

Vol. 9 - September 2024

The Stalk



Accomack & Northampton County Cooperative Extension
Eastern Shore Agricultural Research & Extension Center



Corn Harvest 2024: Aflatoxin in Corn

Dr. Doug Higgins, Assistant Professor and Plant Pathology Extension Specialist

This year's drought and heat stress followed by a string of wet weather has exacerbated aflatoxin levels in corn on the Shore. The toxin is produced by an olive or yellow-green mold (see picture) called Aspergillus (*A. flavus* and *A. parasiticus* are most common in VA). Aflatoxin is a potent carcinogen, even at relatively low levels, that reduces feed value and, in some cases, forces the rejection of sales. There are several agronomic and post-harvest practices that can help reduce aflatoxin levels in affected grain.

Aspergillus is commonly found in most fields on debris and organic matter in the soil. It is readily spread by airborne spores to the corn silks where it proceeds to grow into the ears and around the kernels. Insect damage from corn earworm, fall armyworm and European corn borer also create openings for the mold to enter; insects may carry spores directly to the damaged kernels. The mold specializes in growing under hot (80-105°F; 86°F is optimal) and dry conditions.

The acceptable level of aflatoxin depends on the intended use of the grain. For chickens less than eight weeks of age aflatoxin levels must be below 20 ppb; mature poultry is 100 ppb. The aflatoxin level for finishing swine is 200 ppb.

Smithfield Grain (27404 Cabin Point Road, Waverly, VA) will take corn up to 200 ppb. Contact David Jennings at 757-899-0172 for contract pricing or deliver for on the spot pricing.

Please note, except with special permission granted from the FDA, blending aflatoxin-contaminated grain to lower the overall aflatoxin level is illegal.

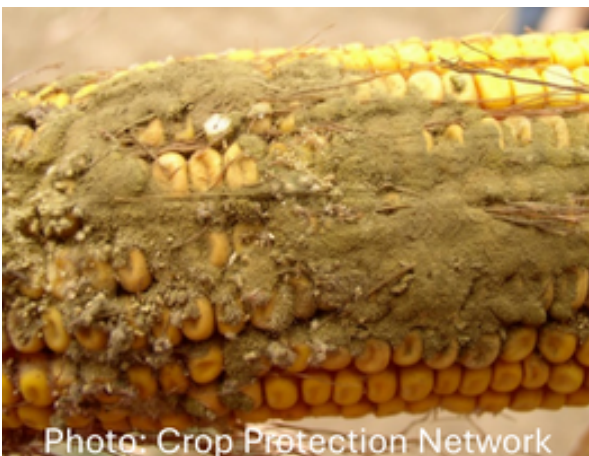


Photo: Crop Protection Network

For Pre-harvest, Harvest, and Storage Tips to Reduce Aflatoxin in Corn - Please see Dr. Higgin's notes on page 13

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VCE agents working with FSA on filing for a disaster declaration

VCE Ag Agents collaborated with the Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS) to provide comprehensive photos and detailed reports aimed at filing for a disaster declaration in response to the severe drought conditions and extreme temperatures experienced during this growing season.

Agents and local producers documented the impact on local agriculture, highlighting the significant crop losses and soil degradation. This collaborative effort underscores the critical need for federal assistance to support affected farmers and mitigate the long-term effects on the region's agricultural economy.



Field corn August 2024



Agents' Calendar:

"Working for the Wellbeing of Our Communities!"

SEPTEMBER 2024

- Sep 3 - VCE / ESAREC Monthly Meeting; Ag Conference Planning Committee Meeting
- Sep 4-6 - VTPP Pesticide Safety Training
- Sep 10 - Southern ASAS Extension Webinar (livestock/forage)
- Sep 10 - SE Unit Coordinator Meeting
- Sep 11 - How to market your program and online presentations webinar
- Sep 12 - Hot topics in food and agriculture laws webinar
- Sept 16 - Agent Training "Setting up Educational Programs"
- Sep 19 - Co-Pilot AI Training Course
- Sep 20 - Soybean Agronomist Zoom Meeting
- Sep 22-27 - International Soil Tillage Research Organisation Conference, Virginia Beach, VA
- Sep 30 - State Fair VCE Booth

