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# Making BST Work: The Producer Experience

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Panelists:

*Ron St. John, Alliance Dairies, Trenton, FL*

*Tom Thompson, Stotz Dairy, Buckeye, AZ*

*Romulo Escobar Valdez, Escobar Dairy, Juarez, Mexico*

Moderator:

*Ruth Blauwiekel, Extension Dairy Specialist*

*Washington State University*

**B**ovine somatotropin (BST) was approved for use in the United States in November of 1993, although a Congressional moratorium delayed its release onto the market until February of 1994. In spite of the initial controversy surrounding its use, BST has made significant inroads among dairy producers, particularly in larger herds in the Western states. At the end of 1994, Monsanto estimated that 10-11% of dairy herds in the U.S. were utilizing BST. USDA estimated that as many as 25% of dairy managers would be using BST in their herds by the end of 1995.

Other countries in the western hemisphere that have approved the use of BST in dairy cows include Brazil, Costa Rica, and Mexico. Mexican dairy producers have had access to BST since October of 1990. This panel discussion brings together the managers of three large dairy herds from the U.S. and Mexico to describe their experiences with this new management technology.

Could you briefly describe your herd?

Romulo Escobar Valdez: "In 1983, the Escobar Dairy began an expansion program with new facilities and 2,000 cows. There are now 4,150 cows on a drylot dairy, with 3,680 milking. On the dairy are also about 300 close-up heifers. About 2,500 replacements are on a separate farm, along with 500 bulls being raised for beef. The cows are managed in four separate units, each with its own 24-cow Bou-Matic polygon. Alfalfa, and sorghum and rye-grass for silage are grown under irrigation on 1,750 acres. Between 130 and 140 workers are employed at the farm."

(Note: The dairy uses a consulting nutritionist, a veterinarian, and an equipment specialist. Current herd average is 24,240 lbs. of milk on 3X milking, the highest producing herd in Mexico. Romulo is owner and manager of the dairy.)

Ron St. John: Ron is managing partner of Alliance Dairies, a 2,800-cow Florida dairy located 60 miles south of the Georgia state line. The dairy also raises 2,000 head of young stock and about half of its own

forages in order to utilize manure generated by the farm, growing corn, millet and rye for silage. There are 44 employees. The dairy employs a consulting nutritionist and also a veterinarian who is both a consultant and a 'hands-on' practitioner. Rolling herd average is 21,000 lbs. on 3X milking.

Tom Thompson: Tom is managing partner of Stotz Dairy, a 1,400-cow dairy in Buckeye, Arizona. The farm raises all its own replacements and has 1,500 head of young stock. There are 17 employees. The farm hires a nutritionist to formulate rations and has a veterinarian do fertility work at three-week intervals. The climate is hot and arid and cows are housed in drylot corrals. Milking is done 3X in a 34-stall polygon. Land base is 1,200 acres, some of which is used to grow corn silage, oatlage, barley and alfalfa for the dairy. Stotz Dairy has had the top DHIA rolling herd average in Arizona for 8 of the past 10 years; current herd average is 26,423 lb of 3.5% FCM.

How long have you been using BST?

Escobar: Escobar Dairy began using BST in October of 1990. We were the first commercial dairy in Mexico to use the product. We began by running our own trial, with 70 control and 70 BST-treated cows in a single pen. On that initial group of cows, we had a 15.3 lbs. increase in milk production. Then we began to use BST at 160 DIM (days in milk) on all bred cows with a body condition score of 3.5. Now, we begin BST injections on all healthy cows at 100 DIM, with condition scores of 3.0 or higher, without regard to reproductive status.

St. John: Alliance Dairies began using BST about two weeks after FDA approval was granted. We are associated with two other dairies, one of which was a trial herd, and we were convinced that Alliance Dairy would benefit from utilization. Forty percent of the herd was treated initially. The use of BST was approached conservatively because of concern over possible increased twinning rate. Presently, BST is used on all cows beginning at 120 DIM, except cows slated for culling, who begin receiving BST as soon after calving as they begin regaining body condition. Injections are given in lockups.

