

Moderation is the Key

Whole cottonseed provides a good supplement option for dry beef cows when levels are maintained at ½%.

Story & photos by *Becky Mills*



► Brood cows do well on whole cottonseed when it is fed at the rate of ½% of their body weight per head per day.

It is hard to find a better supplement than whole cottonseed (WCS), says Gary Hill, University of Georgia animal scientist. “It has high protein and high fat in a package that is easy to move.” Research has indicated fat does wonders in getting cows to the right body condition score (BCS) for successful breeding. The exact fat content of WCS varies, but it ranges from 15% to 18%. Crude protein in the super supplement is normally around 23%.

Hill had a question, though. For years, he’s always heard the rule of thumb for feeding WCS is to feed ½% of a cow’s body weight per day. For example, a 1,000-pound (lb.) cow should get around 5 lb.

Hill, who also has a small purebred Angus herd, knows it can be tough, especially for a part-time cattle producer, to feed cows every day. He wondered if it would work to self-feed the supplement.

Testing the theory

To get answers, he did a research trial at the University’s Coastal Plain Experiment Station. He used 42 open, dry cows to try out different levels of WCS supplementation. For 63 days, one group got nothing but free-choice Bermuda-grass hay. The second group got free-choice hay plus ¼% of their body weight in WCS. The third group got free-choice hay plus ½% WCS, and the fourth group got free-choice hay and free-choice WCS.

After two years of the study, the Tifton-based researcher found the rule of thumb is a good one.

“There are two reasons not to self-feed WCS,” he explains. “One, cows will eat more than most people think they’ll eat.” He says the group on free-choice WCS ate an average of 9 lb. per head per day, but at times ate up to 12 lb.

“Not only do they eat more than you think,” he says, “it costs more than you think. It is too expensive to self-feed.”

The second reason not to self-feed WCS is the high fat content causes a slight reduction in digestibility, even when it is fed at ½%.

“There is an even greater reduction when it is self-fed,” Hill says.

Not only does total digestibility drop off, but total fiber digestibility drops off even more. The high fat content affects the ruminal bacteria ratios, which reduces fiber digestibility, and that means the cows aren’t getting what they should from the hay they’re eating.

“I’ve seen this reduction in fiber digestion occur in three or four digestive studies. It isn’t just a fluke with this one,” he remarks.

Hill says there really isn’t a sound reason to self-feed the supplement.

“We were trying to have the cows above

maintenance level but not gaining much,” he explains. “At the 9-pound level of WCS, they gained 1.3 pounds a day. At ½% they gained 1 pound a day, and at ¼% they gained 0.8 pound a day. A pound was about where they needed to be.”

The researcher continues, “The other factor was body condition. In either year, we really didn’t see a difference between the ½% group and the free-choice treatment. Both groups increased in BCS at about the same rate. So for 4 more pounds of WCS, we got the same BCS increase and only a 0.3-pound increase in gain.”

If you’ve priced WCS, you know that 0.3 lb. of gain didn’t come cheap. Hill was able to purchase WCS in the fall of 2009 for \$135 per ton, but he has seen it higher than \$200 per ton. “At \$200 per ton, if cows being self-fed are eating 4 pounds more a day than recommended levels, that’s 40¢ more per cow per day.”

As for the breakeven on feeding WCS, Hill says that’s an individual decision for each operation.

“Look at what it costs for hay alone, and then look at WCS at the recommended level,” he suggests, adding you can use your own numbers or budgets from your state Extension service.

A word of caution

There is a reason Hill used dry, open cows for the study involving free-choice WCS. Cottonseed contains gossypol, which can be toxic in large quantities. Although Hill saw no negative effects in the cows on the study, he doesn’t recommend taking a chance. When cows are self-fed WCS there is a greater risk that some cows may overeat, which could result in dangerous gossypol levels.

The negative effects of gossypol seem to particularly show up in bulls and can make them sterile. Hill says he and other researchers have difficulty pinpointing exactly how much is too much gossypol for bulls.

“There are genetic differences between bulls in tolerance to gossypol, and genetics also control the levels of gossypol in WCS,” he explains. “It also depends on the growing conditions and stage of maturity of the cotton when it was harvested.”

He adds, “We just don’t know the exact level that can cause problems. It is not that predictable. My recommendation is don’t feed it to bulls if at all possible. The cost of

►University of Georgia researcher Gary Hill does not recommend feeding whole cottonseed to bulls or young calves.



►Researcher Gary Hill says whole cottonseed is an excellent supplement for brood cows when fed in moderation.



►Whole cottonseed is high in crude protein and fat, making it an excellent supplement for brood cows.

losing a calf crop far exceeds that of going to an alternative product.”

Also, while WCS, at least at the ½% level, is a good supplement for brood cows and bred replacement heifers, Hill says you might want to rethink using it for weaned calves and stocker calves. “Even though WCS is high in protein and energy, the fiber content is also high. Animals at that age don’t have a rumen large enough or developed enough to break down the fiber.”

He says, “While others may disagree, based [on] our research and in other states, that’s the case. Here, calves didn’t gain as well on WCS as they did on corn and cottonseed meal with the same amount of protein in their diets.”

