UNIVERSITY OF MARYLAND EXTENSION

Farm News

Spring 2024 April

Inside this issue:

UME St. Mary's County
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Latest Census Shows Strong Standing for St. Mary's County Agriculture

Every five years, farmers are asked to spend some time responding to the agricultural census. The first official census was conducted in 1840, and has been conducted 30 times since then. The history of collecting data on U.S. agriculture dates back as far as President George Washington, who kept meticulous statistical records describing his own and other farms. In 1791, President Washington wrote to farmers requesting information on land values, crop acreages, crop yields, livestock prices, and taxes. Washington compiled the results on an area extending roughly 250 miles from north to south and 100 miles from east to west which today lies in Maryland, Pennsylvania, Virginia, West Virginia, and the District of Columbia, where most of the young country's population lived. In effect, Washington's inquiry was an attempt to fulfill the need for sound agricultural data for a nation that was heavily reliant on the success of agriculture (Source: 2022 USDA Census Introduction VII). The current census is conducted by the US Department of Agriculture for years ending in 2 and 7. While arduous, the census provides the best picture of the agricultural landscape with a uniform set of data for every county in the country. We thank everyone who provided data for the current census.

In February of 2024, USDA released the 2022 Census data. Overall, the news is very good. The number of farms in St. Mary's increased substantially in the last five years, from 615 farms in 2017 to 656 farms in 2022. Land in farms by acreage also increased from 61,803 acres in 2017 to 64,380 acres in 2022. Interestingly, USDA estimated the market value for agricultural land decreased in the last 5 years from $9,949 per acre in 2017 to $8,652 per acre in 2022. St. Mary's has approximately 229,533 acres of land area, of which 28% is devoted to farms. The value of total sales from farms also increased substantially from $25.95 million in 2017 to $35.27 million in 2022. The majority of farms sales ($29.2 million) came from crops, including nursery and greenhouse crops. Sales of vegetables, melons, potatoes and sweet potatoes increased substantially in St. Mary's from $2.89 million in 2017 to $4.50 million in 2022. Interestingly the number of vegetable farms decreased during the same period from 101 in 2017 to 77 in 2022. Nursery, greenhouse floriculture and sod continue to play a major role in St. Mary's agriculture with 50 farms producing $2.69 million in sales in 2022, which was very similar to 2017 with 51 farms producing $2.40 million in sales. The ag census indicated a decrease in Maryland tobacco farms but stable sales, with 40 farms with sales of $1.40 million in 2017 to 31 farms with sales if $1.41 million in 2022. Livestock and poultry statistics also remained stable, with 271 farms producing sales of $5.49 million in 2017 to 286 farms producing sales of $6.10 million in 2022. The census indicates the are 1,194 agricultural producers in St. Mary's County. The census indicates 172 young producers (defined as a producer 34 years of age or younger) operating on 118 farms.

Other Updates:
Agronomy and Fruit and Vegetable News: The first issues of the Fruit and Vegetable News and the Agronomy News are being released this month. The newsletters will be published periodically during the growing season and will include topics pertinent to crop production, marketing and local issues. In Southern Maryland, the hardcopy edition of the newsletter will be mailed from the St. Mary's County Extension office. There will also be a

Continued from page 1-
companion statewide Vegetable and Fruit Newsletter that will be mailed to applicable growers. You may elect to receive either newsletter electronically via email which is quicker and less expensive. To be added to the mailing or email list, please send a message to bbeale@umd.edu or call the office at 301-475-4482

Nutrient Management: Greg Simpson, Nutrient Management Advisor continues to write nutrient management plans. Plans with 2024 recommendations have been written for 12,500 acres. Since November of 2023, we have received requests for 75 plans, with 67 of those requests having complete information (soil test, cropping plans, manure history, etc.). We currently have a list of 21 plans we are working on. As a reminder, we can't write you plan until you have all of the information in. Give Greg a call at 301-475-4480 if you need a plan.

Weather Conditions: Southern Maryland is ahead in precipitation, with recent rains creating challenges for field operations and planting. According to the National Weather Service, as of April 12, Mechanicsville has received a total of 16.73 inches of rain since January 1st, which is 5.02 inches above the historical average of 11.71 inches. We have experienced a mild winter, with growing degree day accumulation of 129 GDD's for 2024 compared to a historical average of 111 GDD. Fortunately, we have not had wide swings in temperatures that resulted in early bud break and frost injury. The daily precipitation and temperature data from the National Weather Service station in Mechanicsville can be viewed on page16.

As the growing season begins to hit full swing, the University of Maryland Extension Office is here to serve you. If you have a question or need information, please give us a call. We rely upon our clientele-- partnering with your to solve issues and finding solutions-- just as you rely upon us for accurate information. Let us know how we can be of help. Have a great growing season! Ben

Annual Strawberry Twilight Tour

The Wye Research and Education Center will be holding our annual Strawberry Twilight Tour, featuring blueberries and blackberries this year!

Date: May 14, 2024
Time: 5:30 to 7:30 p.m.
Place: Wye Research and Education Center, 211 Farm Lane Queenstown, MD 21658

To Register: Call 410-827-8056 Ext- 114 or online at https://bit.ly/3Ibc4tU

The event is **FREE** to attend.

After the tour, we will be serving strawberries and ice cream.

Private Pesticide Recertification Meeting Notice

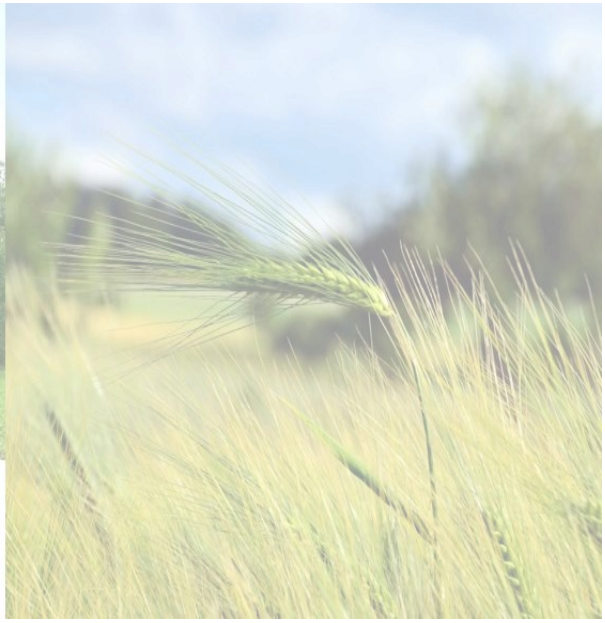
Tuesday, May 7, 2024
6:30 p.m.—8:30 p.m.

St. Mary's Extension Office,
26737 Radio Station Way, Suite C Conference Room
Leonardtown, MD 20650

We will be holding Pesticide Recertification training on Tuesday, May 7th at the St. Mary's County Extension office from 6:30 p.m.- 8:30 p.m.

The training will also provide certification for the use of paraquat.

This is the last in-person training this spring for pesticide recertification credits in St. Mary's.



