can only edit values highlighted in blue

Farm name: **Ryan Rhodes Family Farm, LLC**

Manure Production period (calculate on a yearly basis):

Starting date: **1/1/2025** Ending date: **12/31/2025**

A. Total days in manure production period: 365

Poultry Information

		1	2	3	4	5
B.	Poultry Group	H1	H 2&3	H4	H5	0
C.	Market Weight (lbs.)	6	6	6	6	0
D.	Avg. weight during pasture access period **(C + 3)/2**	4.5	4.5	4.5	4.5	1.5
E.	# of birds/house	16,200	35,200	19,000	32,000	0
F.	Percentage of birds accessing pasture	2	2	2	2	0
G.	Animal units (AU) of birds accessing pasture **[(D x E)/1000]**	1.458	3.168	1.71	2.88	0
H.	Full days confined during manure production period (no access to pasture)	285	285	285	285	365
I.	Days partially confined during manure production period (access to pasture)	80	80	80	80	0
J.	Hours per day access to pasture	8	8	8	8	0
K.	Day equivalents partially confined **(I * (24-J))/24**	53.3	53.3	53.3	53.3	0.0
L.	Total day equivalents confined **(H + K)**	338.3	338.3	338.3	338.3	365.0
M.	Total day equivalents unconfined on pasture **(A - L)**	26.7	26.7	26.7	26.7	0.0
N.	Weight of manure/AU/day (lbs.)	57	57	57	57	57
O.	Weight of manure on pasture (tons) **[(G x M x N)/2000]**	1.1	2.4	1.3	2.2	0.0

Plant Available Nitrogen (PAN) Deposited on PRA

		1	2	3	3	3
P.	Length of pasture (feet)	300.0	350.0	505.0	450.0	0.0
Q.	Width of pasture (feet)	60.0	165.0	45.0	75.0	0.0
R.	Area of pasture (acres) **[(P x Q)/43,560]**	0.41	1.33	0.52	0.77	0.00
S.	PAN applied via excreted manure (lbs/ac/yr) **[(O x 34)/R]**	91.2	61.7	84.7	96.1	0.0
T.	Nitrogen (N) recommendation for plant species in pasture (lbs/ac/yr) **(Table 1)**	100	100	100	100	0
U.	Ratio of PAN applied to N recommendation **(S / T)**	0.91	0.62	0.85	0.96	

Assumptions Included in Calculations:

1)	Birds will have access to the pasture a maximum of 50 days per year, due to climate and bird age limitations. This is the default entry in row I. If your integrator has more exact data, use the integor's data instead.
2)	Birds weigh approximately 3 lbs when first allowed access to the pasture.
3)	Birds will have access to the pasture for a maximum of 6 hours per day
4)	Based on information from animal scientists, 1% of the total birds accessing the pasture at any given time is a reasonable estimate. This is the default entry in row F. If your integrator has more exact data, use the integor's data instead.
5)	These estimates are valid for all poultry houses on the operation as long as bird type/market weight, house capacity, and pasture area are all the same.
6)	Free-range broiler manure contains approximately 34 lbs PAN per ton
7)	The annual N recommendation for fine fescue turf is 65 lbs N/ac. This is the default entry in row T.

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Estimate of Manure Deposited on Poultry Pasture For Integrated Organic Poultry Operations

You can only edit values highlighted in blue

Farm name: **Ryan Rhodes family Farm LLC**

Manure Production period (calculate on a yearly basis):

Starting date: **1/1/2024** Ending date: **12/31/2024**

A. Total days in manure production period: 366

Poultry Information

		1	2	3	4	5
B.	Poultry Group	P 1	P 2 & 3	P 4	P 5	
C.	Market Weight (lbs.)	6	6	6	6	
D.	Avg. weight during pasture access period **(C + 3)/2**	4.5	4.5	4.5	4.5	0
E.	# of birds/house	16,200	35,200	19,000	32,000	
F.	Percentage of birds accessing pasture	2	2	2	2	
G.	Animal units (AU) of birds accessing pasture [(D x E)/1000]	1.458	3.168	1.71	2.88	0
H.	Full days confined during manure production period (no access to pasture)	286	286	286	286	366
I.	Days partially confined during manure production period (access to pasture)	80	80	80	80	
J.	Hours per day access to pasture	8	8	8	8	
K.	Day equivalents partially confined **(I * (24-J))/24**	53.3	53.3	53.3	53.3	0.0
L.	Total day equivalents confined **(H + K)**	339.3	339.3	339.3	339.3	366.0
M.	Total day equivalents unconfined on pasture **(A - L)**	26.7	26.7	26.7	26.7	0.0
N.	Weight of manure/AU/day (lbs.)	57	57	57	57	57
O.	Weight of manure on pasture (tons) **[(G x M x N)/2000]**	1.1	2.4	1.3	2.2	0.0

Plant Available Nitrogen (PAN) Deposited on PRA

		1	2	3	3	3
P.	Length of pasture (feet)	300.0	350.0	505.0	450.0	
Q.	Width of pasture (feet)	60.0	165.0	45.0	75.0	
R.	Area of pasture (acres) **[(P x Q)/43,560]**	0.41	1.33	0.52	0.77	0.00
S.	PAN applied via excreted manure (lbs/ac/yr) **[(O x 34)/R]**	91.2	61.7	84.7	96.1	0.0
T.	Nitrogen (N) recommendation for plant species in pasture (lbs/ac/yr) **(Table 1)**	100	100	100	100	
U.	Ratio of PAN applied to N recommendation **(S / T)**	0.91	0.62	0.85	0.96	

Assumptions Included in Calculations:

1)	Birds will have access to the pasture a maximum of 50 days per year, due to climate and bird age limitations. This is the default entry in row I. If your integrator has more exact data, use the integor's data instead.
2)	Birds weigh approximately 3 lbs when first allowed access to the pasture.
3)	Birds will have access to the pasture for a maximum of 6 hours per day
4)	Based on information from animal scientists, 1% of the total birds accessing the pasture at any given time is a reasonable estimate. This is the default entry in row F. If your integrator has more exact data, use the integor's data instead.
5)	These estimates are valid for all poultry houses on the operation as long as bird type/market weight, house capacity, and pasture area are all the same.
6)	Free-range broiler manure contains approximately 34 lbs PAN per ton
7)	The annual N recommendation for fine fescue turf is 65 lbs N/ac. This is the default entry in row T.

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Estimate of Manure Deposited on Poultry Pasture For Integrated Organic Poultry Operations

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Farm name: **Ryan Rhodes Family Farm, LLC**

Manure Production period (calculate on a yearly basis):

Starting date: **1/1/2027** Ending date: **12/31/2027**

A. Total days in manure production period: 365

Poultry Information

		1	2	3	4	5
B.	Poultry Group	H1	H 2&3	H4	H5	0
C.	Market Weight (lbs.)	6	6	6	6	0
D.	Avg. weight during pasture access period **(C + 3)/2**	4.5	4.5	4.5	4.5	1.5
E.	# of birds/house	16,200	35,200	19,000	32,000	0
F.	Percentage of birds accessing pasture	2	2	2	2	0
G.	Animal units (AU) of birds accessing pasture **[(D x E)/1000]**	1.458	3.168	1.71	2.88	0
H.	Full days confined during manure production period (no access to pasture)	285	285	285	285	365
I.	Days partially confined during manure production period (access to pasture)	80	80	80	80	0
J.	Hours per day access to pasture	8	8	8	8	0
K.	Day equivalents partially confined **(I * (24-J))/24**	53.3	53.3	53.3	53.3	0.0
L.	Total day equivalents confined **(H + K)**	338.3	338.3	338.3	338.3	365.0
M.	Total day equivalents unconfined on pasture **(A - L)**	26.7	26.7	26.7	26.7	0.0
N.	Weight of manure/AU/day (lbs.)	57	57	57	57	57
O.	Weight of manure on pasture (tons) **[(G x M x N)/2000]**	1.1	2.4	1.3	2.2	0.0

Plant Available Nitrogen (PAN) Deposited on PRA

		1	2	3	3	3
P.	Length of pasture (feet)	300.0	350.0	505.0	450.0	0.0
Q.	Width of pasture (feet)	60.0	165.0	45.0	75.0	0.0
R.	Area of pasture (acres) **[(P x Q)/43,560]**	0.41	1.33	0.52	0.77	0.00
S.	PAN applied via excreted manure (lbs/ac/yr) **[(O x 34)/R]**	91.2	61.7	84.7	96.1	0.0
T.	Nitrogen (N) recommendation for plant species in pasture (lbs/ac/yr) **(Table 1)**	100	100	100	100	0
U.	Ratio of PAN applied to N recommendation **(S / T)**	0.91	0.62	0.85	0.96	

Assumptions Included in Calculations:

1)	Birds will have access to the pasture a maximum of 50 days per year, due to climate and bird age limitations. This is the default entry in row I. If your integrator has more exact data, use the integor's data instead.
2)	Birds weigh approximately 3 lbs when first allowed access to the pasture.
3)	Birds will have access to the pasture for a maximum of 6 hours per day
4)	Based on information from animal scientists, 1% of the total birds accessing the pasture at any given time is a reasonable estimate. This is the default entry in row F. If your integrator has more exact data, use the integor's data instead.
5)	These estimates are valid for all poultry houses on the operation as long as bird type/market weight, house capacity, and pasture area are all the same.
6)	Free-range broiler manure contains approximately 34 lbs PAN per ton
7)	The annual N recommendation for fine fescue turf is 65 lbs N/ac. This is the default entry in row T.

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Updated: 12-4-19

Agricultural Nutrient Management Program
Department of Environmental Science and Technology
0116 Symons Hall
7998 Regents Dr.
College Park, MD 20742
TEL 301-405-1319 | FAX 301-314-7375
www.extension.umd.edu/anmp

Estimate of Manure Deposited on Poultry Pasture For Integrated Organic Poultry Operations

You can only edit values highlighted in blue

Farm name: **Ryan Rhodes Family Farm, LLC**

Manure Production period (calculate on a yearly basis):

Starting date: **1/1/2026** Ending date: **12/31/2026**

A. Total days in manure production period: 365

Poultry Information

		1	2	3	4	5
B.	Poultry Group	H1	H 2&3	H4	H5	0
C.	Market Weight (lbs.)	6	6	6	6	0
D.	Avg. weight during pasture access period **(C + 3)/2**	4.5	4.5	4.5	4.5	1.5
E.	# of birds/house	16,200	35,200	19,000	32,000	0
F.	Percentage of birds accessing pasture	2	2	2	2	0
G.	Animal units (AU) of birds accessing pasture **[(D x E)/1000]**	1.458	3.168	1.71	2.88	0
H.	Full days confined during manure production period (no access to pasture)	285	285	285	285	365
I.	Days partially confined during manure production period (access to pasture)	80	80	80	80	0
J.	Hours per day access to pasture	8	8	8	8	0
K.	Day equivalents partially confined **(I * (24-J))/24**	53.3	53.3	53.3	53.3	0.0
L.	Total day equivalents confined **(H + K)**	338.3	338.3	338.3	338.3	365.0
M.	Total day equivalents unconfined on pasture **(A - L)**	26.7	26.7	26.7	26.7	0.0
N.	Weight of manure/AU/day (lbs.)	57	57	57	57	57
O.	Weight of manure on pasture (tons) **[(G x M x N)/2000]**	1.1	2.4	1.3	2.2	0.0

Plant Available Nitrogen (PAN) Deposited on PRA

		1	2	3	3	3
P.	Length of pasture (feet)	300.0	350.0	505.0	450.0	0.0
Q.	Width of pasture (feet)	60.0	165.0	45.0	75.0	0.0
R.	Area of pasture (acres) **[(P x Q)/43,560]**	0.41	1.33	0.52	0.77	0.00
S.	PAN applied via excreted manure (lbs/ac/yr) **[(O x 34)/R]**	91.2	61.7	84.7	96.1	0.0
T.	Nitrogen (N) recommendation for plant species in pasture (lbs/ac/yr) **(Table 1)**	100	100	100	100	0
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Assumptions Included in Calculations:

1)	Birds will have access to the pasture a maximum of 50 days per year, due to climate and bird age limitations. This is the default entry in row I. If your integrator has more exact data, use the integor's data instead.
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5)	These estimates are valid for all poultry houses on the operation as long as bird type/market weight, house capacity, and pasture area are all the same.
6)	Free-range broiler manure contains approximately 34 lbs PAN per ton
7)	The annual N recommendation for fine fescue turf is 65 lbs N/ac. This is the default entry in row T.

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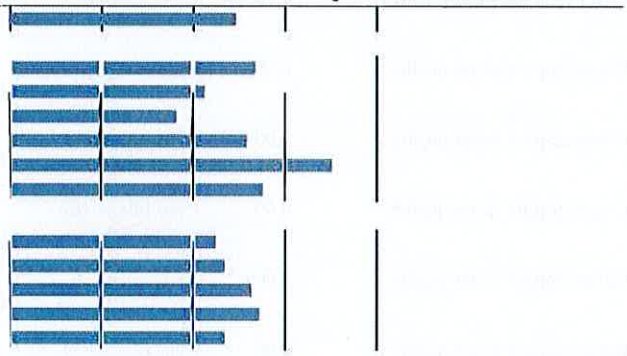
Invoice No. : 1138298
Date Received : 11/14/2022
Date Analyzed: 11/15/2022
Lab Number : 32614

Results For : 2308 CHURCH HILL RD
Location : SPF F1
Sample ID : 1

Extraction Method: Mehlich 3

	Analysis	Sufficiency Levels: Deficient / Low / Sufficient / High
pH	6.3	
Buffer pH	6.8	
Phosphorus, ppm P	84	
P Saturation	28	
Potassium, ppm K	83	
Calcium, ppm Ca	791	
Magnesium, ppm Mg	132	
Sodium, ppm Na	20	
CEC Sum of Cations, meq/100g	6.0	
H % Saturation	11	
K % Saturation	4	
Ca % Saturation	66	
Mg % Saturation	18	
Na % Saturation	1	
Organic Matter, %	2.2	
Est. Organic Carbon, %	1.30	



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Field Information Sheet

Farmer/Operator	Ryan Rhodes	Plan Year	2023-2024
Street Address	710 Brick Schoolhouse Lane	Tier - Phase	
City, State, Zip, County	Centreville MD 21617 Queen Anne's	Date Plan Prepared	

Tract No. / Farm Name	Field No.	Area	Crops	Yield Goal	Tillage Method	Past Legume N Credit	Nutrient Source Manure/Sludge Field History Last Year Type	Rate
Hillsdale	1	36.77 Acres	Cover crop for water quality	0.00	Cons tillage, res 30-70%	0 CC		
Hillsdale	2	11.28 Acres	Cover crop for water quality	0.00	Cons tillage, res 30-70%	0 CC		
Hillsdale	3	16.59 Acres	Cover crop for water quality	0.00	Cons tillage, res 30-70%	0 CC		
Hillsdale	4	61.86 Acres	Cover crop for water quality	0.00	Cons tillage, res 30-70%	0 CC		
Hillsdale	5	7.10 Acres	Cover crop for water quality	0.00	Cons tillage, res 30-70%	0 CC		
Shore Pleasure	1	30.00 Acres	Cover crop for water quality	0.00	Cons tillage, res 30-70%	0 CC		
Shore Pleasure	2	7.00 Acres	Cover crop for water quality	0.00	Cons tillage, res 30-70%	0 CC		
Wolepepper	1	7.70 Acres	Cover crop for water quality	0.00	Cons tillage, res 30-70%	0 CC		

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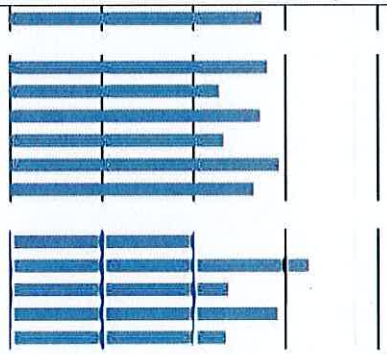
Invoice No. : 1138298
Date Received : 11/14/2022
Date Analyzed: 11/15/2022
Lab Number : 32619

