The Agricultural Environment

WILLIAM M. SIMPSON, JR.

Key words: developing world, genetically modified foods, genetically modified organisms, migrant workers, seasonal workers, sensitive population

Of the more than 6 billion people in the world, more than half live in rural areas and more than 40% are involved in the production of food and fiber. But, as would be expected, there are substantial differences between the developed and developing worlds in how much human effort it takes to supply the food and fiber needs of their populations. In the developed world, only 7% of the population is involved in agriculture, while in the developing world just over half spend their working lives in farming activities. The importance of an adequate supply of food cannot be overemphasized. Adequate fuel for mental and physical activity is necessary for life and health. In addition, the value of food and fiber to the world economy is not trivial. The worldwide gross domestic product (GDP), the total value of goods and services produced, is approximately $7600 per capita or $46 trillion; agriculture accounts for 6.2% of the GDP or nearly $3 trillion. The world system of production, processing, distribution, and marketing is incredibly complex. We will review the highlights of that system here (1).

Agriculture in the United States

From 1950 to 1980, United States farm output doubled. At the same time, the number of farms fell from over 5 million to approximately 2 million, averaging 400+ acres in size and covering a total of nearly a billion acres. The farm population shrank from 23 million to 6 million (from 15% to 2.7% of the population). The number of persons supplied with farm products grew from 15 to 65 for each farm worker. The estimated market value of land and buildings on an average farm is over $500,000 or over $1200 per acre. Equipment is valued at nearly $70,000 per farm. Averages are somewhat misleading since 1.8 million of the 2 million farms in the United States are less than 500 acres. The market value of agricultural products sold in 2002 was
more than $2 billion, or almost $100,000 per farm. Again, averages are misleading since the top 15% of farms, in terms of size, produced almost 80% of the gross farm income.

The 2002 Census of Agriculture by the United States Department of Agriculture found a slight decline in the total number of farms, but a much more significant loss (18%) in the number of corporate farms (74,000 from 90,000), reversing a trend of increasing corporate ownership of farms that began in the 1970s (nearly doubling between 1978 and 1997). Sixty percent of principal operators of U.S. farms have farming as their primary occupation, so 40% of farm operators have jobs off the farm that they consider their primary employment. The average age of principal farm or ranch operators was 55.3 years compared to 54 years in 1997, which continues a 25-year trend of aging among American farmers. The typical family farm today is a commercialized and specialized business, concentrating on one or two commercial crops. It utilizes machinery to the greatest extent possible on large fields and usually depends on borrowed capital to purchase equipment, seed and feed, fertilizer, pesticides, and veterinary treatments and services to maximize yields. In an environment such as this, much more than just farming skills are needed to be successful (2).

Agriculture in the World

To go beyond the distorted view presented by statistical averages about world agriculture requires dividing the world into at least three groups; the “haves” or “First World,” for whom food security is not an issue, the “have nots” or “Third World,” who live on less than $1 a day, and the large group of “in-betweens” or “Second World.”

The First World consists of approximately 1 billion people who are largely removed from their agricultural roots, take a plentiful and inexpensive food supply for granted, and are increasingly conscious of environmental issues. For them, international aid and development are low priorities. In the Third World, another billion people, mainly rural and chronically malnourished, are living in countries where the free market economic model does not work. This group qualifies most for humanitarian assistance but they need much more than that. They need to learn better farming practices to increase yields while decreasing soil erosion and desertification. In the Second World, 4 billion people live in countries where the state and market economy generally do not function well, but there is a widespread desire to do better. Doing better requires assistance in developing markets, protection of distribution, implementation of good agricultural practices, and application of biotechnology (3).

More than half of the “have nots” are found in Asia and the Pacific (60%) and 24% are found in sub-Saharan Africa. However, the proportion of the population that is undernourished is very different in the two