Ongoing:

- Regional Shared-use kitchen Needs Assessment and Comprehensive Study
- Farm Tour 2024 planning and preparation:
 - Northampton Farm Tour: October 10th
 - Accomack Farm Tour: October 16th
- Agricultural commodities competitions at the ES Ag Fair

Weekly:

- Click Beetle Trap Monitoring
- Pheromone Trap Insect Monitoring
- WESR VCE AG Radio recordings - daily @ 8:30 am & 12:30 pm
- WESR Master Gardener Radio recordings - daily @ 12:20 pm

THE AGENT'S CORNER

Theresa Pittman - Accomack County ANR Agent

Hélène Doughty - Northampton County ANR Agent

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Eastern Shore Household Water Quality Testing Program - August 26th & 27th

The Eastern Shore Household Water Quality Testing Program took place August 26th and 27th with over 150 kits picked up by residents of Accomack and Northampton counties. The program is strictly informational and educational, allowing households to gain insight on the quality of their water. Thank you to SERCAP (Southeast Rural Community Assistance Project, Inc.) for providing both counties with a grant to cover part of the fees associated with the cost of testing.

The samples are shipped to the Virginia Tech lab in Blacksburg, VA and tested for bacteria, lead, copper, arsenic, iron, manganese, pH, hardness, sodium, sulfate, fluoride and nitrate. Results are emailed to each participant and remain anonymous.

VCE Provides Agents with Comprehensive Training on Poultry



Although every agent has his/her area of specialty, agents are expected to provide his/her community educational resources on a variety of topics.

A poultry in-service was offered to VCE agents on August 20th and 21st at the Harrisonburg VDACS animal laboratory facilities to support and provide programs on raising small and backyard chicken flocks on the Eastern Shore. The program included anatomy and basics, behaviors, types and breeds, sampling techniques, collection for poultry disease prevention, biosecurity for small backyard flocks, common diseases and health issues, nutrition, regulations related to selling poultry products, on-farm slaughter, and food safety with poultry products. This comprehensive training equips agents with the knowledge and skills to educate backyard flock owners on best practices for maintaining healthy and productive flocks.

By understanding poultry anatomy and behavior, owners can better manage their flocks, prevent diseases, and ensure biosecurity. Additionally, knowledge of

regulations and food safety helps owners comply with legal requirements and produce safe, high-quality poultry products for their families and communities.





VCE Agri-Business Management and Economics Program Team Meeting

Every Virginia Cooperative Extension agents are encouraged to buy-in to several "teams" to advance agricultural profitability, sustainability and well-being. Among several others, the Agribusiness Management and Economics Program Team focuses on enhancing profitability and sustainability for farms of all sizes and types, mitigating risk in, and improving access to market opportunities for traditional, emergent, and specialty crops, aquaculture, and livestock production systems, empowering farm transition planning, improving global market competitiveness in food, fiber, and feed industries, assisting producers with adherence to regulatory compliance requirements, building capacity among new and beginning farmers and ranchers and enhancing agricultural literacy.

The AME program team met in Nelson County, VA August 21st and 22nd to provide agents with the newest information on enterprise budgets, conservation easements and tax credits, H2-A program, the Alliance to Advance Climate-Smart Agriculture and Ag policy updates. Look for upcoming programs on Agri-business Management and Economics topics!



VCE Agents visited various farming operations in Nelson County during the AME Program Team Meeting

Agent Question of the Month

How do I register my trees to the Virginia Champion Tree Program?

The Virginia Big Tree Program was established in 1970 and has recorded over 2000 trees since that date. It maintains the list of VA State Champions that can be found [here](#) and is affiliated with the National Register of Champion Trees administered by the University of Tennessee.

To register a tree to the Virginia Champion Tree Program, contact your local extension agent who will arrange for the tree(s) to be measured by the Department of Forestry to determine its eligibility.

Otherwise, to report a big tree, you can also navigate to the following website: <https://bigtree.cnre.vt.edu/report.html>



WHAT'S THAT BUG?

Hélène Doughty, Northampton ANR agent, invites you to test your entomology knowledge.