Results For : RS RHODES 24 YAHOO COM
Location : SPF F2
Sample ID : SPFF2

Extraction Method: Mehlich 3

	Analysis	Sufficiency Levels: Deficient / Low / Sufficient / High
pH	6.5	
Buffer pH	6.9	
Phosphorus, ppm P	90	
P Saturation	32	
Potassium, ppm K	156	
Calcium, ppm Ca	661	
Magnesium, ppm Mg	126	
Sodium, ppm Na	18	
CEC Sum of Cations, meq/100g	5.2	
H % Saturation	8	
K % Saturation	8	
Ca % Saturation	63	
Mg % Saturation	20	
Na % Saturation	1	
Organic Matter, %	2.0	
Est. Organic Carbon, %	1.13	



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Date Received : 11/14/2022
Date Analyzed: 11/15/2022
Lab Number : 32617

Results For : 410 490 4284
Location : HILLSDALE F1
Sample ID : HILLSDALE F1

Extraction Method: Mehlich 3

	Analysis	Sufficiency Levels: Deficient / Low / Sufficient / High
pH	6.0	
Buffer pH	6.8	
Phosphorus, ppm P	48	
P Saturation	18	
Potassium, ppm K	68	
Calcium, ppm Ca	545	
Magnesium, ppm Mg	144	
Sodium, ppm Na	19	
CEC Sum of Cations, meq/100g	4.9	
H % Saturation	14	
K % Saturation	4	
Ca % Saturation	55	
Mg % Saturation	25	
Na % Saturation	2	
Organic Matter, %	2.0	
Est. Organic Carbon, %	1.19	

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Invoice No. : 1138298
Date Received : 11/14/2022
Date Analyzed: 11/15/2022
Lab Number : 32616

Results For : ATTN RYAN RHODES
Location : HILLSDALE F32
Sample ID : HILLSDALE F2

Extraction Method: Mehlich 3

	Analysis	Sufficiency Levels: Deficient / Low / Sufficient / High
pH	6.5	
Buffer pH	6.9	
Phosphorus, ppm P	14	
P Saturation	9	
Potassium, ppm K	70	
Calcium, ppm Ca	704	
Magnesium, ppm Mg	218	
Sodium, ppm Na	26	
CEC Sum of Cations, meq/100g	6.1	
H % Saturation	8	
K % Saturation	3	
Ca % Saturation	57	
Mg % Saturation	30	
Na % Saturation	2	
Organic Matter, %	2.2	
Est. Organic Carbon, %	1.29	

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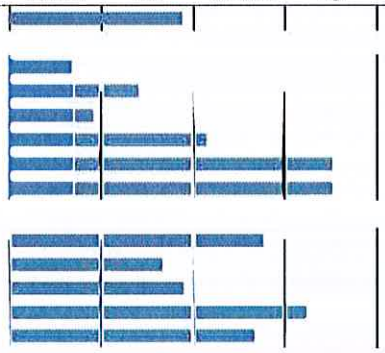
Invoice No. : 1138298
Date Received : 11/14/2022
Date Analyzed: 11/15/2022
Lab Number : 32615

Results For : CENTREVILLE MD
Location : HILLSDALE F3
Sample ID : HILLSDALE F3

Extraction Method: Mehlich 3

	Analysis	Sufficiency Levels (Deficient / Low / Sufficient / High)
pH	5.9	
Buffer pH	6.7	
Phosphorus, ppm P	17	
P Saturation	10	
Potassium, ppm K	42	
Calcium, ppm Ca	566	
Magnesium, ppm Mg	163	
Sodium, ppm Na	29	
CEC Sum of Cations, meq/100g	5.4	
H % Saturation	17	
K % Saturation	2	
Ca % Saturation	53	
Mg % Saturation	25	
Na % Saturation	2	
Organic Matter, %	2.2	
Est. Organic Carbon, %	1.26	



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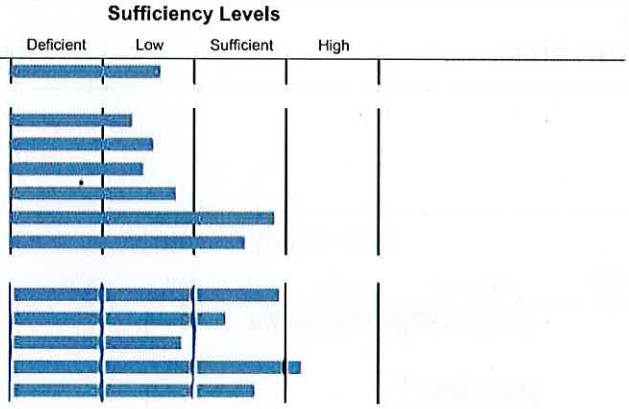
CENTREVILLE MD 21617

Invoice No. : 1138298
Date Received : 11/14/2022
Date Analyzed: 11/15/2022
Lab Number : 32613

Results For : SHORE PLEASURE FARM LLC
Location : HILLSDALE F4A
Sample ID : HILLSDALE 4

Extraction Method: Mehlich 3

	Analysis
pH	5.8
Buffer pH	6.8
Phosphorus, ppm P	33
P Saturation	14
Potassium, ppm K	66
Calcium, ppm Ca	450
Magnesium, ppm Mg	123
Sodium, ppm Na	16
CEC Sum of Cations, meq/100g	4.3
H % Saturation	19
K % Saturation	4
Ca % Saturation	51
Mg % Saturation	24
Na % Saturation	2
Organic Matter, %	2.0
Est. Organic Carbon, %	1.18



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Soil Analysis Report

Invoice No. : 1138555
Date Received : 11/29/2022
Date Analyzed: 11/30/2022
Lab Number : 37545

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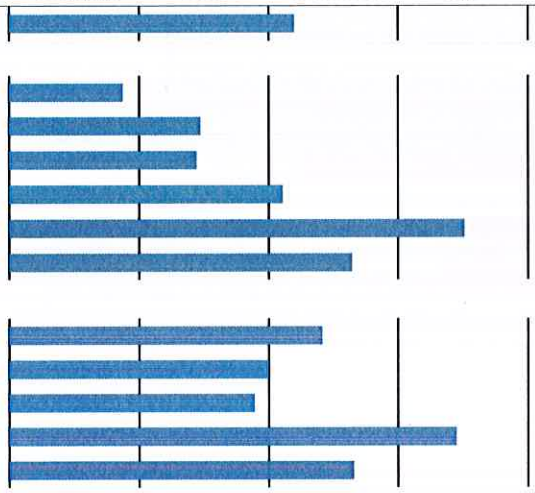
CENTREVILLE MD 21617

Results For : SPF RYAN RHODES
Location : CENTREVILLE MD
Sample ID : HILLSDALE F5

Extraction Method: Mehlich 3

	Analysis	Sufficiency Levels: Deficient / Low / Sufficient / High
pH	6.1	
Buffer pH	6.8	
Phosphorus, ppm P	22	
P Saturation	12	
Potassium, ppm K	66	
Calcium, ppm Ca	552	
Magnesium, ppm Mg	179	
Sodium, ppm Na	18	
CEC Sum of Cations, meq/100g	5.2	
H % Saturation	13	
K % Saturation	3	
Ca % Saturation	53	
Mg % Saturation	29	
Na % Saturation	2	
Organic Matter, %	2.1	
Est. Organic Carbon, %	1.21	



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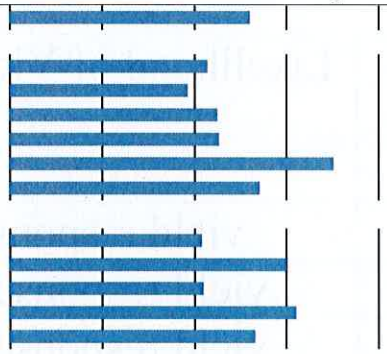
Invoice No. : 1138298
Date Received : 11/14/2022
Date Analyzed: 11/15/2022
Lab Number : 32620

Results For : RS RHODES 24 YAHOO COM
Location : WOLEPEPPER
Sample ID : WOLEPEPPER

Extraction Method: Mehlich 3

	Analysis	Sufficiency Levels: Deficient / Low / Sufficient / High
pH	6.4	
Buffer pH	6.9	
Phosphorus, ppm P	57	
P Saturation	23	
Potassium, ppm K	114	
Calcium, ppm Ca	627	
Magnesium, ppm Mg	143	
Sodium, ppm Na	19	
CEC Sum of Cations, meq/100g	5.1	
H % Saturation	9	
K % Saturation	6	
Ca % Saturation	60	
Mg % Saturation	23	
Na % Saturation	2	
Organic Matter, %	2.2	
Est. Organic Carbon, %	1.25	



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Agricultural Nutrient Management Program

Soil Test Levels (FIVs), Soil Test Category and Yield Response

Soil Test Fertility Index Value (FIV)	Soil Test Category	Likelihood of Yield Response
0-25	low	yield response likely
26-50	medium	yield response possible
51-100	optimum	yield response unlikely
>100	excessive	yield response very unlikely

Your soil tests have been converted to the Maryland Fertility Index Value (FIV) scale.

Not all soil testing laboratories use the same extraction methods. There are also a number of ways in which the results can be reported (i.e., pounds per acre or ppm; P or P_2O_5). Converting soil test results from several laboratories to a common scale simplifies the process of making recommendations for agricultural crops grown in Maryland.

For more information about converting soil test results to the FIV scale and the basis for the conversions, please consult Soil Fertility Management 4 (SFM-4), *Converting Among Soil Test Analyses Frequently Used in Maryland.*

9/7/11

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Account No. : 128

Soil Analysis Report

Invoice No. : 1152214
Date Received : 07/09/2024
Date Analyzed: 07/10/2024
Lab Number : 13262

QAC EAC
UME -- QUEEN ANNE COUNTY 128
505 RAILROAD AVE, SUITE 4
CENTREVILLE MD 21617

Results For : RYAN RHODES
Location : CENTREVILLE
Sample ID : PASTURE HOUSE 1

Extraction Method: Mehlich 3

	Analysis	Sufficiency Levels: Deficient / Low / Sufficient / High
pH	5.3	
Buffer pH	6.67	
Soluble Salts, EC mmho/cm	0.12	
Nitrate-N, ppm N	8.6	
Nitrate-N, Lbs N/1,000 SF	0.48	
Depth	0 - 8 in	
Ammonium-N ppm	9.3	
Phosphorus, ppm P	37	
P Saturation	13	
Potassium, ppm K	70	
Calcium, ppm Ca	370	
Magnesium, ppm Mg	83	
Sulfur, ppm S	13	
Boron, ppm B	0.30	
Zinc, ppm Zn	15.65	
Manganese, ppm Mn pH sensitive	20.2	
Copper, ppm Cu	2.81	
Sodium, ppm Na	5	
CEC Sum of Cations, meq/100g	4.1	
H % Saturation	33	
K % Saturation	4	
Ca % Saturation	45	
Mg % Saturation	17	
Na % Saturation	1	

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YAN RHODES FAMILY FARM, LLC
10 BRICK SCHOOLHOUSE RD
ENTREVILLE, MD [redacted]

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Soil Analysis Report

QAC EAC
UME -- QUEEN ANNE COUNTY 128
505 RAILROAD AVE, SUITE 4
CENTREVILLE MD 21617

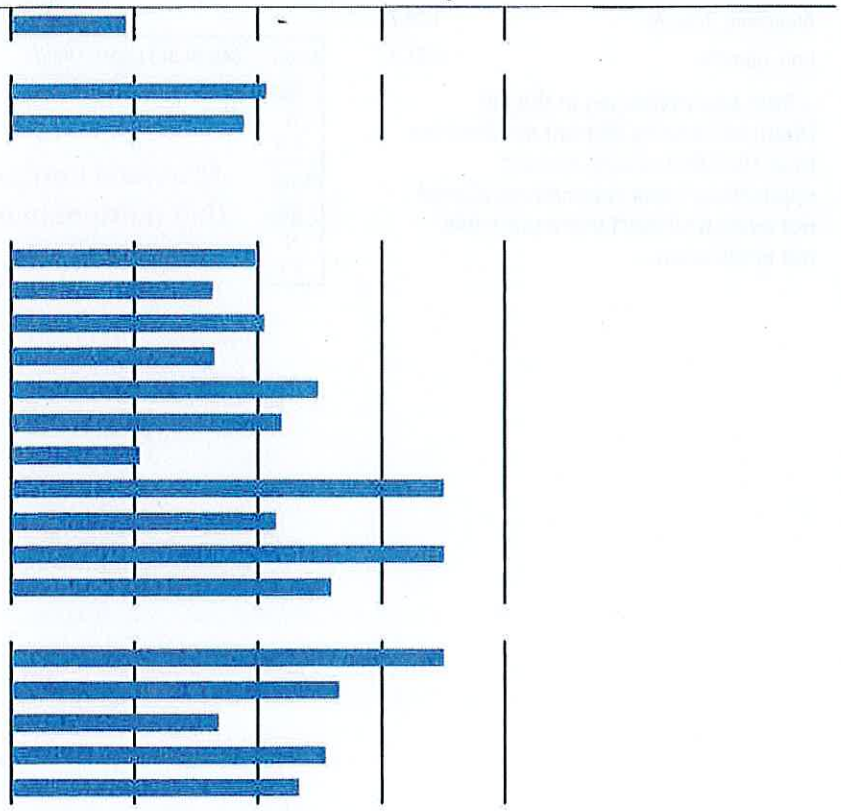
Invoice No. : 1152528
Date Received : 07/22/2024
Date Analyzed: 07/23/2024
Lab Number : 13488

Results For : RYAN RHODES
Location : CENTREVILLE
Sample ID : PASTURE HOUSE 2 3

Extraction Method: Mehlich 3

Sufficiency Levels

	Analysis
pH	5.2
Buffer pH	6.56
Soluble Salts, EC mmho/cm	0.08
Nitrate-N, ppm N	9.5
Nitrate-N, Lbs N/1,000 SF	0.53
Depth	0 - 8 in
Ammonium-N ppm	9.0
Phosphorus, ppm P	50
P Saturation	16
Potassium, ppm K	97
Calcium, ppm Ca	414
Magnesium, ppm Mg	98
Sulfur, ppm S	13
Boron, ppm B	0.32
Zinc, ppm Zn	9.45
Manganese, ppm Mn pH sensitive	20.3
Copper, ppm Cu	3.90
Sodium, ppm Na	17
CEC Sum of Cations, meq/100g	5.0
H % Saturation	36
K % Saturation	5
Ca % Saturation	41
Mg % Saturation	16
Na % Saturation	1



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Date Analyzed: 07/10/2024
Lab Number : 13262

QAC EAC
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CENTREVILLE MD 21617

Results For : RYAN RHODES
Location : CENTREVILLE
Sample ID : PASTURE HOUSE 1

Extraction Method: Mehlich 3

Organic Matter, %	2.39
Est. Organic Carbon, %	1.39
Aluminum, ppm Al	878.7
Iron, ppm Fe	131.7

- Split apply Nitrogen in the fall (Sept) and spring (March) at rates less than 1lb/1,000 square feet per application. Lime applications should not exceed 50 lbs/1,000 square feet per application.

Recommendations
In Actual Pounds of Plant Nutrients per 1000 sq. ft.

Crop :	(AgroLab) Lawn, Unit/A	Nitrogen Credit :	0
Sub-			1
N			s.f.
2.3			
Crop			)
Sub-			
N			s.f.
2.7			

Maryland nutrient management regulations require that nutrient management plans utilize University of Maryland crop nutrient recommendations for N, P/P205, and K/K20. The recommendations on this page for N, P/P205, and K/K20 are not consistent with the regulations and should be disregarded.

