By Kim Markesich

With approximately 129 dairy farms in Connecticut alone, Sheila Andrew, animal science professor and extension dairy specialist, is frequently on call to assist with current issues affecting New England dairy farmers.

"Much of my research is focused on nutrition or mastitis-related issues of concern to regional dairy producers,” Andrew says.

In her newest research project, Andrew is studying the digestibility of snaplage, a high-energy corn product easily produced on New England farms. Typically, lactating dairy cows need more energy than can be fulfilled by diets consisting solely of hay, ensiled grass or by grazing. “The most important thing in feeding a dairy cow is meeting her nutritional requirements,” Andrew explains. “And feeding a cow is the most expensive part of the entire dairy operation.”

To meet the nutritional needs of the milking herd, farmers supplement the feed with high-energy corn meal. Connecticut farms lack the necessary acreage to produce corn meal, requiring farmers to import it from the Midwest. Unfortunately, the recent increase in ethanol production has caused a massive increase in the price of corn meal. Snaplage would be a less expensive replacement for a portion of the cornmeal added to feed.
To produce snaplage, corn silage equipment can be adapted to snap and chop the entire ear of corn containing the grain, cob and husk. Andrew’s research will determine the nutritional value of snaplage and the percentage of cornmeal to replace with snaplage. “We need to determine the feeding value of snaplage for dairy cattle, as well as the effect of snaplage on rumen health,” Andrew explains.

In addition to reducing feed costs for dairy farmers, there may be environmental implications as well. High-grade feed results in cows that produce more milk, which in turn reduces the number of cows needed in the herd. Andrew says, “There are data showing a smaller carbon footprint with fewer high-yielding cows, than larger herds of lower-producing cows.”

This project will also enhance sustainability of Northeast dairy farms, while reducing the environmental impact of transporting corn from the Midwest to the Northeast.

Mastitis, an infection of the mammary glands or udder, is the number one disease affecting dairy cows, resulting in losses to the dairy industry upwards of two billion dollars annually. While most mastitis-causing bacteria do not affect human health, there are a few mastitis pathogens that cause illness in people, although these are killed through the pasteurization process. Consuming raw milk, however, does put one at a slight risk of contracting foodborne illness.

Mastitis is an economic issue for dairy farmers. The infection reduces milk production and may affect milk synthesizing tissue, whereby some cows never regain their former milk production capacity. The greatest use of antibiotics for dairy cows is in the treatment of mastitis, during which time farmers must discard any milk produced by the cow until the milk is tested, the cow is healthy and the milk is free from any antibiotic residue.

Andrew is investigating the use of ultrasound technology for mastitis detection. Farm veterinarians regularly use ultrasound units as a diagnostic tool to detect pregnancies after breeding. Ultrasound would be utilized to examine tissue density within the four quarters of the mammary gland. This technology could lead to earlier detection of mastitis, and treatment before any infection could spread within the herd.

In another research project, Andrew examined commercially available clay-based acidic bedding conditioner, to determine whether the product reduces mastitis infections. These bedding materials are designed to absorb moisture and create an environment less hospitable to bacteria. Andrew found that when used as directed, these materials were effective at reducing the number of bacteria on teat ends, where bacteria collect and can enter mammary glands.

Andrew is also interested in researching several new screening tests that detect antibiotic residues in milk. “Milk is regulated by the FDA and is the most highly tested food product,” Andrew points out. Every bulk tank of milk is screened before transferring it to the milk tanker, and all milk is tested again at the plant. Milk is checked for somatic cells (indicating infection) and antibiotic residues, in addition to nutritional factors such as fat content and protein content.

Andrew enjoys her outreach work with local dairy farmers. “Dairy farmers in Connecticut are intelligent and innovative, and I enjoy every day working with them to enhance the sustainability of dairy production in Connecticut.”