Take a guess on the pest and email or text your answer to 757-999-0780 / hdoughty@vt.edu

August Answer:

The Common Buckeye Butterfly

Our previous "What's That Bug" was a common buckeye butterfly (*Junonia coenia*). This butterfly cannot survive freezing temperatures. It is most common in Southern areas of the US. It moves Northward in the summer and Southward in late fall. It is known to move along coastline corridors and easily recognized by its eye-like spots on its wings (meant to scare away predators). It is particularly attracted to sandy areas and paths where it can be observed resting.





2024 Crops Competition Deadline to register: September 27th

CROP COMPETITIONS

- ☆ Largest pumpkin ☆ largest zucchini
- ☆ Vegetable basket
- ☆ Row crops (field corn & soybeans)

Go online to register:

<https://forms.gle/zx3xmzoRvTANgeLP9>

Registrations will be accepted through September 27, 2024. Cutoff for entries to arrive at fairgrounds for judging is 10:00 am on October 5, 2024. Judging will follow.

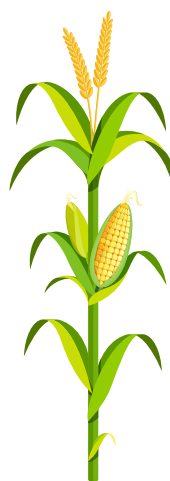
All rules are posted on the Eastern Shore of Virginia Chamber of Commerce website at
<https://www.esvachamber.org/esvaagfair>
or call your local extension office for more information



SATURDAY OCTOBER 5th

10am-2pm

Machipongo Old Middle School



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Graduate Students Visit ESVA Ag Industries

Dr. Mark Reiter, ESAREC Director & Soils & Nutrient Management Extension Specialist



Sixteen graduate students from the School of Plant and Environmental Sciences (SPES) at Virginia Tech toured ARECs, farms, and ag industries across eastern Virginia. Students are all working towards a MS or PhD in areas that include horticulture, crop science, weed science, turfgrass, nematology, and sustainable agriculture. As students traveled to the Eastern Shore from Blacksburg, they toured peanut production and Wakefield Peanut Company, Commonwealth Cotton Gin in Windsor, and research ongoing at the Tidewater and Hampton Roads AREC. The Eastern Shore was well represented with discussions on Pero-Fresh Market Snap Beans, Tankard Nurseries, Chatham Vineyards, Pickett's Harbor Farm, and graduate student research at the Eastern Shore AREC. We always look forward to showing on-campus colleagues the work we do at the ARECs! The tour was facilitated by Dr. Steve Rideout in SPES.



Rutvij Wamanse (MS student), Akash Brar (PhD student), and Milos Viric (MS student) in Dr. Vijay Singh's Weed Science program discussing their research on herbicide chemistries, cover crops, unmanned aerial vehicles, and robotics to on-campus based graduate students.



Thomas Badon (PhD student) and Joseph Haymaker (PhD student) in Soils & Nutrient Management with Dr. Mark Reiter, discussing phosphorus management across the Eastern Shore landscape and cover crops' potential to improve soil health in our agro-ecosystem



Fnu Pooja (MS student) and Emma Nieland (MS student) studying Plant Pathology in Dr. Doug Higgins' lab, discussing disease diagnosis, watermelon disease for plasticulture, and direct seeded Fall broccoli pressures.

ISTRO 2024

The International Soil Tillage Research Organisation (ISTRO) Conference, ISTRO2024, is in full planning steam! We look forward to welcoming scientists and students from around the world to highlight Virginia agriculture and the progressive strides we are making towards sustainable farming practices. Visit our website to submit an abstract for presentation, register, or find more information and ways to sponsor our conference. All are welcome! We look forward to seeing many of you in September 2024 in Virginia Beach, Virginia, USA! Find more information here:

<https://www.arec.vaes.vt.edu/arec/eastern-shore/istro-2024-22nd-conference.html>



Eastern Shore AREC Capital Improvement Study: Bids are Closed

Bids are now closed for the “request for proposals” to find an architectural firm to design the new and improved Eastern Shore AREC! Under the guidance of Katrina Estep, Capital Project Manager in Facilities Services at Virginia Tech and Pat Hilt, Director of Facilities for the College of Agriculture and Life Sciences, representatives from numerous firms toured our Eastern Shore AREC facilities and grounds to better understand what we do and what our future needs will be. After selection, faculty, staff, students, and stakeholders will all meet with the firm to facilitate upgrades and remodels that make the most sense to continue research and extension activities for the next century.