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Account No. : 128

Soil Analysis Report

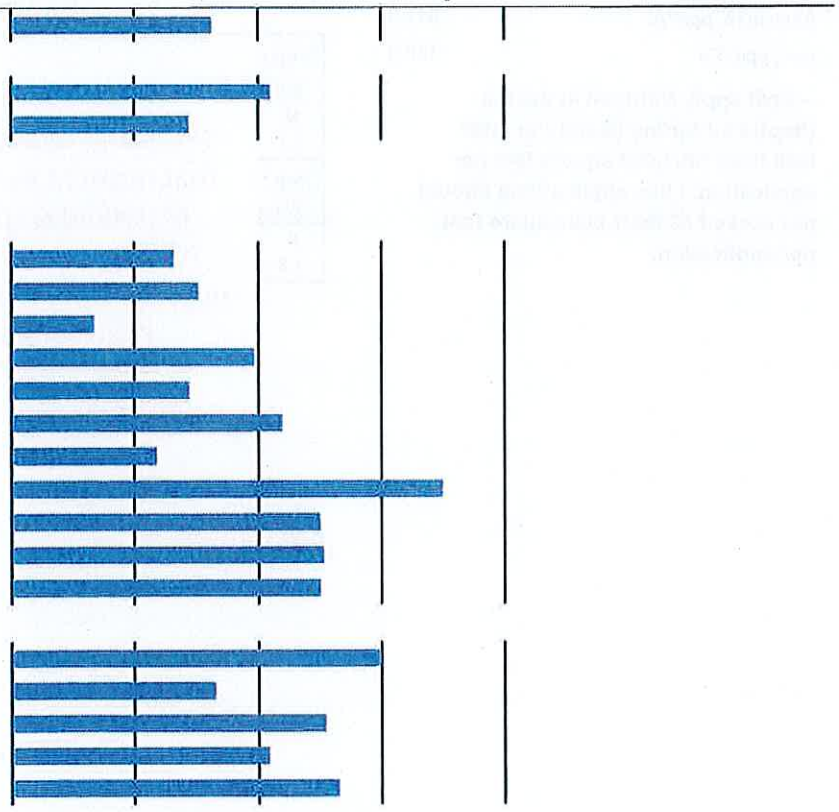
Invoice No. : 1152214
Date Received : 07/09/2024
Date Analyzed: 07/10/2024
Lab Number : 13265

QAC EAC
UME -- QUEEN ANNE COUNTY 128
505 RAILROAD AVE, SUITE 4
CENTREVILLE MD 21617

Results For : RYAN RHODES
Location : CENTREVILLE
Sample ID : PASTURE HOUSE 4

Extraction Method: Mehlich 3

	Analysis	Sufficiency Levels: Deficient / Low / Sufficient / High
pH	5.8	
Buffer pH	6.79	
Soluble Salts, EC mmho/cm	0.10	
Nitrate-N, ppm N	7.2	
Nitrate-N, Lbs N/1,000 SF	0.39	
Depth	0 - 8 in	
Ammonium-N ppm	5.7	
Phosphorus, ppm P	33	
P Saturation	13	
Potassium, ppm K	31	
Calcium, ppm Ca	493	
Magnesium, ppm Mg	48	
Sulfur, ppm S	13	
Boron, ppm B	0.37	
Zinc, ppm Zn	11.51	
Manganese, ppm Mn pH sensitive	32.6	
Copper, ppm Cu	1.82	
Sodium, ppm Na	15	
CEC Sum of Cations, meq/100g	3.7	
H % Saturation	20	
K % Saturation	2	
Ca % Saturation	65	
Mg % Saturation	11	
Na % Saturation	2	



Reviewed By : L.D. Severson - AgroLab/Matrix S **7/11/2024** **Copy : 1** **Page 5 of 8**

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Email: admin@agrolab.us
web site
www.agrolab.us
101 Clukey Dr.
Harrington, DE 19952

AgroLab
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Account No. : 128

Soil Analysis Report

Invoice No. : 1152528
Date Received : 07/22/2024
Date Analyzed: 07/23/2024
Lab Number : 13488

QAC EAC
UME -- QUEEN ANNE COUNTY 128
505 RAILROAD AVE, SUITE 4
CENTREVILLE MD 21617

Results For : RYAN RHODES
Location : CENTREVILLE
Sample ID : PASTURE HOUSE 2 3

Extraction Method: Mehlich 3

Organic Matter, %	2.49
Est. Organic Carbon, %	1.44
Aluminum, ppm Al	841.3
Iron, ppm Fe	166.3

- Split apply Nitrogen in the fall (Sept) and Spring (March) at rates less than 1lb/1,000 square feet per application. Lime applications should not exceed 50 lbs/1,000 square feet per application.

Recommendations
In Actual Pounds of Plant Nutrients per 1000 sq. ft.

Crop :	
Sub-S	
N	f.
2.7	
Crop :	
Sub-S	
N	f.
1.3	

Maryland nutrient management regulations require that nutrient management plans utilize University of Maryland crop nutrient recommendations for N, P/P205, and K/K20. The recommendations on this page for N, P/P205, and K/K20 are not consistent with the regulations and should be disregarded.

Reviewed By : L.D. Severson - AgroLab/Matrix S 7/24/2024 **Copy :** 1 **Page 2 of 2**

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Account No. : 128

Soil Analysis Report

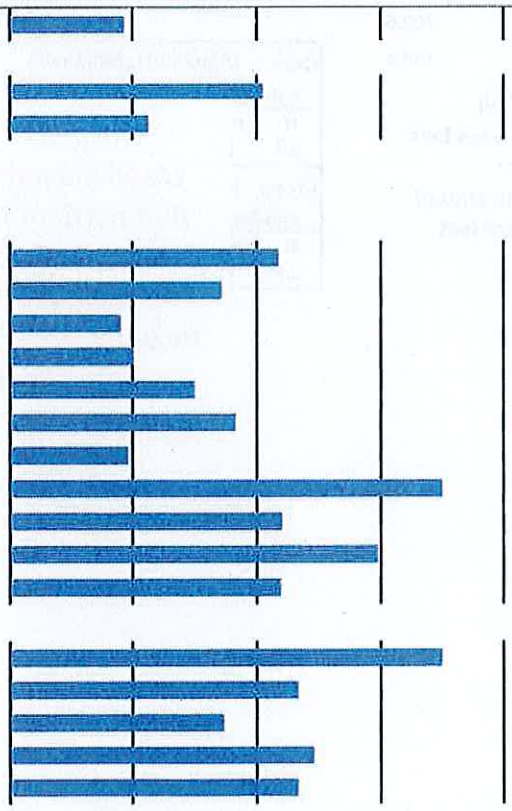
Invoice No. : 1152214
Date Received : 07/09/2024
Date Analyzed: 07/10/2024
Lab Number : 13266

QAC EAC
UME -- QUEEN ANNE COUNTY 128
505 RAILROAD AVE, SUITE 4
CENTREVILLE MD 21617

Results For : RYAN RHODES
Location : CENTREVILLE
Sample ID : PASTURE HOUSE 5

Extraction Method: Mehlich 3

	Analysis	Sufficiency Levels: Deficient / Low / Sufficient / High
pH	5.2	
Buffer pH	6.75	
Soluble Salts, EC mmho/cm	0.06	
Nitrate-N, ppm N	5.7	
Nitrate-N, Lbs N/1,000 SF	0.32	
Depth	0 - 8 in	
Ammonium-N ppm	6.7	
Phosphorus, ppm P	59	
P Saturation	18	
Potassium, ppm K	42	
Calcium, ppm Ca	255	
Magnesium, ppm Mg	50	
Sulfur, ppm S	11	
Boron, ppm B	0.29	
Zinc, ppm Zn	16.12	
Manganese, ppm Mn pH sensitive	22.3	
Copper, ppm Cu	2.96	
Sodium, ppm Na	9	
CEC Sum of Cations, meq/100g	2.9	
H % Saturation	36	
K % Saturation	4	
Ca % Saturation	44	
Mg % Saturation	15	
Na % Saturation	1	



Reviewed By : L.D. Severson - AgroLab/Matrix S 7/11/2024 **Copy :** 1 **Page** 7 of 8

AgroLab
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Account No. : 128

Soil Analysis Report

Invoice No. : 1152214
Date Received : 07/09/2024
Date Analyzed: 07/10/2024
Lab Number : 13265

QAC EAC
UME -- QUEEN ANNE COUNTY 128
505 RAILROAD AVE, SUITE 4
CENTREVILLE MD 21617

Results For : RYAN RHODES
Location : CENTREVILLE
Sample ID : PASTURE HOUSE 4

Extraction Method: Mehlich 3

Organic Matter, %	1.69
Est. Organic Carbon, %	0.98
Aluminum, ppm Al	702.5
Iron, ppm Fe	168.4

- Split apply Nitrogen in the fall (Sept) and spring (March) at rates less than 1lb/1,000 square feet per application. Lime applications should not exceed 50 lbs/1,000 square feet per application.

Recommendations
In Actual Pounds of Plant Nutrients per 1000 sq. ft.

Crop : (AgroLab) Lawn, Unit/A **Nitrogen Credit :** 0

Sub-Soi	
N	P
2.4	

Crop : (

Sub-Soi	
N	P.
2.8	

Maryland nutrient management regulations require that nutrient management plans utilize University of Maryland crop nutrient recommendations for N, P/P205, and K/K20. The recommendations on this page for N, P/P205, and K/K20 are not consistent with the regulations and should be disregarded.

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web site www.agrolab.us
101 Clukey Dr.
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Account No. : 128

Poultry Manure Analysis Report

QAC EAC
UME -- QUEEN ANNE COUNTY 128
505 RAILROAD AVE, SUITE 4
CENTREVILLE MD 21617

Invoice No. : 1148461
Date Received : 02/14/2024
Date Analyzed: 02/15/2024

Lab No. : 428

Results For : RYAN RHODES
Sample ID : SHORE PLEASURE 2024

	Analysis Dry Basis	Analysis As Is Basis	Lbs / Ton Dry Basis	Lbs / Ton As Is Basis	Lbs / Ton Available First Year
Organic N, % N	4.06	3.25	81.2	65.1	34.5
Ammonium, % N	0.388	0.3110	7.8	6.2	5.9
Nitrate, % N	0.022	0.0180	0.4	0.3	0.3
Total N, % N	4.47	3.58	89.4	71.6	40.7
Phosphorus, % P_2O_5	3.35	2.68	67.1	53.8	48.4
Potassium, % K_2O	4.73	3.79	94.6	75.8	72.0
Sulfur, % S	0.59	0.47	11.8	9.5	3.8
Calcium, % Ca	2.54	2.04	50.9	40.8	28.6
Magnesium, % Mg	0.79	0.63	15.7	12.6	8.8
Sodium, % Na	0.99	0.79	19.7	15.8	15.8
Zinc, ppm Zn	599.8	480.7	1.2	1.0	0.7
Iron, ppm Fe	836.5	670.4	1.7	1.3	0.9
Manganese, ppm Mn	565.4	453.1	1.1	0.9	0.6
Copper, ppm Cu	413.3	331.2	0.8	0.5	0.7
Aluminum, ppm Al	624.2	500.2	1.2	1.0	0.7
Boron, ppm B	423.7	339.6	0.8	0.7	0.7
pH		8.8			
Moisture, %	19.86				
Dry Matter (TS), %	80.14				

Note: The available first year Ammonium-N is calculated based on maximum availability, or incorporation within 24 hours. Advise a nutrient consultant for adjustments beyond 24 hr incorporation.

Reviewed By : B.T. Scott - AgroLab/Matrix Sciences Inc 2/16/2024 **Copy :** 1

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Email: admin@agrolab.us
web site www.agrolab.us
101 Clukey Dr.
Harrington, DE 19952

UNIVERSITY OF MARYLAND EXTENSION

POULTRY LITTER QUANTITY ESTIMATE

Name: **Ryan Rhodes** Tract / Farm: **Ryan Rhodes Family** Date: **8/30/2024**

Houses included: **Bird type:** **Broiler**

Average Bird Market Weight (lbs): **6**

A.	Years between total cleanouts: Yr. next total cleanout:	**2035**
	- Yr. last total cleanout:	**2021**
	= Years in cleanout cycle:	14
B.	Total # of birds per flock (for all houses on this cleanout cycle):	**102,400**
C.	Flocks per year	**5.5**
D.	Number of flocks per cleanout cycle (A x C):	77
E.	Estimated tons of cake/crust per 1000 birds per flock: *	**0.2**
F.	Estimated tons of litter + cake/crust per 1000 birds per flock: *	**1.2463**
G.	Tons cake/crust produced per flock (B x E/1000):	20
H.	Tons cake/crust produced per cycle (G x D)	1,577
I.	Tons litter + cake/crust produced per cycle (B x D x F/1000):	9,827
J.	Tons of litter produced per cycle (less cakeout/crustout) (I - H):	8,250
K.	Tons of litter produced per year (less cakeout/crustout) (J/A):	589
L	Tons of litter + cake/crust produced per year (I/A)	702

* 2007 Delmarva Poultry Litter Production Estimates, George W. Malone, University of Delaware, Georgetown Delaware.

Quantity of Poultry Litter, Cake/Crust Available per Year

Year	M Tons of litter remaining in the house from last year (N-P) + (R-S) (previous year)	N Total tons of litter present in the house this year (K) + (M, this year)	O % of partial or total litter to be removed this year in excess of cakeout/crustout (enter % of N removed)	P Tons of litter removed this year (N x O)/100	Q Flocks this Year	R *** Tons Cake/Crust Produced this Year (Q x G)	S Tons Cake/Crust removed this Year	T Tons litter + cake/crust removed this year (P + S)
2022	0	589	**50**	295	5	102		295
2023	397	986	**50**	493	6	123		493
2024	616	1,205	**50**	603	5	102		603
2025	705	1,294	**50**	647	6	123		647
2026	770	1,359	**50**	680	5	102		680
2027	782	1,371	**50**	686	6	123		686
2028	809	1,398	**50**	699	5	102		699
2029	801	1,391	**50**	695	6	123		695
2030	818	1,407	**50**	704	5	102		704
2031	806	1,395	**50**	698	6	123		698
2032	821	1,410	**50**	705	5	102		705
2033	807	1,397	**50**	698	6	123		698
2034	821	1,410	**50**	705	5	102		705
2035	808	1,397	**50**	698	6	123		698
				9,005	77	1,577	0	9,005

*** Cake/Crust not removed due to windrowing, is added with the litter remaining in the house the following year. Windrowing may likely result in actual quantities of litter being less than the estimates shown here. The actual amount of Cake/Crust removed may also be less than the estimated amounts produced due to improved drinker systems, ventilation, etc.

Shore (Tract #487)

QUEEN ANNE'S COUNTY SERVICE CENTER
211 E WATER ST
CENTREVILLE, MD 21617-1101
(410) 758-1671

Conservation Plan

RYAN RHODES
710 BRICK SCHOOLHOUSE RD
CENTREVILLE, MD 21617

Install the conservation practices, enhancements, and activities according to the implementation requirements, designs, construction plans, or other documents that facilitate meeting the applicable NRCS technical criteria. If you do not have such information, contact your local office before starting to install your conservation practices, enhancements, and activities.

