SINCE Adam and Eve were banished from the Garden of Eden, the control of undesired plants has been a basic feature of all types of agriculture. There are three general groups of important plant pests: insects, plant diseases, weeds. Entomologists are this year celebrating the hundredth year of professional entomology in the United States. Plant pathology as a profession is definitely younger, but still of considerable age. Despite greater cash losses from weeds to more people than from either insects or plant diseases, 20 years ago there were only three men in the United States giving full time to weed control. The number is larger now, but even today there are only seven states that have full time extension weed control specialists on their staffs.

Definitely, this delay was not for lack of farmer interest in weed control, so why did we have these differences in date of development of these different sciences? Basically, physiological differences between the genetic units to be controlled are at the bottom of them. Plant protoplasm and insect protoplasm are sufficiently different so that almost as soon as the science of chemistry was born, it was possible to find compounds that could be put on plants that would kill insects without killing the plants. Plant diseases are caused by other plants, but plants of a considerably different nature. Although it was more difficult to find fungicides than insecticides, it was not too long before products were found which would kill germinating fungus spores and prevent their entrance into the plant, without injuring the plant itself.

This gave entomologists and plant pathologists the great advantage that they could apply chemicals to affected plants and kill the enemy and not the crop. Until recently, weed control lacked such materials because the protoplasts of weeds are very similar to those of crops. Compare, for example, wild oats and cultivated oats, Johnsongrass and corn or sorghum, horse nettle and potatoes. Consequently it was difficult to find chemical agents that would kill weeds and not injure crops. Weed control in growing crops remained until recently largely a mechanical process, and such research as was done on it was largely done by agricultural engineers, studying the most effective ways of cutting, pulling, and otherwise disposing of unwanted plants. Although there was and is yet much to do in this field, it attempts were limited and short-lived. It was not until in the nineteen-forties of 2,4-D and related compounds could be applied to mixed populations and kill without harming others, or at least harming them very little, that really put selective chemical weed control on the map.

Once the ice was broken, organic chemists, out products by the thousand, and discovered considerable promise so that weed control had products by the dozen to test, and then, more every year. If any of you are waiting for modern weed control until the situation clears down a bit, I can assure you that no such con is anywhere in sight.

Where are we then, today, in this new-old report? In the first place, we have in 10 years tremendous time and labor cost of weed control in the million. Millions of acres of crops are being treated in all parts of the country. Estimates are that nearly one million acres of corn and almost 18 million grain were sprayed for weed control in the

Great Expansion is Seen

Cotton is rapidly emerging from its age-long dependence on hand chopping of weeds. Many weeds are commercially treated in sugar beets by chemical means, chemical control of weeds in soybeans is closer —not yet economically in sight. In vegetables labor is an even more important part of the field crops, carrots, asparagus, onions, potato, cucurbits, and many others have been successfully chemically. In no one of these fields is success last chapter written, but in less than 10 years completely changed the popular practice and control.

In making this progress, we have vastly reputation with the public at large. Thirty years ago they received weeds for identification the sender is it, and what can I do about it?" Now they ask, "is it and what can I put on it that will kill it?" The public is thoroughly convinced that we