ALSON H. SMITH JR.
## Agricultural Research and Extension Center

Mizuho Nita, assistant professor of plant pathology (grapes and viticulture), works in the vineyard at the Alson H. Smith Jr. Agricultural Research and Extension Center in Winchester.

As part of its contributions to the commercial fruit industry, the Alson H. Smith Jr. Agricultural Research and Extension Center is a collaborator on a $475,000 grant from the USDA's National Institute of Food and Agriculture's Agriculture and Food Research Initiative to utilize canines to combat the invasive spotted lanternfly. Mizuho Nita, an assistant professor of plant pathology, operates a grape disease management and Extension lab at the Alson H. Smith Jr. AREC, and he works closely on the project by sending egg samples to Texas Tech University's Canine Olfaction Research and Education Laboratory to conduct multiple behavioral and olfactory research studies.

A benefit of this program is to preserve the quality of grapes and the wines they produce by reducing the need to overuse insecticides to stop the spotted lanternfly. The Alson H. Smith Jr. AREC Center examined the efficacy of detection dogs to locate invasive insects and diseases in vineyards. Dogs identified spotted lantern fly eggs with 95 percent accuracy and hopes to use detector dogs to scout for spotted lanternfly eggs on shipments entering areas without established populations of this invasive insect. As the dogs become more adept, they will be challenged to detect additional harmful predators, such as powdery mildew.

PARTNER WITH US
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"My lab works on integrated approaches to improve grape disease management, including the evaluation of a novel biological control agent against grapevine crown gall, which causes significant economic losses among growers in Virginia and around the world. As part of the SmartFarm Innovation Network and Center for Advanced Innovation in Agriculture, we launched two projects with a Virginia-based startup company, Agrology. Together, we are investigating the use of environmental sensor networks, near-infrared sensor images from an aerial drone, and machine learning models to develop precise disease management strategies."
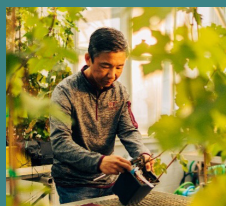
MIZUHO NITA
ASSOCIATE PROFESSOR, GRAPE PATHOLOGY EXTENSION SPECIALIST

"Dr. Sherif has taken the needs of our Virginia growers to heart and is doing the work required to keep Virginia growers competitive in a complex marketplace. As a grower and consultant working with growers throughout the Mid-Atlantic, I am excited about what Dr. Sherif is bringing to the table. We will all benefit from it."

BILL MACKINTOSH
MACKINTOSH FRUIT FARM

ALSON H. SMITH JR. AREC AT A GLANCE

DISCIPLINES
- Tree fruit entomology
- Tree fruit and specialty crop horticulture
- Tree fruit and specialty crop pathology
- Grape pathology
- Viticulture

INNOVATIVE TECHNOLOGIES
- Membrane-based grapevine virus sampling kit
- Molecular tools to detect and identify major grape pathogens
- Marker-Assisted Breeding (MAB) of apple
- CRISPR/Cas9-mediated gene editing of apple
- Weather-based prediction models for managing crop load in apple
- Partial canopy rain shelters for grapevine
- Novel fungicide chemistry for grape disease management

FACILITIES
- 124 acres on the farm with over 40 field plots
- 6 modern labs
- 24,500 square foot complex
- 100 person auditorium

INDUSTRY PARTNERS
- Virginia Agribusiness Council
- Wine Industry
- Apple Industry
- Virginia Department of Agriculture and Consumer Services

ABOUT THE ALSON H. SMITH JR. AREC

The Alson H. Smith Jr. Agricultural Research and Extension Center serve Virginia's horticultural fruit industries through research, educational programs, student training, and the development of tools and technologies that increase sustainability and resiliency of commercial producers.

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 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.

VT VIRGINIA AGRICULTURAL EXPERIMENT STATION VIRGINIA TECH.
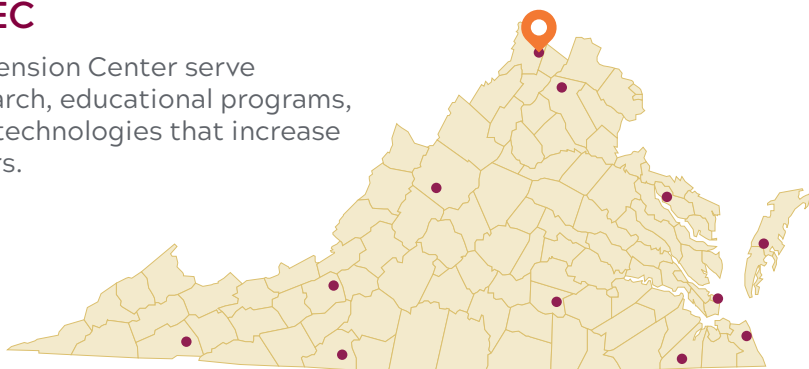
Virginia Cooperative Extension
Virginia Tech • Virginia State University