Agricultural Energy Management Plan - Written (128)

The Agriculture Energy Management Plan will be developed by a registered TSP and will meet the planning criteria described in the Field Office Technical Guide. Implement practice according to NRCS standards and specifications.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 No	05	2017	1.00 No	12/11/2017

Amendments for Treatment of Agricultural Waste (591)

Waste Amendments - Use specified chemical or biological additives to change the properties of manure, process wastewater, contaminated storm water runoff and other wastes.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 AU	05	2021	--	--

Animal Mortality Facility (316)

Maintain the dead poultry composting facility as per design. The bin and channel system shall be utilized as a composting structure for normal mortalities ONLY as described in the farm's CNMP. MDE regulations prohibit the operator using this area for anything other than propoer mortality management.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 No	04	1997	1.00 No	06/28/2000

1

Conservation Crop Rotation (328)

Crop Rotation - Plan a sequence of crops grown on the same ground over a period of time to maintain or increase soil health, organic matter content, reduce erosion losses and reduce water quality degradation.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	1	13.17 Ac	05	2021	--	--
487	2	1.11 Ac	05	2021	--	--
487	3	3.15 Ac	05	2021	--	--
487	4	18.64 Ac	05	2021	--	--

Cover Crop (340)

Cover crop - Plant grasses, legumes and forbs for seasonal vegetative cover where seasonal cover will protect or improve natural resources.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	1	13.17 Ac	09	2021	--	--
487	2	1.11 Ac	09	2021	--	--
487	3	3.15 Ac	09	2021	--	--
487	4	18.64 Ac	09	2021	--	--

Critical Area Planting (342)

Establish vegetation around poultry houses according to critical area planting NRCS standards and specifications and the implementation requirement sheet provided prior to installation of the practice to prevent erosion and filter nutrients.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	4	0.30 Ac	03	2018	0.30 Ac	11/20/2017
487	4	0.80 Ac	03	2018	0.80 Ac	11/20/2017
487	HQ	0.30 Ac	04	2018	0.30 Ac	11/20/2017
487	HQ	0.20 Ac	04	2018	0.20 Ac	11/20/2017
487	HQ	0.40 Ac	04	2018	0.40 Ac	11/20/2017
487	HQ	0.30 Ac	04	2018	0.30 Ac	11/20/2017
487	HQ	0.40 Ac	04	2018	0.40 Ac	11/20/2017

Energy Efficient Building Envelope (672)

Create a more effective and efficient building envelope through addtion of attic insulation and wall insulation. These improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612. Install thess practices according to the NRCS approved engineering design, jobsheet or implementation requirement sheet.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 No	03	2019	1.00 No	12/11/2018
487	HQ	1.00 No	03	2019	1.00 No	12/11/2018

Energy Efficient Lighting System (670)

Replace or retrofit of one or more components of an existing agricultural lighting system. Install LED's in replacement of incandescent light bulbs to reduce energy use. These improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612. . Install these practices according to the NRCS approved engineering design, jobsheet or implementation requirement sheet.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 No	03	2019	1.00 No	10/09/2018
487	HQ	1.00 No	03	2019	1.00 No	10/09/2018

Farmstead Energy Improvement (374)

Install, replace, or retrofit agricultural equipment systems and/or related components or devices which results in an on-farm and/or off-site reduction in actual or potential emissions of greenhouse gases. These improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612. Tunnel doors, stir fans and attic vents will be installed and/or retrofitted according to the NRCS approved engineering design, jobsheet or implementation requirement sheet.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 No	03	2019	1.00 No	12/11/2018
487	HQ	1.00 No	03	2019	1.00 No	10/09/2018
487	HQ	1.00 No	03	2019	1.00 No	12/11/2018

Heavy Use Area Protection (561)

Stabilization- Stabilize or protect an intensively used area.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1600.00 SqFt	06	2013	1600.00 SqFt	8/31/2016
487	HQ	1600.00 SqFt	06	2013	1600.00 SqFt	8/31/2016
487	HQ	900.00 SqFt	06	2013	900.00 SqFt	8/31/2016
487	HQ	900.00 SqFt	06	2013	900.00 SqFt	8/31/2016
487	HQ	400.00 SqFt	06	2013	400.00 SqFt	8/31/2016
487	HQ	40.00 SqFt	06	2013	400.00 SqFt	8/31/2016
487	HQ	1600.00 SqFt	06	2013	1600.00 SqFt	8/31/2016
487	HQ	1600.00 SqFt	06	2013	1600.00 SqFt	8/31/2016
487	HQ	1600.00 SqFt	03	2017	1600.00 SqFt	10/16/2017
487	HQ	1600.00 SqFt	03	2017	1600.00 SqFt	10/16/2017
487	HQ	1600.00 SqFt	06	2013	1600.00 SqFt	8/31/2016

Hedgerow Planting (422)

Establish and maintain a line of grasses in fronrt of poultry house fans according to NRCS hedgerow standards and specifications to collect dust and particulates from the exhaust fans.Grasses will be established according to the implementation requirement sheet provided prior to installation of the practice.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	4	30.00 Ft	03	2018	30.00 Ft	11/12/2019
487	4	30.00 Ft	03	2018	30.00 Ft	11/12/2019
487	HQ	20.00 Ft	04	2018	20.00 Ft	11/12/2019
487	HQ	30.00 Ft	04	2018	30.00 Ft	11/12/2019
487	HQ	30.00 Ft	04	2018	30.00 Ft	11/12/2019
487	HQ	70.00 Ft	04	2018	70.00 Ft	11/12/2019
487	HQ	40.00 Ft	04	2018	40.00 Ft	11/12/2019
487	HQ	20.00 Ft	04	2018	20.00 Ft	11/12/2019
487	HQ	40.00 Ft	04	2018	40.00 Ft	11/12/2019
487	HQ	30.00 Ft	04	2018	30.00 Ft	11/12/2019
487	HQ	20.00 Ft	04	2018	20.00 Ft	11/12/2019
487	HQ	20.00 Ft	04	2019	20.00 Ft	11/12/2019

Hedgerow Planting (422)

Establish trees around poultry houses to provide odor control, visual screens, reduce particulates from tunnel fans, provide wind shelter, and shade from heat. Trees will be established and maintained according to NRCS hedgerow standard and the implementation requirement sheet provided prior to installation of the practice.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	1	235.00 Ft	03	2018	235.00 Ft	09/19/2017
487	1	235.00 Ft	03	2018	235.00 Ft	09/19/2017
487	4	1365.00 Ft	03	2018	1349.00 Ft	09/19/2017
487	4	1365.00 Ft	03	2018	1365.00 Ft	09/19/2017

Nutrient Management (590)

Basic NM - Implement a basic Nutrient Management Plan which includes the 4Rs (right source, rate, time, place) to benefit plant productivity while also reducing off-site movement of nutrients.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	1	13.17 Ac	05	2021	--	--
487	2	1.11 Ac	05	2021	--	--
487	3	3.15 Ac	05	2021	--	--
487	4	18.64 Ac	05	2021	--	--

Residue and Tillage Management, No Till (329)

No-till - Minimize soil disturbance by limiting tillage to only planting and manage the amount, orientation and distribution of all residues to provide cover on the soil surface throughout the year.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	1	13.17 Ac	05	2021	--	--
487	2	1.11 Ac	05	2021	--	--
487	3	3.15 Ac	05	2021	--	--
487	4	18.64 Ac	05	2021	--	--

Shallow Water Development and Management (646)

Provide and manage shallow water habitat for waterfowl, wading birds, and other wildlife. A 35' wide clover/fescue filter strip must be maintained around the shallow water area. You have 1 year from the effective start date of this contract to get the shallow water area built. This contract will remain in effect for 15 years. The contract expires 9/30/2022.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	6	1.00 Ac	08	2007	1.30 Ac	06/12/2008

Waste Storage Facility (313)

Maintain and repair the manure storage structure at the location shown on the plan map. The structure was built according to NRCS design, and operated and maintained in accordance with a Comprehensive Nutrient Management Plan or a Waste Management System plan developed for this operation.

The building was built under two MACS cost-share agreements. The structure was orginally 56 feet long and then extended several years later to 120 feet in total length.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 No	04	1997	1.00 No	09/10/1998

Crop

Tract: 487

Amendments for Treatment of Agricultural Waste (591)

Waste Amendments - Use specified chemical or biological additives to change the properties of manure, process wastewater, contaminated storm water runoff and other wastes.

Field	Planned Amount	Month	Year	Applied Amount	Date
HQ	1.00 AU	01	2024	1.00 AU	01/01/2024
HQ	1.00 AU	01	2024	1.00 AU	01/01/2024
HQ	1.00 AU	01	2024	1.00 AU	01/01/2024
HQ	1.00 AU	01	2024	1.00 AU	01/01/2024
HQ	1.00 AU	01	2024	1.00 AU	01/01/2024
Total:	5.00 AU	--	--	5.00 AU	--

Fence (382)

Fence - Install fence to meet management objectives.

Field	Planned Amount	Month	Year	Applied Amount	Date
HQ	470.00 Ft	08	2020	470.00 Ft	08/01/2020
HQ	376.00 Ft	08	2020	376.00 Ft	08/01/2020
HQ	152.00 Ft	08	2020	152.00 Ft	08/01/2020
Total:	1,002.00 Ft	--	--	1,002.00 Ft	--

Pasture and Hay Planting (512)

Forage Planting - Establish adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay or biomass production to meet management objectives.

Field	Planned Amount	Month	Year	Applied Amount	Date
HQ	18,200.00 SQFT	08	2020	18,200.00 SQFT	08/01/2020
HQ	58,000.00 SQFT	08	2020	58,000.00 SQFT	08/01/2020
HQ	34,000.00 SQFT	08	2020	34,000.00 SQFT	08/01/2020
Total:	110,200.00 SQFT	--	--	110,200.00 SQFT	--

CERTIFICATION OF PARTICIPANTS

Ryan Rhodes 7/14/21
RYAN RHODES DATE

CERTIFICATION OF:

USDA
Nancy S Metcalf 6/4/21
DISTRICT CONSERVATIONIST DATE

CONSERVATION DISTRICT
July 14th, 2021
QUEEN ANNE'S SCD DATE

Soils Map

Client(s): RYAN RHODES
Farm 1058 Tract 487
Approximate Acres: 61.57
Cropland Acres: 37.37

Assisted By: Casey Foreman
QUEEN ANNE'S SCD

Date: 5/24/2021

0 550 Feet

Prepared with assistance from USDA-Natural Resources Conservation Service

Practice Schedule PLUs

Soils

Soil Mapunit

N

USDA is an equal opportunity provider, employer, and lender

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, provide information on the composition of map units and properties of their components.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

Queen Anne's County, Maryland

Map Unit: HnB--Hammonton sandy loam, 2 to 5 percent slopes

Component: Hammonton (80%)

The Hammonton component makes up 80 percent of the map unit. Slopes are 2 to 5 percent. This component is on flats, shallow depressions, uplands. The parent material consists of loamy fluviomarine sediments. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 24 inches during February. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. Irrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Klej (5%)

Generated brief soil descriptions are created for major soil components. The Klej soil is a minor component.

Component: Ingleside (5%)

Generated brief soil descriptions are created for major soil components. The Ingleside soil is a minor component.

Component: Hurlock, drained (5%)

Generated brief soil descriptions are created for major soil components. The Hurlock, drained soil is a minor component.

Component: Rosedale (5%)

Generated brief soil descriptions are created for major soil components. The Rosedale soil is a minor component.

Map Unit: HvA--Hurlock sandy loam, 0 to 2 percent slopes

Component: Hurlock, drained (42%)

The Hurlock, drained component makes up 42 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats, uplands. The parent material consists of Loamy fluviomarine sediments fluviomarine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is rarely ponded. A seasonal zone of water saturation is at 14 inches during January, February, March, April. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. Irrigated land capability classification is 3w. This soil meets hydric criteria.

Component: Hurlock, undrained (38%)

The Hurlock, undrained component makes up 38 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats, uplands. The parent material consists of Loamy fluviomarine sediments fluviomarine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is occasionally ponded. A seasonal zone of water saturation is at 5 inches (depth from the mineral surface is 3 inches) during January, February, March, April. Organic matter content in the surface horizon is about 68 percent. Below this thin organic horizon the organic matter content is about 2 percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria.

Component: Woodstown (5%)

Generated brief soil descriptions are created for major soil components. The Woodstown soil is a minor component.

Component: Klej (5%)

Generated brief soil descriptions are created for major soil components. The Klej soil is a minor component.

Component: Hammonton (5%)

Generated brief soil descriptions are created for major soil components. The Hammonton soil is a minor component.

Component: Mullica, drained (5%)

Generated brief soil descriptions are created for major soil components. The Mullica, drained soil is a minor component.

Map Unit: IgB--Ingleside sandy loam, 2 to 5 percent slopes

Component: Ingleside (75%)

The Ingleside component makes up 75 percent of the map unit. Slopes are 2 to 5 percent. This component is on flats, uplands. The parent material consists of loamy eolian deposits and/or fluviomarine sediments. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 45 inches during January. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 2e. Irrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Downer (5%)

Generated brief soil descriptions are created for major soil components. The Downer soil is a minor component.

Component: Cedartown (5%)

Generated brief soil descriptions are created for major soil components. The Cedartown soil is a minor component.

Component: Hammonton (5%)

Generated brief soil descriptions are created for major soil components. The Hammonton soil is a minor component.

Component: Rosedale (5%)

Generated brief soil descriptions are created for major soil components. The Rosedale soil is a minor component.

Component: Woodstown (5%)

Generated brief soil descriptions are created for major soil components. The Woodstown soil is a minor component.

Map Unit: LO--Longmarsh and Indiantown soils, frequently flooded

Component: Longmarsh (43%)

The Longmarsh component makes up 43 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains, coastal plains. The parent material consists of loamy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is frequently ponded. A seasonal zone of water saturation is at 5 inches (depth from the mineral surface is 3 inches) during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 68 percent. Below this thin organic horizon the organic matter content is about 13 percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria.

Component: Indiantown (37%)

The Indiantown component makes up 37 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains, coastal plains. The parent material consists of loamy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is frequently flooded. It is frequently ponded. A seasonal zone of water saturation is at 5 inches (depth from the mineral surface is 3 inches) during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 68 percent. Below this thin organic horizon the organic matter content is about 12 percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria.

Component: Zekiah (10%)

Generated brief soil descriptions are created for major soil components. The Zekiah soil is a minor component.

Component: Klej (5%)

Generated brief soil descriptions are created for major soil components. The Klej soil is a minor component.

Component: Manahawkin (5%)

Generated brief soil descriptions are created for major soil components. The Manahawkin soil is a minor component.

Map Unit: MkB--Matapeake silt loam, 2 to 5 percent slopes

Component: Matapeake (80%)

The Matapeake component makes up 80 percent of the map unit. Slopes are 2 to 5 percent. This component is on flats,

uplands. The parent material consists of silty eolian deposits over fluviomarine sediments. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 2e. Irrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Nassawango (10%)

Generated brief soil descriptions are created for major soil components. The Nassawango soil is a minor component.

Component: Butlertown (5%)

Generated brief soil descriptions are created for major soil components. The Butlertown soil is a minor component.

Component: Mattapex (5%)

Generated brief soil descriptions are created for major soil components. The Mattapex soil is a minor component.

Map Unit: OtA--Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Component: Othello, drained (48%)

The Othello, drained component makes up 48 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats, coastal plains. The parent material consists of silty eolian deposits over fluviomarine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is rarely ponded. A seasonal zone of water saturation is at 14 inches during January, February, March, April. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Component: Othello, undrained (28%)

The Othello, undrained component makes up 28 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on coastal plains. The parent material consists of silty eolian deposits over fluviomarine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is occasionally ponded. A seasonal zone of water saturation is at 5 inches (depth from the mineral surface is 3 inches) during January, February, March, April. Organic matter content in the surface horizon is about 68 percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Component: Crosiadore (7%)

Generated brief soil descriptions are created for major soil components. The Crosiadore soil is a minor component.

Component: Mattapex (7%)

Generated brief soil descriptions are created for major soil components. The Mattapex soil is a minor component.

Component: Fallsington, undrained (5%)

Generated brief soil descriptions are created for major soil components. The Fallsington, undrained soil is a minor component.

Component: Kentuck, undrained (5%)

Generated brief soil descriptions are created for major soil components. The Kentuck, undrained soil is a minor component.

