In 2019, the University of Maryland Agricultural Nutrient Management Program developed nutrient management plans for over 260,000 Maryland acres, serving 1,300+ Maryland farmers, and provided in-person training to 120 Maryland farmers, consultants, and agency personnel.
Maryland’s largest economic sector is agriculture, and its greatest natural resource is the Chesapeake Bay. The University of Maryland Agricultural Nutrient Management Program (UM-ANMP) protects both through nutrient management planning and implementation.

The guiding principle of the Maryland Water Quality Improvement Act of 1998 is that nutrient supply balances crop nutrient requirements. Nutrient management plans provided by the UM-ANMP contain crop-needs-balanced recommendations that can increase farm profitability and improve the health of the Chesapeake Bay and its tributaries. Excessive nutrient applications cause an upset to ecological balance by removing oxygen and decreasing light penetration in Bay water.

Funded by the Maryland Department of Agriculture (MDA), the UM-ANMP serves farmers, consultants, and the Maryland public. Duties include development of nutrient management plans for farmers via advisors located in county University of Maryland Extension (UME) offices, presentation and development of continuing education programming via UM-ANMP nutrient management specialists, and maintenance and support for nutrient management software, NuManPro 5.0.

**Nutrient Management Plan (NMP) Development Statistics**

NMP development services are a primary function of the UM-ANMP. Plans are developed by nutrient management advisors located in UME offices in each county across Maryland. Planning services are provided free of charge.

**FY 2019 Highlights**

- 260,187 total acres planned (243,677 updated and 16,510 new)
- 1,364 clients
- 319 clients received multiple-year NMPs, covering 18,506 acres
- 109 clients received NMPs who were under MDA enforcement for non-compliance
- 121 CAFO and MAFO clients
- 107 new and updated “no land” NMPs
- 40 management units of tree fruits, small fruit, and grapes
- 860 fields, managed by 180 clients, were analyzed for risk of phosphorus loss

**Maryland farmland acres planned by UM-ANMP advisors per county in FY 2019**

- Garrett
- Allegany
- Washington
- Carroll
- Harford
- Cecil
- Howard
- Anne Arundel
- Baltimore
- Frederick
- Montgomery
- Prince George's
- Calvert
- Charles
- St. Mary's
- Dorchester
- Somerset
- Queen Anne's
- Kent
- Wicomico
- Worcester
The UM-ANMP provides high-quality continuing education, training, and help sessions for farmers, consultants, and others with an interest in Maryland agricultural nutrient management. Featured here are some of the many ways our program accomplished this outreach in FY 2019.

**Practical Experiences in Agronomy**
*Description:* Demonstrations and activities to enhance any certified farmer or certified nutrient management consultant’s skill set. Topics: calibrating manure spreaders, corn yield checks, sprayer calibration, and grain drill calibration.

- **Central Maryland Research and Education Center** | 15 Attendees

**Farmer Training and Certification**
*Description:* Farmers learn how to write NMPs for their operation that meet MDA’s regulations. Participants receive a course binder, take an exam to become certified to write their own plan, and obtain nutrient applicator voucher credits.

- **Wye Research and Education Center** | 10 Attendees
- **Frederick** | 7 Attendees
- **Baltimore City** | 13 Attendees

**Plan Writing Help Sessions**
*Description:* Certified farmers receive assistance developing an updated NMP from UM-ANMP nutrient management specialists.

- **Six Locations Across Maryland**
  - 25 Certified Farmer Attendees

**Fundamentals of Nutrient Management**
*Description:* Two-day training course designed to prepare attendees for MDA’s nutrient management certification exam.

- **Annapolis** | 27 Attendees

**How to Write a Nutrient Management Plan**
*Description:* Participants learn how to write a NMP from beginning to end and how to use NuMan Pro NMP software.

- **Montgomery County** | 12 Attendees
- **Wye Research and Education Center** | 10 Attendees

University programs, activities, and facilities are available to all without regard to race, color, sex, gender identity or expression, sexual orientation, marital status, age, national origin, political affiliation, physical or mental disability, religion, protected veteran status, genetic information, personal appearance, or any other legally protected class.
Additional Services and Software Updates

UM-ANMP advisors assist and instruct farmers with soil and manure tests, manure spreader calibrations, and yield checks. Advisors also conduct **Pre-sidedress Nitrate Tests (PSNT)** for corn and **Fall Soil Nitrate Tests (FSNT)** for fall-planted wheat and barley in-house, free of charge. PSNTs and FSNTs conducted during the growing season measure soil nitrate availability to the crop and whether nitrogen fertilizer is needed at planned rates. This testing can save farmers money and prevent excess nitrogen from entering surface water.

**Software Updates**

- Release of NuMan Pro version 5.0
- Recommendations for new crops (including industrial hemp)
- Updated starter recommendations for some vegetable crops
- Rotation builder feature to accommodate requirements for clients in University of Maryland Phosphorus Management Tool (UM-PMT) transition management phases
- Updated National Soil Information System (NASIS) soil survey data

**FY 2019 Nitrogen Highlights**

- 7,821 pounds of nitrogen were saved across 3,571 acres using the FSNT.
- 33,731 pounds of nitrogen were saved across 2,695 acres using the PSNT.