St. Mary's County Welcomes New Ag and Seafood Division Manager

Priscilla Wentworth Leitch started with St. Mary's County Department of Economic Development as the manager of the Agriculture and Seafood Division in late Fall. Ms. Leitch will lead the division responsible for assisting existing agriculture and seafood businesses grow and expand, bringing new agriculture and seafood businesses to the County, and marketing and promoting locally grown products to the citizens of St. Mary's. The division is responsible for administering the MALPF land preservation program for St. Mary's County, the Agriculture, Seafood and Forestry Advisory board, and sponsors the three farmers markets, California Farmers Market, Home Grown Farmers Market, and The Barns At New Market (which is also managed by the department).

Priscilla replaces Donna Sasscer, who retired last year after 34 years of loyal service. We welcome Priscilla to this new role and look forward to working with her to further the interest of farmers and agriculture in St. Mary's County. Priscilla can be reached at Priscilla.Leitch@StMarysCountyMD.gov and 240-561

2024 Small Acreage Cover Crop Program

Sign-up Period for Maryland's 2024 Small Acreage Cover Crop Program Opens March 25th

Maryland's Small Farm and Urban Agriculture Program is now accepting applications for its 2024 Small Acreage Cover Crop Program. This financial assistance program is for urban and small-scale producers who do not qualify for traditional cover crop programs.

Enrollment Dates: March 25 through April 30, 2024

How it Works: Urban agricultural growers and small farmers that plant less than 10 acres of a cover crop may apply for our grants. The maximum payment per grower is $1,500 per year. Growers will be reimbursed based on paid receipts. Eligible species include single cereal grains or cover crop seed mixes. Cover crops may be planted in open plots/fields, raised beds, or a high tunnel. Growers should follow cover crop planting recommendations made by the seed manufacturer or the University of Maryland Extension for eligible species. The operation must produce a farm product that generates a minimum of $1,000 in sales or donations annually.

Interested growers should contact Bill Tharpe, the Program Administrator for the Small Farm and Urban Agriculture Program, at bill.tharpe@maryland.gov or 410-841-5869. For additional information, please visit the website.

Considerations for Pre-Plant Applications- Italian Ryegrass

Kurt Vollmer-UMD Extension Weed Specialist

Italian ryegrass has been giving us trouble the past couple of years. I've had several reports of ryegrass control failures following glyphosate applications. Last year, seeds from 49 ryegrass populations from Maryland and Delaware were screened for glyphosate-resistance by Dr. Caio Brunharo's lab at Penn State. Out of 40 populations screened, all were controlled by glyphosate at 2 lb. ae/A.

This indicates that recent troubles controlling ryegrass may be due to application issues rather than glyphosate-resistance. This species can be particularly tricky to manage this time of the year, so it's important to remember:

- Cold weather affects glyphosate uptake and translocation. Applications should be made when the temperature is greater than 55°F and consistently remain above 45°F for 3 to 5 days to be effective.
- Higher rates will be needed to control ryegrass compared to other species (1.25 to 1.5 lb. ae a/A).
- Plants should be less than 6" but no more than 8" tall at the time of application.
- Other components in the tank can also affect glyphosate performance.

Include a spray grade ammonium sulfate (8.5lb. to 17lb. /100 gal) in the tank to abate water quality issues. UAN and high rates of triazine herbicides (>0.25 lb. ai/A), such as atrazine, that are included in the tank can also reduce glyphosate absorption and translocation.

If glyphosate alone fails, try tank mixing or alternative herbicides. Last year at the Lower Eastern Shore REC, 98% ryegrass control was achieved with glyphosate (1.25 lb. ae/A) + clethodim (0.121 lb. /A) + nonionic surfactant (0.25%v/v) + AMS (8.5lb./100 gal) or sequential applications of paraquat (1 lb/A) + crop oil (1%v/v) + AMS (8.5lb./100 gal) made 14 days apart (Figure 1). In trials conducted in Pennsylvania, glyphosate + 0.02 lb. rimsulfuron/A also controlled ryegrass greater than 95%. Always consult the label for important information such as tank mixing and plant back intervals before applying any pesticide.

Figure 1. Italian ryegrass response 22 days after application to a) non-treated, b) glyphosate + clethodim, c) paraquat fb paraquat plots. Images: K. Vollmer, University of Maryland.

Implications Due To The Closure of The Port of Baltimore
Andrew Kness , Mark Townsend , and Dale Johnson

The Port of Baltimore is the 11th largest port by tonnage and 9th largest by dollar value of cargo handled in the United States and plays a key role in agricultural commerce and trade. For 13 consecutive years, the port has been number one for handling cars and light trucks, as well as farm machinery as seen by rows of Case IH and New Holland combines in the picture below..

Other than farm equipment and sugar, the Port of Baltimore does not play a major role in imports or exports of agricultural commodities. Because of our robust livestock industry in the mid-Atlantic (particularly poultry), grains such as corn and soybeans grown here are generally utilized locally by the livestock industry, so only a minor proportion of these commodities are exported through the Port of Baltimore. However in recent years, there has been some increased exports of some grains, such as soybeans, out of Baltimore to new markets, which could be affected by the Port's closure. There is also some concern over the import of organic grain for the organic broiler industry; companies such as Perdue and Mountaire receive imports of organic grain through the Port of Baltimore.

The Port also handles shipments of fertilizer; the most significant being UAN and urea. The Port imports about 10% of all UAN for the United States, as well as effectively all of the urea and UAN used locally, and about 50% of the potash used locally. Until the Port can receive ships, these nitrogen imports will have to be diverted to other ports in Virginia and Pennsylvania, presenting a logistical problem. In this case, the major bottleneck becomes hauling product back into the area from these distal locations, driving up freight costs and potentially causing a delay in receiving product. Farmers may expect as much as $0.15-$0.20 increase per pound of nitrogen due to these increased logistics costs.

Officials say it could take up to a month to get the debris cleared enough to re-open the Port of Baltimore. In the meantime, we can all be thankful for the Bay Pilots, crew, and emergency personnel whose swift actions leading up to the accident most definitely prevented an even larger catastrophe.

This article appears in April 2024, Volume 15, Issue 1 of the Agronomy News.

Botrytis in High Tunnel Tomatoes

Ben Beale, Extension Educator

Botrytis (Gray Mold) is beginning to show up in high tunnel tomatoes. The same organism can cause losses in greenhouse ornamentals and strawberries. Gray mold is caused by the fungal pathogen Botrytis cinerea. Botrytis thrives in cool temperatures and high humidity environments, which have been plentiful this year. Botrytis can produce a tremendous amount of spores, especially on old or dying plant tissue. Removing all diseased plant parts, old flowers and infected fruit will reduce the amount of inoculum available to spread to other plants. This material should be burned or taken far away from the field. Sunshine and higher temperatures are what we really need to decrease the amount of gray mold. Increasing air circulation and venting the high tunnel as much as possible will also help. Fungicides may be needed to reduce losses form Botrytis. Many of the same fungicides that are effective on botrytis are also effective on timber rot. Fungicide resistance issues have been reported with botrytis in both strawberries and ornamental plants. Good coverage with adequate spray solution is essential.

