

Official Says Biotech Researchers Should Support Own Product

VERNON ACHENBACH JR.
Lancaster Farming Staff

BALA CYNWYD, (Montgomery Co.) — Within the next two years, or less, farmers in North America and the United Kingdom may be using a product of biotechnology to increase milk production in dairy cattle.

According to Judy Downer, manager of North American Animal Development for American Cyanamid Co., regulatory agency approval for the use of bovine somatotropin (BST) as an injectable protein hormone supplement to increase cow milk production may very well occur not only in the United States, but also the United Kingdom.

A speaker at the third annual symposium of the Pennsylvania Biotechnology Association (PBA), held recently near Philadelphia at the Adam's Mark Convention Center, Downer told a large group of peer biotechnology researchers that the European Economic Community (EEC) moratorium on the use of supplemental injections of BST is due to expire December.

She said that could very well put the United Kingdom in a position to quickly approve commercial use of the product — according to Downer, the UK Veterinary Medicine Review Board has already approved the animal and human safety of BST.

According to the researcher, if the U.S. and UK approve the use of BST, then Canada would not be far behind.

In the meantime, the product has already been approved in a number of countries around the world, including Mexico and South Africa.

(The effect of BST approval on the pending North American Free Trade Agreement — a free market agreement between Canada, Mexico and the United States — and the shipment of dairy products, has not been determined.)

The fact that Downer was addressing BST in a public forum is a rarity. All representatives of companies with pending FDA reviews of BST products are not legally allowed to speak about BST to any public group, except fellow researchers.

Downer was one of three speakers during the two-day symposium who were to discuss their company's experiences in attempting to introduce biotechnology products into the agricultural and food products markets.

Also speaking was Karen Cockey, PhD., RD, manager of the nutritional product development at Wyeth-Ayerst International Inc., who spoke about a genetically altered tomato which received FDA and USDA approval; and Richard Gill, PhD, vice president of British Technology Group, USA.

For the past year, the FDA has banned all representatives of all companies with pending reviews of BST products from talking to the general public about those products and even BST in general.

Originally, while not allowed to promote the product, representatives of the companies involved with BST were permitted to present BST-research supported facts to layman groups in an educational setting.

However, the FDA later ordered the companies to refrain from discussing the subject at all, unless it was with other researchers. That FDA decision followed complaints from anti-biotechnology

groups which have been fighting the introduction of any product resulting from the direct manipulation of genetic materials.

During her presentation, Downer urged researchers to combat efforts from biotech-opposition groups, especially those founded and headed by Jeremy Rifkin, out of Washington D.C.

Rifkin's groups have been calling for people to intimidate grocers, food processors and producers in an effort to decrease the salability of a biotechnological product by asking them if they sell "BGH-free milk or meat."

BST is also called bovine growth hormone (BGH), especially by the relatively small, but vocal, anti-biotechnology group.

While Rifkin's literature does mention milk or meat derived from cows treated with BST, it does so in small print and in the middle of a paragraph.

On the other hand, the phrase, "BGH-free milk or meat" is in relatively large and heavy type, and is easy to see.

What disturbs a number of researchers is the misrepresentation of biotechnology by Rifkin. For example, there is no such thing as "BGH-free milk or meat." Also, Rifkin has presented the gene-transfer technologies in terms normally reserved for science fiction horror stories.

In an article co-written by Rifkin and his associate, professional fund-raiser Ted Howard, director of Rifkin's Pure Food Campaign, they refer to genetically altered food crops as " Frankenfoods."

Specifically, Rifkin has targeted such plants as the Calgene Inc. Flavr Savr tomato — a breed of tomato that has had a gene attached in order to give it the ability to ripen on the vine for increased flavor and also have long-shelf life — as those the public should fear.

To combat such tactics, Downer called on researchers to take subtle, but determined steps to promote their products in the market place.

According to Downer, those people, especially researchers who believe in the safety of food products created through biotechnology, should stand up for it.

"The next time you go into a supermarket, ask the manager, 'Where are those Flavr-Savr tomatoes I keep hearing about? I want to buy some,'" said Downer.

"And say, 'Where is that milk that is made from cows treated with BST? I want to buy some of it, so I can help keep dairy farmers in business,'" she said.

American Cyanamid and Monsanto are among four biotech companies in the United States who have developed methods for altering the genetic coding of bacteria to manufacture enough BST so that it can be injected and used as a tool in dairy farming.

A cow's physiology is such that BST plays a significant role in directing nutrients to the milk-producing tissue in the mammary system, thereby encouraging additional milk production.

BST is a protein hormone, which, like all protein chains, is broken down by the digestive system, therefore, it can not, of and by itself, create any kind of reaction when ingested.

It also cannot cause a reaction in humans, even when injected, because the human protein hormone receptors cannot react to BST. They are specific for the molecular structure of the human

hormone.

In other words, protein hormones, such as BST, act as "keys" to turn-on or turn-off certain body functions, and the cow key doesn't fit the human lock.

While the federal Food and Drug Administration had been expected to approve BST by the end of 1992, the Government Accounting Office, an agency of the Democrat-ruled House, posed last minute questions about human health risks from BST.

The first question was based on the possibility that because there was a slight statistical increase in mastitis discovered during research that there may be a resulting increase in farmers using antibiotics to treat mastitis, and then the consumer would be at an increased risk of developing a resistance to penicillin, or have an allergic reaction.

All of this assumption was made without the knowledge and understanding of the tight testing and heavy punishment system in place in the dairy industry and without the knowledge that dairy farmers have been advised that using antibiotics to treat mastitis symptoms can be a waste of money, because the symptoms resulting from a mastitis infections are noticed after the disease has run its course and penicillin does nothing for symptoms.

