Ag Horizons Educates Educators

Participants met in small groups to discuss how to effectively relay the truth about scientific advances to a public who is easily swayed by misinformation from outspoken oppontents.

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to winemaking in 4000 B.C. An example from the beginning of this century is the treatment developed for insulin dependent diabetes.

Biotechnology in the barnyard promises to unlease a new age of agriculture. Already scientists can separate sperm for female and male prodigy. This will help the poultry industry become more efficient by selecting male offspring for raising broilers that gain weight faster than females. Or, for producing female offspring for the dairy farmer.

Other technologies being developed are improved feed utilization, providing healthier products such as leaner meats, reducing losses from disease with more effective vaccines, reducing environmental pollution through the use of enzymes to improve phosphorous and carbohydrate utilization of feedstuff, increase productivity in milk production associated with the use of bST.

Possibilities being developed are selecting desired bacteria to take the odor out of pig manure. Enzymes to improve phosphorous digestion in poultry and swine.

Dr. Roland Leach Jr., tells how biotechnology offers the potential to provide safer and more nutritious foods for the increasing world population.

Leach showed slides to demonstrate the difference in sizes evident by using gene therapy injections in rats and chicken. Processes such as these will eventually enable hens to produce antibodies to suppress selected diseases.

World population is expected to double during the next 40 years, which will put tremendous pressure on the planet to increase food production at the current rate.

Ag biotechnology can help in its ability to improve yield, quality, and nutritional value. It can help reduce waste, control pollutants, enhance safetly, and esnure an adequate food supply.

Steps for successful commercialization of biotechnology must enable the technology to be affordable, to be safe for animals and for humans and to be acceptable to the public.

The last criteria is perhaps the most difficult because of public misconceptions.

"The U.S. has the finest scientists in the world but the worst science education," Leach said of the public's inabilitity to understand many of the scienctific advances being made today.

Resistance to the use of animals in experimentation is largely based on misunderstandings, according to Leach. This was brought to the forefront by bovine somatotropin (BST), a protein hormone produced naturally by cows.

Of the public's misconception about BST, Leach said, "All hormones are not created as equal. Consumers should realize that the BST hormone that is ingested orally is digested like any other food protein. Thus, to be biologically effective, it must be injected. In contrast, steroid hormones are absorbed and biologically active when consumed orally. Examples include vitamin D and oral contraceptives."

Unfortunately, this difference in hormones is not recognized by the general public."

Dr. Kathryn Kolacz, molecular biologist with Monsanto, explained how biotechnology is used in developing insect resistant soybeans and canola.

The process took 11 years from start to finish in developing Soybean Ready. Extensive trial plantings and records needed to be kept during the development stages. In addition to creating an insect resistant soybean, Monsanto was also intent on developing a soybean that was not resistant to Roundup.

Slides of the trial gardens showed the many different aspects of testing. In the middle stages, some plantings were overcome with weeds, but the end result appears weed free.

Kolacz said that two different methods are used to insert desired genes into plants. The agrobacterium method employs the use of soil bacteria. In the other method, a particle gun is used. A DNA coating is put on the desired gene and inserted into a gun which shoots the particle into the plant.

The necessity to clearly foresee potential problems before investing the hugh amounts of time and money involved in product engineering is evidence by the plight of the FlavorSavor tomatoes. Although the process works in keeping the tomato fresh 45 days after ripening, the variety of tomato used was not a popular choice. The process is now being developed in varieties that consumers

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