Data Source Information

Soil Survey Area: Queen Anne's County, Maryland

Survey Area Data: Version 17, Jun 11, 2020

Soils Inventory Report

Tract	Land Unit	Map Unit Symbol	Map Unit Name	Acres	Percent
487	1	HvA	Hurlock sandy loam, 0 to 2 percent slopes	13.0	100%
			Total	**13.0**	**100%**

Tract	Land Unit	Map Unit Symbol	Map Unit Name	Acres	Percent
487	2	HnB	Hammonton sandy loam, 2 to 5 percent slopes	1.1	100%
487	2	HvA	Hurlock sandy loam, 0 to 2 percent slopes	0.0	0%
			Total	**1.1**	**100%**

Tract	Land Unit	Map Unit Symbol	Map Unit Name	Acres	Percent
487	3	HnB	Hammonton sandy loam, 2 to 5 percent slopes	0.5	16%
487	3	OtA	Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	2.6	84%
			Total	**3.1**	**100%**

Tract	Land Unit	Map Unit Symbol	Map Unit Name	Acres	Percent
487	4	HnB	Hammonton sandy loam, 2 to 5 percent slopes	0.0	0%
487	4	HvA	Hurlock sandy loam, 0 to 2 percent slopes	4.7	27%
487	4	IgB	Ingleside sandy loam, 2 to 5 percent slopes	4.2	24%
487	4	MkB	Matapeake silt loam, 2 to 5 percent slopes	6.9	39%
487	4	OtA	Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	1.8	10%
			Total	**17.6**	**100%**

Tract	Land Unit	Map Unit Symbol	Map Unit Name	Acres	Percent
487	6	HvA	Hurlock sandy loam, 0 to 2 percent slopes	1.1	100%
			Total	**1.1**	**100%**

Tract	Land Unit	Map Unit Symbol	Map Unit Name	Acres	Percent
487	7	HvA	Hurlock sandy loam, 0 to 2 percent slopes	5.0	60%
487	7	IgB	Ingleside sandy loam, 2 to 5 percent slopes	0.5	6%
487	7	LO	Longmarsh and Indiantown soils, frequently flooded	2.7	33%
487	7	MkB	Matapeake silt loam, 2 to 5 percent slopes	0.1	1%
			Total	**8.3**	**100%**

Tract	Land Unit	Map Unit Symbol	Map Unit Name	Acres	Percent
487	HQ	HnB	Hammonton sandy loam, 2 to 5 percent slopes	1.0	6%
487	HQ	HvA	Hurlock sandy loam, 0 to 2 percent slopes	10.2	64%
487	HQ	MkB	Matapeake silt loam, 2 to 5 percent slopes	4.2	26%
487	HQ	OtA	Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	0.6	4%
			Total	**16.0**	**100%**
			Grand Total	**60.2**	**100%**

QUEEN ANNE'S COUNTY SERVICE CENTER
211 E WATER ST
CENTREVILLE, MD 21617-1101
(410) 758-1671

Conservation Plan

RYAN RHODES
710 BRICK SCHOOLHOUSE RD
CENTREVILLE, MD 21617

Install the conservation practices, enhancements, and activities according to the implementation requirements, designs, construction plans, or other documents that facilitate meeting the applicable NRCS technical criteria. If you do not have such information, contact your local office before starting to install your conservation practices, enhancements, and activities.

Agricultural Energy Management Plan - Written (128)

The Agriculture Energy Management Plan will be developed by a registered TSP and will meet the planning criteria described in the Field Office Technical Guide. Implement practice according to NRCS standards and specifications.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 No	05	2017	1.00 No	12/11/2017

Amendments for Treatment of Agricultural Waste (591)

Waste Amendments - Use specified chemical or biological additives to change the properties of manure, process wastewater, contaminated storm water runoff and other wastes.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 AU	05	2021	--	--

Animal Mortality Facility (316)

Maintain the dead poultry composting facility as per design. The bin and channel system shall be utilized as a composting structure for normal mortalities ONLY as described in the farm's CNMP. MDE regulations prohibit the operator using this area for anything other than propoer mortality management.

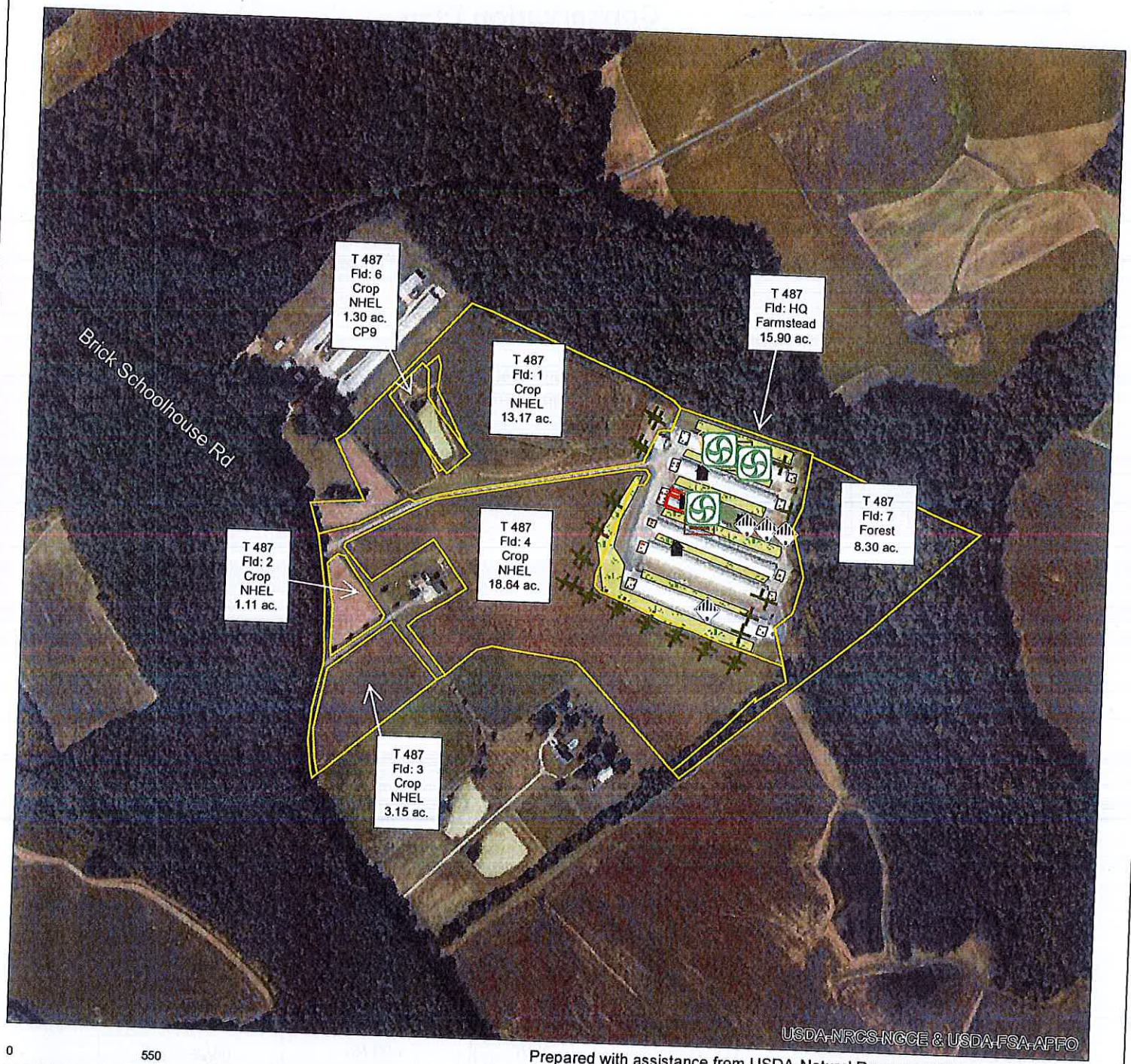
Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 No	04	1997	1.00 No	06/28/2000

Conservation Plan Map

Client(s): RYAN RHODES
Farm 1058 Tract 487
Approximate Acres: 61.57
Cropland Acres: 37.37

Assisted By: Casey Foreman
QUEEN ANNE'S SCD

Date: 5/24/2021



0 550 Feet

Prepared with assistance from USDA-Natural Resources Conservation Service

Practice Schedule PLUs

Conservation Practice Points

- Amendments for the Treatment of Agricultural Waste (591)
- FARMSTEAD ENERGY IMPROVEMENT (374)
- Lighting System Improvement (670)
- Building Envelope Improvement (672)
- Agricultural Energy Management Plan - Written (128)

Conservation Practice Lines

- Hedgerow Planting (422)

Conservation Practice Polygons

- Animal Mortality Facility (316)/Waste Storage Facility (313)
- Critical Area Planting (342)
- Heavy Use Area Protection (561)

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USDA

Conservation Crop Rotation (328)

Crop Rotation - Plan a sequence of crops grown on the same ground over a period of time to maintain or increase soil health, organic matter content, reduce erosion losses and reduce water quality degradation.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	1	13.17 Ac	05	2021	--	--
487	2	1.11 Ac	05	2021	--	--
487	3	3.15 Ac	05	2021	--	--
487	4	18.64 Ac	05	2021	--	--

Cover Crop (340)

Cover crop - Plant grasses, legumes and forbs for seasonal vegetative cover where seasonal cover will protect or improve natural resources.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	1	13.17 Ac	09	2021	--	--
487	2	1.11 Ac	09	2021	--	--
487	3	3.15 Ac	09	2021	--	--
487	4	18.64 Ac	09	2021	--	--

Critical Area Planting (342)

Establish vegetation around poultry houses according to critical area planting NRCS standards and specifications and the implementation requirement sheet provided prior to installation of the practice to prevent erosion and filter nutrients.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	4	0.30 Ac	03	2018	0.30 Ac	11/20/2017
487	4	0.80 Ac	03	2018	0.80 Ac	11/20/2017
487	HQ	0.30 Ac	04	2018	0.30 Ac	11/20/2017
487	HQ	0.20 Ac	04	2018	0.20 Ac	11/20/2017
487	HQ	0.40 Ac	04	2018	0.40 Ac	11/20/2017
487	HQ	0.30 Ac	04	2018	0.30 Ac	11/20/2017
487	HQ	0.40 Ac	04	2018	0.40 Ac	11/20/2017

Energy Efficient Building Envelope (672)

Create a more effective and efficient building envelope through addtion of attic insulation and wall insulation. These improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612. Install thess practices according to the NRCS approved engineering design, jobsheet or implementation requirement sheet.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 No	03	2019	1.00 No	12/11/2018
487	HQ	1.00 No	03	2019	1.00 No	12/11/2018

Energy Efficient Lighting System (670)

Replace or retrofit of one or more components of an existing agricultural lighting system. Install LED's in replacement of incandescent light bulbs to reduce energy use. These improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612. . Install these practices according to the NRCS approved engineering design, jobsheet or implementation requirement sheet.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 No	03	2019	1.00 No	10/09/2018
487	HQ	1.00 No	03	2019	1.00 No	10/09/2018

Farmstead Energy Improvement (374)

Install, replace, or retrofit agricultural equipment systems and/or related components or devices which results in an on-farm and/or off-site reduction in actual or potential emissions of greenhouse gases. These improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612. Tunnel doors, stir fans and attic vents will be installed and/or retrofitted according to the NRCS approved engineering design, jobsheet or implementation requirement sheet.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 No	03	2019	1.00 No	12/11/2018
487	HQ	1.00 No	03	2019	1.00 No	10/09/2018
487	HQ	1.00 No	03	2019	1.00 No	12/11/2018

Heavy Use Area Protection (561)

Stabilization- Stabilize or protect an intensively used area.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1600.00 SqFt	06	2013	1600.00 SqFt	8/31/2016
487	HQ	1600.00 SqFt	06	2013	1600.00 SqFt	8/31/2016
487	HQ	900.00 SqFt	06	2013	900.00 SqFt	8/31/2016
487	HQ	900.00 SqFt	06	2013	900.00 SqFt	8/31/2016
487	HQ	400.00 SqFt	06	2013	400.00 SqFt	8/31/2016
487	HQ	40.00 SqFt	06	2013	400.00 SqFt	8/31/2016
487	HQ	1600.00 SqFt	06	2013	1600.00 SqFt	8/31/2016
487	HQ	1600.00 SqFt	06	2013	1600.00 SqFt	8/31/2016
487	HQ	1600.00 SqFt	03	2017	1600.00 SqFt	10/16/2017
487	HQ	1600.00 SqFt	03	2017	1600.00 SqFt	10/16/2017
487	HQ	1600.00 SqFt	06	2013	1600.00 SqFt	8/31/2016

Hedgerow Planting (422)

Establish and maintain a line of grasses in fronrt of poultry house fans according to NRCS hedgerow standards and specifications to collect dust and particulates from the exhaust fans.Grasses will be established according to the implementation requirement sheet provided prior to installation of the practice.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	4	30.00 Ft	03	2018	30.00 Ft	11/12/2019
487	4	30.00 Ft	03	2018	30.00 Ft	11/12/2019
487	HQ	20.00 Ft	04	2018	20.00 Ft	11/12/2019
487	HQ	30.00 Ft	04	2018	30.00 Ft	11/12/2019
487	HQ	30.00 Ft	04	2018	30.00 Ft	11/12/2019
487	HQ	70.00 Ft	04	2018	70.00 Ft	11/12/2019
487	HQ	40.00 Ft	04	2018	40.00 Ft	11/12/2019
487	HQ	20.00 Ft	04	2018	20.00 Ft	11/12/2019
487	HQ	40.00 Ft	04	2018	40.00 Ft	11/12/2019
487	HQ	30.00 Ft	04	2018	30.00 Ft	11/12/2019
487	HQ	20.00 Ft	04	2018	20.00 Ft	11/12/2019
487	HQ	20.00 Ft	04	2019	20.00 Ft	11/12/2019

Hedgerow Planting (422)

Establish trees around poultry houses to provide odor control, visual screens, reduce particulates from tunnel fans, provide wind shelter, and shade from heat. Trees will be established and maintained according to NRCS hedgerow standard and the implementation requirement sheet provided prior to installation of the practice.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	1	235.00 Ft	03	2018	235.00 Ft	09/19/2017
487	1	235.00 Ft	03	2018	235.00 Ft	09/19/2017
487	4	1365.00 Ft	03	2018	1349.00 Ft	09/19/2017
487	4	1365.00 Ft	03	2018	1365.00 Ft	09/19/2017

Nutrient Management (590)

Basic NM - Implement a basic Nutrient Management Plan which includes the 4Rs (right source, rate, time, place) to benefit plant productivity while also reducing off-site movement of nutrients.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	1	13.17 Ac	05	2021	--	--
487	2	1.11 Ac	05	2021	--	--
487	3	3.15 Ac	05	2021	--	--
487	4	18.64 Ac	05	2021	--	--

Residue and Tillage Management, No Till (329)

No-till - Minimize soil disturbance by limiting tillage to only planting and manage the amount, orientation and distribution of all residues to provide cover on the soil surface throughout the year.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	1	13.17 Ac	05	2021	--	--
487	2	1.11 Ac	05	2021	--	--
487	3	3.15 Ac	05	2021	--	--
487	4	18.64 Ac	05	2021	--	--

Shallow Water Development and Management (646)

Provide and manage shallow water habitat for waterfowl, wading birds, and other wildlife. A 35' wide clover/fescue filter strip must be maintained around the shallow water area. You have 1 year from the effective start date of this contract to get the shallow water area built. This contract will remain in effect for 15 years. The contract expires 9/30/2022.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	6	1.00 Ac	08	2007	1.30 Ac	06/12/2008

Waste Storage Facility (313)

Maintain and repair the manure storage structure at the location shown on the plan map. The structure was built according to NRCS design, and operated and maintained in accordance with a Comprehensive Nutrient Management Plan or a Waste Management System plan developed for this operation.

The building was built under two MACS cost-share agreements. The structure was orginally 56 feet long and then extended several years later to 120 feet in total length.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
487	HQ	1.00 No	04	1997	1.00 No	09/10/1998

Crop

Tract: 487

Amendments for Treatment of Agricultural Waste (591)

Waste Amendments - Use specified chemical or biological additives to change the properties of manure, process wastewater, contaminated storm water runoff and other wastes.

Field	Planned Amount	Month	Year	Applied Amount	Date
HQ	1.00 AU	01	2024	1.00 AU	01/01/2024
HQ	1.00 AU	01	2024	1.00 AU	01/01/2024
HQ	1.00 AU	01	2024	1.00 AU	01/01/2024
HQ	1.00 AU	01	2024	1.00 AU	01/01/2024
HQ	1.00 AU	01	2024	1.00 AU	01/01/2024
Total:	5.00 AU	--	--	5.00 AU	--

Fence (382)

Fence - Install fence to meet management objectives.