Products recommended for control of Botrytis in tomatoes include:

- fluopyram + Trifloxystrobin (Luna Sensation)
- fluopyram + Pyrimethanil (Luna Tranquilty)
- fluopyram + difenoconazole (Luna Flex)
- boscalid (Endura)
- chlorothalonil (Bravo or various others)
- cyprodinil + fludioxonil (Switch)
- pyrimethanil (Scala)
- difenoconazole +cyprodinil (Inspire Super)
- pydiflumetofen + fludioxonil (Miravis Prime)
- fluxapyroxad + pyraclostrobin (Priaxor Xemium)
- penthiopyrad (Fontelis) disease suppression only

Botrytis on Stem and Leaves

Botrytis on Fruit

Update on Highly Pathogenic Avian Influenza HPAI (H5N1)
Ben Beale, Extension Educator

Avian Influenza continues to keep producers on high alert across the region. H5N1 is now present in the wild bird population across the country. Avian influenza can cause devastating losses to poultry and is carefully monitored given the large size of the poultry industry in Maryland . The current strain was found on a commercial poultry operation on the Eastern Shore in Caroline County in November of 2023, and most recently in February 2024 on a backyard poultry flock in Charles County. In both cases, birds were depopulated eliminating further spread. In recent weeks the virus surprised us again when it was confirmed in mammals in several states, most notably dairy cattle.

In March, 2024 the avian influenza (H5N1) virus was confirmed in dairy cows in Texas and Kansas. Since then, the virus has been confirmed in Michigan, Idaho, Ohio, North Carolina and New Mexico. On April 10, the Maryland Department of Agriculture issued an order restricting the movement of dairy cattle into Maryland from states with confirmed outbreaks. Dairy cattle experience decreased milk produc-tion and decreased

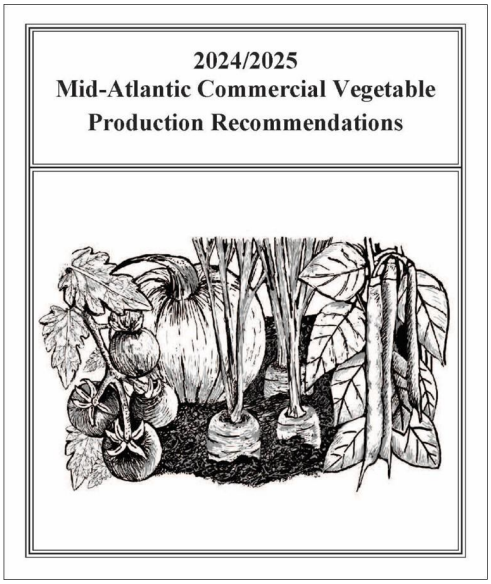
in feed consumption. Cattle recover and there is little to no mortality. In addition, on April 1, a farmworker who had close contact with infected dairy cattle tested positive for avian influen-za-H5N1. The person reported eye redness as their only symptom and recovered. The U.S. Food and Drug Administration has stated there is no concern about the safety of the milk supply or that this cir-cumstance poses a risk to consumer health because products are pasteurized before entering the mar-ket.

Producers are reminded to continue bio-security on the farm. Report any suspected agricultural animals to the Maryland Department of Agriculture by calling 410-841-5810.

A FAQ document from USDA with further information on the recent developments is attached to this newsletter.

2024/2025 Mid Atlantic Vegetable Production Guide Now Available

The 2024-2025 Mid-Atlantic Commercial Vegetable Production Recommendations Guide books are in. Find all of the latest recommendations on variety's, fertility, growing information and pest management for vegetable crops grown in our region. You can find a free pdf on the UME Vegetable webpage or by following this link for the Full PDF. Paper copy's of the 502 page guide are available for $25 at the St. Mary's Cunty Exten-sion office or the Loveville Produce Auction office.



Maryland Agriculture Land Preservation Foundation Now Accepting Applications

LEONARDTOWN, MD – The Maryland Agricultural Land Preservation Foundation (MALPF) Program is now accepting applications for the Fiscal Year 2025 Easement Cycle.

Eligibility requirements include a minimum of 50 contiguous acres, land outside of the 10-year water and sewer plan for the county, and a minimum of 50% Class I, II or III soils. For more information on eligibility and the MALPF easement acquisition process, please visit: https://mda.maryland.gov/malpf/Pages/Fact-Sheets.aspx

The mission of MALPF is:
• to preserve productive farmland and woodland for the continued production of food and fiber for all of Maryland's citizens,
• to curb the expansion of random urban development,
• to help curb the spread of urban blight and deterioration,
• to help protect agricultural land and woodland as open space,
• to protect wildlife habitat, and
• to enhance the environmental quality of the Chesapeake Bay and its tributaries.

MALPF purchases agricultural preservation easements that forever restrict development on prime farmland and woodland. The State of Maryland has preserved in perpetuity more agricultural land than any other state in the country. St. Mary's County has preserved over 14,966 acres to date, using MALPF easements.

To view the application and apply, visit https://mda.maryland.gov/malpf/Pages/Forms.aspx.

All applications must be submitted by May 15, 2024, to the St. Mary's County MALPF Program Administrator, Priscilla Leitch, Agriculture & Seafood Division Manager with St. Mary's County Government's Department of Economic Development. Questions may be directed to Mrs. Leitch at (240) 309-4021 or Priscilla.Leitch@stmaryscountymd.gov.

Submitted applications will be ranked by the St. Mary's County Agriculture Land Preservation Advisory Board, using the state mandated Land Evaluation and Site Assessment System. The ranked applications will be submitted to the state for consideration.

2023 St. Mary's County Soil Conservation District Cooperator of the Year
Sassafras Creek Farm—David & Jennifer Paulk

Sassafras Creek Farm is the 2023 Cooperator of the Year. The farm was established in 2011 by the husband-wife partnership of David and Jennifer Paulk. David is a veteran and a full-time second career farmer. Jennifer is a part-time farmer and is a U.S Navy Environmental Scientist. The farm is 83 acres of which 46 acres are in crop production. The Paulk's grow year round producing USDA Certified organic vegetables. They grow everything from arugula to zucchini but specialize in carrots and beets. Their sales are direct as members of the California Farmers Market and through local stores and restaurants in D.C. and Baltimore. Additional markets include the public schools system, food banks and other Maryland farms. David reports that the business has steadily grown over the past 13 years and they enjoy a strong following of both local and regional customers.

As soon as the Paulk's assumed ownership of the farm in March 2011, they contacted the District to assist with the transition from a no-till cash crop farm to an organic vegetable farm. Through the development of their soil conservation and water quality plan, all of the crop land was placed in a three year cover crop rotation for soil quality improvement. Cover crops are used year round and include rye, tillage radishes, clover, winter and cow peas, soybeans and sudan. Additional conservation practices installed include six (6) high tunnels, pollinator habitat areas, windbreaks and a 25kw solar panel system. Many of the listed conservation practices were cost shared through the NRCS Environmental Quality Incentive program (EQIP).

An organic vegetable farm requires a significant labor force. Much of the farm labor is a seasonal non-immigrant crew from Mexico who are sponsored under the Department of Labor's H2A work visa program. Farmer's Market and winter season labor is all local. Future plans include mentoring new farmers, taking care of their employees, increase marketing to support the farmers market, and to increase efficiency to reduce production costs. Improved production systems include underground irrigation lines and refrigerated transportation.

