BOTANY

"Impossible" Hybrids

Plant crosses long considered impossible are now being obtained through control over reproductive processes at six vital points.

➤ PLANT HYBRIDS long considered impossible are now being obtained through control over reproductive processes made possible by better botanical knowledge, Dr. Albert F. Blakeslee, director of the Smith College Genetics Experiment Station, told the meeting of the American Philosophical Society, held in Philadelphia. This control is exercised at six vital points where failure may occur, which the speaker outlined:

1 Species may have flowering times too far apart for the pollen of one to be available when the flowers of the other come into bloom. This can often be overcome by artificial control of the length of day, hastening or delaying the flowering of either or both parent plants.

2. A flower receiving alien pollen may not supply the proper chemical stimulus to make the grains germinate. This chemical aid may be artificially supplied.

3. After germination, the tube produced from the pollen grain may burst after growing part way down into the tissues of the pistil. This may be prevented by seeing to it that the pollen-receiving flower belongs to a species having more chromosomes per cell than the male or pollen-producing plant.

4. Fertilization may fail to occur despite pollen-tube growth; but Dr. Blakeslee has not experienced this difficulty in the species with which he is working.

5. Fertilization may occur but the embryo plant within the seed may be too feeble to grow. This has been overcome by carefully dissecting the embryo out of the seed and growing it as an "incubator baby" on nutrient media in gelatin capsules.

6. The offspring from wide crosses are frequently sterile "mule plants." Such mule plants may be rendered fertile and become pure-breeding new species through doubling their chromosome numbers by treatment with colchicine.

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NUTRITION

Short Food Rations

Millions of people in Europe have been on diets with an average caloric intake less than 75% of the normal prewar level.

➤ MILLIONS of people in Europe have been on short food rations during the war, with an average caloric intake less than 75% of the normal prewar level, although the farm output in terms of calories has been maintained higher than expected by many earlier in the war. The shortage has been particularly in France, Belgium, Norway, Italy, Spain, Yugoslavia, Greece and Poland. The farm population for the most part has been fed at or near prewar levels. Farm production has shifted definitely from livestock products to food crops.

These are the conclusions of Eric Englund of the Office of Foreign Agricultural Relations, U. S. Department of Agriculture, based on findings made by his office on food production in Europe and the probable European food situation immediately after the war has ended.

"In Western Europe and North Africa," he says, "farm production of cereals for food, in terms of calories, in 1942-43 was near prewar levels. Fruit and vegetable production increased about 8%, edible oil crops about 17%, sugar crop changed little. Total food crops registered a slight advance in caloric equivalent. Indications are that production of food crops in 1944 will be about as in 1943."

"On the other hand, Europe's production of livestock products in 1942-43 was about 25% below prewar level; milk production about 15% and the production of poultry and eggs about 34% below the prewar average."

At present levels of production and with the curtailment of imports, he continues, per capita consumption of food in continental Europe now averages not more than from 85% to 90% of prewar, with a drastic reduction in the qualitative composition of food supplies. Among individual countries and population groups, conditions vary widely.

"The decline in average per capita consumption has been especially marked in Norway and Belgium," he states, "which were only about 50% self-sufficient before the war, in Greece and in France where supplies were diminished not only by a sharp cut in imports but also by a drop in food production and by shipments to Germany."

The Netherlands, which normally depends on imports for 30% of its food, was forced to plow up for crops over 20% of its pastures, which in ordinary times covered one-half of its farmlands. At least 25% of its cattle and 75% of its pigs were slaughtered because of a shortage of feed. Now thousands of acres have been flooded with sea water and a still greater shortage of foods is faced.

"In order to improve considerably the diet of the Allied European countries soon after the war," Mr. Englund declares, "large quantities mainly of cereals and fats would be needed in addition to supplies available on the Continent. . . . It has been estimated that this would require an annual rate of imports into continental Europe of from 5 to 10 million tons of wheat and perhaps one million tons of fat." Meat, dairy and poultry products will also be needed.

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ENGINEERING

Device Helps to Locate Defective Insulation

➤ A NEW defective-insulation-detecting device developed for military use now saves tons of valuable telephone wire that might otherwise go to waste, the War Department has announced.

Developed by Staff Sergeant Pasqual L. Wamil, a native of the Philippines, the device consists of a control box and a series of electrodes through which the tested wire is passed. The electrodes are shaped like tubes, with a funnel at both ends for smoother passage of the wire.

Whenever there is a break in the insulation, as the wire is passed through the tubes a spark jumps between the electrodes and the wire, which has current passing through it, causing a warning bell on the control box to ring. It is then simple to locate the defect.

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