Plant Nutrient Research in the Decade Ahead

Richard Bradfield

The basic objectives of research on plant nutrients in the next decade will probably be about the same as they have been during the last decade. We shall be primarily concerned with obtaining information which will help the farmer produce (1) more food, (2) cheaper food, (3) better food, and at the same time leave the soil more productive than it is today.

In the past, our demands for more food have been met in two ways. Up until about 50 years ago we met the problem primarily by bringing new lands under cultivation. We are rapidly approaching the limits of that technique. The National Resources Board estimated in 1956 that there were about 20 million acres of land under irrigation at that time and that there were about 30 million acres more that could ultimately be irrigated in our 17 western states. The Bureau of Reclamation estimates that in the next 25 years an additional 5 to 10 million acres will be irrigated. Assuming that that amount is brought into production at a regular rate throughout the 25-year period, it would mean that in the next 10 years between 2 and 4 million acres would be brought into production by expanding our acreage of irrigated land. Since the area devoted to harvested crops in the United States is over 500 million acres, it is quite evident that the percentage increase in acreage of crop land by irrigation will be very small in the next decade. The area brought under cultivation by drainage of swamp lands will probably be even smaller. We can, therefore, feel reasonably sure that any substantial increase in the production of agricultural products in this country will have to come largely from increased production on land that is already under cultivation.

Before taking our plunge into the future, let us consider briefly some of the trends in crop production of the last 15 years. During this period the yields of our principal crops have increased about 30%. This increase was doubtless stimulated by the war and the consequent unusual demand for agricultural products and unusually favorable prices.

Better Yields Are Possible

We have now come to 1950. In spite of the predictions made on the basis of pre-war cycles, we find ourselves 5 years after the end of World War II still in a high price period with a strong demand for most agricultural products. Let us, for a minute just how high we have climbed to the top of the "maximum yield curve" established during the prolonged period of unusually favorable prices. Have we approached the highest yields we can expect under present economic conditions?

There is a great difference in the extent to which farmers have been able for various reasons to use the scientific information now available.