



VIRGINIA AGRICULTURAL EXPERIMENT STATION
EASTERN VIRGINIA AGRICULTURAL
RESEARCH AND EXTENSION CENTER
VIRGINIA TECH.

EASTERN VIRGINIA AREC NEWSLETTER

VOLUME III, ISSUE II

April 2022

Dr. Joseph Oakes
Superintendent
Eastern Virginia AREC



We hope that everyone is having a great spring as you prepare for spring planting! Here at EVAREC, we had a severe cold snap the last week of March where temps dropped into the twenties. There was major concern among many of us that we might have some freeze damage in wheat, but it seems that we dodged the bullet! See more information in our article on the next page. Keep in mind that if you need a pinpoint weather station in the Northern Neck or anywhere else throughout Virginia, VT has several weather stations scattered across the state. You can access them here: <https://vt-arec.weatherstem.com/> or by downloading the WeatherSTEM app.

We are eagerly anticipating the Virginia Small Grain Field Day next month on May 19! For more details and to register [click here](#). We hope to see many of you here in Warsaw next month!

- Joseph

follow us:



YouTube



April Research Spotlight

The booming craft malting and brewing industry in the United States has increased the demand for locally produced barley malt. The small grains breeding program at Virginia Tech has worked to help build a local supply chain for malting barley in the eastern US by developing new malting barley varieties specifically adapted to the Mid-Atlantic region. The barley breeder, Wynse Brooks, made the first malt crosses in 2010, and those efforts have come to fruition with the new malt barley variety, Avalon.

Publicly released in 2020, Avalon is the first two-row winter malt barley specifically bred for the Eastern US, and has since been recommended by American Malt Barley Association. We are currently working with local growers, maltsters and brewers, including Wheatland Spring Farm + Brewery and Murphy and Rude Malting Co., to conduct on-farm trials of new experimental malt barley breeding lines.

With funding from the SmartFarm Initiative at the Center for Advanced Innovation in Agriculture, the AREC is also working to incorporate high-dimensional genomics and high-throughput phenotyping into our malt barley breeding pipeline.

New malting barley varieties will need to be developed to help the malt supply chain to persist and thrive in a changing climate. Incorporating these new technologies will lead to accelerated malt variety development and provide unique malting seed products to regional farmers, maltsters, and brewers.



Wynse Brooks, barley breeder at Virginia Tech since 1992, demonstrates the progress that has been made in the barley program over the years

Freezing Temperatures?



Wheat Freeze Damage

We have received several questions over the past couple weeks since temperatures dropped into the 20s the last week of March. Here at EVAREC, the wheat crop was at jointing that week. Typically, temperatures at 24°F for approximately 2 hours can cause injury at jointing. Our temperatures dropped to 26 and 25 on consecutive nights, but never hit 24! Below is a picture taken on April 8, showing the no freeze damage and a healthy young head. All we have seen was some leaf tissue burn last week, but the crop looks much better now. Check out this handy publication from Kansas State outlining the temperatures that typically cause freeze injury to wheat.

https://www.sunflower.k-state.edu/agronomy/docs/c646_Wheat_Freeze_Publication.pdf?fbclid=IwAR1jC7vXT27_h3J5kGA40rit0rCbjXZbSF1keo4GMeQtUWPCbFPVUzWgTsA

Table 1. Temperatures that cause freeze injury to wheat at spring growth stages and symptoms and yield effect of spring freeze injury.

