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FARM AND DAIRY

Business Seminar of the Week

BST -- MORE OF THE SAME?

By Blair J. Smith

The title of this article implies two questions: First, what is BST? And second, more the same of what? What is BST?



Most of you already know the answer to this question. BST is the abbreviation for bovine somatotropin, the term which is replacing the earlier, more popularly used term bovine growth hormone (BGH). Its name doesn't change what it is, however-- a protein that is a hormone. This hormone has been produced in the pituitary glands of cattle since we've had

cattle, and it affects how food nutrients are allocated between the production of milk and the growth (or maintenance) of the animal's body. The pituitary glands of cows that produce a lot of milk relative to their body weight presumably produce more BST than cows with lower milk production to body weight ratios. It has been known for more than 40 years that injecting extract from the pituitary glands of dairy cattle stimulates the production of milk in the injected animal. This source of BST was, of course, limited and so expensive that it was not economically feasible for application in commercial dairy herds. Times have changed, however. We have entered the promising although frightening to some people) world of biotechnology in a way not pos-

sible or even imagined just a few short years ago. We are now able to produce BST in the laboratory in quantities and at prices that do make it economically feasible for use in commercial dairy herds. And use it we will--if and when approved by the FDA--make no mistake about it!

More of the Same of What? BST will bring us more in the stream of technologies and practices of many and diverse types that have contributed to increased in milk production per cow for as long as man has milked cows. One such development goes way, way back--to the time when people first realized they could store summer-grown crops and feed them during the winter. If this didn't at first extend the lactation period of the cow, it at least kept the cow in better body condition, with the ultimate effect of increasing production when the cow did freshen. Another production-increasing development is artificial insemination.

BST technology may differ from most other innovations in the magnitude of its effect and the rate of its adoption. Some of the earliest estimates of the probable magnitude of BST's effect implied

production increases of up to 40 percent per cow. More recent estimates are in the 10 to 20 percent range. The earlier estimates were based on BST applications in high quality, highly managed and controlled experimental herds. The latter estimates result from a realistic appraisal of what is likely to happen in more average commercial dairy herds. But 10 to 20 percent is a big increase when one also considers the time frame within which BST technology can be adopted. Many dairy farmers already have the skills necessary to administer BST themselves (whether by injection or implantation), and it wouldn't take much to train the rest. The only important direct cost of BST adoption is the hormone itself, although before much more milk would be coming out, more feed would have to be going in. Even with BST, cows still won't be able to make milk out of just air and water! Not all dairy farmers will immediately have all the other skills necessary to fully exploit the potential of BST for their herds, however. In addition to more feed, a different feed ration is likely to be optimal for cows receiving BST. There is some evidence, too, that cows

coming off a BST lactation are in poorer body condition than those coming off normal lactations. To be "brought up to speed" for the next lactation they will therefore have to be managed differently, and probably with greater skill, than they otherwise would have been.

Long-Term Effects on the Health of the Cow

These effects are unknown -- we have had little long term experience or experiments with BST. By the time we do know for sure, I predict BST will already be in widespread use throughout much of the United States (and in other countries as well). If cows do "burn out" sooner or if they do encounter other unusual health problems, the industry will adjust the amount, frequency or incidence of BST applications to the level commensurate with the risk it wishes to assume. BST seems to be an easily reversible technology since virtually no capital equipment is required for its implementation.

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