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BST and Milk Production

A. L. Rubin and M. Goodman (Letters, 13 May, p. 889) raise objections to the use of bovine somatotropin (BST) in milk production. They repeat the claim that use of BST, by accelerating milk flow, would increase mastitis (udder infections) and that this would lead to administering more antibiotics, which would get in the milk.

BST did not increase the incidence of mastitis in dairy cows in 15 full lactation trials of 914 cows in Europe and the United States and 70 short-term studies (*1*) in 2697 cows in eight countries. There are counter measures, including vaccination against *Escherichia coli* and sanitary postmilking treatments, that can reduce mastitis, which is costly (up to $378 per cow). As regards antibiotics, milk is routinely tested for antibiotic residues and is discarded if the levels are unsafe. This program has served consumers well. In addition, a Food and Drug Administration advisory committee has announced a program to monitor milk from cows, with and without BST, that are treated for mastitis. A National Institutes of Health panel concluded that BST "does not appear to affect appreciably the general health of dairy cows" (News & Comment, A. Gibbons, 14 Dec. 1990, p. 1506). Milk from BST-treated cows is safe for human consumption (*2*).

Rubin is concerned about BST increasing IGF-1 (insulin-like growth factor–1) in milk. IGF-1 is a protein-type hormone and is broken down by digestion. It has no oral activity in rats (*3*). The IGF-1 level in milk from BST-treated cows is within the range (a few parts per billion) found in human breast milk (*3*). The NIH panel commented that the levels in milk are less than those found in human saliva (News & Comment, A. Gibbons, 14 Dec. 1990, p. 1506). Prosser (*4*) notes that there is no evidence that increased IGF-1 levels in milk of BST-treated cows are unphysiological.

Both Rubin and Goodman fear an adverse economic effect of BST on small dairy farmers. However, such farmers consistently endeavor to increase milk yields by genetic selection of cows and by improved management (*5*). The two procedures increased milk production per cow by 6000 pounds in a New York state dairy herd program starting in 1958 (*5*). These farmers could use BST to increase milk yields or, alternatively, to produce the same amount of milk with fewer cows. Goodman says that "increasing milk production will only exacerbate the current oversupply." But underprivileged and malnourished children need more milk. The challenge is to provide for their need.

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Life-Sciences Peer Review at NASA

A much needed shift in science funding policy may be at hand, if the Office of Science and Technology Policy–Office of Management and Budget memorandum cited by Jeffrey Mervis in his 3 June article "Memo backs basic research with words, not cash" (News & Comment, p. 1395) results in increased pressure to peer review research conducted or supported by federal science agencies. This shift would be particularly hard on some intramural research programs, which in many cases waive peer review or undergo a less-than-rigorous version. However, a quote attributed to science adviser John Gibbons regarding the adequacy of peer review at the National Aeronautics and Space Administration (NASA) is not completely accurate.

While I cannot vouch for all NASA programs, NASA's life-science activities have received the benefits of peer review since 1965 under the auspices of the American Institute of Biological Sciences (AIBS). Since that time, AIBS has convened peer-review panels to provide NASA with assessments of the strengths and weaknesses of proposals received through their life-science extramural research programs. More recently, many NASA intramural life-science proposals have been brought into this reviewing process.

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