Making great strides

CRF equine research helps keep Co-op feeds a step ahead

By Allison Morgan, photo by Chris Villines

She didn't know it at the time, but Dr. Jennifer Earing worked for Tennessee Farmers Cooperative a decade before she joined the staff as equine nutritionist in 2012.

In 2002, as a graduate student at the University of Kentucky in Lexington, Earing studied fiber digestion in horses on behalf of Cooperative Research Farms (CRF), which is owned by TFC and six other members. The results of such studies have been an integral part of Co-op's feed business since TFC joined the multi-national animal nutrition and management research association in 1965.

"My master's work was actually a CRF study, but I had no idea what that really meant," says Earing, who has a master's degree and doctorate in animal science from UK. "I didn't even know what CRF was. I knew they were funding my research, but that was about it."

These days, Earing is intimately familiar with CRF and its groundbreaking equine research, which is essential to her job in formulating Co-op feeds and making recommendations to customers. In fact, she was recently appointed coordinator of CRF's 12-member equine and specialty research team to lead its studies in horse nutrition, now an important part of the 61-year-old organization's mission.

But that wasn't always the case.

Established in 1954, CRF focused solely on "production" animals such as dairy and beef cattle, swine, and poultry for the first 30 years of its existence. Although a "horse planning board" was formed in 1976, the first CRF equine studies weren't conducted until the 1980s.

"In general, equine research is behind all other species," explains Earing. "Historically, when horses stopped being used for work and transportation, equine research dropped off because there weren't a lot of economic drivers. When the popularity of horses for pleasure and companion animals increased, we saw a resurgence in the need to study their nutrition."

CRF's first equine research project was a 1983 evaluation of pelleted complete feeds, says Earing. The study was really ahead of its time, she adds, because the first feed of that type didn't hit the retail market until the mid-'90s.

A handful of horse-related studies followed, but no concentrated effort was made until 1989, when CRF's board of directors approved a proposal to initiate equine research. A year later, CRF established its first equine research program at Berry College in Georgia and later launched trials at the University of Kentucky in 2000. Studies have also been conducted at several other colleges where equine education is prominent.

"That's one of the big differences between the equine team and other species in which CRF or a member owns the research facility," says Earing. "With equine, we rely almost exclusively on universities. We go wherever they have the type of horses we need, like senior horses, groups of mares and foals, or equestrian teams. It's a lot less management and a lot less expensive for us."

"Plus, it's a pretty unbiased means of doing these studies. The universities don't care what the results are. They just want to do the research."

Equine nutritional studies are particularly challenging, adds Earing, mainly because the definition of "performance" depends on the type of horse and its owner's needs.

"In other animals, we're after some level of production — growth, weight gain, more milk," she says. "With horses, performance is relative. It might be measured on the racetrack, on the trail, at a rodeo, in the show ring, or just raising good, healthy babies. So these types of studies take longer because you're not looking at something measurable in a short period of time. You're looking at a much longer-term effect."

CRF's most prominent equine research has focused on fat and carbohydrate digestibility, with several projects comparing the effects of different feed formulations on normal horses versus those with metabolic disorders like insulin resistance and Cushing's disease, a dysfunction of the pituitary gland.

"Horses are living a lot longer and developing these conditions, which can be exacerbated if we don't feed them properly," says Earing. "Our researchers started looking at these specific nutritional diseases and whether feed manufacturers could help the problem."

For example, CRF has studied pelleted feeds versus textured feeds to determine if the form or the ingredients make a difference.

"When they compared a high-starch pellet to a high-starch textured feed, they found that the pellet is actually digested quicker and causes a greater increase in blood glucose," Earing says. "That's a bad thing for metabolic horses but not a big deal for normal horses. They also looked at adding fat, which is an energy source, and found a lesser glucose response when fat was added to the diet."

This vein of research has benefited Co-op customers directly through the new line of Pinnacle Premium Horse Feeds, with CRF data supporting the changes she and the other nutritionists made in the formulations.

"We lowered starch content across the board on all the Pinnacle feeds because of research results," Earing says. "We didn't see negative implications in normal horses, but we saw positive results in horses with certain disorders. We also came out with one particular low-starch feed that's even more appropriate for sensitive horses."

Cooperative Research Farms (CRF) nutritional studies directly benefit equine like these Tennessee walking horses on the farm of Dick and Marilee Ewers of Kodak. CRF research results have been incorporated into Co-op feed formulations for decades.

Most recently, the CRF equine team has been working on studies related to senior horses, generally classified as those 20 and older. As horses age, their bodies become less efficient and need a more digestible, nutrient-dense feed, Earing explains.

"There's more demand for senior horse nutrition these days," says Earing. "With the way equine markets have been recently, we've been breeding less but still keeping these horses around. We've been looking at senior-type feeds, products, and technologies and studying immune function and basic protein metabolism. We're not ready to do anything with them yet, but we've had some pretty promising results."

Despite the inherent challenges, Earing says she expects equine research to remain an important part of CRF's mission and Co-op's feed business.

"What we know about horses and animals in general evolves so quickly that we must have a way to stay current," she says. "CRF allows us to do that. Through CRF, we are putting science into practical applications. We are not only learning more about equine nutrition but also how we can more safely and effectively feed our customers' horses so they live longer, happier, and healthier lives."