Field	Planned Amount	Month	Year	Applied Amount	Date
HQ	470.00 Ft	08	2020	470.00 Ft	08/01/2020
HQ	376.00 Ft	08	2020	376.00 Ft	08/01/2020
HQ	152.00 Ft	08	2020	152.00 Ft	08/01/2020
Total:	1,002.00 Ft	--	--	1,002.00 Ft	--

Pasture and Hay Planting (512)

Forage Planting - Establish adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay or biomass production to meet management objectives.

Field	Planned Amount	Month	Year	Applied Amount	Date
HQ	18,200.00 SQFT	08	2020	18,200.00 SQFT	08/01/2020
HQ	58,000.00 SQFT	08	2020	58,000.00 SQFT	08/01/2020
HQ	34,000.00 SQFT	08	2020	34,000.00 SQFT	08/01/2020
Total:	110,200.00 SQFT	--	--	110,200.00 SQFT	--

USDA NRCS

RUSLE2 Profile Erosion Calculation Record

Info:

File: Plan: Profile (Temp. scenario[1]) of Ryan Rhodes T487
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	*Soil*	*Slope length (horiz)*	*Avg. slope steepness, %*
USA\Maryland\Queen Annes County	Queen Anne's, MD\Ot Othello silt loam\Othello silt loam 35%	100	1.0

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes T6664 fssb, nt; cc air	vegetations\Soybean, mw 7in rows	bu	65.000
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes T6664 fssb, nt; cc air	vegetations\Wheat, winter cover	pounds	4000.0

Contouring	*Strips/barriers*	*Diversion/terrace, sediment basin*	*Subsurface drainage*	*Adjust res. burial level*	*General yield level*	*Rock cover, %*
default	(none)	(none)	(none)	Normal res. burial	Base yield	0

Outputs:

T value	*Soil loss erod. portion*	*Detachment on slope*	*Soil loss for cons. plan*	*Sediment delivery*	*Net C factor*	*Net K factor*	*Crit. slope length*	*Surf. cover after planting, %*
5.0	0.21	0.21	0.21	0.21	0.020	0.48	100	

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
5/15/0	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 7in rows	72
10/14/0	Harvest, killing crop 50pct standing stubble		85
10/22/0	Aerial seeding	Wheat, winter cover	83
3/15/1	Sprayer, kill crop		72

FUEL USE EVALUATION:

Fuel type for entire run	*Equiv. diesel use for entire simulation*	*Energy use for entire simulation*	*Fuel cost for entire simulation, US$/ac*
(none)	2.0	280000	0

SCI and STIR Output

Soil conditioning index (SCI)	*SCI OM subfactor*	*SCI FO subfactor*	*SCI ER subfactor*	*Avg. annual slope STIR*	*Wind & irrigation-induced erosion for SCI, t/ac/yr*
0.524	-0.12	0.97	0.92	2.74	0

CERTIFICATION OF PARTICIPANTS

Ryan Rhodes 7/14/21

RYAN RHODES DATE

CERTIFICATION OF:

USDA

Nancy S Metcalf 6/4/21

DISTRICT CONSERVATIONIST DATE

CONSERVATION DISTRICT

July 14th, 2021

QUEEN ANNE'S SCD DATE

USDA NRCS

RUSLE2 Profile Erosion Calculation Record

Info:

File: Plan: Profile (Temp. scenario[1]) of Ryan Rhodes T487
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	*Soil*	*Slope length (horiz)*	*Avg. slope steepness, %*
USA\Maryland\Queen Annes County	Queen Anne's, MD\Hr Hurlock sandy loam\Hurlock sandy loam 35%	100	1.0

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes T6664 fssb, nt; cc air	vegetations\Soybean, mw 7in rows	bu	65.000
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes T6664 fssb, nt; cc air	vegetations\Wheat, winter cover	pounds	4000.0

Contouring	*Strips/barriers*	*Diversion/terrace, sediment basin*	*Subsurface drainage*	*Adjust res. burial level*	*General yield level*	*Rock cover, %*
default	(none)	(none)	(none)	Normal res. burial	Base yield	0

Outputs:

T value	*Soil loss erod. portion*	*Detachment on slope*	*Soil loss for cons. plan*	*Sediment delivery*	*Net C factor*	*Net K factor*	*Crit. slope length*	*Surf. cover after planting, %*
5.0	0.10	0.10	0.10	0.10	0.023	0.20	100	

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
5/15/0	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 7in rows	72
10/14/0	Harvest, killing crop 50pct standing stubble		85
10/22/0	Aerial seeding	Wheat, winter cover	83
3/15/1	Sprayer, kill crop		72

FUEL USE EVALUATION:

Fuel type for entire run	*Equiv. diesel use for entire simulation*	*Energy use for entire simulation*	*Fuel cost for entire simulation, US$/ac*
(none)	2.0	270000	0

SCI and STIR Output

Soil conditioning index (SCI)	*SCI OM subfactor*	*SCI FO subfactor*	*SCI ER subfactor*	*Avg. annual slope STIR*	*Wind & irrigation-induced erosion for SCI, t/ac/yr*
0.533	-0.12	0.97	0.96	2.74	0

The **SCI** is the **Soil Conditioning Index** rating. If the calculated index is a negative value, soil organic matter levels are predicted to decline under that production system. If the index is a positive value, soil organic matter levels are predicted to increase under that system.

The **STIR** value is the **Soil Tillage Intensity Rating**. It utilizes the speed, depth, surface disturbance percent and tillage type parameters to calculate a tillage intensity rating for the system used in growing a crop or a rotation. STIR ratings tend to show the differences in the degree of soil disturbance between systems. The kind, severity and number of ground disturbing passes are evaluated for the entire cropping rotation as shown in the management description.

USDA NRCS

RUSLE2 Profile Erosion Calculation Record

Info:

File: Plan: Profile (Temp. scenario[1]) of Ryan Rhodes T487
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	*Soil*	*Slope length (horiz)*	*Avg. slope steepness, %*
USA\Maryland\Queen Annes County	Queen Anne's, MD\HnB Hammonton sandy loam, 2 to 5 percent slopes\Hammonton sandy loam 65%	100	3.0

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes T6664 fssb, nt; cc air	vegetations\Soybean, mw 7in rows	bu	65.000
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes T6664 fssb, nt; cc air	vegetations\Wheat, winter cover	pounds	4000.0

Contouring	*Strips/barriers*	*Diversion/terrace, sediment basin*	*Subsurface drainage*	*Adjust res. burial level*	*General yield level*	*Rock cover, %*
default	(none)	(none)	(none)	Normal res. burial	Base yield	0

Outputs:

T value	*Soil loss erod. portion*	*Detachment on slope*	*Soil loss for cons. plan*	*Sediment delivery*	*Net C factor*	*Net K factor*	*Crit. slope length*	*Surf. cover after planting, %*
5.0	0.19	0.19	0.19	0.19	0.017	0.20	100	

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
5/15/0	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 7in rows	72
10/14/0	Harvest, killing crop 50pct standing stubble		85
10/22/0	Aerial seeding	Wheat, winter cover	83
3/15/1	Sprayer, kill crop		72

FUEL USE EVALUATION:

Fuel type for entire run	*Equiv. diesel use for entire simulation*	*Energy use for entire simulation*	*Fuel cost for entire simulation, US$/ac*
(none)	2.0	270000	0

SCI and STIR Output

Soil conditioning index (SCI)	*SCI OM subfactor*	*SCI FO subfactor*	*SCI ER subfactor*	*Avg. annual slope STIR*	*Wind & irrigation-induced erosion for SCI, t/ac/yr*
0.527	-0.12	0.97	0.93	2.74	0

The **SCI** is the **Soil Conditioning Index** rating. If the calculated index is a negative value, soil organic matter levels are predicted to decline under that production system. If the index is a positive value, soil organic matter levels are predicted to increase under that system.

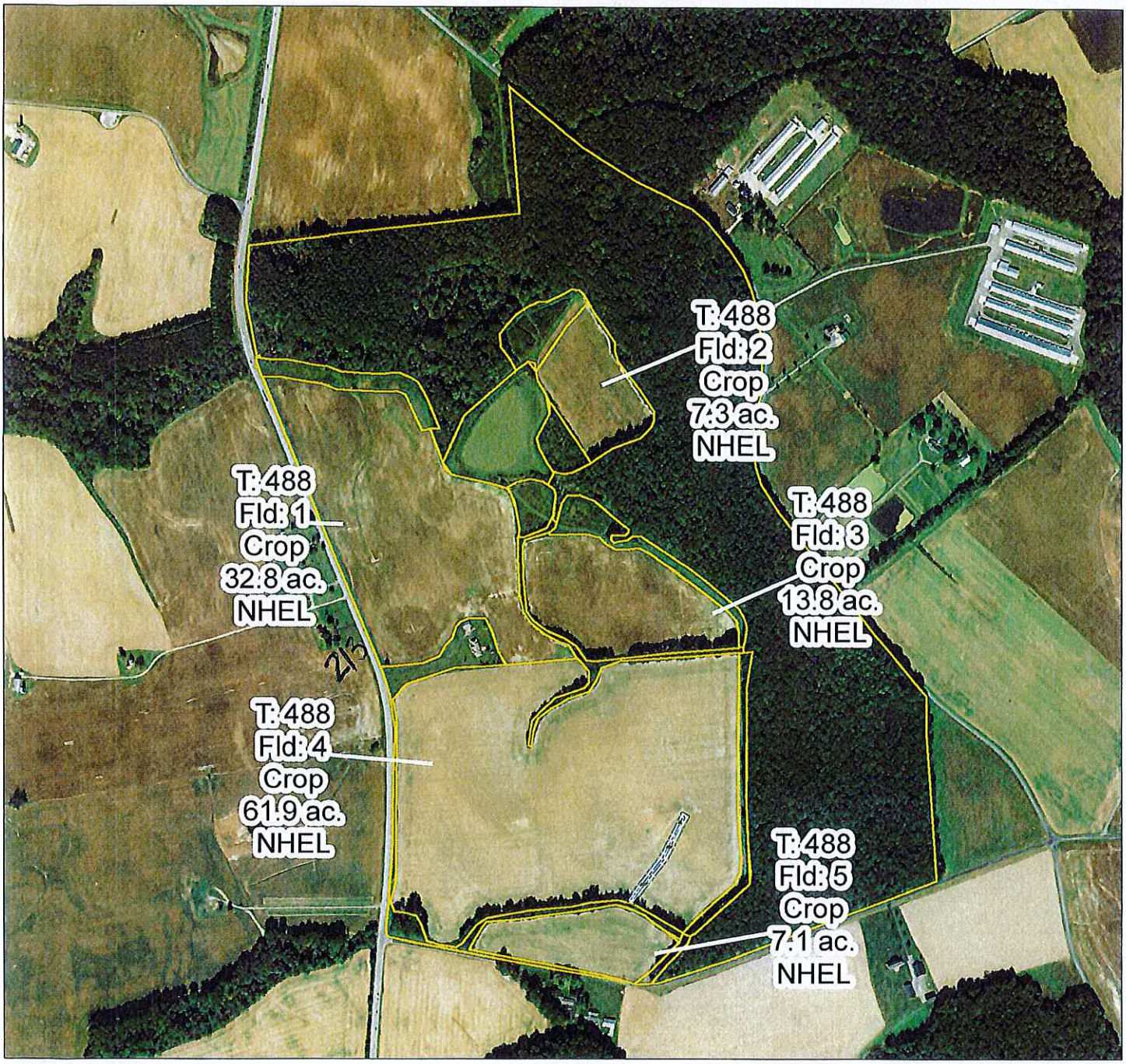
The **STIR** value is the **Soil Tillage Intensity Rating**. It utilizes the speed, depth, surface disturbance percent and tillage type parameters to calculate a tillage intensity rating for the system used in growing a crop or a rotation. STIR ratings tend to show the differences in the degree of soil disturbance between systems. The kind, severity and number of ground disturbing passes are evaluated for the entire cropping rotation as shown in the management description.

Conservation Plan Map

Date: 6/12/2023

Client(s): HILLSDALE FARM LLC
Location: Farm: 2236 Tract: 488
Approximate Acres: 262.84

Assisted By: NICOLE DAVIS
QUEEN ANNE'S COUNTY SERVICE CENTER



Prepared with assistance from USDA-Natural Resources Conservation Service

0 825 Feet

Conservation Practice Polygons

Grassed Waterway (412)

Practice Schedule PLUs

N

USDA

The **SCI** is the **Soil Conditioning Index** rating. If the calculated index is a negative value, soil organic matter levels are predicted to decline under that production system. If the index is a positive value, soil organic matter levels are predicted to increase under that system.

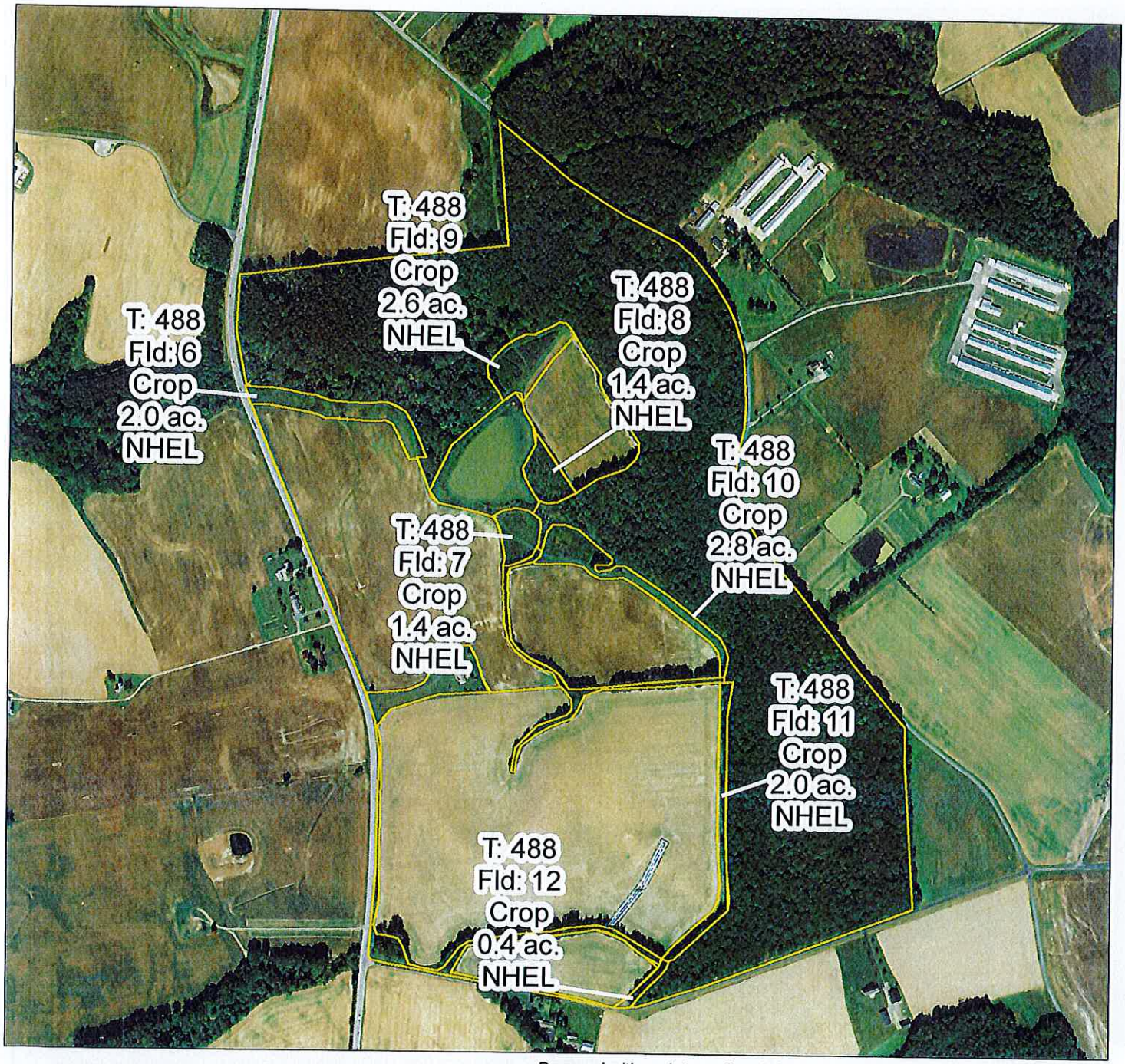
The **STIR** value is the **Soil Tillage Intensity Rating**. It utilizes the speed, depth, surface disturbance percent and tillage type parameters to calculate a tillage intensity rating for the system used in growing a crop or a rotation. STIR ratings tend to show the differences in the degree of soil disturbance between systems. The kind, severity and number of ground disturbing passes are evaluated for the entire cropping rotation as shown in the management description.

