



AMERICANFARM.COM

The Mid-Atlantic POULTRY

A monthly supplement to The Delmarva Farmer

FARMER

Warm-season grass may benefit effectiveness of house fans

By SEAN CLOUGERTY
Managing Editor

BELTSVILLE, Md. — Warm season grasses could help in the effectiveness of wind breaks near poultry house ventilation fans, according to a study done by USDA's Natural Resource Conservation Service.

The study conducted by Shawn Belt, NRCS horticulturist at the Norman A. Berg Plant Materials Center, was designed to test the survivability of tall warm-season grasses planted closest to tunnel fans. Results show that the selected grasses were able to tolerate the tunnel fan emissions and summer climate conditions on the Delmarva Peninsula.

Belt said previous research has shown the first row of plants in a windbreak of trees and shrubs near poultry houses can die from high amounts of ammonia, hot and dry growing conditions, and dust and chicken dander matting on the leaves.

The study hypothesized that warm-season grasses would accumulate the dust during hot weather, discarding the dust when the foliage dies back during winter dormancy. In the spring, the grasses regenerate and the cycle continues. Research has shown that two of main benefits of plants planted in front of poultry ventilation fans is that they lessen odors as well as absorb gaseous ammonia, which benefits the water quality of the Chesapeake Bay.

In the spring of 2008 and 2009, Belt established plantings of different species of grasses on six Delmarva poultry farms at distances ranging from 17 feet to 55 feet from the fans. The researchers used three cultivars of switchgrass — Northwind, Thundercloud and Kanlow — and one cultivar of coastal panicgrass — Atlantic.

Belt said he also chose warm-season grasses for their deer resistant qualities, lack of spreading ability, stiff stems and tall growth, and tolerance of hot, dry and compacted or wet soils.

"Switchgrass is tough as all get out," Belt said. "It's amazing it can survive these tough, inhospitable growing conditions."

Belt recommends a minimum of two rows of grasses should be used at the front of windbreaks. The rows should be two feet apart, using two-foot staggered spacing between plants.

The tallest cultivars should be planted farthest away from the fans to better catch fan emissions, Belt added, and the length of the rows should extend an additional 20 feet from each side of the section of tunnel fans.

It also is advisable that producers use more than one species or variety of grass so that a single insect or plant pathogen won't devastate the entire planting.

Three of the six windbreaks in the study were irrigated and Belt said while it was beneficial for those farms, the growing seasons that were studied had adequate rainfall and all the plants in the study survived.

The distance plants are planted from the fans is also an important factor, Belt said.

He said research done by Paul Peterson at Penn State University shows ammonia concentration in the air decrease 32-fold when measured at 16 feet from the fan compared to at the fan outlets. But planting too close could present a biosecurity risk to the house and impair fan productivity.

"In our test sites, we determined that 20 feet away from the fans was the closest at which all plants survived with no obvious negative effects observed," Belt said.

Belt said continuing studies will determine which warm season grasses, are most effective for filtering dust and absorbing ammonia from poultry house fan exhaust and quantify those absorption amounts.

Belt said that Maryland NRCS anticipates adding these tested cultivars to the list of plants that that are eligible for cost-share in poultry house windbreaks.

For information about NRCS financial assistance programs, contact your local county NRCS field office.

For more information about this study, contact Belt at Shawn.Belt@md.usda.gov

Á

í ÁGEFÁÖE Á! ÁÖe ÁÖe{ ÉÖEÁÁ @ ÁÁÁÁÁÁ