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*Thompson:* A trial with the Monsanto product was conducted on Stotz dairy (100 injected and 100 control cows) during the summer of 1989. The objective was to determine if a response would be seen in heat-stressed cows, who at that time were being milked 4 times per day. We postponed using BST after FDA approval until mid-April, out of deference to our milk co-op which had asked producers to observe an extended moratorium. Initially, we gave cows BST if they were greater than 100 DIM, except for any cows who had disease problems or were slow milkers. Now, we start cows at 60 DIM as long as their body condition score is 2.75 or higher. By 100 DIM, nearly all cows are being injected.

What milk production response have you seen with the use of BST? How was that response monitored?

*Escobar:* As I said, we demonstrated a response of 15.3 lb (7 kg) in our initial farm trial. Since then we have not made an effort to track individual cow response to BST. Many things affect milk production, especially weather and feed quality. However, our herd average has increased from 19,820 lbs. to 24,240 lbs. since October of 1990.

*St. John:* With 40% of the herd treated initially, we saw an increase of 4 lbs./day in bulk tank milk, indicating a 10-lbs. response in treated cows. It's difficult to evaluate the milk production response on a bulk tank or even an individual cow basis because of so many variables. This year we are actually shipping less milk than at the same time last year, but this fall and winter have been harder on cows because of wet and muddy conditions. We are confident that we are getting a response because of the increase in bulk milk that occurs with each injection. Our time is better spent on other aspects of management, such as improving heat detection or cow comfort, than on monitoring response to BST.

*Thompson:* In the mid-summer trial run by Monsanto we observed an 8.6 lbs. increase in milk (10.8%) with no difference in milk fat or protein; an increase in SCC of 51,000; and no effect on reproduction or metabolic disease incidence. Since this

trial demonstrated that the product was effective on our farm, we don't feel the need to monitor response closely. Individual cow measurements on a day-to-day basis are probably not justifiable economically. When we started BST injections in April of 1994, we had a 7 lbs. increase in bulk milk within one week, with 52% of the herd getting injections. This indicates that injected cows increased milk production by about 13 lbs. We did not observe an increase in bulk tank SCC.

Did you make any changes in the feeding program prior to beginning the use of BST?

*Escobar:* At the time we began using BST, we made no changes in the feeding program. We were grouping cows into three groups by production. We soon observed that treated cows were losing body condition. The diet already contained whole cottonseed, but we began adding additional tallow and protected fat. We also began incorporating blood meal into the TMR. Since beginning the use of BST, we have had to work harder to keep body condition on the cows. For instance, getting the best quality forage is critical. Because cows are fed in groups, it's difficult to determine how much of an effect BST has had on feed intake. Many other factors affect feed intake; last summer, for example, we had 60 days in a row with temperatures over 100°F. For the same reason, it's difficult to measure the effect on feed costs.

*St. John:* Initially we made no changes in our feeding program. We feed a TMR to meet cows' appetite. Our nutritionist balances the rations for energy and undegradable protein according to NRC recommendations. We have always included some tallow in our rations. This past summer we also included a bypass fat source because cows' body condition scores were lower than the previous year. We can't really measure any increase in feed consumption and didn't notice any appreciable increase in feed costs with BST use. Obviously, the cows will eat more feed if they're making more milk, but feed intake is affected by a lot of other things (most notably the weather).

*Thompson:* We increased the energy density of our TMR with additional bypass fat and tallow even before we began using BST. We wanted to increase cows' condition scores so they would have the reserves to respond to the injections. We have increased the undegradable protein in our rations, but that was more in response to our nutritionist's recommendations than because we were using BST. We also switched to a true TMR, with hay blended into the ration rather than fed separately, for the same reason. We observed an increase in feed intake of 4-6% about one week after the 2nd injection, or three weeks into BST supplementation. We calculate that feed costs increased about 35¢ per cow per day, or 43¢ per hundredweight of milk.

Have you noted any injection site problems (swelling or abscesses) with the product? Do cows have a strong aversion to the injections?

*Escobar:* We haven't had any problems at the injection site, but I feel this is due to careful training of the person giving injections. Our personnel haven't noted any changes in the cows' behavior.

*St. John:* We haven't noted any significant injection site problems. However, the cows seem to anticipate the injections. For some reason when you strap on that red pouch, some cows become real idiots.

*Thompson:* We hadn't noted any injection site problems until the veterinarian TB-tested the herd. Some cows had swellings which might have been interpreted as positive TB tests if we hadn't noted them beforehand. We have had to train the person who does the injections to be sure that the cow gets the entire dose and that it goes in the right location. The cows that are being injected tend to be apprehensive when they are approached by a person they associate with needles. The vet knows which cows are being injected.

