



Perspective

What Next in Agriculture?

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THROUGH THE PERIOD of two World Wars and their aftermaths farmers of the nation have accomplished miracles in production. Despite the production goals, however, their eyes and efforts have been fixed—not on “making two blades of grass grow where one grew before” but on “making two blades of grass grow for the cost of one.”

Mechanization has been largely responsible because man-hours of labor have become the most important single item, from an economic standpoint, in agricultural production.

Although there are some notable exceptions (such as modern rice harvesting) most of the labor saving mechanisms are wasteful of product although effecting tremendous savings in cost despite the wastefulness.

We are now faced with the problem of maintaining our present standards of costs and yet increasing our total production of foodstuffs by at least 50% in the next 20 years. We have about the same amount of cropland that we had at the end of World War I. We have converted almost all the available land previously devoted to the production of fodder for horses and mules to essential uses by substituting mechanical energy for four-footed horsepower.

Potential gains of cropland by the reclamation of deserts, swamps, or alkali-sodden areas will hardly keep pace with losses to roads, freeways, industrial expansion, and residential developments. The only substantial potential gain in new land lies in the conversion of useless brushland into pasturage.

American agriculture has met every challenge that has been presented to it by a changing world. We have improved our varieties and strains for better production and quality and increased disease and insect protection. We have made enormous strides in the mechanization of production and processing. Improvements must be made in both of these fields as well as in the avoidance of waste by superior marketing techniques. But we have one “ace in the hole” whose potentialities we have only glimpsed—the chemicalization of agriculture.

The early insecticides, fungicides, and fertilizers—

simple in composition and discovered largely by accident—introduced this trend. Then came vegetation killers followed by selective herbicides, and the multiplicity of organic compounds of startling complexities and baffling possibilities followed in their train. Their selectivity for specific purposes is infinite—one will thin fruit from trees while another will hold the fruit until a favorable harvest time. We can control the blossom time to protect from frost or ensure an orderly and leisurely harvest. We can treat seeds to protect them and their seedlings from disease and insect attack and fertilize at the same time. We can modify the physical characteristics of soil to ensure permeability of water and oxygen or we can seal the banks of ditches and reservoirs to hold the water. We can even produce fruits by chemical stimulation without pollenization.

Animal production benefits equally and directly from chemicalization. For instance, methionine additives in poultry feed allow for the use of lower cost foodstuffs and reduce the cost of production. Stilbestrol produces better quality poultry meat, and the addition of antibiotics reduces the time required to produce fryers by nearly 10%. Some of these projects are still experimental and at present some of them are of little economic importance, but they point the way in which modern agriculture is progressing.

Many of our present farm leaders whose experience in agriculture started with sheer muscular activity supplemented by only horses and mules, have seen the age of mechanization replace human and animal power and are now watching this age burst into bloom while the bud of chemicalization is opening just enough to reveal the possibilities that will come with maturity.

The days of agriculture as a mode of living are over. The farmer who continues to operate on a pattern that was “good enough for grandfather” will have to be content with “grandpappy’s” returns also. The successful agriculturist of the future will be a highly skillful specialist in his own right operating in close contact with fundamentally trained scientists who are blazing new trails in engineering, biology, and chemistry.