We congratulate David & Jennifer Paulk of Sassafras Creek Farm on being named the St. Mary's Soil Conservation District's 2023 Cooperators of the Year.

Pictured from left to right: Chairman Bobby Cooper, David Paulk, Jennifer Paulk, Board Members Carl Dyson, Stanley Boothe, Jeffrey Raley, Darrell Goode, and Associate Members Bonnie Browne and Gail Sivak

SMADC Announces Funding for the Southern Maryland Farmer Mini-Grant Program

The Farmer Mini-Grant Program was launched in FY'17 and has become more popular and competitive as each new round is offered. The program is open to applicants ages 16 and older, residing and farming in Anne Arundel, Calvert, Charles, Prince George's or St. Mary's counties. Grant awards are up to $3,000 per applicant, as a one-to-one match and can be used for a variety of projects. The Mini-Grant program is designed to assist new and beginning farmers who own or lease existing agricultural properties with small start-up projects, and to assist experienced farmers who are looking to diversify or expand a current agriculture project.

To date, the program has received 200 applications with 151 funded for a total of $241,763.

Additional Resources
A draft outline of the Mini Grant application and required budget template will be provided for prospective applicants to prepare their submission.

Please note: One letter of reference from your county's Soil Conservation District, Farm Bureau, University of Maryland Extension or Economic Development Office, specific to your project is *required*.

Apply Here

Spring Forage Events in Maryland

Amanda Grev, Pasture and Forage Specialist
University of Maryland Extension

University of Maryland Extension, NRCS, the Mountains to Bay Grazing Alliance, and several Maryland producers invite grazers, livestock owners, and associated industry personnel to attend upcoming spring educational forage events! These in-person events will cover a range of topics and will be held at various locations across the state, both on producer farms and at UMD research and education centers.

April 25, 2024 at 9:00 AM

Location: Central Maryland Research & Education Center in Ellicott City, MD

Description: Join the Mountains-to-Bay Grazing Alliance, UMD Extension, and partners to host Allen Williams for a pasture-based field day. Attendees will learn about soil health, biodiversity, grazing management, fencing and watering systems, and the behavior of grazing livestock at this interactive field day with classroom and field-based activities.

Registration: https://go.umd.edu/allenwilliams (space is limited)

May 16, 2024 at 6:00 PM

Location: New Roots Farm in West River, MD

Description: Join UMD Extension, NRCS, and producer Sarah Campbell to discuss finishing cattle on grass, genetic selection for grass-finished livestock, and pastured pigs.

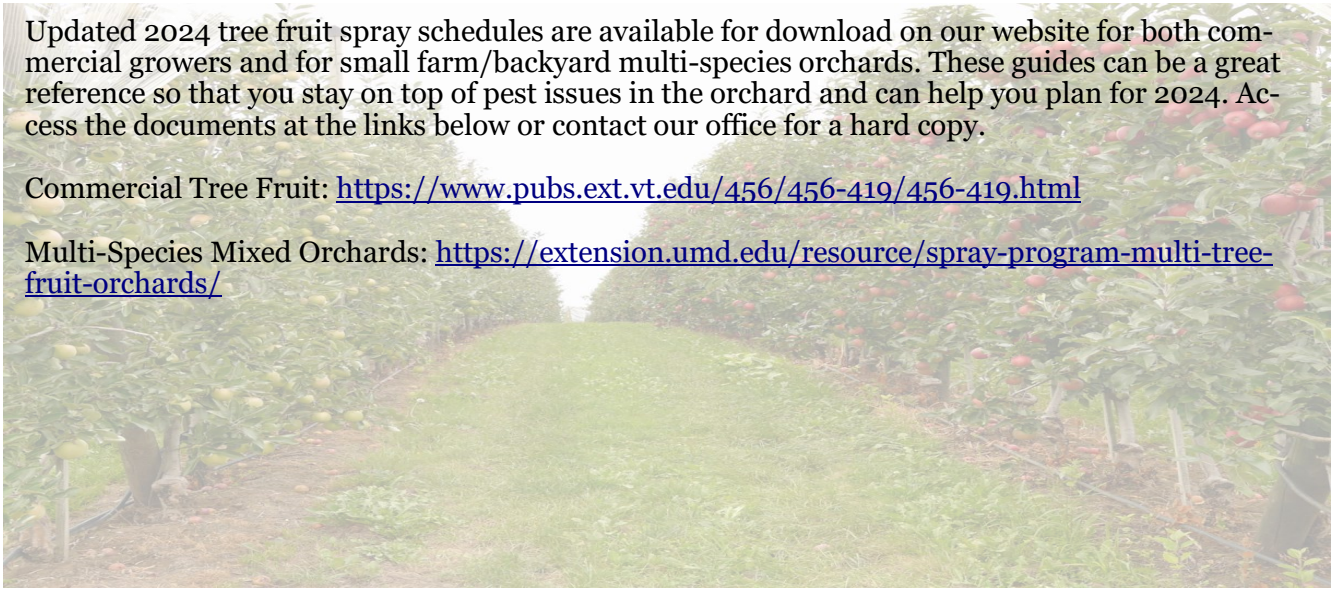
Registration: https://go.umd.edu/pw-may

Participants are welcome to join for one or more events. Registration is required; please visit the specific link for each event or call (301) 432-2767 to register. Events are supported by the Mountains-to-Bay Grazing Alliance, UMD Extension, NE SARE, and partners. All events will be outdoors; please dress accordingly.

Additional dates and locations are forthcoming; for information on all upcoming forage events, visit https://go.umd.edu/forageevents.

If you have questions or need accommodations, please contact Amanda Grev (agrev@umd.edu; 301-226-7575).

Tree Fruit Spray Schedules



Updated 2024 tree fruit spray schedules are available for download on our website for both commercial growers and for small farm/backyard multi-species orchards. These guides can be a great reference so that you stay on top of pest issues in the orchard and can help you plan for 2024. Access the documents at the links below or contact our office for a hard copy.

Commercial Tree Fruit: https://www.pubs.ext.vt.edu/456/456-419/456-419.html

Multi-Species Mixed Orchards: https://extension.umd.edu/resource/spray-program-multi-tree-fruit-orchards/

