Chapter 2

Research to Meet Natural Resource Needs in the 1990s

Dennis R. Keeney
Iowa State University
Ames, Iowa

Ruttan (1992) offers a realistic if somewhat pessimistic view of the potential for agriculture to meet the food production needs for the future. Indeed, this is the stuff of a major paradigm shift for agriculture. The key question I see is: can we meet the food demands of the decades of 2010 to 2030 given predicted population in the 10 to 12 billion range and an income growth that will add to demand for higher living standards and consequently more processed and higher protein foods. This question, which is really one of sustainable development (Kidd, 1992), must be addressed continually as we plan for agriculture in the 21st century.

There is a difference between food demand and demand for food. A person or society that is short on resources has little effective food demand. Someone has to pay. While it is an egalitarian and noble goal to eliminate hunger, this is part of the 1970s vision that stressed U.S. agriculture in the 1970s. We confused wanting the world to be fed for wanting to feed the world. An agriculture that will feed the world is quite different than an agriculture that will feed the U.S. population and provide export income. Yet the theme of world hunger is often used to criticize sustainable agriculture. The perception, based unfortunately on the early “low input will result in low output” debates equates a sustainable agriculture with an unproductive and unprofitable agriculture. Equitable distribution of food is as much a requirement for removing food hunger as is production of food.

Within 25 to 30 years, a sustainable food supply may be out of reach. There are recognized limits to the conversion of sunlight to plant products (Vitousek et al., 1986; Lebel & Kane, 1989; Simon, 1989; Daly, 1990; Arcos, 1991; Brown, 1991). Tweeten (1990) concluded that agricultural production human habitation. No consensus has been reached on the issues of growth, and it is unlikely one will be. However, there is no doubt that global sustainability is emerging as our most pressing issue.

I wish here to add another perspective to the long term research on natural resource preservation to agriculture should take. First, there are limits that we must observe as we face the future.

Sustainable growth, as Daly (1990) states, is an oxymoron”. We instead must recognize the sustainable development in this case of our food supply adaptation made by society as it becomes the emerging necessity of non-growth”. It is, if you will, a “steady state” of the global support system for a population that is nearing or has reached the earth’s carrying capacity (see also the discussion in Kidd, 1992). However, I am concerned that sustainable development is being often used as a synonym for sustainable growth.

Sustainable agriculture, if we can accept that term as synonymous with sustainable food and fiber production, must in all cases protect the natural resource base (soil, biota, water, and air) from degradation to the point that human health is threatened and crop yields are impossible to maintain at economically

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Foy (1990) points out the need to revisit the definition of sustainability to include the economic growth and social issues that are critical for agricultural production.