

## **CORN FOR ALL, AND ALL FOR CORN**

*By David A. Watson, Ph.D.*

My fondest memories from childhood are associated with the rich green fields of my home state of Illinois. From my vantage point at the top of a large oak tree, corn and soybean fields flat as tabletops surrounded our small farmstead as far as the eye could see. I didn't know it then, but I grew up on some of the most fertile soil found anywhere in the world. I also didn't understand that those abundant crops help to feed much of the rest of the planet. I simply thought that if Neoga, IL wasn't the end of the earth, you could see it from there. Food production is at an all time high, and in fact there is enough capacity to feed the entire planet. Even so, the population is still growing, and crop production will need to do so as well. Why then, are millions of bushels of genetically modified (GM) corn being withheld from human consumption this fall?

To begin, our high-yielding wheat and corn varieties were gradually domesticated over several millennia, essentially from grasses. They never existed as wild plants, at least not with anywhere near the ability to produce grain as is now the case. Similarly, many of our fruits bear little resemblance to their wild cousins. Even domestic livestock have little in common with the animals our distant ancestors husbanded. In a sense, then, any claim that the more sophisticated laboratory methods now in use to improve crops and livestock constitute unnatural or inappropriate manipulation of fellow species rings hollow. An important driver of the evolution of our urban society is the genetic improvement (albeit gradual, until very recently) of plant and animal species. The simple fact is, we aren't altering our crop species in ways that we haven't already been doing for a long, long time.

This past spring, Aventis Crop-Science was able to register a new variety of corn, called StarLink in time for planting. The genetic makeup of this variety had been altered very slightly using the techniques of molecular biology to include a gene from a bacterial species known as *Bacillus thuringiensis* (*Bt* for short) that encodes a natural insecticidal protein. The Environmental Protection Agency approved the plant, but placed a number of restrictions on how it could be grown or subsequently used. While conceding that Starlink was safe, and allowing for its use in industry and in animal feeds, the EPA nevertheless stopped short of approving it for human consumption. This new cultivar in fact offers real advantages in reducing insect damage, yet there are lingering questions about whether this GM product contains elevated levels of potential allergens. The EPA therefore limited its uses. The restrictions have not been not strictly followed, however (there appears to be plenty of blame to go around). As a result, it was recently found that some of the StarLink corn did indeed find its way into the human food supply, in the form of two different brands of taco shells. Not a single person became ill, however, and the notion that the presence of the *Bt* protein could trigger some type of food allergy has not been proven. Ironically, it was the very tools of biotechnology that allowed a group critical of this nascent industry to detect the presence of the GM corn. In an earlier column I talked about our reticence as a society where new technologies are concerned, as opposed to our casual dismissal of the dangers of the natural world; here is yet another example. We worry endlessly about whether the presence of an extra (and beneficial) gene in an important foodstuff will lead to more allergies here at home, but ignore the potential of such a wonderful new crop variety to help alleviate the hunger we know exists elsewhere.

Though I didn't fully grasp economics as a farm boy, I do remember understanding the link between those golden ears of corn and my own personal fortunes. In the spring we worked the ground and planted the seeds; in the summer we cultivated, and in the fall we harvested. Of course, the fall also meant famous battles in the grain bins, with my older brother whizzing dried ears of corn past (and sometimes at) my head. Our dad and uncle gave us the cursory lecture each year about how those ears of corn equated to our futures, and how every kernel that missed the bin was money out of our pockets—but still we relished those fights. I bet GM corn flies just as well.