



## HISTORY

The Eastern Agricultural Research Station was established in 1965 through the purchase of a 728-acre block of hilly land near Belle Valley in Noble County. This land, along with 40 acres acquired later on, is known as Unit I. The station's size was significantly increased in 1966, when the Union Carbide Corporation and the Baker-Noon Coal Company donated an additional 1,325 acres that had been extensively strip-mined for coal. This area is known as Unit II and was the subject of land-reclamation experiments through the 1990s.

**Wayne Shriver, Manager**  
Eastern Agricultural  
Research Station  
16870 Township Road 126  
Caldwell, OH 43724

740-732-2682  
shriv.13@osu.edu  
go.osu.edu/Eastern



## MAXIMIZING LIVESTOCK PRODUCTIVITY IN APPALACHIAN OHIO



Located on 2,093 acres in the rolling hills and valleys of Ohio's Appalachian plateau, the Eastern Agricultural Research Station focuses on beef cattle and sheep production research and on the evaluation of forage production systems. These activities are a central part of the economic backbone of eastern Ohio.

Eastern Station personnel work with Ohio Agricultural Research and Development Center (OARDC) scientists, Ohio State University Extension specialists, producers, and industry groups to conduct innovative studies on cattle reproduction and nutrition; sheep management and health; improved forages; and lower-cost feeding alternatives. The knowledge generated at the station is then communicated to farmers and transferred throughout the beef cattle and sheep industries.

*Eastern Ohio counties represent the bulk of the state's beef cattle and sheep production—industries that have an estimated \$770 million economic impact in Ohio.*



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# RESEARCH FOCUS

Eastern Ohio is particularly well suited to the production of forage grasses and legumes, spurring the development of numerous livestock operations in the region. As a result, Appalachian counties produce the bulk of Ohio's beef cattle and have become the center of Ohio's sheep industry. These forage and livestock industries are supported by numerous research projects and trials conducted year-round at the Eastern Agricultural Research Station, which also works to optimize the region's vast natural resources and to ensure the sustainability of both agriculture and the environment. Research at the station focuses on management systems that address all aspects involved in successfully running a complete livestock operation.

*Improved estrus synchronization protocols tested at the Eastern Station can help increase pregnancy rates of beef cows by 11 percent—generating millions of dollars in enhanced productivity and cost savings.*

## KEY RESEARCH STUDIES CONDUCTED AT THE STATION INCLUDE:

### REPRODUCTION

Effective methods to synchronize estrus (or heat) cycles in beef cattle have been developed and tested at the station. Studies show that using artificial insemination together with estrus-control practices can significantly enhance the breeding efficiency of beef cattle, saving producers time and money. The station's reproductive management studies have helped set estrus-synchronization standards used by industry in Ohio, throughout the United States, and around the world.

### FORAGE PRODUCTION AND ALTERNATIVE FEEDS

Production of quality forages at low costs is a key factor in the profitability of livestock enterprises. Scientists evaluate management



schemes that extend the fall grazing season, reducing dependence on mechanically harvested and stored forage and lowering winter feed costs. Researchers are also evaluating

alternative feeds, such as distiller's grains (a byproduct of the ethanol industry). Studies conducted at the station have shown that distiller's grains can make up 70–80 percent of the diets of beef cows and sheep, thanks to a nutrition strategy developed at The Ohio State University. Other forage projects include improving pasture quality with different management strategies to control weeds.

### NUTRITION

Researchers and personnel at the station work to match feed resources to beef cow milk production, which helps optimize calf nutrition, health, and development while making beef operations more efficient. Other studies have identified forage mineral deficiencies or overabundance, leading to recommendations for producers and feed companies on reformulation of beef cattle mineral supplements. This work has helped provide better nutrition to cows and has saved farmers money.

### ANIMAL WELFARE AND SAFE HANDLING

Work conducted at the station over the years has led to improved management and handling practices intended to maintain cattle in minimal-stress environments. Ohio State animal scientists have developed a curriculum to help reduce injury to both beef cattle and the people who work with them. This animal behavior and facility design curriculum—which includes corral kits developed at the station—has been used in various states throughout the country.

### OUTREACH

The research conducted at the station is constantly shared with farmers and transferred to the livestock industry. In conjunction with OSU Extension specialists, Eastern Station personnel organize field days and workshops for producers and collaborate with commodity groups and local agencies such as the Soil and Water Conservation District. The station is also involved in youth outreach programs with local schools and the Head Start program.

### ECONOMIC IMPACT

Ohio's beef industry, the 16th largest in the United States by number of beef cattle operations, has an annual value of \$1.3 billion, generating nearly \$690 million in total production impact for the Buckeye state.



Sheep production is also significant in Ohio—ranking fourth nationally in the number of operations (3,300), 12th in the total number of sheep and

lambs (120,000), and contributing \$18 million to the state's economy. Here are some of the ways the Eastern Agricultural Research Station contributes to these industries and to Ohio's economy:

- Improved estrus synchronization protocols tested at the station can help increase pregnancy rates of beef cows by 11 percent—generating millions of dollars in enhanced productivity and cost savings.
- The use of distiller's grains instead of hay or corn can reduce daily feed costs by 20–50 percent, also resulting in a 50 percent reduction in manure output—potentially saving cattle producers over \$100 per cow (\$20 million total) while supporting demand and value of an important biofuel byproduct.
- Mineral reformulation spurred by Ohio State research can save cattle producers approximately \$1.3 million annually in phosphorus supplementation; this also reduces phosphorus pollution affecting water quality.