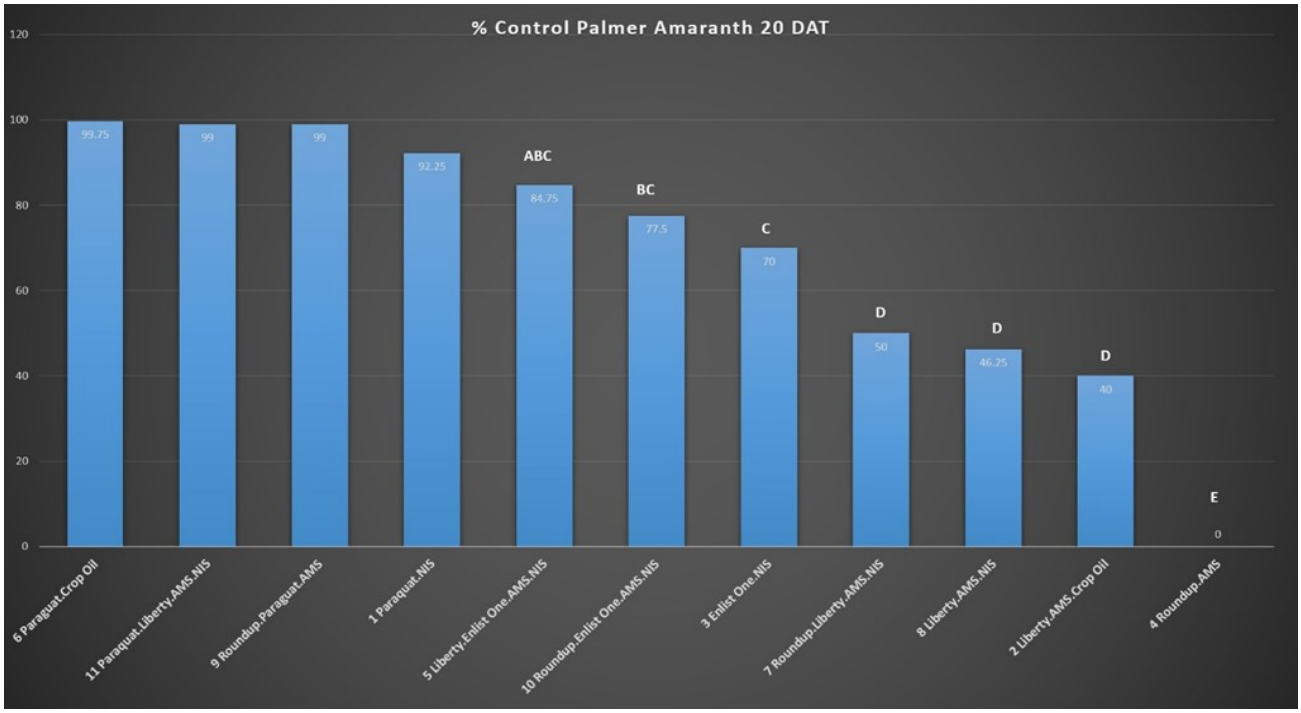
Update of Local Field Trials Planned for 2024

Ben Beale, Extension Educator

Each year the University of Maryland Extension office collaborates with area farmers to conduct applied research on issues of local importance. Below is a summary of trials being planned for the 2024 growing season. We are always looking for collaborators, so please let us know if you are interested.

Integrated Management of Herbicide Resistant Weeds

Herbicide trials evaluating the efficacy of 12 combinations of burndown herbicide treatments are planned for the 2024 growing season. This is the third year of the research study on burndown treatments and the 9th year of herbicide resistant weed work. The study is targeting difficult to control weeds including the noxious weeds palmer amaranth and common waterhemp, as well as herbicide resistant weeds like common ragweed and marestail. Results from the last two years show that treatments with paraquat performed well on Palmer amaranth and broadleaf weeds. However, treatments with glyphosate and glyphosate/glufosinate worked best on grass. We did see a reduction in grass control when using a combination of paraquat/glyphosate compared to glyphosate alone. This work is supported with funding from the Maryland Soybean Board.



Watermelon Grafting for Managing Fusarium Wilt

This is the 5th year of evaluating grafting of watermelon transplants for fusarium wilt management. Trials during the first two years showed almost zero plant death from fusarium wilt on grafted plants. Grafted plants show higher vigor, root mass and yield compared to non-grafted plants. Grafting plants appear to be a viable option for management of fusarium wilt in Maryland. Research during the last two years focused on finding ideal populations with grafted plants. Watermelons are typically planted on 4 foot in row spacing. Studies in St. Mary's as well as the Eastern Shore looked at increasing spacing to 6 or 8 foot to reduce the number of plants needed per acre. This research showed populations can be decreased with 6 or 8 foot spacing yielding similar to 4 foot spacing. In 2024, studies are being planned to look at increasing the distance between plastic rows from 5 feet up to 10 feet. Increasing spacing between plastic rows can reduce the amount of plastic mulch and drip tape needed.

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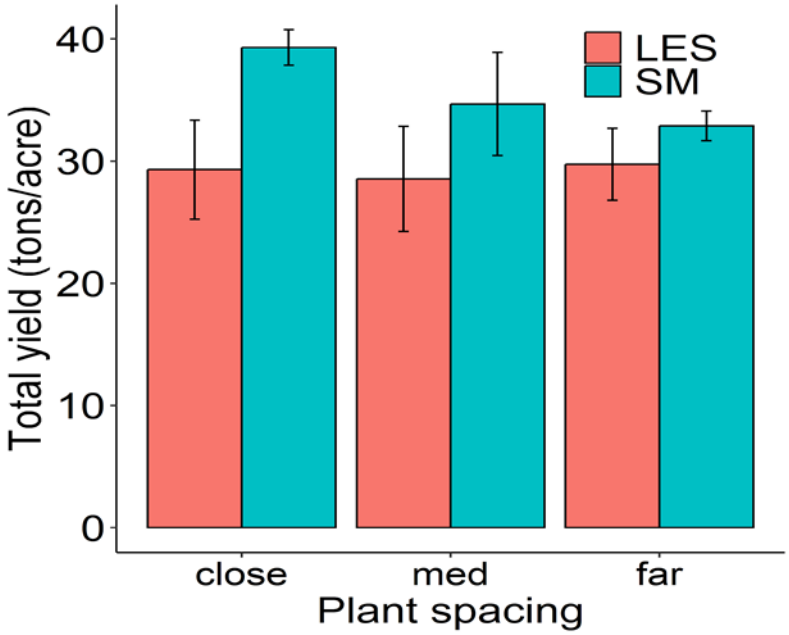

Evaluating Faba Bean as an Alternative Crop in the Mid Atlantic:
University of Maryland is collaborating with researchers from Virginia Tech, University of Delaware, Virginia State University and North Carolina State University on a project to develop high-protein and stress tolerant faba bean for winter production. Faba bean is a legume crop with a high protein content, dietary fiber, iron, zinc, vitamins, and bioactive compounds. It has potential as a winter legume serving the plant protein market as well as nutritional supplement market. The project is using a multi-faceted approach including a screening (500 initial lines) and breeding program, identifying best agronomic and pest management practices, evaluation of biotic, abiotic, nutritional and sensory factors, and economic analysis. Trials in St. Mary's County will focus on identifying the best agronomic practices for growing advanced selected breeding lines. We are looking for several growers to host trials in the next three years. Please let me know if you are interested. This work is supported by the USDA Specialty Block Crop Research Initiative.

Evaluating Soil Steaming and Plant Grafting to Manage Soil Borne Diseases:
The research project will include field experiments looking at new tomato rootstocks with potential for resistance to southern bacterial wilt, root knot nematode, fusarium crown wilt and other diseases. The study will also look at how effective soil steaming is for reducing similar pathogens. This work is supported by Maryland specialty crop program.

UNIVERSITY OF MARYLAND EXTENSION

http://extension.umd.edu/st-marys-county

All the best for a Productive Year

Benjamin E. Beale, Extension Educator
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Agriculture & Natural Resources

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On the Lighter Side...