---

**County Nutrient Management Advisors**

<table>
<thead>
<tr>
<th>County</th>
<th>Advisor</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allegany</td>
<td>Ashley Ruddle</td>
<td><a href="mailto:aruddle@umd.edu">aruddle@umd.edu</a></td>
</tr>
<tr>
<td>Anne Arundel</td>
<td>Kayla Griffith</td>
<td><a href="mailto:kmgriffith@umd.edu">kmgriffith@umd.edu</a></td>
</tr>
<tr>
<td>Baltimore</td>
<td>John Daniel Carroll</td>
<td><a href="mailto:jcarroll0@umd.edu">jcarroll0@umd.edu</a></td>
</tr>
<tr>
<td>Calvert</td>
<td>Chris Dowell</td>
<td><a href="mailto:csdowell@umd.edu">csdowell@umd.edu</a></td>
</tr>
<tr>
<td>Caroline</td>
<td>Craig Yohn</td>
<td><a href="mailto:cyohn@umd.edu">cyohn@umd.edu</a></td>
</tr>
<tr>
<td>Carroll</td>
<td>Kamil Rosales</td>
<td><a href="mailto:twarring@umd.edu">twarring@umd.edu</a></td>
</tr>
<tr>
<td>Cecil</td>
<td>Jenna Taibot</td>
<td><a href="mailto:jtaibot@umd.edu">jtaibot@umd.edu</a></td>
</tr>
<tr>
<td>Charles</td>
<td>Francis Warring</td>
<td><a href="mailto:cwarri0@umd.edu">cwarri0@umd.edu</a></td>
</tr>
<tr>
<td>Dorchester</td>
<td>Jose Prieto-Figueroa</td>
<td><a href="mailto:jprieto@umd.edu">jprieto@umd.edu</a></td>
</tr>
<tr>
<td>Frederick</td>
<td>Kaitlyn Fuss</td>
<td><a href="mailto:kfuss1@umd.edu">kfuss1@umd.edu</a></td>
</tr>
<tr>
<td>Garrett</td>
<td>Jill Hauser</td>
<td><a href="mailto:jhauser1@umd.edu">jhauser1@umd.edu</a></td>
</tr>
<tr>
<td>Harford</td>
<td>Patricia Hoopes</td>
<td><a href="mailto:phoopes@umd.edu">phoopes@umd.edu</a></td>
</tr>
<tr>
<td>Howard</td>
<td>Krista Mitchell</td>
<td><a href="mailto:kristaw@umd.edu">kristaw@umd.edu</a></td>
</tr>
<tr>
<td>Kent</td>
<td>Jenna Taibot</td>
<td><a href="mailto:jtaibot@umd.edu">jtaibot@umd.edu</a></td>
</tr>
<tr>
<td>Montgomery</td>
<td>Natalia Salazar</td>
<td><a href="mailto:nsalaza1@umd.edu">nsalaza1@umd.edu</a></td>
</tr>
<tr>
<td>Prince George's</td>
<td>Chris Dowell</td>
<td><a href="mailto:csdowell@umd.edu">csdowell@umd.edu</a></td>
</tr>
<tr>
<td>Queen Anne</td>
<td>Casey Foreman</td>
<td><a href="mailto:cforema1@umd.edu">cforema1@umd.edu</a></td>
</tr>
<tr>
<td>Somerset</td>
<td>Nina Lee Malone</td>
<td><a href="mailto:nmlee@umd.edu">nmlee@umd.edu</a></td>
</tr>
<tr>
<td>St. Mary's</td>
<td>Gregory Simpson</td>
<td><a href="mailto:simpson@umd.edu">simpson@umd.edu</a></td>
</tr>
<tr>
<td>Talbot</td>
<td>Craig Yohn</td>
<td><a href="mailto:cyohn@umd.edu">cyohn@umd.edu</a></td>
</tr>
<tr>
<td>Washington</td>
<td>Brian Sweeney</td>
<td><a href="mailto:sweeney@umd.edu">sweeney@umd.edu</a></td>
</tr>
<tr>
<td>Wicomico</td>
<td>Keri Grant</td>
<td><a href="mailto:kgrant16@umd.edu">kgrant16@umd.edu</a></td>
</tr>
<tr>
<td>Worcester</td>
<td>Kiran Dixit</td>
<td><a href="mailto:fdixit@umd.edu">fdixit@umd.edu</a></td>
</tr>
</tbody>
</table>

**College Park Staff & Nutrient Management Specialists**

- David Ruppert: Program Coordinator/druppert@umd.edu
- Paul Shipley: Nutrient Management Software Technical Support Specialist/prsi@umd.edu
- Emiliegh Lucas: Nutrient Management Specialist/erosso@umd.edu
- Brian Kalmbach: Nutrient Management Specialist/bkalmbac@umd.edu
- Elizabeth Abebe: Administrative Assistant/abebe@umd.edu

---

**Industrial Hemp Research**

**Happy Retirement**

to Dr. Patricia Steinhilber.
Thank you for nurturing the UM-ANMP for more than 25 years.

**Welcome**

to Dr. David Ruppert, the new program director for the UM-ANMP.

---

**Photo Credits:**
Melissa Rogers, Edwin Remsburg, Emiliegh Lucas