Virginia Tech received authorization from the Commonwealth of Virginia to start the planning process for capital improvements at the Eastern Shore AREC. The scope includes approximately 25,000 total gross square feet of new facilities, including an Educational Facility, Residential Facility, Smart Greenhouse, and AREC Support Services Complex, which will be constructed. Renovation of the existing Main Building is a part of the project and totals approximately 14,000 gross square feet of work to modernize, repair, update the building to meet current construction code and accessibility standards, and remove hazardous materials.

A Rough Timeline for our Project

Aug 29, 2024

Bids from architectural firms are due to VT.

Step 2

Project award to architectural firm.

Step 3

Working drawings complete for capital improvement project.

Step 4

Begin construction on-site at Eastern Shore AREC.

Step 5

Project complete.

REEL Student Tour



Virginia Tech’s Research and Extension Experiential Learning (VT-REEL) program continues to offer hands-on learning for undergraduate students from across the country. REEL has a focus on Securing Our Food in a research-intensive, 10-week summer experience. The VT-REEL program engaged undergraduate students in translational plant science research via a combination of hands-on laboratory and field-based experiences. This summer, REEL students toured the Eastern Shore AREC research fields and labs to better understand what we do and how applied research positively impacts the agricultural industry in Virginia and beyond.



Dr. Doug Higgins
Assistant Professor, Plant Pathology

Be on the lookout for snap bean blemishes caused by fungal pathogens close to harvest

Dr. Doug Higgins, Assistant Professor and Plant Pathology Extension Specialist

Eastern shore snap beans are grown to meet high quality, fresh market standards with little to no tolerance for cosmetic blemishes on the harvested pods. Thus, pod spotting and russetting, caused by two fungal pathogens (*Alternaria alternata* and *Plectosporium tabacinum*), are serious threats.

The Higgins lab isolated and preliminarily identified these fungal pathogens during a 2023 disease outbreak on the Eastern Shore. We are looking for these pathogens again this season. Please contact the lab if you find symptomatic beans (see below).

Alternaria leaf and pod spot, caused by *A. alternata*, incites small, irregular, water-soaked spots that turn reddish-dark brown or black (center) and sometimes form long streaks or are found running down the pod vein (right). *P. tabacinum* can produce near identical pod spots but also is the primary cause of russetting. Russet on pods appears as superficial light brown areas or flecks with undefined borders (left). *P. tabacinum* is reported as more aggressive than *A. alternata* on snap bean and a shift in pathogen populations toward more *P. tabacinum* would help explain the recent increase in disease outbreaks.



Do you have these symptoms?



CONTACT US

email: doughiggins@vt.edu
Tel: 517-803-0636



Find Luke (he's wearing an orange shirt)! We wish good luck to all our summer interns that have started or returned to main campus for Fall semester classes at Virginia Tech. This VT is comprised of the class of 2028! Photo courtesy of the Virginia Tech Facebook page.

SUMMER INTERNS



Olsen Pruitt and Bennit Custis spent their summer working with the weed science program. They are currently students at Broadwater Academy.



Killian Gouldin worked with soil and nutrient management. He is currently majoring in environmental science.

Built on the Farm: The Combine Cover Crop Seeder

Mary Michael Zahed, M.S. Student, Crop and Soil Environmental Sciences



Mary Michael Zahed, M.S. student in Crop and Soil Environmental Sciences, is working on a project with N.S. Farms in Charles City.

James and Aaron Black are innovative farmers that created a combine mounted cover crop seeder that broadcasts cover crop seeds with the chaff behind the combine.

Mary Michael is collecting data on the effectiveness of the seeder in comparison with the standard of drilling in cover crops.