Have you noted any changes in reproductive performance since beginning the use of BST?

*Escobar:* We found that we had to increase the intensity of our reproductive management, particularly heat detection. We began routinely chalking tailheads at that time. Once we made adjustments in the rations, reproductive performance also improved. We currently begin breeding cows A.I. at 45 DIM, as long as they have healthy reproductive tracts. The cows are bred at least twice to a sire chosen by Holstein's mating program, then we may breed to less expensive sires. We do not use natural service. Calving interval is 13.4 months.

*St. John:* Calving interval is actually slightly lower now than before we began using BST (presently 13.4 months). However, we wait until 120 DIM before beginning injections, so most cows are already bred. We typically use A.I. for breeding up until 120 DIM and then use clean-up bulls.

*Thompson:* We have detected no change in reproductive performance at all and have made no changes in our reproductive management. Our average DIM at first breeding is 92 days. Our calving interval is 13.5 months and we feel this is the most economical at this level of production. Cows are bred A.I. until we decide on an individual cow basis that it's time to use a clean-up bull. Treat every cow as if she's your only cow and you'll be profitable. On the other hand, our days open have actually increased because cows who are identified as culls are remaining profitable and are staying around longer.

In your opinion, did the use of BST make heat stress management more difficult?

*Escobar:* We have not noted that heat stress affects the cows' response to BST. However, because feed intake is hurt by hot weather, it is more difficult to keep body condition on the cows during the summer. We have found that we need to pay more attention to cows' body condition with the use of BST.

*St. John:* In the trial herd that I was associated with, we saw an 18% increase in milk production with BST in spite of high temperatures. I don't believe that BST increases a cow's susceptibility to heat stress any more than high milk production does. We

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have what we consider "state of the art" facilities for minimizing heat stress: misters under pressure, sprinklers, shade and fans. Cow comfort is very important to us, whether we're using BST or not.

Thompson: We already had an extensive cooling system in place at the time we began using BST. We have a herd of high-producing cows and we want them to continue producing at high levels, regardless of weather conditions. That situation didn't change with the addition of BST to our management system.

In addition to the labor required for injections, have you tracked any other labor costs which might be attributed to the use of BST?

Escobar: We have not incurred any increase in labor costs due to the injections. The cows are injected in lock-ups and we do a group of cows each day. The cows are body condition scored with each "event", such as calving, fresh cow exam, and BST injection. We are basically doing the job with the same people as before BST. The same is true of feeding and milking.

St. John: The labor required to inject 1,000 cows is 22.5 hours (or 45 hrs./month) including the time to assemble syringes. There haven't been any measurable effects on labor necessary for milking or feeding; we milk 24 hours/day anyway and the milkers complete milking on schedule.

Thompson: One person does all the injections in 6 hours (about 800 cows). A separate person identifies cows to be injected. We put neckchains on cows at freshening and take them off when it's time to begin injections. Labor costs about 2¢ per cow per day to both identify cows and inject them. This does not include assembling the syringes, which

requires a significant amount of time. We haven't noted any significant increase in labor costs. Even the time to do the injections has been made by re-allocating other jobs. Time for milking and feeding is not really different.

What other observations have you made relative to the use of BST that would be of interest to other dairy producers?

Escobar: In many ways, using BST is like changing from 2X to 3X milking. It's important that you are managing the cows well before using BST, because management will be more difficult afterwards. Try to anticipate problems, like loss of body condition in cows or difficulty in detecting heats. Attention to detail, such as forage quality and cow comfort, will be even more critical when using this technology.

St. John: If you look around the country, you see that the producers who are successful are those who produce at the lowest cost. BST is a tool that can be used to cut the costs of producing milk. We can demonstrate that BST has made a significant difference in our bottom line.

Thompson: The trick to using BST successfully is to reduce stress on the cows, to have everything else right first. You have to be able to manage body condition so that cows will maintain response from year to year. The real fallout from the use of BST will show up in the second year if cows aren't fed properly. You need to make use of competent consultants who are committed to your success. The beauty of this management tool is that it can be turned on and off if milk or feed prices make it uneconomical.

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