

# The farmer-consumer link in agricultural research

Growers and consumers share many concerns—conservation of natural resources, environmental quality, preservation of prime farm land—but when we get to the “bottom line”, a basic difference still occurs. The farmer, of course, needs to get a price for his product that covers his costs plus a small margin for profit. The consumer’s primary concern is a plentiful supply of quality food at the lowest possible price.

This divergence in goals is certain to become more marked as food prices continue their upward spiral. That a large part of the increase stems from growing sales of convenience and artificial foods is of little importance—the consumer seems to object only to price rises of “natural” foods.

In its annual outlook report last November, the U.S. Department of Agriculture forecast a six percent rise in food prices this year. Recently the figure was upped to eight percent, and preliminary projections for the next five years offer little hope for a reversal of the trend.

Research directed toward increasing the economy of production is therefore of paramount importance to the consumer if we are to keep the rise in costs of our basic foods at a minimum. It is equally important that our client the consumer understand the costs of production that contribute to increased prices.

In California two vital ingredients in agricultural production—water and energy—are expected to experience sharp cost rises in the next decade.

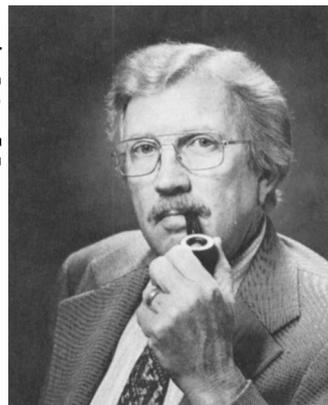
How will agriculture pay increased costs? The unhappy conclusion seems to be that they can only be paid through substantially higher prices for the product the farmer has to sell. The cost of food grown in irrigated fields and orchards will have to rise sharply, almost certainly precipitating an intense consumer reaction. Crops that require high amounts of energy and water will be placed in a severely competitive position. Those that fail to remain competitive in the market place will simply disappear as a commercial California farm commodity, as did the white asparagus crop several years ago.

The trend has important consequences for agricultural research. Our programs will have to address water energy economy to a far greater extent than in the past.

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The recent drought gave us a good start on learning how to get the most from our available water supplies and in some instances taught us that we can get along on far less water than might have been expected.

We will also have to pursue more vigorously alternate sources of energy, and more efficient use of the 200-odd plant and animal by-products of California agriculture. Some are already being utilized in the animal industry where they comprise 40 to 80 percent of some animal feeds. Many others can be used. Research is needed to determine the nutritive values of these by-products, as well as their safety.

Energy derived from animal and crop wastes can supplement and in some instances replace fossil fuels. We have done the homework on an efficient commercial-scale gasification system to obtain low-BTU gas from cotton stalks, wood chips, or almond hulls—or even from cattle manure. Tests have shown the system, designed and developed by the faculty and staff of the Agricultural Engineering Department at Davis, to be an economical substitute for natural gas or diesel fuel, even at today’s prices. Five years from now, when crude oil may be selling for 60 percent more than it is today, by-product gasifiers should be able to produce low-BTU gas for less than the cost of imported diesel oil by a comfortable margin. Stationary gasifiers at processing plants where fuel is available as a waste-product could generate steam power to process and store food crops, or electrical power to pump water for irrigation, or even gas that could be used directly in farm machinery. Crop residues could conceivably supply 20 percent of the energy requirements of agriculture in California—an amount equal to one percent of the state’s total energy use.

It is clear that agricultural research on production efficiency should rank just as high in our priorities with consumers as it does with farmers. Farmers need customers at the market place and customers need the farmers’ products at the market. An understanding link of these two dependencies will be needed as we face the inevitable rises in production and product costs in the future.