

# Jersey vs. Holstein: Thoughts on Nutrition

It's the question that's always asked by a Holstein dairy producer considering adding Jerseys to the herd.

"What is different about feeding Jerseys?"

Dairy nutrition expert James K. Tully, Ph.D., PAS, delivered some of the answers to that question in a presentation May 8, 2003, during the *Improving the Bottom Line* management discussion at Delta View Farms, Visalia, Calif.

The take-home message came first.

"Nutrition has two sides: a technical side and a practical side," he said. "Technically speaking, the differences (between Jerseys and Holsteins) are subtle, but they are important and we can handle them. On the practical side, Jersey bunk management is less forgiving than a Holstein dairy has to deal with."

Then came the specifics.

### Intakes

Tully presented information assembled by the group he is associated with, Pine Creek Nutrition Service, Inc. Located in Denair, Calif., it includes Dennis Daugherty, Ph.D., PAS; Ed Vieira, PAS; and Todd Stroup, PAS.

"Jerseys, compared to the Holsteins, have 75% of the body weight, but they eat 80% of the intake," he noted. "On the technical side, if an animal eats more feed, the rate of passage goes up and we lose efficiency."

That, however, is not the case with Jerseys, which he said have the potential for greater feed efficiency. "Jerseys are able to capture the energy that they eat over-and-above their body weight, and put it into milk.

"What does that mean? It means we're able to get more pounds of ECM (energy-corrected milk) per pound of dry matter than the Holsteins would give. From what we've seen, the numbers approach 1.6 lbs. ECM per pound of intake for a Jersey versus numbers like 1.45 to 1.5 for Holstein cows."

That feed efficiency also translates to a lower feed cost per hundredweight of en-

ergy-corrected milk, in the experience of the Pine Creek consultants. Reported associate Todd Stroup, "According to our data on 10 Jersey and 87 Holstein dairies, the feed cost per hundredweight for Jersey is about \$4.58 and for Holstein, \$4.70."

### Fiber or NSC?

Jim Tully cautioned the audience that forgetting the rules of biology can trip one up in formulating a proper ration for Jerseys.

"On the technical side of nutrition, you've probably read that the Jerseys are going to be tolerant of higher non-structural carbohydrates, the grains or starches," he said. "With that, the information says that they're going to be tolerant of lower fiber, specifically the NDF (neutral detergent fiber) fraction that you see on a hay or forage test."

Argued Dr. Tully, "I think we would probably take that to task, because we have to remember the the rumen of this cow. The efficiency is great, but it's still a cow."

On the practical side, he suggested that "we might be able to get away with higher non-structural carbohydrates (NSC) when we remember two things.

"We have to maintain the protein fractions, balancing the bypass and soluble protein values. And we can only tolerate higher NSC numbers if we're giving enough fiber for adequate rumination. Without that, you can't push it. You've got to remember that it is a cow."

What about the claim that Jerseys are tolerant of lower NDF or lower fiber values?

"Again, I suppose we would take that to task," Dr. Tully stated. "We can only do that if there is enough fiber in the diet to chew—that effective or practical fiber that we hear about—and as long as we're maintaining a healthy rumen. Do we have enough fiber bugs in the rumen to keep rumination going?"

"So, don't forget the rules of biology. It is a cow. Effective fiber is the key. They still have to chew."

### Good Bunk Management

"The practical side on feed comes down to bunk management," he noted. "Our observations are the Jersey cow is going to sort a TMR more than a Holstein.

"Be careful with mixing," Dr. Tully cau-

tioned. "Don't over-mix. Don't under-mix. Perhaps we need to have more moisture, whether we're adding water or some other liquid feed to make things stick together.

"Clean bunks more often. Feed more often. Providing fresh feeds is going to be the key."

Revisiting the technical aspect, Dr. Tully commented, "We often hear we need to provide a TMR that is consistent. Some people interpret this to mean that the TMR needs to be one particle size throughout. This will produce a TMR that is too fine. Grain is going to be smaller and it's going to sort out. If the fiber is small, we don't have effective cud chewing.

"So, our preference is, maintain the physical, effective fiber. And, that's usually hay. So, higher quality hay in the diet is probably what we need to do to target Jerseys."

### Transition Diets

"A problem with the Jersey centers around that transition period. They are more susceptible to milk fever. And, that's okay. We can handle it. The use of an anionic diet is usually going to be required on a Jersey operation.

"Anionic diets are designed to lower the animal's body pH," he explained, "which is going to increase calcium absorption from the diet and we're going to get more calcium mobilized from the bones. Therefore, milk fever incidents go down.

"In a Jersey, we can go a little bit lower on urine pH on an anionic diet compared to a Holstein in order to get the results we want. So, if you're using an anionic diet, an increase in calcium absorption increases calcium in the cow."

### Trace Mineral Differences

Finally, Dr. Tully discussed trace minerals.

"Jerseys would be classified as small ruminants," he noted. "Small ruminants tend to be more susceptible to copper toxicity. We've heard of sheep dying when they get too much copper."

For Jerseys, copper should be targeted at a maximum of 20 ppm in the ration. Equally important is "the interaction and ratio of trace minerals. The higher the molybdenum in the hay, that ties up copper. So we have to maintain ratios around six to one (6:1) copper to molybdenum."



**Jim Tully, Ph.D.**