The Chicken Cannon

Scientists at NASA built a special cannon to launch standard 6-pound, whole dead chickens at the windshields of airliners, military jets and the space shuttle, all traveling at maximum velocity. The idea was to simulate the frequent incidents of collisions with airborne fowl to test the strength of the windshields.

Engineers working on the Bullet Train project heard about the cannon and were eager to test it on the windshields of their new high speed trains. Arrangements were made, and a cannon was sent to the Bullet Train engineers.

The engineers were excited to see the results of years of hard work and planning. They set up the experiment and even invited several government officials to attend that had championed the funding of this project. They had a grand ceremony with a countdown. The speedy bullet train roared down the test track at over 200 mph and the engineers fired the chicken cannon.

After the canon was fired, the engineers stood in shock as they viewed in horror at the damage. The shatterproof glass was smashed to smithereens, there was a huge hole in the control console, the driver's seat had the head rest blown off, and the chicken embedded into the back wall of the train engine's cabin.

Luckily this was an unmanned test, so no one was hurt except for the pride of the engineers. It was as if they were little boys who broke their prize Christmas present. That chicken trashed their modern marvel.

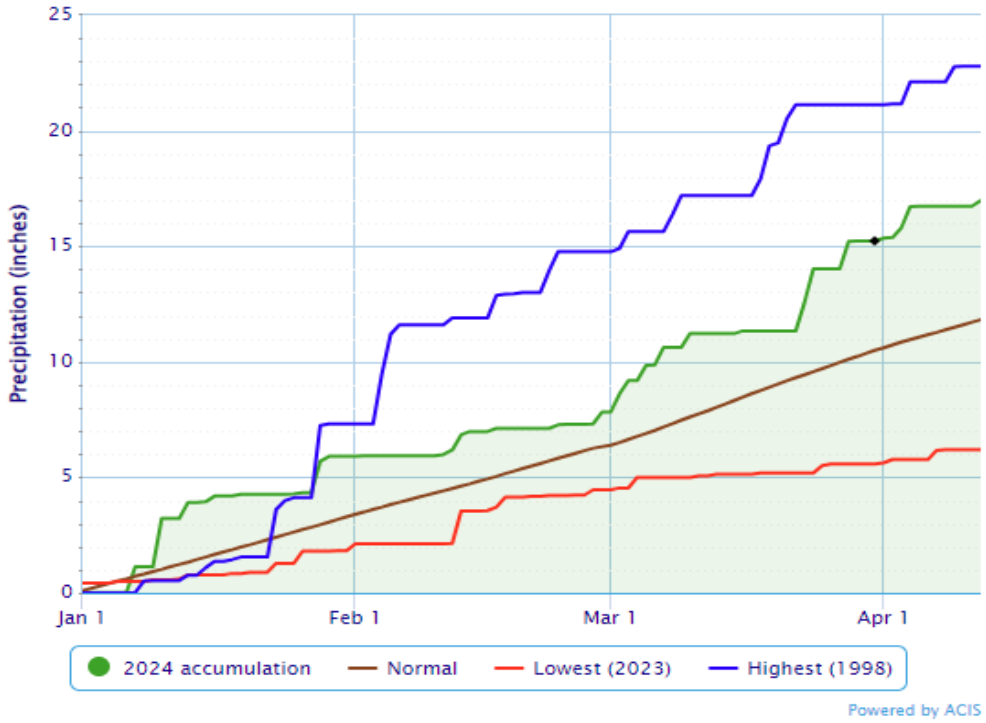
Immediately the engineers began assessing the damages, took numerous photos and measurements and sent a full report, along with their pages of scientific designs to engineers at NASA. The desperate engineers were totally dumbfounded and asked for an explanation of what could have possibly gone wrong? Their email to the head engineer at NASA said, "*Please help us understand how to resolve this issue. We followed all standard protocols and double checked every safety precaution prior to the test with the chicken cannon!*"

In just a few minutes, the Bullet Train engineers were shocked by the rapid response. The head engineer at NASA responded with just one short line in bold, all capital letters:

"DEFROST THE CHICKEN FIRST!"

Credit: https://nwdistrict.ifas.ufl.edu/phag/2017/10/13/friday-funny-the-chicken-cannon/

Accumulated Precipitation – MECHANICSVILLE 5 NE, MD



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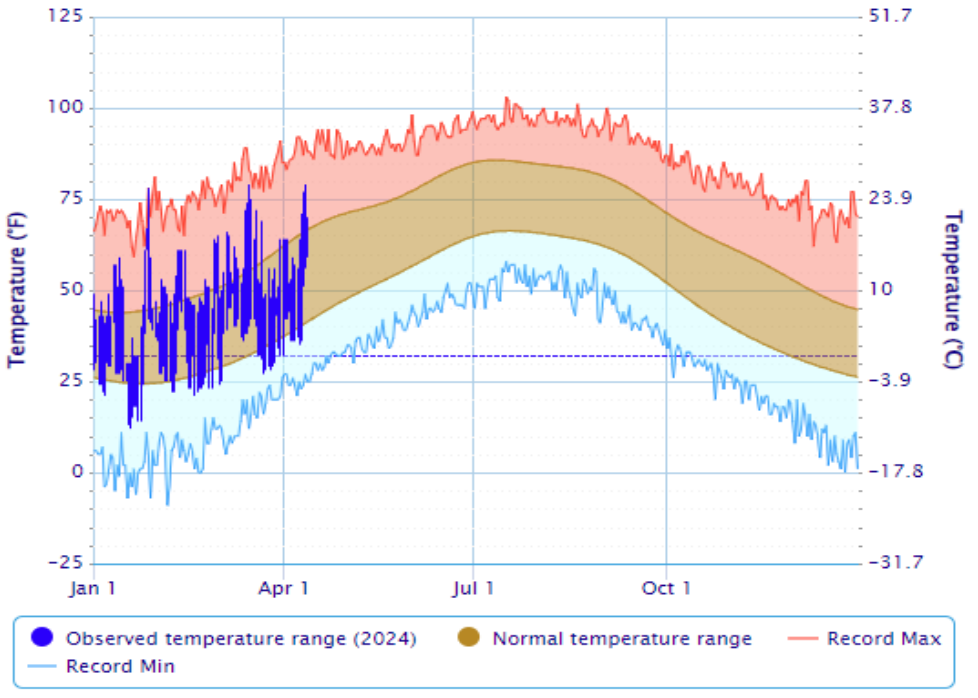
Daily Temperature Data – MECHANICSVILLE 5 NE, MD



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Detection of Highly Pathogenic Avian Influenza (H5N1) in Dairy Herds: Frequently Asked Questions

Updated April 16, 2024

Since late March 2024, the U.S. Department of Agriculture, Food and Drug Administration, Centers for Disease Control and Prevention, and state veterinary and public health officials have been investigating the emergence of highly pathogenic avian influenza in dairy cows, with one human infection. USDA's Animal and Plant Health Inspection Service is maintaining resources, including a list of detections in cattle to date as well as biosecurity information for farmers, veterinarians and farmworkers at Highly Pathogenic Avian Influenza (H5N1) Detections in Livestock | Animal and Plant Health Inspection Service.