“It’s been such an honor working with N.S. Farms. Pairing agricultural and environmental stewardship is pertinent, and farmers like the Blacks are putting in the work and seeing the rewards of taking care of the land that takes care of us. It can also save the grower time, money, and labor. This novel design is accessible to anyone willing to learn.”

Watch the full video produced by Eleanor and Aaron Goodrich sponsored by Sustainable Chesapeake:



FULL VIDEO

Importance of Timely Cover Crop Planting and New Cover Crop Selector Tool

Joey Haymaker, Ph.D Candidate, Crop and Soil Environmental Sciences

Cover crops provide many agroecosystem services and soil health benefits, such as improved nutrient retention, weed suppression, erosion control, soil moisture retention, soil temperature regulation, increased soil organic matter, alleviating soil compaction, reduced fertilizer need, and improved cash crop yield. However, to provide these services, adequate biomass must be accumulated. Several studies have suggested that at least 7,000 lb./acre of dry aboveground cereal rye biomass is necessary for effective weed suppression (Ryan et al., 2011;



Smith et al., 2011; Teasdale & Mohler, 2000) and that legume cover crops must produce at least 4,000 lb./acre of dry aboveground biomass to meet corn N demand (Teasdale et al., 2004).

Earlier fall planting can help with achieving these cover crop biomass production goals. Our research at the Eastern Shore AREC has shown that earlier planted cover crops saw substantially higher biomass production. Hairy vetch planted on October 12th produced over 4,000 lb./acre and over 165 lb. N/acre, while hairy vetch planted four weeks later produced 1,000 lb./acre less biomass and accumulated 45 lb./acre less nitrogen. Exposure to more fall growing degree days allowed the early planted vetch to produce 8 times more biomass by January 6th. Early planting has been observed to be important across all cover crop species in our research studies.

The Southern Cover Crops Council has launched a new Cover Crop Selector Tool (covercrop-selector.org), which will help you select

cover crop species that best fit your goals and site conditions and around your cash crop growing window. In the tool, cover crop species are rated on environmental tolerances (e.g., flooding, drought, shade, salinity), growth traits (e.g., ease of establishment, root architecture, and rooting depth), whether they can be aerially seeded, recommended seeding rates, and more.

References

- Ryan, M. R., Mirsky, S. B., Mortensen, D. A., Teasdale, J. R., & Curran, W. S. (2011). Potential Synergistic Effects of Cereal Rye Biomass and Soybean Planting Density on Weed Suppression. *Weed Science*, 59(2), 238–246.
- Smith, A. N., Reberg-Horton, S. C., Place, G. T., Meijer, A. D., Arellano, C., & Mueller, J. P. (2011). Rolled Rye Mulch for Weed Suppression in Organic No-Tillage Soybeans. *Weed Science*, 59(2), 224–231.
- Teasdale, J. R., Devine, T. E., Mosjidis, J. A., Bellinder, R. R., & Beste, C. E. (2004). Growth and development of hairy vetch cultivars in the northeastern United States as influenced by planting and harvesting date. *Agronomy Journal*, 96(5), 1266–1271.
- Teasdale, J. R., & Mohler, C. L. (2000). The quantitative relationship between weed emergence and the physical properties of mulches. *Weed Science*, 48(3), 385–392.



ANNOUNCEMENTS



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EASTERN SHORE AGRICULTURAL
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FARM TOUR DAY**

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OCTOBER 15TH 2024

**ACCOMACK COUNTY
FARM TOUR DAY**

Metompkin Elementary School
Parksley, VA





EASTERN SHORE AGRICULTURAL CONFERENCE & TRADE SHOW

Wednesday January 29, 2025
Thursday, January 30, 2025





VIRGINIA AGRICULTURAL EXPERIMENT STATION
EASTERN SHORE AGRICULTURAL
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VCE & ESAREC Contact Information

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VIRGINIA AGRICULTURAL EXPERIMENT STATION
**EASTERN SHORE AGRICULTURAL
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Virginia Cooperative Extension brings the resources of Virginia's land-grant universities, Virginia Tech and Virginia State University, to the people of the commonwealth. VCE provides education through programs in Agriculture and Natural Resources, Family and Consumer Sciences, 4-H Youth Development and Community Viability.

