

and a few have been controlled by insects that feed on them exclusively and destroy them. Fungus diseases may be checked by developing resistant varieties of crops. In biological control, parasites or predators are produced and released to prey on certain insects and eliminate them. Sterilization of male insects by radiation or chemical means is another method used to reduce insects of various kinds.

An area of special interest is that of farm mechanization in which there has been tremendous development in the past 60 years. The Research Branch is expanding its studies in this field at the Engineering Research Service in Ottawa and in the Maritime Provinces, and universities are being encouraged to study the subject more intensively.

Soil surveys are conducted in all provinces in co-operation with provincial departments of agriculture and the universities. Soils are examined and classified as to their chemical and physical characteristics and potential productivity. The resulting information is of inestimable value in setting up land uses under the ARDA program administered by the Department of Forestry and Rural Development (see pp. 445-446). Soil fertility is under study at all experimental farms and at many research stations and is undertaken in close co-operation with the universities. Agrometeorology, a relatively new discipline, is opening new opportunities to growers to make the most use of the heat, light and moisture available in each farm area.

Although most agricultural research is carried out by the CDA, important programs are also undertaken by the provincial governments and agricultural colleges. Close liaison exists between these different agencies to avoid duplication and to ensure that the services offered by the Federal Government through provincial extension officers is of the kind needed by farmers. Federal research establishments across the country are represented on provincial committees concerned with field crop varieties, fertilizer practices, soil fertility, spray programs, field crop and animal management, and horticulture. Such collaboration ensures that new practices discovered by research are brought quickly to the attention of extension groups to recommend for local use.

The Grain Research Laboratory.—This Laboratory provides scientific services required in the administration of the Canada Grain Act. It carries out annual studies of the quality of the new crop cereals, maintains a continuous check of the quality of cereal grains as they move forward from the farm to marketing positions and plays a major role in testing (prior to licensing) the quality of plant breeders' varieties of various cereals. A comprehensive program of basic and applied research relating to the quality of Canadian cereal grains is an important task of the Laboratory.

Health of Animals Branch.—This Branch administers the Animal Contagious Diseases Act, the Meat Inspection Act and the Humane Slaughter of Food Animals Act, and operates laboratories for the study of animal diseases. Contagious diseases of animals are controlled through preventive measures of inspection and quarantine of imported livestock and restricted commodities such as meat, farm products and other possible sources of infection; through conducting disease eradication programs, notably of bovine tuberculosis, brucellosis and Johne's disease; through the control and eradication of serious animal diseases when outbreaks occur; and through inspection and certification as to health of livestock for export. The Animal Pathology Division consists of the Animal Diseases Research Institute at Hull, Que., the Animal Diseases Research Institute (Western) at Lethbridge, Alta., and seven branch laboratories; these establishments conduct research and investigations on infectious diseases of animals and produce the biological products required in their control. The Division also provides diagnostic services for diseases of domestic and wild animals and conducts a training program for departmental officers and veterinarians from other lands. The Meat Inspection Division conducts ante-mortem and continuous post-mortem examination of animals slaughtered at packing plants that market their meat products outside of the province in which they operate, ensures maintenance of sanitary standards during processing of the products, accurate labelling and proper kind and use of ingredients and preservatives; it ensures also that, in these plants, the animals are slaughtered in a humane manner.