| Growth stage | Approximate injurious temperature (two hours) | Primary symptoms | Yield effect |
|--------------|---|---|--------------------|
| Tillering | 12 F (-11 C) | Leaf chlorosis; burning of leaf tips; silage odor; blue cast to fields | Slight to moderate |
| Jointing | 24 F (-4 C) | Death of growing point; leaf yellowing or burning; lesions, splitting, or bending of lower stem; odor | Moderate to severe |
| Boot | 28 F (-2 C) | Floret sterility; spike trapped in boot; damage to lower stem; leaf discoloration; odor | Moderate to severe |
| Heading | 30 F (-1 C) | Floret sterility; white awns or white spikes; damage to lower stem; leaf discoloration | Severe |
| Flowering | 30 F (-1 C) | Floret sterility; white awns or white spikes; damage to lower stem; leaf discoloration | Severe |
| Milk | 28 F (-2 C) | White awns or white spikes; damage to lower stems; leaf discoloration; shrunken, roughened, or discolored kernels | Moderate to severe |
| Dough | 28 F (-2 C) | Shriveled, discolored kernels; poor germination | Slight to moderate |

Research Staff Highlight

Mark Vaughn nominated for 2022 President's Award for Excellence

Mark
Vaughn

Research Specialist Senior,
College of Agriculture &
Life Sciences



"Thanks to Mark's inventive, creative, and problem-solving skills, significant improvements in field operations have been made during his tenure, which have greatly improved the efficiency and accuracy of conducting research on tens of thousands of research plots each year."

-Carl A. Griffey

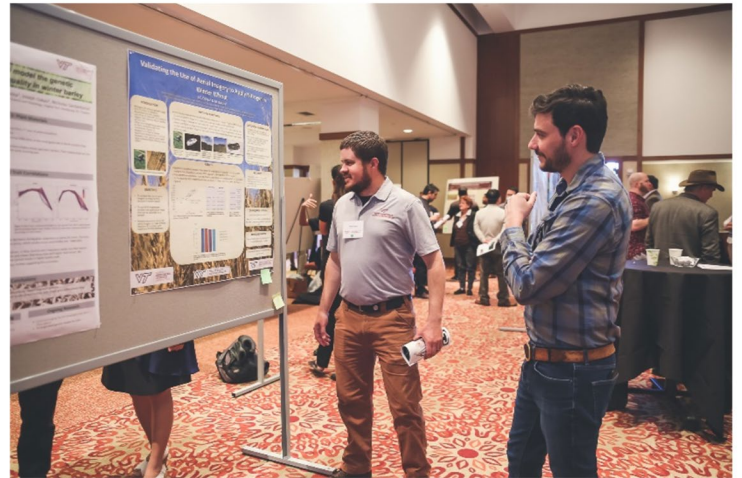
"Mark is one of the most dedicated and meticulous employees that you will meet. Agricultural research work requires a great deal of attention to detail, or the research will be compromised and the data lost. No matter the task, whether it is planting, spraying, data collection, or harvest, Mark always gives it the care and attention to detail it deserves." – Joseph Oakes

Read the full article here: [Four President's Award for Excellence winners announced | VTx | Virginia Tech](#)

EVAREC faculty and master's student presented research at the Center for Advanced Innovation in Agriculture's Big Event

www.caia.vt.edu

This was CAIA's first 'big' in-person event since launching the Center in the fall of 2020. It was a great networking opportunity where 51 posters were on display showcasing our faculty and graduate student's research!



Joseph Oakes, EVAREC, presented his abstract submission to **Nicholas Santantonio**, School of Plant and Environmental Sciences, at the CAIA Poster Session and Social on March 28, 2022.

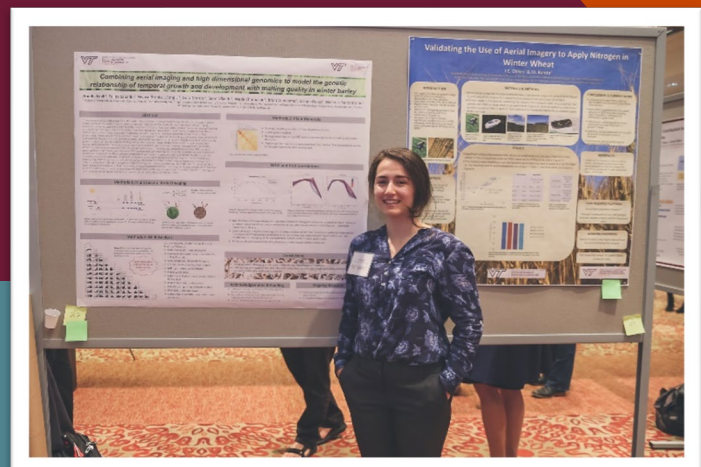
Abstract Title: "Validating the use of Aerial Imagery to Apply Nitrogen in Winter Wheat"

