

*Excerpted from:*

ETHICAL ISSUES ASSOCIATED WITH BST

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The controversy over Bovine Somatotropin (BST) involves disputes about many technical issues: Does milk from cattle treated with BST differ from milk now being produced at dairies across the nation? How quickly will dairymen adopt BST, and how will it affect economics of scale in dairy production? Will dairy production shift from traditional dairy production? Will dairy production shift from traditional dairy states to new locations? How will rural communities be affected? Are we sure that milk produced by BST-treated cows will be properly metabolized by human consumers? The answers to these and other technical questions are important because they bear upon questions of responsibility, social justice and human (and animal) well-being. There are some applications of these concepts on which our society enjoys a firm consensus, but other applications are notoriously contentious.

One fact of post modern society is that decisions by a few individuals to develop and disseminate new technologies can have enormous impact upon society as a whole. Although there are many instances where these impacts are predominantly beneficial, there are few (if any) occasions on which they are universally so. Decisions made far from the rural heartland, in corporate offices or in research facilities, can effectively determine that some producers will have to leave farming, that consumers will be buying new food products, and that rural residents, wildlife, and, indeed, society as a whole (including future generations) will have to cope with pollution or resource depletion. The development of new technologies produces new benefits, but it also causes unwanted consequences.

The BST case raises questions about three kinds of unwanted consequences. The first group of impacts are felt by producers who may be forced to adopt BST (or to cease production) because of competitive pressures. The second includes consequences for non-human animals. The third includes environmental impacts that may bear upon a large number of people, extending into future generations. Food safety issues have less to do with unwanted impact than with uncertainty.

Each kind of unwanted consequence is ethically controversial. In most sectors of the economy, producers would not expect to be shielded from the economic consequences of technical change. Farmers are raising a concern more typically voiced by organized labor, as when plant closings or new production lines lead to layoffs. Extension of ethical concern to farm animals and to environmental impacts are also hotly debated topics. Given the assumption that animal husbandry practices carried out for the purpose of human food production are generally acceptable, opponents of BST must show why this particular technology is cruel or alternatively, why traditional standards for animal care should be revised.

Since each of the three points where BST has been linked to unwanted outcomes is controversial, it will be useful to look at two ways of framing the ethical issues of responsibility.

*The Intentional Action Model*—Each of three types of unwanted consequence noted above involves impact upon individuals or groups who are powerless to avoid being affected. This is clearly the case with respect to farm animals and unborn generations of human beings, and it is true to a more qualified extent for small scale dairy producers, too.

Bovine somatotropin exists today because a few hundred individuals made research and development decisions over a half decade. The decisions and the actions that followed them were undertaken *intentionally*.

The individuals and groups that carried out research and development of BST are capable of actions that impose unwanted consequences upon others. The question is whether their possession of this capacity gives them an unfair or unjust form of power over these others. Examining BST, we find that the companies developing BST have far more economic power than do small dairy farmers.

Further, many of the scientists who have participated in the development of BST can be thought of as agents for the general public, at least, and perhaps for the farm community, in particular. Land-grant universities, where much of the BST work has been done, have historically accepted a further mandate to do science that will strengthen the development of rural communities. As such, dairy farmers may have a special claim upon these institutions. Although no one has argued that scientists have a special responsibility to look out for animals, it is not uncommon or unreasonable to think that the scientific community is well placed to look out for the general public's interests in environmental quality.

The fact that BST emerges as a technology for which these considerations are relevant *does not* settle the issue in favor of BST's critics. At most they establish a burden of proof in favor of the farm, animals and environmental interests that bear the costs of unwanted technical change. One might interpret the political debate that has raged over BST as a working out of just such an exchange of views in the democratic political process. *The Consequence Evaluation Model*—The idea that any technical change produces winners and losers invites us to think of any new technology as a social bargain in which there are both costs and benefits. The key to evaluating this social bargain lies in identifying and measuring the full range of costs and benefits. While one should not underestimate the difficulty of making these judgements, the idea that a technology's costs and benefits can be compared with the costs and benefits of no technology provides an attractive way of discharging the imperative of responsibility for technical change.

When applied to BST, the consequence evaluation model would regard adverse, unwanted outcomes as costs that should be weighed against the projected benefits derived from lower milk costs. When one adopts a consequence evaluation model for assessing new technologies, the question of whether BST is an ethically acceptable technology hangs upon the answers to these technical questions.

When one compares total outcomes from two or more options (at a minimum, the options include BST and no BST) there is no obvious reason why intentional action should enter the picture at all. There are costs and benefits associated with the *status quo*. The possibility of taking very different approaches to the problem of unwanted outcomes earn itself feed policy controversy. It is far easier for two who have different interpretations of responsibility to talk past each other than it is for them to communicate.