The recommended treatment for mastitis is frequent milking and maintaining a clean, dry environment for cows.

A hearing resulted in the the FDA's Veterinary Advisory Committee dismissing the concern as insignificant.

The other delay was caused by a call by Rifkin and some others to require labeling of milk produced through the use of supplemental BST.

However, since the animal-produced BST which is in all milk and meat, and the bacteria-produced BST is identical in function and no test is conceived that could detect a difference, it is like-

ly the FDA will not support the request.

Also, the FDA had long ago approved the human safety of milk produced by cows treated with additional BST. In fact, milk and meat derived from BST-treated cows has been in the general milk supply for years.

The safety of ingesting BST has also been questioned because of a study in which rats were fed high doses of BST.

Downer said that the study done with rats does not indicate any direct negative effects from BST, per se.

Rather, she said the test results, which showed problems with the rats on the high-BST diet, occurred because the rats were fed such high amounts of BST, that the protein portion of the rats' diet was insufficient.

In other words, the test, by design, created an unhealthy situation for the rats — the amino acids in the BST protein are not sufficient for the complete dietary needs of rats.

According to Downer, what the rat-tests did prove was that rats don't do well on a protein-insufficient diet, just as any other organism deprived of sufficient nutrition would react negatively.

Her call for associates to take a marketplace stance for biotechnology derived food additives and products was questioned after her talk.

Specifically, one person questioned the effect such confrontation would have on a grocer who doesn't know or can't get such products.

Downer said that while the grocer may be confused about the request for biotech-derived foods, it is an effort to counter the call by Rifkin to have people question grocers and food retailers and ask the businessmen to ban such products.

Rifkin has also made claims that there is a risk that genetic coding attached to plants to increase pest resistance and environmental

tolerance may "drift" into weeds, and thus increase the use of pesticides and from that, increase the risk of people eating foods with pesticide residues.

However, the possibility of cross-specie genetic transfer occurring — ostensibly through cross-specie pollination — is theoretically nil.

Some experts reason that if such an occurrence were possible, such things would have occurred already — such as dandelions picking up genetic material from blue grass or trees, or people having their genes altered to reflect the genetic coding from the plants and animals they eat.

But the scientific community is reticent to say that anything is impossible. Scientists hold that just because something has never been observed, or that no evidence exists for such a thing being possible outside of the laboratory, it should not be said to be impossible.

However, the scientific community does hold the likelihood to be extremely improbable.

Though Rifkin's concerns are considered extreme by most scientists, the scientific community has hesitated to publicly lambast Rifkin on the acknowledgement that know one can ever know what is possible.

Paul Grun, Penn State University professor emeritus, retired in 1989 after spending years working on the evolution of the potato plant.

Though he used traditional breeding techniques to obtain genetic variety instead of the "transgenic" techniques used to develop the Flavr Savr tomato or the mutagenic techniques, referred to by one researcher as "enhanced" selective breeding techniques.

With mutagenic techniques, known agents of chromosomal mutation are used to alter the DNA of plants, which are then grown and selected.

He said that almost all of our current food crops have been created through that process.

Research Shows Milk Has Proteins

(Continued from Page A26)

Genetically unique milk protein members can be accumulated and increased in frequency for new offspring generations through dairy cow-breeding programs that select for specific genetic milk protein traits.

Among the different genetic members, kappa-casein B already is mentioned more than others as having potential economic benefit for new breeding programs. Early indications are that some of these genetic members provide opportunities in breeding cows with more fitness, greater disease resistance, and better breeding efficiency and longevity.

The very latest discovery is that not all Holstein populations in the world have the same or even similar genetic inventories of possible genetic members.

Holsteins in Holland, West-Germany, East-Germany and the United States (and maybe elsewhere) differ in the presence or absence of a new casein type alpha-s-1 F, so far found only in pure Old World Holsteins, without any mixing-in of U.S. Holstein breeding.

This means an opportunity in processing and digestion characteristics that has yet to be determined.

Certainly it underscores the importance of conserving genetic resources in animal populations, especially in minor populations, such as Old World Holsteins, or the endangered minor cattle breeds in Europe and around the world.

The new genetic research into what may seem a confusing multitude of milk protein types and categories is really an opportunity just beginning to open up.

The potential for economic benefits for consumers, processors and dairy farmers, is great, especially when the medical profession sees fit to include these genetic differences in their health research. It may even help correct the misconceptions which Dr. Spock promoted not too long ago about milk for babies. It should also serve to alleviate allergies people may have to cow's milk.

The technical literature stated years ago that one big difference between cow's and goat's milk is the absence in goat's milk of a major casein genetic member present in cow's milk, alpha-s-1.

We now know from French and Italian research that this is not true for all goats. Some goats have this genetic member; others have less or none. Between them is a vast difference in cheese-making prop-

erties, curd firmness, curd coagulation time and heat stability.

So, once again, new opportunities from genetic selection is dependent upon preserving breeds, particularly those with small populations.

House Declares June Is Dairy Month

HARRISBURG (Dauphin Co.) — June 1993 has been designated Dairy Month in Pennsylvania under a House Resolution approved Tuesday.

According to resolution co-sponsor state Rep. Jeffrey Coy, "The dairy industry is the leading agriculture industry in Pennsylvania with annual revenues totalling \$1.5 billion. Our state exports \$26 million worth of dairy products annually."

Coy said that the commonwealth ranks fourth nationally in milk production. Milk is also the official beverage of Pennsylvania.

"Pennsylvania farmers produce 1 billion gallons of milk annually, which accounts for nearly 7 percent of the total milk production in the United States," Coy said.