

rbST—FACTS AND FICTION

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Illinois dairy producers are being asked to sign affidavits indicating they have stopped their use of rbST (recombinant bovine somatotrophin). The justification for this movement by dairy processors and retailers is that “consumers are demanding it”. However, surveys have indicated that consumers are indifferent and the movement is an effort by processors to create “value added” products for their benefits. This initiative sets a dangerous precedent for U.S. and global agriculture. Many universities are being asked to sign affidavits verifying that their dairies do not use rbST. The land grant universities and their dairies play a critical role in the rbST affidavit dilemma. We recognize there are economic considerations on both sides. We also believe there are moral, ethical, and leadership roles the universities must address in the consideration of these affidavits. This is a pivotal matter for U.S. agriculture and it deserves discussion, debate, and action.

Illinois researchers using a computer software program evaluated the impact of removing rbST from the University of Illinois dairy herd with various milk prices. The economic loss ranged from \$20,000 to \$60,000 less income annually (based on \$12 or \$22 per cwt of milk, seven cents per pound of dry matter, three cents for added labor per day, and \$5.80 per 14 day rbST injection). The U of IL dairy faculty contacted alternative milk processors to explore other marketing options, but choices are limited in central Illinois. We will remain with our current processor. **The decision not to use rbST at the University of Illinois dairy farm is entirely based on milk markets; no other economically viable alternative is available. We support rbST technology.** Not using this technology also impacts current and future dairy research projects.

Scientific data indicate that milk from cows given bST is a safe and effective management tool that can be used to benefit both the producer and consumer for the following reasons.

- bST is a protein and is present in milk of all cows. Milk produced by cows given rbST contains normal concentrations of bST.
- rbST in well-managed herds increases milk production and improves gross efficiency of production.
- The nutrient composition of milk from cows given rbST is not different from milk produced by non-supplemented cows. Administration of rbST to dairy cows has no impact on manufacturing or cheese-making properties of milk.

- bST is a protein, and like other proteins in milk, meat, fruits and vegetables it is broken into small peptides and amino acids in the digestive tract before being absorbed. Therefore, bST is digested in the stomach and small intestine before it can be absorbed.
- rbST is species specific; it will not elicit its biological actions even if it were accidentally injected into humans.
- Insulin-like growth factor one (IGF-1) is a protein and a natural component of milk from all cows and humans. The amount of IGF-1 in milk of cows increases slightly after rbST supplementation but does not exceed normal concentrations in milk of cows or the concentrations in human milk (Table 1). IGF-1, like other proteins, is broken into smaller peptides and amino acids in the digestive tract of humans before it can be absorbed. Therefore, IGF-1, like bST, is digested in the stomach and intestines of humans before it can be absorbed.
- Health status and reproductive performance of cows given rbST are similar to those of non-supplemented cows producing similar amounts of milk.
- rbST does not contaminate milk with antibiotics (no milk contains antibiotics).
- rbST will be equally effective in both small and large dairy herds that utilize good management practices.
- rbST has beneficial effects on utilization of resources and on the environment per unit of milk produced because the same quantity of milk can be produced with fewer cows.

Therefore, the science is clear; rbST does not affect milk quality, consumer safety, or cow health. It has been approved as safe by the following U.S. and world-wide organizations.

- American Medical Association
- American Dietetic Association
- American Academy of Family Physicians Foundation
- American Academy of Pediatrics
- National Institutes of Health
- Food and Drug Administration
- European Economic Community

Consumers and dairy managers are losers when the dairy industry requires removal of rbST. Consumers will lose as milk prices will be higher due to reduced milk yield that impacts supply/demand relationships. In some markets, the price of milk on the shelf has increased by 60 to 80 cents per gallon as “value added” milk with claims by marketing groups as “more natural” while pricing it lower than organic milk. Dairy managers are the losers as the consumer dollars paid for “value added” milk may not be passed to the farm gate. Current and future biotechnology will be at risk (reproductive hormones, antibiotics, feed additives, GMO crops, and/or vaccines) which may impact milk yield and cow health. Milk efficiency (pounds of milk per pound of dry matter) and profits are also reduced as cows produce less milk.

If dairy managers stop using rbST in 2008, several short and long term impacts can be expected:

- Milk yields in late lactation cows may drop 20 to 30 percent when rbST is removed. Michigan workers suggest this could impact 30 percent of the lactating herd.
- Culling rates will increase as cows with longer lactations due to reproductive, health, or management challenges will not be economically viable. With rbST technology, cows have remained economically viable for 600+ days in milk.
- Transition cow problems will increase as more cows experience longer dry periods and/or gain excessive body weight.
- Some heat synchronization programs are more effective with rbST injections.

AFACT (American Farmers for the Advancement and Conservation of Technology) is a grassroots movement of producers and industry participants concerned about the future abilities for farmers and producers to choose technologies and practices for their operations. AFACT asks for support in taking a unified stand against the affidavits supporting the ban of rbST. Loss of technologies may have the long-term ramifications of sending agricultural practices back to the 1950's. The science is clear; rbST is safe, cost effective, and a useful management tool for dairy managers.

The Pennsylvania Department of Agriculture has asked 16 dairy companies to correct their labels by January 1, 2008, because their claims can not be verified or imply that their product is safer through absence labeling (telling consumers what is not present rather than what is present). Items of concern were rbST, antibiotic, and pesticide claims.

Table 1. Concentrations of IGF-1 (insulin-like growth factor one) in human and cow milk at various stages of lactation.

Source of milk	IGF-1(ppb)
Cows (no rbST)	
After calving	150
Early lactation (day 7)	25
Late lactation (day 200)	1 to 5
Cows injected with rbST	6 to 14
Human milk	
At birth	29
3 to 7 days after birth	9
6 to 8 weeks after birth	18