#### ETHICS AND UNCERTAINTY

By its very nature, technical change involves unprecedented events. The reality of disagreement among alleged experts creates a situation in which a member of the lay public, lacking even the evidence to make informed judgements about who to believe, quite reasonably comes to regard all claims about the likely consequences of technical change with justifiable skepticism.

The unfortunate upshot is that political decisions about technology often become dominated by uncertainty. Technical uncertainty creates an opportunity for experts to disagree. When experts disagree, non-experts are faced with uncertainty about who to believe.

The ethical character of the BST debate changed drastically when claims about the safety of consuming milk from cows treated with BST became contested. Prior to the time that doubts about the safety of milk were raised, the issue was one of how to resolve issues of responsibility for the unwanted consequences of introducing BST. With the advent of controversy over food safety, the potential spectrum of affected parties increased dramatically.

What is even more important is the way that the ethical issue shifted from being one of dealing with unwanted consequences to one of uncertainty. There has never been serious scientific evidence to suggest that there would be unwanted health consequences for consumers of BST milk. Consumer groups reacting to the food safety issue were not reacting to a health risk *per se*. Consumer groups were reacting to uncertainty, to a problem in deciding who to believe about BST and milk.

In understanding the way that ethics bear upon risk and uncertainty, it is crucial to see that the consumer's information about the safety of BST is all subject to a conditional probability that the source of that information is either ignorant or, worse, willing to deceive them. Many technical authors have taken to describing the difference between risks calculated on the basis of scientific evidence and risks calculated on the basis of corrigibility of human beings who report scientific findings as a distinction between "real" and "perceived" risk. This choice of words is sometimes unfortunate, for it can be taken to imply that the lay person is responding to extraneous and irrelevant evidence.

Given the background of the uncertainty problem faced by food consumers and consumer advocates, it is not surprising that the issue evolved into a debate about the risks of BST and milk. The scientific community has come to view risk issues as an expected value problem, and this is the way that the food safety issue for BST has been approached. While there are clearly many cases in which the assessment of expected values is the right approach to take for food safety, neglect of alternatives, burden-of-proof approaches may have been a better choice for BST.

Responding to uncertainty problems with technical risk assessments is, to a person unschooled in probability and consequence evaluation, little more than saying, "Trust me." Uncertainty issues are politically fractious and intense. It is far from clear that burden of proof approaches would have fared better. It is possible, however, that an agreement to label BST milk might have been interpreted as a gesture of good faith, one that empowers consumers to judge the risks of BST and milk for themselves. While labels satisfy a burden of proof for acceptable risk, requiring labels may have policy implications that are themselves unacceptable.

Democratic political theory has evolved around the concept of a social contract. BST has tested that social contract. Researchers and private companies have undertaken research and development on BST with the expectation that, if the product finds market acceptance, their efforts will be rewarded. While it is reasonable that they should have expected to deal with some of the unwanted consequences of BST, it was not reasonable to expect that food safety issues would be among them. The emergence of uncertainty and, in turn, the food safety issue is evidence of trouble in the contract. It is evidence of a lack of confidence in science and in science institutions. This is a development that should be viewed as quite serious, not only for science, but for the foundations of democratic institutions. The problem is that both commerce and political decision-making require a certain amount of trust. Whatever the causes, and however just or unjust the suspicion of science might be, the largest and most serious ethical issue associated with BST is the matter of trust. All the other ethical questions feed into this one.

One way of solving this problem is to build a high wall between that component of science which is in a position of public trust, and that portion of science which is involved in the development of technologies that may produce unwanted consequences. Public science, conducted at non-profit institutions, would enjoy public confidence. Private science, conducted in the private sector, would be held to the same degree of accountability normally expected of commercial activity. The flaws in this solution are complicated and subtle. Features of contemporary science that make this ideal very difficult to achieve include:

- 1- Scientific research does not respect the public/private divide.
- 2- Enforcing a strong separation between public and private science is impractical.

3-Public science institutions are finding it necessary to cultivate private sources of research funding.

4~A strong separation between public and private science sectors might well weaken public science.

Therefore the dilemma is deep. The tension between the regulatory and the technology stimulating roles of science erodes public trust in science institutions. At the same time, any solution to this problem must be sensitive to the delicate network of personal relationships that makes science possible.

#### CONCLUSION

The ethical controversy over BST arose because, like many technologies, it may produce some effects that are unwanted. There is no reason to think that the unwanted consequences of BST are particularly dramatic or extreme, but the fact that decision makers within public research organizations or private companies can affect others makes these unwanted outcomes an issue of some significance. The importance is increased, however, because of the food safety questions that have been raised, and because of the climate of uncertainty that they generated. It is the uncertainty issue that truly threatens to keep BST off the market at this writing, and which the developers of the technology had no reason to expect. This, in turn leads to the question of trust that is crucial to democratic institutions. This is not to say that the success or failure of U.S. constitutional democracy hangs upon the BST decision, but it is to say that this policy problem is an example of a problem that can be expected to recur in the future.