Expired CREP Map

Date: 6/12/2023

Client(s): HILLSDALE FARM LLC
Location: Farm: 2236 Tract: 488
Approximate Acres: 262.84

Assisted By: NICOLE DAVIS
QUEEN ANNE'S COUNTY SERVICE CENTER



0 825 Feet

Prepared with assistance from USDA-Natural Resources Conservation Service

Conservation Practice Polygons

Grassed Waterway (412)

Practice Schedule PLUs

N

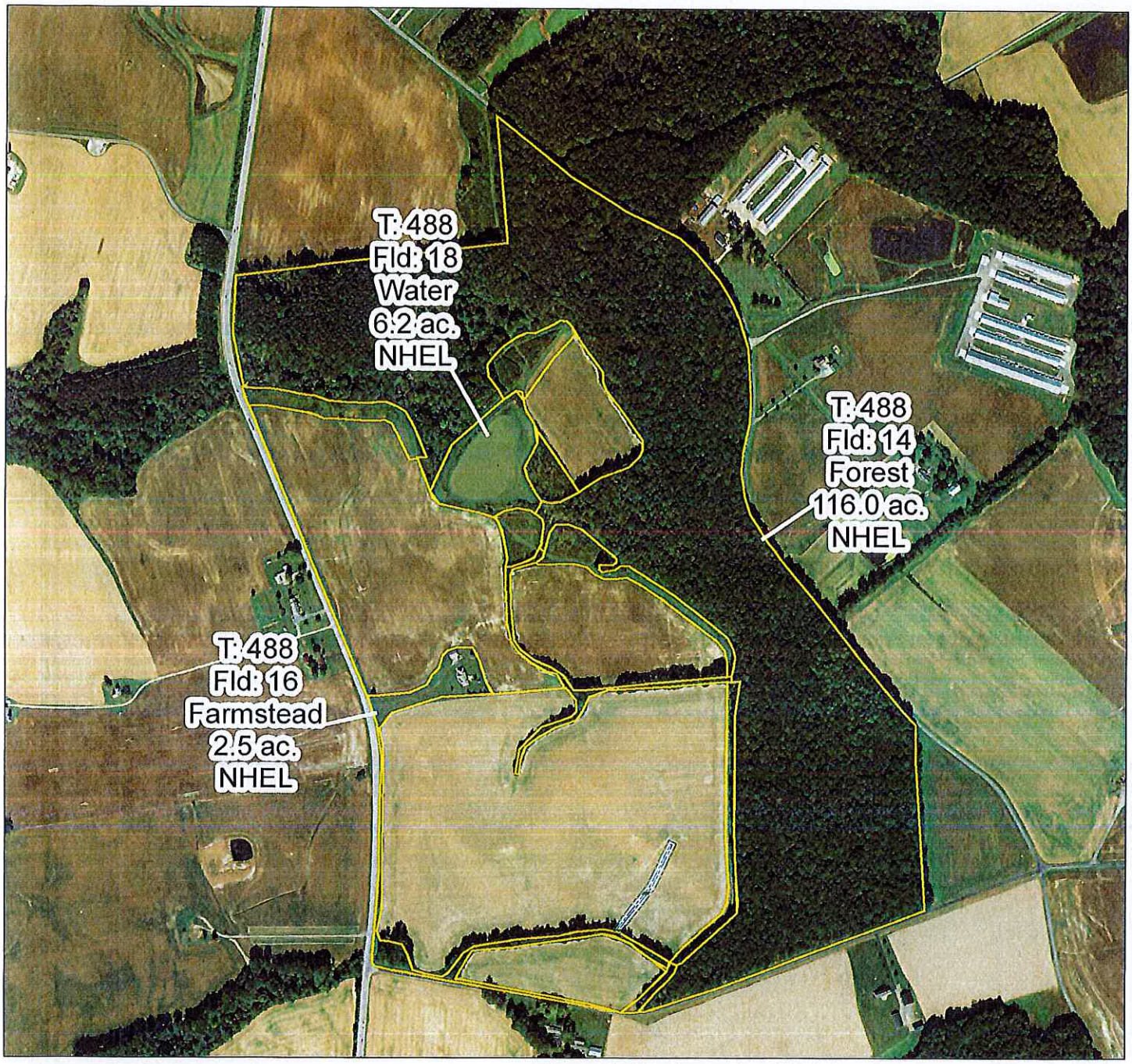
USDA

Conservation Plan Map

Date: 6/12/2023

Client(s): HILLSDALE FARM LLC
Location: Farm: 2236 Tract: 488
Approximate Acres: 262.84

Assisted By: NICOLE DAVIS
QUEEN ANNE'S COUNTY SERVICE CENTER



Prepared with assistance from USDA-Natural Resources Conservation Service

0 825 Feet

Conservation Practice Polygons

Grassed Waterway (412)

Practice Schedule PLUs

N

USDA

QUEEN ANNE'S COUNTY SERVICE CENTER
215 E WATER ST
CENTREVILLE, MD 21617-1101
(410) 758-1671

Hillsdale (Tract # 488)

Conservation Plan

HILLSDALE FARM LLC
2308 CHURCH HILL RD
CENTREVILLE, MD 21617

OBJECTIVE(S)

This is a grain farm located in Queen Anne's County that produces grain corn and soybeans. The property is enrolled in a MET easement.

Install the conservation practices, enhancements, and activities according to the implementation requirements, designs, construction plans, or other documents that facilitate meeting the applicable NRCS technical criteria. If you do not have such information, contact your local office before starting to install your conservation practices, enhancements, and activities.

Crop

Tract: 488

Conservation Crop Rotation (328)

Crop Rotation - Plan a sequence of crops grown on the same ground over a period of time to maintain or increase soil health, organic matter content, reduce erosion losses and reduce water quality degradation.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	32.8 Ac	05	2023	32.8 Ac	06/08/2023
2	7.3 Ac	05	2023	7.3 Ac	06/08/2023
3	13.8 Ac	05	2023	13.8 Ac	06/08/2023
4	61.9 Ac	05	2023	61.9 Ac	06/08/2023
5	7.1 Ac	05	2023	7.1 Ac	06/08/2023
Total:	122.9 Ac	--	--	122.9 Ac	--

Cover Crop (340)

Basic cover crop- Planting grasses, legumes, and/or forbs for seasonal vegetative cover- post harvest of the cash crop- to address natural resource concerns. Termination of the cover crop is timed to reduce delay of planting the next cash crop.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	32.8 Ac	09	2023	32.8 Ac	06/08/2023
10	2.8 Ac	09	2023	2.8 Ac	06/08/2023
11	2.0 Ac	09	2023	2.0 Ac	06/08/2023
12	0.4 Ac	09	2023	0.4 Ac	06/08/2023
2	7.3 Ac	09	2023	7.3 Ac	06/08/2023
3	13.8 Ac	09	2023	13.8 Ac	06/08/2023
4	61.9 Ac	09	2023	61.9 Ac	06/08/2023
5	7.1 Ac	09	2023	7.1 Ac	06/08/2023
6	2.0 Ac	09	2023	2.0 Ac	06/08/2023
7	1.4 Ac	09	2023	1.4 Ac	06/08/2023
8	1.4 Ac	09	2023	1.4 Ac	06/08/2023
9	2.6 Ac	09	2023	2.6 Ac	06/08/2023
Total:	135.5 Ac	--	--	135.5 Ac	--

Grassed Waterway (412)

Waterway - Establish a shaped or graded channel with suitable vegetation to convey surface water at a nonerosive velocity using a broad and shallow cross section to a stable outlet.

Field	Planned Amount	Month	Year	Applied Amount	Date
4	0.4 Ac	10	2023	0.25 ac	10/31/23
Total:	0.4 Ac	--	--	--	--

Nutrient Management (590)

NM Level 1 - Apply nutrients based on right source, rate, time, and place (4Rs) not to exceed Land Grant University nutrient recommendations or equivalent, utilizing soil testing and other nutrient monitoring to manage nutrient application for the crop rotation.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	32.8 Ac	03	2023	32.8 Ac	06/08/2023
10	2.8 Ac	03	2023	2.8 Ac	06/08/2023
11	2.0 Ac	03	2023	2.0 Ac	06/08/2023
12	0.4 Ac	03	2023	0.4 Ac	06/08/2023
2	7.3 Ac	03	2023	7.3 Ac	06/08/2023
3	13.8 Ac	03	2023	13.8 Ac	06/08/2023
4	61.9 Ac	03	2023	61.9 Ac	06/08/2023
5	7.1 Ac	03	2023	7.1 Ac	06/08/2023
6	2.0 Ac	03	2023	2.0 Ac	06/08/2023
7	1.4 Ac	03	2023	1.4 Ac	06/08/2023
8	1.4 Ac	03	2023	1.4 Ac	06/08/2023
9	2.6 Ac	03	2023	2.6 Ac	06/08/2023
Total:	135.5 Ac	--	--	135.5 Ac	--

Residue and Tillage Management, Reduced Till (345)

Reduced tillage - Minimize soil disturbance by reducing the number and type of yearly tillage operations to manage the amount, orientation and distribution of crop and plant residues.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	32.8 Ac	04	2023	32.8 Ac	06/08/2023
2	7.3 Ac	04	2023	7.3 Ac	06/08/2023
3	13.8 Ac	04	2023	13.8 Ac	06/08/2023
4	61.9 Ac	04	2023	61.9 Ac	06/08/2023
5	7.1 Ac	04	2023	7.1 Ac	06/08/2023
Total:	122.9 Ac	--	--	122.9 Ac	--

CERTIFICATION OF PARTICIPANTS

SHORE PLEASURE FARM LLC — DATE 6/22/23

CERTIFICATION OF:

CERTIFIED PLANNER — DATE 6/22/23

QASCD
DISTRICT MANAGER — DATE June 22nd, 2023

USDA-NRCS
DISTRICT CONSERVATIONIST — DATE 6/22/23

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Fields 1, 3, & 5

File: Plan: Profile (Temp. scenario[1]) of Rhodes_Ryan T488*
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	*Soil*	*Slope length (horiz)*	*Avg. slope steepness, %*
USA\Maryland\Queen Annes County	Queen Anne's, MD\Wh Whitemarsh silt loam\Whitemarsh silt loam 30%	180	2.0

R Factor	*Annual precip*	*10-yr 24-hr rainfall*	*In Req area?*
180	42.6	5.3	No

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes m, cg, cc, sb	vegetations\Corn, grain	bushels	180.00
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes m, cg, cc, sb	vegetations\Wheat, winter cover	pounds	11200
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes m, cg, cc, sb	vegetations\Soybean, mw 30 in rows	bu	60.000

Contouring	*Strips/barriers*	*Diversion/terrace, sediment basin*	*Subsurface drainage*	*Adjust res. burial level*	*General yield level*	*Rock cover, %*
b. absolute row grade 0.3 percent	(none)	(none)	(none)	Normal res. burial	Management set yield	0

Outputs:

T value	*Soil loss erod. portion*	*Detachment on slope*	*Soil loss for cons. plan*	*Sediment delivery*	*Net C factor*	*Net K factor*	*Crit. slope length*	*Surf. cover after planting, %*
4.0	1.0	1.0	1.0	1.0	0.074	0.36	180	

Date	Operation	Vegetation	Surf. res. cov. after op, %
5/5/0	Manure spreader, solid and semi-solid		44
5/5/0	Seedbed conditioner, coulter caddy, spk har, rlng bskt		44
5/6/0	Drill or airseeder, double disk, w/ fluted coulters	Corn, grain	38
10/1/0	Harvest, killing crop 50pct standing stubble		85
10/2/0	Aerial interseeding		85
10/12/0	Harvest, killing crop 50pct standing stubble, release cover crop	Wheat, winter cover	93
6/15/1	Seedbed conditioner, coulter caddy, spk har, rlng bskt		97
6/17/1	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 30 in rows	97
10/18/1	Harvest, killing crop 50pct standing stubble		93

FUEL USE EVALUATION:

Fuel type for entire run	Equiv. diesel use for entire simulation	Energy use for entire simulation	Fuel cost for entire simulation, US$/ac
(none)	8.1	1100000	0

SCI and STIR Output

Soil conditioning index (SCI)	SCI OM subfactor	SCI FO subfactor	SCI ER subfactor	Avg. annual slope STIR	Wind & irrigation-induced erosion for SCI, t/ac/yr
0.633	0.52	0.76	0.60	23.9	0

The **SCI** is the **Soil Conditioning Index** rating. If the calculated index is a negative value, soil organic matter levels are predicted to decline under that production system. If the index is a positive value, soil organic matter levels are predicted to increase under that system.

The **STIR** value is the **Soil Tillage Intensity Rating**. It utilizes the speed, depth, surface disturbance percent and tillage type parameters to calculate a tillage intensity rating for the system used in growing a crop or a rotation. STIR ratings tend to show the differences in the degree of soil disturbance between systems. The kind, severity and number of ground disturbing passes are evaluated for the entire cropping rotation as shown in the management description.

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field 2

File: Plan: Profile (Temp. scenario[1]) of Rhodes_Ryan T488*
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	Soil	Slope length (horiz)	Avg. slope steepness, %
USA\Maryland\Queen Annes County	Queen Anne's, MD\MtA Mattapex-Butlertown silt loams, 0 to 2 percent slopes\Butlertown silt loam 30%	180	2.0

R Factor	Annual precip	10-yr 24-hr rainfall	In Req area?
180	42.6	5.3	No

Management	Vegetation	Yield units	# yield units, #/ac
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes m, cg, cc, sb	vegetations\Corn, grain	bushels	180.00
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes m, cg, cc, sb	vegetations\Wheat, winter cover	pounds	11200
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes m, cg, cc, sb	vegetations\Soybean, mw 30 in rows	bu	60.000

Contouring	Strips/barriers	Diversion/terrace, sediment basin	Subsurface drainage	Adjust res. burial level	General yield level	Rock cover, %
b. absolute row grade 0.3 percent	(none)	(none)	(none)	Normal res. burial	Management set yield	0

Outputs:

T value	Soil loss erod. portion	Detachment on slope	Soil loss for cons. plan	Sediment delivery	Net C factor	Net K factor	Crit. slope length	Surf. cover after planting, %
4.0	1.3	1.3	1.3	1.3	0.073	0.48	180	

Date	Operation	Vegetation	Surf. res. cov. after op, %
5/5/0	Manure spreader, solid and semi-solid		44
5/5/0	Seedbed conditioner, coulter caddy, spk har, rlng bskt		44
5/6/0	Drill or airseeder, double disk, w/ fluted coulters	Corn, grain	38
10/1/0	Harvest, killing crop 50pct standing stubble		85
10/2/0	Aerial interseeding		85
10/12/0	Harvest, killing crop 50pct standing stubble, release cover crop	Wheat, winter cover	93
6/15/1	Seedbed conditioner, coulter caddy, spk har, rlng bskt		97
6/17/1	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 30 in rows	97
10/18/1	Harvest, killing crop 50pct standing stubble		93

FUEL USE EVALUATION:

Fuel type for entire run	Equiv. diesel use for entire simulation	Energy use for entire simulation	Fuel cost for entire simulation, US$/ac
(none)	8.1	1100000	0

SCI and STIR Output

Soil conditioning index (SCI)	SCI OM subfactor	SCI FO subfactor	SCI ER subfactor	Avg. annual slope STIR	Wind & irrigation-induced erosion for SCI, t/ac/yr
0.611	0.52	0.76	0.49	23.9	0

The **SCI** is the **Soil Conditioning Index** rating. If the calculated index is a negative value, soil organic matter levels are predicted to decline under that production system. If the index is a positive value, soil organic matter levels are predicted to increase under that system.