The Virginia Tech, Eastern Shore AREC is committed to supporting commercial vegetable, grain, oilseed, and fiber production throughout the Commonwealth of Virginia. Centrally located on Virginia's Eastern Shore, the center conducts basic and applied research on more than 25 agricultural crops.

Virginia Cooperative Extension is a partnership of Virginia Tech, Virginia State University, the U.S. Department of Agriculture, and local governments. Its programs and employment are open to all, regardless of age, color, disability, sex (including pregnancy), gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, genetic information, military status, or any other basis protected by law.

If you are a person with a disability and desire any assistive devices, services or other accommodations to participate in any activity, please contact Rachel Barnes at 757-787-1361* (*TDD number is (800) 828-1120) during business hours of 8:00 a.m. and 4:30 p.m. to discuss accommodations.

Pre-harvest, Harvest, and Storage Tips to Reduce Aflatoxin in Corn

Doug Higgins, ESAREC Extension Plant Pathologist

This year's drought and heat stress followed by a string of wet weather has exacerbated aflatoxin levels in corn on the Shore. The toxin is produced by an olive or yellow-green mold (see picture) called *Aspergillus* (*A. flavus* and *A. parasiticus* are most common in VA). Aflatoxin is a potent carcinogen, even at relatively low levels, that reduces feed value and, in some cases, forces the rejection of sales. There are several agronomic and post-harvest practices that can help reduce aflatoxin levels in affected grain.



Photo: Crop Protection Network

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The [acceptable level of aflatoxin](#) depends on the intended use of the grain. For chickens less than eight weeks of age aflatoxin levels must be below 20 ppb; mature poultry is 100 ppb. The aflatoxin level for finishing swine is 200 ppb. Smithfield Grain (27404 Cabin Point Road, Waverly, VA) will take corn up to 200 ppb. Contact David Jennings at 757-899-0172 for contract pricing or deliver for on the spot pricing. Please note, export with special permission granted from the FDA blending aflatoxin-contaminated grain to lower the overall aflatoxin level is illegal.

Pre-harvest. Scouting. Scout your corn from dent through harvest. Target 10 locations in a field and concentrate on areas where plants appear most stressed. At each location, open husks of 10 ears and inspect them for the olive or yellow-green mold. If more than 10% of the ears have *Aspergillus* - contact your crop insurance agent as more intensive sampling may be needed for aflatoxin testing and schedule the field for an early harvest.

Sampling for aflatoxin testing. Aflatoxin contamination is often unevenly distributed in a field and on kernels or individual ears so taking a large enough sample is important. Samples that are too small give low results and are highly variable. Ideally, samples should

be a composite of multiple shelled corn subsamples taken from various places in a field, load bin, truck, storage unit or other unit of corn. It is [recommended](#) that each subsample for the composite sample be at least 4.4 lbs. Mix these subsamples to make a single composite sample and then take a final 5-lb sample for further testing.

Harvest. *Minimize grain damage.* Broken kernels are a source of contamination. In affected fields set combine fans higher to remove lightweight, damaged kernels and slow the header speed to reduce kernel damage. Any modifications to the combine that reduce physical damage to the seed will be helpful.

Harvest early and dry. Harvest corn from affected fields as soon as it reaches maturity. Use high temperatures to quickly dry grain to 15% or less moisture. Do not leave corn to dry down in the field and avoid low heat and slow drying.

Clean harvest and handling equipment. Harvest and handle affected grain separately.

Storage. *Keep moisture levels and temperature low.* Mold will continue to grow and produce aflatoxins post-harvest, dry and cool grain as quickly as possible. Store affected grain separate from good grain. Use aeration to eliminate hot spots. Do not store corn for more than one year. Long term grain should be stored at 13% moisture. Monitor every 3-4 weeks.

Remove damaged grain and fines. Damaged grain and fines accumulate in storage bins near the center of the grain pile. This can cause airflow problems that exacerbates spoilage. Damaged grain from affected fields is also likely to be contaminated with *Aspergillus*. Withdraw grain from bin after filling or core bins to improve aeration.