This is a rapidly evolving situation and USDA, as well as state and federal partners, are committed to sharing updates as information becomes available. Here, we are answering some of the most frequently asked questions about these detections.

What is the appropriate nomenclature for this virus, now that it has appeared in dairy cows?

From USDA's perspective, highly pathogenic avian influenza or H5N1 are the most scientifically accurate terms to describe this virus. This is also consistent with what the scientific community has continued to call the virus after it has affected other mammals. As a reminder, genomic sequencing of viruses isolated from cattle indicates there is no change to this virus that would make it more transmissible to or between humans, and the CDC considers risk to the public to be low at this time. However, people with more exposure to infected animals do have a greater risk of infection. Since the virus is not highly pathogenic in mammals, H5N1 is the most fitting of the two scientifically correct options. It is important to note that "highly pathogenic" refers to severe impact in birds, not necessarily in humans or cattle.

How did these cattle contract H5N1?

Wild migratory birds are believed to be the original source of the virus. However, the investigation to date also includes some cases where the virus spread was associated with cattle movements between herds. Additionally, we have similar evidence that the virus also spread from dairy cattle premises back into nearby poultry premises through an unknown route.

As a reminder, analysis sequences of viruses found in cattle thus far have not found changes to the virus that would make it more transmissible to humans and between people. While cases among humans in direct contact with infected animals are possible, CDC believes that the current risk to the public remains low.

Is this the same virus that has been in circulation among wild and commercial flocks in recent months, or is this a different virus?

Tests so far indicate that the virus detected in dairy cows is H5N1, Eurasian lineage goose/Guangdong clade 2.3.4.4b. This is the same clade that has been affecting wild birds and commercial poultry flocks and has caused sporadic infections in several species of wild mammals, and neonatal goats in one herd in the United States. A full list can be found here.

How is a case of H5N1 in cattle confirmed by USDA?

USDA encourages producers to work with their veterinarians to report cases of sick cattle to State Animal Health Officials and their APHIS Veterinary

Services Area Veterinarian in Charge. Veterinarians should submit samples to a National Animal Health Laboratory Network (NAHLN) laboratory for initial testing. Samples with non-negative test results are then submitted to the National Veterinary Service Laboratories in Ames, Iowa for confirmatory testing. USDA considers a positive test result from testing performed by the NVSL as confirmation, and NVSL carries out viral genome sequencing.

What types of samples from cows have been tested?

USDA and our NAHLN partner laboratories have tested unpasteurized milk samples from affected cows, as well as swabs and tissue samples.

Should we assume that other cattle that are showing similar symptoms, including decreased lactation, have also contracted H5N1?

We encourage producers to work with their veterinarians to pursue testing if their herds are demonstrating clinical signs of the current cattle illness event. Federal and state agencies continue to test samples from animals and conduct viral genome sequencing, to assess whether H5N1 or another unrelated disease may be part of the clinical picture.

Combined with the recent detections of H5N1 in baby goats in Minnesota, is there reason to be concerned H5N1 may spread to mammals more commonly than previously believed?

H5N1 has been found in wild birds, poultry flocks, several species of wild mammals, farm cats, and neonatal goats in one herd in the United States. A full list can be found here. Many species are susceptible to influenza viruses, including wildlife that often come into direct contact with wild birds. Many of these animals were likely infected after consuming or coming into contact with birds that were infected with H5N1. In the case of the neonatal goats in Minnesota, they were exposed to domestic birds (ducks and chickens) infected with H5N1 through shared pasture and a sole water source. However, recent testing indicates the virus has also been spread by cattle movements between herds.

Why is USDA recommending caution when moving cattle? And, has the department considered requiring movement restrictions?

The spread of the H5N1 virus within and among herds indicates that bovine to bovine spread occurs, likely through mechanical means. As a result, we are encouraging producers and veterinarians to minimize dairy cattle movement. USDA's latest biosecurity guide, available here, contains more detail on potential pathways for this spread, and measures that producers can take to mitigate spread. At this time, we expect that minimizing movement, upholding good biosecurity practices, and testing animals before necessary movements will limit disease spread sufficiently to avoid the need for regulatory restrictions or quarantines. Unlike in poultry flocks where H5N1 is fatal, among the dairies whose herds are exhibiting symptoms, the affected animals have recovered with little to no associated mortality reported.

How is this cattle illness affecting the nation's overall milk production? What effect might this have on consumer prices?

At this point, we are not aware of impact on milk supply or consumer prices. Based on information available at this point, we do not anticipate that this will impact the availability or the price of milk or other dairy products for consumers. In addition, the U.S. typically has a more than sufficient milk supply in the spring months due to seasonally higher production. Markets continue to reflect normal movements. Surplus loads of milk for the past week are selling significantly below market value indicating supply remains very long.

What are the latest trends in H5N1 detections and virus mitigation?

Recent detections of H5N1 in poultry have slowed. As of April 15, 2024, there have been 26 detections of H5N1 in commercial poultry facilities in 2024, which is similar to the number in January-April of 2023 (19 detections). Both years are showing significant decreases in the number of detections compared to 2022, when we saw 165 detections in the January-April period, indicating that biosecurity practices and virus management have

played a significant role in reducing impacts to commercial flocks.

What is the species of deceased wild birds that were found on the Texas farms?

At this time, three species have been identified among these cases: pigeons, blackbirds, and grackles.

Will the H5N1 detection require herds to be depopulated, as is the case with detections in poultry flocks?

At this stage, we do not anticipate the need to depopulate dairy herds. Unlike HPAI (H5N1) in birds which is typically fatal, little to no mortality has been reported and the animals are reportedly recovering. The affected cows on the dairy farms are currently being isolated from other animals. We are continuing to learn more about the situation. Transparency and collaboration with and by dairy producers will be important to mitigate broader potential impacts to the industry.

Has this impacted beef cattle or the beef supply?

So far there have been no detections in commercial beef herds. USDA is confident that the meat supply is safe. FSIS veterinarians are present at all federal livestock slaughter facilities to inspect animals prior to slaughter and ensure sick animals are prevented from entering the food supply. As always, we encourage consumers to properly handle raw meats and to cook to a safe internal temperature. Cooking to a safe internal temperature kills bacteria and viruses in meat.

USDA encourages producers to work with their veterinarians to report cases of sick cattle to State Animal Health Officials and their APHIS Veterinary Services Area Veterinarian in Charge. We will continue to monitor the impact of H5N1 on supply and prices, while working with state and industry partners to ensure our nation's food supply remains safe.

How can farmers prevent the spread of H5N1 to their animals?

It is critically important that farmers practice good biosecurity measures. USDA's latest biosecurity guide, available here, contains more detail on potential pathways for this spread, and measures that producers can take to mitigate spread. We are also encouraging producers with concerns to reach out to their veterinarian, State Animal Health Official, and/or Area Veterinarian in Charge.

If an animal is displaying signs of illness or tests positive for H5N1, the animal should be separated from other animals on the farm and heightened biosecurity measures should be taken to ensure H5N1 does not spread to other species. Additionally, farmers are advised to avoid housing multiple species of animals together at any time.

More specific information on biosecurity practices is available:

- Specific to dairy herds;
- Specific to poultry flocks; and
- General influenza biosecurity.