Co-Authors: Maria Balota, Tidewater AREC, Joseph Oakes, Eastern VA AREC

Amelia Loeb, School of Plant and Environmental Sciences, was the presenter and co-author for the Abstract Titled:

"Combining aerial imaging and high dimensional genomics to model the genetic relationship of temporal growth and development with malting quality in winter barley"

Co-Authors for this abstract include: Wynse Brooks, Song Li, Wade Thomason and Nicholas Santantonio from the School of Plant and Environmental Sciences; Gota Morota from Animal and Poultry Sciences; Sean O'Keefe and Brian Wiersema from Food Science and Technology, and Joseph Oakes, EVAREC.



We are Hiring!

- We are hiring an agricultural specialist at the center. For more info or to apply, click here:

<https://careers.pageuppeople.com/968/cw/en-us/job/519067/agricultural-specialist>.

Recent Grants & Publications

Grants:

- Eastern Virginia AREC Soybean Research Support. **\$10,000**. Joseph Oakes. Virginia Soybean Board
- Improving Efficiency & Accuracy of Soybean Breeding Selection Using Remote Sensing Technology. **\$11,000**. Virginia Soybean Board. Joseph Oakes, Bo Zhang, Song Li, Maria Balota, Abhilash Chandel, Hasan Seyyedhasani

Save the Date!

- **May 19, 2022:** Virginia Small Grain Field Day; Eastern Virginia AREC
<https://www.arec.vaes.vt.edu/arec/eastern-virginia/arec-updates/2022-virginia-small-grain-field-day.html>

2022 Virginia Small Grain Field Day



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Join us in May for a look at the latest in
Virginia Tech small grain breeding
research!



May 19, 2022
8:00 am - 12:00 pm

- ✓ CCA and pesticide credits will be available
- ✓ BBQ and Seafood lunch will be provided



[Register Here](#) to
attend this free
event!

Eastern Virginia
Agricultural Research &
Extension Center

2229 Menokin Road
Warsaw, VA 22572

Virginia Cooperative Extension programs and employment are open to all, regardless of age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, genetic information, veteran status, or any other basis protected by law. An equal opportunity/affirmative action employer. Issued in furtherance of Cooperative Extension work, Virginia Polytechnic Institute and State University, Virginia State University, and the U.S. Department of Agriculture cooperating. Edwin J. Jones, Director, Virginia Cooperative Extension, Virginia Tech, Blacksburg; M. Ray McKinnie, Administrator, 1890 Extension Program, Virginia State University, Petersburg.

Eastern Virginia AREC's mission is to serve Virginia's grain and soybean industries through research and educational programs leading to improved varieties and crop management practices. Our research objectives are to support the Virginia Tech soybean and small grain breeding programs, and to conduct agronomic research that contributes to economically and environmentally sound crop production in the Commonwealth and beyond.

A COLLABORATIVE NETWORK

The ARECs are a network of 11 centers strategically located throughout the state that emphasize the close working relationships between Virginia Agricultural Experiment Station, Virginia Cooperative Extension, and the industries they work with. The mission of the system is to engage in innovative, leading-edge research, to discover new scientific knowledge, and create and disseminate science-based applications that ensure the wise use of agricultural, natural, and community resources while enhancing quality of life.



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www.arec.vaes.vt.edu/arec/eastern-virginia.html

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