The **STIR** value is the **Soil Tillage Intensity Rating**. It utilizes the speed, depth, surface disturbance percent and tillage type parameters to calculate a tillage intensity rating for the system used in growing a crop or a rotation. STIR ratings tend to show the differences in the degree of soil disturbance between systems. The kind, severity and number of ground disturbing passes are evaluated for the entire cropping rotation as shown in the management description.

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field 4

File: Plan: Profile (Temp. scenario[1]) of Rhodes_Ryan T488*
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	*Soil*	*Slope length (horiz)*	*Avg. slope steepness, %*
USA\Maryland\Queen Annes County	Queen Anne's, MD\Hr Hurlock sandy loam\Hurlock sandy loam 30%	180	2.0

R Factor	*Annual precip*	*10-yr 24-hr rainfall*	*In Req area?*
180	42.6	5.3	No

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes m, cg, cc, sb	vegetations\Corn, grain	bushels	180.00
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes m, cg, cc, sb	vegetations\Wheat, winter cover	pounds	11200
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes m, cg, cc, sb	vegetations\Soybean, mw 30 in rows	bu	60.000

Contouring	*Strips/barriers*	*Diversion/terrace, sediment basin*	*Subsurface drainage*	*Adjust res. burial level*	*General yield level*	*Rock cover, %*
b. absolute row grade 0.3 percent	(none)	(none)	(none)	Normal res. burial	Management set yield	0

Outputs:

T value	*Soil loss erod. portion*	*Detachment on slope*	*Soil loss for cons. plan*	*Sediment delivery*	*Net C factor*	*Net K factor*	*Crit. slope length*	*Surf. cover after planting, %*
5.0	0.56	0.56	0.56	0.56	0.079	0.20	180	

Date	Operation	Vegetation	Surf. res. cov. after op, %
5/5/0	Manure spreader, solid and semi-solid		44
5/5/0	Seedbed conditioner, coulter caddy, spk har, rlng bskt		44
5/6/0	Drill or airseeder, double disk, w/ fluted coulters	Corn, grain	38
10/1/0	Harvest, killing crop 50pct standing stubble		85
10/2/0	Aerial interseeding		85
10/12/0	Harvest, killing crop 50pct standing stubble, release cover crop	Wheat, winter cover	93
6/15/1	Seedbed conditioner, coulter caddy, spk har, rlng bskt		97
6/17/1	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 30 in rows	97
10/18/1	Harvest, killing crop 50pct standing stubble		93

FUEL USE EVALUATION:

Fuel type for entire run	Equiv. diesel use for entire simulation	Energy use for entire simulation	Fuel cost for entire simulation, US$/ac
(none)	8.4	1200000	0

SCI and STIR Output

Soil conditioning index (SCI)	SCI OM subfactor	SCI FO subfactor	SCI ER subfactor	Avg. annual slope STIR	Wind & irrigation-induced erosion for SCI, t/ac/yr
0.670	0.52	0.76	0.78	23.9	0

The **SCI** is the **Soil Conditioning Index** rating. If the calculated index is a negative value, soil organic matter levels are predicted to decline under that production system. If the index is a positive value, soil organic matter levels are predicted to increase under that system.

The **STIR** value is the **Soil Tillage Intensity Rating**. It utilizes the speed, depth, surface disturbance percent and tillage type parameters to calculate a tillage intensity rating for the system used in growing a crop or a rotation. STIR ratings tend to show the differences in the degree of soil disturbance between systems. The kind, severity and number of ground disturbing passes are evaluated for the entire cropping rotation as shown in the management description.

QUEEN ANNE'S COUNTY SERVICE CENTER
211 E WATER ST
CENTREVILLE, MD 21617-1101
(410) 758-1671

Wolepepper (Tract # 6664)

Conservation Plan

ROBERT WOELPPER
702 BRICK SCHOOLHOUSE RD
CENTREVILLE, MD 21617

Install the conservation practices, enhancements, and activities according to the implementation requirements, designs, construction plans, or other documents that facilitate meeting the applicable NRCS technical criteria. If you do not have such information, contact your local office before starting to install your conservation practices, enhancements, and activities.

Conservation Crop Rotation (328)

Crop Rotation - Plan a sequence of crops grown on the same ground over a period of time to maintain or increase soil health, organic matter content, reduce erosion losses and reduce water quality degradation. Soybeans and cover crop wheat are rotated.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
6664	1	5.40 Ac	03	2021	--	--
6664	2	4.00 Ac	03	2021	--	--

Cover Crop (340)

Cover crop - Plant grasses, legumes and forbs for seasonal vegetative cover where seasonal cover will protect or improve natural resources.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
6664	1	5.40 Ac	09	2021	--	--
6664	2	4.00 Ac	09	2021	--	--

Nutrient Management (590)

Basic NM - Implement a basic Nutrient Management Plan which includes the 4Rs (right source, rate, time, place) to benefit plant productivity while also reducing off-site movement of nutrients. Nutrient Management Plan is written by UMD Extension.

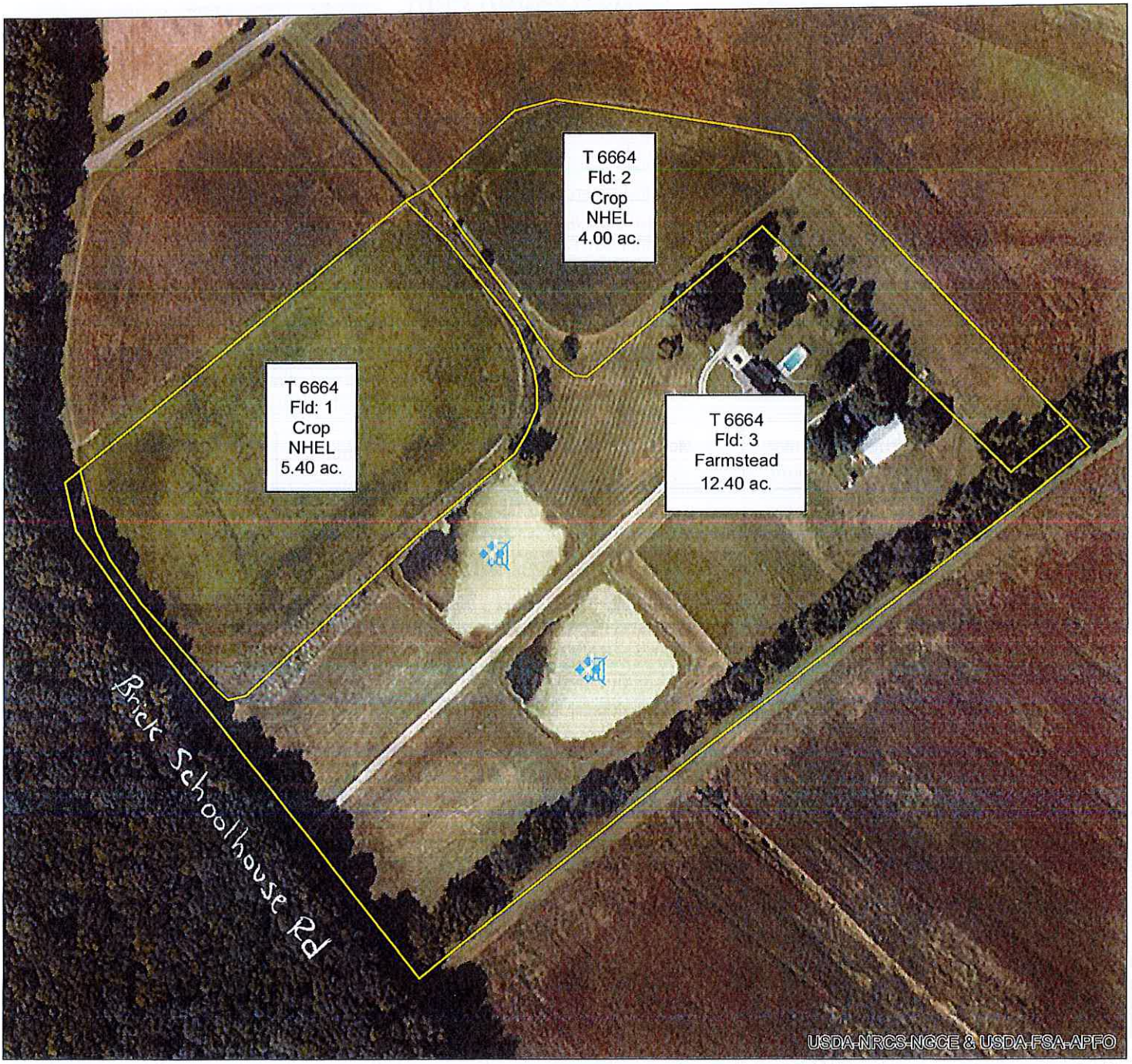
Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
6664	1	5.40 Ac	03	2021	--	--
6664	2	4.00 Ac	03	2021	--	--

Conservation Plan Map

Client(s): ROBERT WOELPPER
Operator: RYAN RHODES
Approximate Acres: 21.80
Cropland Acres: 9.35

Assisted By: Casey Foreman
QUEEN ANNE'S SCD

Date: 4/21/2021



Prepared with assistance from USDA-Natural Resources Conservation Service

0 205 Feet

Practice Schedule PLUs

Conservation Practice Points

Pond (378)

Tract	Land Unit	Practice Name	Planned Amt	Planned Date
6664	1, 2	Conservation Crop Rotation (328)	9.35	2021
6664	1, 2	Residue and Tillage Management, No Till (329)	9.35	2021
6664	1, 2	Cover Crop (340)	9.35	2021
6664	1, 2	Nutrient Management (590)	9.35	2021

Pond (378)

Pond - Create a water impoundment by constructing an embankment, excavating a dugout or by a combination of both.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
6664	3	1.00 No	01	1990	1.00 No	1/1/1990
6664	3	1.00 No	01	1990	1.00 No	1/1/1990

Residue and Tillage Management, No Till (329)

No-till - Minimize soil disturbance by limiting tillage to only planting and manage the amount, orientation and distribution of all residues to provide cover on the soil surface throughout the year.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
6664	1	5.40 Ac	03	2021	--	--
6664	2	4.00 Ac	03	2021	--	--

CERTIFICATION OF PARTICIPANTS

ROBERT WOELPPER 5/24/21
DATE

CERTIFICATION OF:

USDA
Nancy S Metcalf 4/20/21
DISTRICT CONSERVATIONIST DATE

CONSERVATION DISTRICT
May 28th, 2021
QUEEN ANNE'S SCD DATE

USDA NRCS

RUSLE2 Profile Erosion Calculation Record

Info: Fld 1

File: Plan: Profile (Temp. scenario[1]) of Robert Woelpper T6664
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	*Soil*	*Slope length (horiz)*	*Avg. slope steepness, %*
USA\Maryland\Queen Annes County	Queen Anne's, MD\Ot Othello silt loam\Othello silt loam 25%	100	1.0

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes T6664 fssb, nt; cc air	vegetations\Soybean, mw 7in rows	bu	65.000
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes T6664 fssb, nt; cc air	vegetations\Wheat, winter cover	pounds	4000.0

Contouring	*Strips/barriers*	*Diversion/terrace, sediment basin*	*Subsurface drainage*	*Adjust res. burial level*	*General yield level*	*Rock cover, %*
default	(none)	(none)	(none)	Normal res. burial	Base yield	0

Outputs:

T value	*Soil loss erod. portion*	*Detachment on slope*	*Soil loss for cons. plan*	*Sediment delivery*	*Net C factor*	*Net K factor*	*Crit. slope length*	*Surf. cover after planting, %*
5.0	0.21	0.21	0.21	0.21	0.020	0.48	100	

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
5/15/0	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 7in rows	72
10/14/0	Harvest, killing crop 50pct standing stubble		85
10/22/0	Aerial seeding	Wheat, winter cover	83
3/15/1	Sprayer, kill crop		72

FUEL USE EVALUATION:

Fuel type for entire run	*Equiv. diesel use for entire simulation*	*Energy use for entire simulation*	*Fuel cost for entire simulation, US$/ac*
(none)	2.0	280000	0

SCI and STIR Output

Soil conditioning index (SCI)	*SCI OM subfactor*	*SCI FO subfactor*	*SCI ER subfactor*	*Avg. annual slope STIR*	*Wind & irrigation-induced erosion for SCI, t/ac/yr*
0.524	-0.12	0.97	0.92	2.74	0

The **SCI** is the **Soil Conditioning In** x rating. If the calculated index is a negati- value, soil organic matter levels are predicted to decline under that production system. If the index is a positive value, soil organic matter levels are predicted to increase under that system.

The **STIR** value is the **Soil Tillage Intensity Rating**. It utilizes the speed, depth, surface disturbance percent and tillage type parameters to calculate a tillage intensity rating for the system used in growing a crop or a rotation. STIR ratings tend to show the differences in the degree of soil disturbance between systems. The kind, severity and number of ground disturbing passes are evaluated for the entire cropping rotation as shown in the management description.

USDA NRCS

RUSLE2 Profile Erosion Calculation Record

Info: Fld 2

File: Plan: Profile (Temp. scenario[1]) of Robert Woelpper T6664
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	*Soil*	*Slope length (horiz)*	*Avg. slope steepness, %*
USA\Maryland\Queen Annes County	Queen Anne's, MD\IgB Ingleside sandy loam, 2 to 5 percent slopes\Ingleside sandy loam 60%	100	2.0

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes T6664 fssb, nt; cc air	vegetations\Soybean, mw 7in rows	bu	65.000
managements\CMZ 59\c.Other Local Mgt Records\Ryan Rhodes T6664 fssb, nt; cc air	vegetations\Wheat, winter cover	pounds	4000.0

Contouring	*Strips/barriers*	*Diversion/terrace, sediment basin*	*Subsurface drainage*	*Adjust res. burial level*	*General yield level*	*Rock cover, %*
default	(none)	(none)	(none)	Normal res. burial	Base yield	0

Outputs:

T value	*Soil loss erod. portion*	*Detachment on slope*	*Soil loss for cons. plan*	*Sediment delivery*	*Net C factor*	*Net K factor*	*Crit. slope length*	*Surf. cover after planting, %*
5.0	0.15	0.15	0.15	0.15	0.019	0.20	100	

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
5/15/0	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 7in rows	72
10/14/0	Harvest, killing crop 50pct standing stubble		85
10/22/0	Aerial seeding	Wheat, winter cover	83
3/15/1	Sprayer, kill crop		72

FUEL USE EVALUATION:

Fuel type for entire run	*Equiv. diesel use for entire simulation*	*Energy use for entire simulation*	*Fuel cost for entire simulation, US$/ac*
(none)	2.0	270000	0

SCI and STIR Output

Soil conditioning index (SCI)	*SCI OM subfactor*	*SCI FO subfactor*	*SCI ER subfactor*	*Avg. annual slope STIR*	*Wind & irrigation-induced erosion for SCI, t/ac/yr*
0.530	-0.12	0.97	0.94	2.74	0

The **SCI** is the **Soil Conditioning In**. **x** rating. If the calculated index is a negati. _ value, soil organic matter levels are predicted to decline under that production system. If the index is a positive value, soil organic matter levels are predicted to increase under that system.

The **STIR** value is the **Soil Tillage Intensity Rating**. It utilizes the speed, depth, surface disturbance percent and tillage type parameters to calculate a tillage intensity rating for the system used in growing a crop or a rotation. STIR ratings tend to show the differences in the degree of soil disturbance between systems. The kind, severity and number of ground disturbing passes are evaluated for the entire cropping rotation as shown in the management description.