What signs of illness should farmers look out for in their herds?

Producers should report animals with the following clinical signs to their state veterinarian immediately: Decreased herd level milk production; acute sudden drop in production with some severely impacted cows experiencing thicker, concentrated, colostrum-like milk; decrease in feed consumption with a simultaneous drop in rumen motility; abnormal tacky or loose feces, lethargy, dehydration, and fever. Initial cases indicated older cows in mid-lactation may be more likely to be severely impacted than younger cows and fresh cows or heifers. Additional data indicates younger cattle have been affected; more data and reporting from impacted producers will help to clarify the range of animals affected.

Will there be a milk recall?

Based on the information and research available to us at this time, a milk recall is not necessary. Because products are pasteurized before entering the market, at

this time there is no concern about the safety of the commercial milk supply, or that this circumstance poses a risk to consumer health. Pasteurization has continuously proven to inactivate bacteria and viruses in milk.

Could the consumption of raw milk from these states impact human health?

FDA's longstanding position is that unpasteurized, raw milk can harbor dangerous microorganisms that can pose serious health risks to consumers, and FDA is reminding consumers of the risks associated with raw milk consumption in light of the H5N1 detections. Food safety information from FDA, including information about the sale and consumption of raw milk, can be found here.

On its website that tracks updates in poultry flock detections, APHIS discloses a total number of birds affected. For dairy herds, APHIS discloses the number of herds, but not the number of individual animals. Why is there a difference in reporting?

H5N1 in poultry flocks is highly contagious, rapidly progressing, and typically fatal. APHIS reports the number of birds affected in a flock because farmers can be paid for the birds that die during an outbreak, and the county in which an outbreak occurs because it has implications for our export trade. The clinical signs observed in dairy cattle are relatively mild, and infected animals recover after about 7-10 days. At this time, there is less of a need to count affected animals—which may be at different stages of illness and recovery—and there is no impact on export markets that would require localizing herds to a specific county. USDA continues to share information with states, veterinarians, producers, and dairy farm workers so that they can understand the disease and take appropriate steps to protect themselves and their herd.

Has USDA confirmed at this point that cow-to-cow transmission is a factor?

Yes, although it is unclear exactly how virus is being moved around. We know that the virus is shed in milk at high concentrations; therefore, anything that comes in contact with unpasteurized milk, spilled milk, etc. may spread the virus. Biosecurity is always extremely important, including movement of humans, other animals, vehicles, and other objects (like milking equipment) or materials that may physically carry virus. USDA APHIS is continuing to examine herds that have diagnosed cows to better understand the mode of transmission. To date, we have not found significant concentration of virus in respiratory related samples, which indicates to us that respiratory transmission is not a primary means of transmission.

What is standard protocol for ensuring animals going to slaughter are safe to enter the food supply?

USDA is confident that the meat supply is safe and has a strong food safety system in place. Cattle must pass inspection and be clinically healthy to enter the food supply. FSIS veterinarians are trained to identify cattle exhibiting any sign of sickness that are presented for slaughter and prevent these animals from entering the food supply.

Is USDA monitoring for spread to beef cattle? Has there been any testing for H5N1 in beef cattle herds?

We are making sure beef producers have the same information about illness symptoms that we have shared with dairy producers, and similarly are encouraging ranchers and veterinarians to report symptoms and collect samples if needed. To date, we have received no reports of symptoms in beef herds.

What is the latest status of poultry vaccine for H5N1? Can it be used on cattle?

Vaccinations are one potential line of defense against H5N1. Recognizing this and the need for a response in case of wide-spread outbreak, USDA is exploring the possibility of developing a poultry H5N1 vaccine to stock and use in an emergency. Similar to USDA's stock of vaccinations against, for example, foot and mouth disease (FMD), this would bolster U.S. agriculture's biosecurity readiness. Vaccinating poultry against H5N1 comes with challenges, including responding to the latest strain, deployment within flocks, and cost. Further, there are trade restrictions, many with key

trading partners, that prohibit the sale of vaccinated poultry meat, eggs, etc. overseas. USDA is exploring these questions while developing the science.

USDA's Agricultural Research Service (ARS) began testing candidate vaccines for H5N1 in poultry in 2023. ARS scientists evaluated one H5N1 vaccine developed in-house by USDA and four commercial HPAI vaccines. These studies showed that the five vaccines reduced oral and cloacal virus shedding significantly and provided near 100% clinical protection in chickens; however, they continue to rely on a two-dose regimen, which can be impractical for distribution to flocks.

ARS has begun to assess the potential to develop an effective vaccine for H5N1 in bovine. It is difficult to predict how long development might take, as many outstanding questions remain about the transmission to cattle, characterizations of the infection, etc.

We are aware that vaccine manufacturers have expressed interest in development in new vaccines for HPAI in poultry and in bovine. We will continue to engage with these developers to better understand their vaccine development, the efficacy of potential vaccines, as well as the cost of development and production.

Why is APHIS taking a voluntary, rather than mandatory, approach to testing dairy herds?

It is important to keep in mind that while H5N1 is highly pathogenic in birds, that is not the case in cattle. At this time, APHIS does not think it would be practical, feasible or necessarily informative to require mandatory testing, for several reasons ranging from laboratory capacity to testing turnaround times. We are working actively to learn more about the emergence of H5N1 in cattle, but right now we are seeing that a small portion of the affected herds are becoming ill, and that the number of herds exhibiting symptoms is relatively small. For context, there are more than 26,000 dairy herds nationwide. We are strongly recommending testing before herds are moved between states, which should both give us more testing information, and should mitigate further state-to-state spread between herds.

Can you describe what efforts USDA and APHIS are conducting to determine how widespread the H5N1 virus is among U.S. cattle?

We have met several times with state veterinarians, state agriculture departments and private veterinarian associations to share information about what we know and to enlist their help in working with producers to encourage testing and reporting of symptoms. APHIS has extensive experience working with these groups on animal health diseases, and we are confident in their partnership to help us monitor the situation. APHIS also has its own network of veterinarians across the states who are helpful in this effort. We are posting all confirmed tests to our website by 4 p.m. ET daily.

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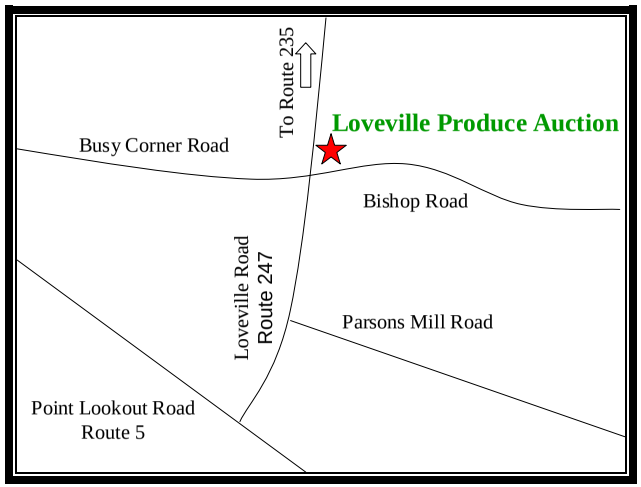

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