A current AREC research project involves using drone technology to assess Fusarium head blight (FHB) progression in wheat and barley. Field assessment methodologies for evaluating FHB in small grains are very time- and resource-intensive. Therefore, breeders are limited to a single date to assess incidence and severity of the disease. In years of high disease pressure, it becomes increasingly difficult to adequately distinguish resistant, moderately-resistant, and susceptible lines. Having the ability to optically assess FHB with a drone can lead to more objective data and better disease resistance classification by calculating disease progress curves over several assessment times throughout the growing season. This will more accurately depict disease resistance and variety/fungicide efficacy than approaches that offer a single snapshot in time.

The project, led by Joseph Oakes, superintendent of the Eastern Virginia AREC, is conducted in collaboration with Carl Griffey, small grain breeder in the Virginia Tech School of Plant and Environmental Sciences, and Josh Fitzgerald, small grains post-doctoral research associate located at the Eastern Virginia AREC.

“Our goal with this project is to take advantage of drone imagery in order to more efficiently assess disease progression,” Oakes said. “If successful, we will be able to more accurately characterize disease resistance in new wheat and barley breeding lines and bring better disease resistant lines to growers.”
EASTERN VIRGINIA AREC AT A GLANCE

DISCIPLINES
- Small grain breeding and variety testing
- Soybean breeding and variety testing
- Disease and pest management
- Fertility management

INNOVATIVE TECHNOLOGIES
- Drones to assist in nutrient management and assess disease progression
- Weather station with real-time weather data

FACILITIES
- 215 acres of crop land (53 acres owned by Virginia Tech, 162 acres leased)
- Modern seed lab and shop space

INDUSTRY PARTNERS
- Small grain and soybean industries
- Small grain and soybean commodity boards

ABOUT THE EASTERN VIRGINIA AREC
The Eastern Virginia AREC in Warsaw, Virginia, was established in 1912 and serves 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 small grain and soybean breeding programs, along with other research programs, that contribute to economically and environmentally sound crop production in Virginia and across the nation.

A COLLABORATIVE NETWORK
The ARECs are a network of 11 centers strategically located throughout the state that emphasize close working relationships between Virginia Agricultural Experiment Station, Virginia Cooperative Extension, and the industries the 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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