



J. B. KENDRICK JR.
Vice President
Agricultural Sciences
Director, Agricultural
Experiment Station
University of
California

Fossil Fuel, Fertilizer, and FOOD

ALTHOUGH THE ENERGY CRISIS has moved center stage, has become the subject of a national policy debate, and has generated a great deal of attention in the media, it has so far created very little hardship for most of us. Most Americans have worried about shortages in terms of gasoline for their automobiles, and government spokesmen have talked about guidelines, contingency plans, and voluntary cutbacks.

We won't have to abandon our automobiles next week but there are clear signals that the gap between the supply and demand for fossil fuels will continue to widen. It is clear that this development will affect your life and mine and that we will be faced with a wide variety of energy-related problems and dislocations. Even if one could easily separate fact from fiction, the energy situation is enormously complex, and involves a whole spectrum of conflicting interests. I would like to touch on one of these interests—one little noted aspect that may well turn the energy crisis into a "gut issue" in a literal sense, in 1974.

Because 96% of the energy we use comes from fossil fuels, grim predictions are being made about the impact that declining supplies will have on our way of life. If agriculture is included at all in these listings of threatened industries and services, it is discussed without complete understanding, or recognition of the importance of food versus the other "necessities" of modern life. When agriculture is discussed, it is in terms of the fuel needed to power modern mechanized equipment. This energy need is apparent, and understood, and the necessary priorities have been established.

But the energy crunch threatens our ability to meet expanding demands for food in another way. Natural gas is indispensable to agriculture as the raw material feed stock needed in our production of nitrogen. Nitrogen is necessary for growth of all living things and it is the most critical element in plant food for

agriculture. Without it our major food and feed crops would be seriously affected. If growers were unable to obtain nitrogen materials for next year's crops, yields in general would drop by an estimated 20%—and for some California crops the loss would be considerably greater.

Under present priority schedules a significant nitrogen deficit is being predicted for next spring. Worldwide demand for fertilizers is rising, our inventories of nitrogen materials are about 40% below last year's and near-future prospects for adequate natural gas supplies are anything but encouraging. Most fertilizer plants have an "interruptible" gas supply, which means that with the advent of cold weather their supply can be interrupted to provide homeowners with sufficient natural gas. (It will be ironic indeed if this land of plenty is, at some point, faced with a choice between heating and eating!)

Fertilizer is only one element in our food production system but it is a crucial one in the present situation, just as that system is of vital importance to the nation's economy. Agriculture is now being asked to open more land to production and produce more on acreage now under cultivation. This effort is called for to meet expanding food demands, help control rising food prices, strengthen our currency, and earn foreign exchange dollars to purchase energy from abroad. If agriculture is to do what it is asked to do, some adjustments in the nation's priorities will be necessary.

In this situation the agricultural community can do several constructive things. It can help government agencies develop rational plans and lend its support when hard choices are to be made. It can stretch available energy supplies by finding ways to improve the efficiency of its operations. It can help ensure that there is an adequate research input, as well as enough energy input, to maintain agricultural efficiency.