"It's Scary When You Think About It"

by Bruce Dehm

How often have you either heard or said "It's scary when you think about it" when discussing today's state-of-the-art technology? Consider the following:

- With your listed telephone number you can be pinpointed on a map. It can easily be determine how many neighbors live within a 2-mile radius, and what their average disposable income is.
- Global Positioning Systems (GPS) can put you within a few feet of any place you want to be - land, sea or air. Combine this with computer-controlled variable-rate applications of seed, fertilizer and chemicals and the term *precision farming* should ring a bell.
- "Smart" plastics can change from non-porous to porous at a given temperature. Imagine a seed coated with this material waiting underground until the soil reaches the right temperature for germination.
- Smart companies are using "database mining" software to target specific potential customers for example, men who love fast cars and eat Chinese food. You can bet some of these companies are trying to figure out just what they can sell to you.
- Machine-vision technology is being developed to aim a specific herbicide at a specific, identified plant as the sprayer passes through the field. Better yet, why not just zap weeds with a well-aimed laser beam.
- Robot milking parlors and computer guided tractors are no longer fiction.

- Genetic engineering is still in its infancy, and we already have herbicide resistance and

natural pesticides bred into some crops. Biotechnology is one of the fastest growing research industries meaning more biotechnology will be coming and at a faster rate.

➢ Some veterinarians were recently joking about "virtual" farm vet-checks some day. The next day the news showed a surgeon assisting in an operation from several thousand miles away. Virtual farm vet-checks may not be so far fetched after all.

Isaac Asimov, the famous science fiction writer once said that science fiction writing was really no more than seeing what's happening now and projecting it into the future. Only now, it seems that our science fiction is becoming reality much quicker than we realize. Anyone who thinks differently should consider this recent news item. A team of engineers at two Rochester New York Universities just perfected a method for increasing the speed of computer chips by 100,000 times (that's right, one hundred thousand times) their current level without significant changes in chip-manufacturing technology.

Longtime computer lovers often get nostalgic about the old days when remembering the first XT class computer - 64K of RAM and two 360K floppy drives. Wow! All that power on our very own desktop. Twelve years and five computer generations later, those computers are useless for all practical purposes. Our current state-of-the-art computers will probably suffer the same fate in the next twelve years or sooner. There will be little use for a computer you can't talk to.

The Information Revolution - Sink or Swim

We are in the midst of a revolution, and revolutions are scarey. They are scary because the future is unknown and humans crave for the safety of the known, the predictable. Paradoxically, this need for being able to predict the future is precisely what is driving the

revolution. The genetically engineered plant will give us the specific, uniform traits we desire in a crop (predicting quality). Precision farming technology helps us ensure that every square foot of the field is producing to its optimum capacity (predicting yield). The retailer mines his database to improve sales (predicting demand). This revolution will not stop because it is fueled by what we crave.

Revolutions driven by new technology are disruptive to the status quo and force us to learn new skills and adopt new practices. Farm managers who are the most adept at learning and applying new skills benefit the most. The *green revolution* of thirty plus years ago gave agriculture chemical pesticides, fertilizers and hybrid seeds. As revolutions go, it was pretty straightforward: use these technologies and increase yields dramatically or you are out (apologies to organic growers who have niche markets). The resulting changes to farm numbers and sizes have been dramatic.

The information revolution is much more subtle and complex than the green revolution, although the results of this revolution will be no less dramatic. Where the green revolution was strictly production oriented, the information revolution cuts across many more levels. It includes not only production, but marketing, finance, and communication skills. There will be more alliances between suppliers, producers, processors and retailers, all based on new information technologies.

The Customer Comes First

In the information revolution, everything begins with the customer. Retailers need processors to supply a consistent product in a large enough quantity to meet their customer's demand.

Processors, in-turn, are looking for farmers who can supply them with the right quality of raw materials in the quantity they need so they can meet their retailer's demand. Farmers will be producing specific products with specific traits for specific processors. For example, potatoes designed for a specific chip, milk with a specific protein content, apples for a specific use, or hogs with a specific confirmation. As always, this must be done at the lowest cost possible. Farmers capable of doing this will continue to profit.

If you are not using information technology to help you determine what products to produce, how to produce them more efficiently, and where and when to market them, then you will likely be left behind in this revolution. Yes, it is scarey when you think about it, but the cost of ignoring a revolution that is already underway is very high indeed.