

## Giving Thanks for Contemporary Agriculture

Bruce Erickson and Jim Mintert

America's food production and distribution system is a marvel of efficiency, but unfortunately many consumers are not aware of that fact. Our system provides a mind-boggling array of choices to consumers, in ways that are increasingly better for the environment, utilizing fewer and fewer resources per unit of output. But increasingly what people are reading in the news or hearing via newspapers, television and the internet is a very different story— as the media often choose to cast agriculture in a negative light; focusing on topics such as human obesity, concerns about the use of genetically modified crops, food being burned for fuel, deforestation around the world and, increasingly, apprehension about large scale animal and crop agriculture.

Within the agricultural community we often dismiss these disparaging opinions of U.S agriculture as irrelevant and the voice of the uninformed and unconnected. But we do so at our own peril. More importantly, when we allow these opinions to dominate discussions and the policy making process, we put at risk people across the globe that struggle every day to put enough healthy, nutritious food on the table to feed their families because they are the true beneficiaries of our efficient agricultural production and marketing system.

Many of today's consumers have little idea how food is grown or raised and what it takes to produce, transport, package, and deliver it to the grocery store or restaurant. This Thanksgiving, we that work in agriculture every day should not only give thanks for a productive (albeit delayed and wet) fall harvest, but also vow to do a better job of informing consumers how our food is produced and the many advantages provided to our society by contemporary agriculture. Contrary to the negative perceptions about agriculture that seem to abound, widespread adoption of modern agricultural techniques benefits society in many ways. Let's take a look at a few of them.

**Environmental Gains** Modern agriculture uses less energy and water, fewer pesticides, and less fertilizer per unit of crop production than 30 years ago. Confirming this is the fact that aggregate fertilizer usage has leveled off in recent years while productivity continued to increase, so we are using less fertilizer per unit of production. Pesticide usage has fallen as the advent of biotechnology embedded in crops reduced the need for many applications; just

Figure 4.4.2--Consumption of primary plant nutrients, 1960-2003

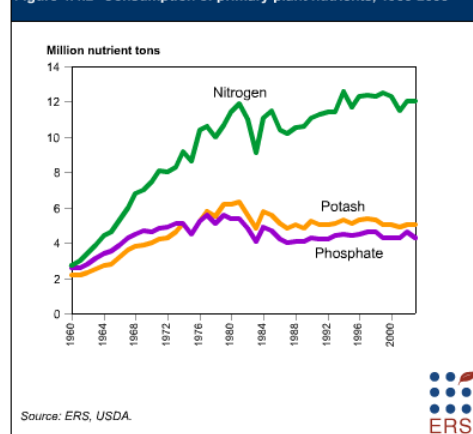
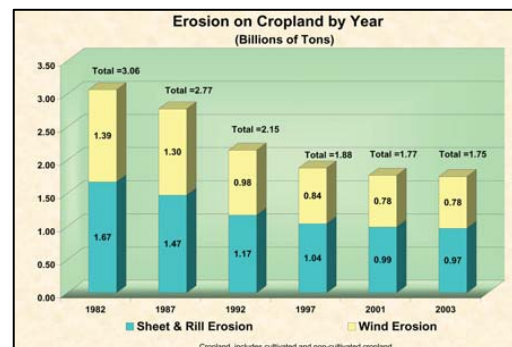
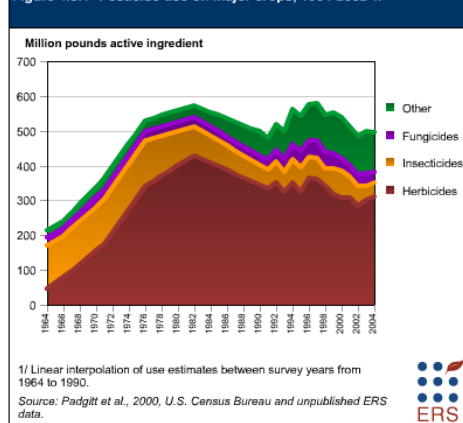


Figure 4.3.1--Pesticide use on major crops, 1964-2002 1/



*Fertilizer and pesticide use have leveled off in recent years; soil erosion is half what it was a generation ago. **Click on graphics to enlarge.***



ask any agricultural retailer about their pesticide business now vs. a decade ago. And soil erosion is roughly half what it was 30 years ago with even more improvements on the horizon.

**Increases in Productivity** For the top five U.S. crops of corn, soybeans, wheat, cotton, and rice, the productivity gains in the last 30 years are remarkable—yields for each up substantially and some, such as corn, have increased 50 percent. Evolving agronomic practices such as better fertilization, precision plant spacing, and pest control explain part of this improvement, but genetic improvements are a big part of this. In addition, genetic modifications have been responsible for some of the greatest benefits to the environment. The insecticidal genes from *Bacillus thuringiensis* alone have saved the use of millions of pounds of insecticides. Herbicide tolerant crops have greatly reduced tillage for weed control, saving fuel and soil, in addition to providing productivity gains. The following table summarizes just how much production practices have shifted:

Yesterday's Production	Today's Production
Chemical applications & tillage to control pest infestations	Genetically-based pest management
Multiple tillage passes and fuel expended to prepare a seedbed and control weeds	Fewer or no tillage passes, sophisticated planting equipment designed to work in plant residue
Livestock in sheds and open lots, often limited access to veterinary care	Livestock produced in climate-controlled buildings, pro-active livestock health management
Manure viewed as a waste item to be disposed of at significant cost	Manure regularly collected and utilized as an important crop nutrient source
Limited variety of food	Numerous choices

**Keeping Up with Food Demand** World population continues to grow by leaps and bounds and with population growth comes greater demand for food. Fifty years ago the world's population was just 3 billion people. By 1999 world population increased by 3 billion and is projected to increase by yet another 3 billion people before mid-century. Feeding 9 billion consumers around the world presents a tremendous challenge to our food production and marketing system in the years ahead. It's a challenge that can only be met by developing and applying new technology to food production in the U.S. and around the world. Going back to the technology employed in U.S. agriculture 50 years ago (when there were just 3 billion mouths to feed) may seem desirable to some, but it is simply not capable of producing the food we'll need and would actually represent a step backward with respect to our environment.

**The Time Is Now To Communicate the Benefits of Contemporary Agriculture** Efforts in recent years to promote the positives of modern agriculture have in many cases been overshadowed by those with different views. But world population increases demand that our food production technology keep pace in lockstep, and we cannot afford to go backwards on the environmental gains that have been made. So while we pause on Thanksgiving Day in appreciation for the remarkable gains of recent years, let's also vow to do a better job of communicating to those around us the many advantages that contemporary agriculture provides our society.



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## FOR MORE INFORMATION

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