

and vegetables in the winter and raw sugar, tea, coffee and other foods that are not suited to its climate, year-round.

Wheat is Canada's most important agricultural export. Off-shore sales average \$2 billion annually, and between 1974/75 and 1977/78, Canada held an average of 13 per cent of world wheat reserves. (The United States held about one third of them during the same period.) Fluctuating Canadian barley exports have averaged 3.3 million tonnes in recent years and accounted for from less than 20 to more than 40 per cent of world trade. Oat exports are small—89,000 tonnes in 1977/78.

In two important oilseed crops, rapeseed and flaxseed, Canada has led the export field in the last ten years, supplying up to 60 per cent of the total world demand.

Canada also leads as a source of fertilizers, which are vital to high-yield agriculture. It is first in world potash production and supplies 7 per cent of all manufactured fertilizers worldwide. Canada exports 80 per cent of its fertilizer output. It must, however, import phosphorus.

Other significant Canadian agricultural export commodities are skim-milk powder, meat and live animals. The leading buyers of Canada's agricultural exports are Japan, the European Economic Community (EEC), the United States, the Soviet Union and China.

Canada is also among the leading fish exporters, sending about two thirds of its total fish production abroad. About 60 per cent of all Canadian fish exports (nearly 40 per cent of total production) go to the United States market, primarily as fresh or frozen products. The remaining 40 per cent, mostly in the form of canned, salted, dried and smoked fish products, go to the EEC, Japan and the Caribbean.

Atlantic fisheries account for more than one half the market value of all Canadian fish. Altogether, 30 different kinds of fish, shellfish and marine mammals are used commercially, the most valuable being lobster and cod. Salmon dominates the Pacific Coast fisheries, representing over one half of the total value, while the most important catches of commercial inland fishing are whitefish, pickerel and lake trout.

## RESEARCH PROGRAMS IN CANADA

Canada's research programs seek solutions for current and anticipated agricultural problems in the many soil and climatic zones of Canada. Emphasis is placed on both production and utilization of crops and animals.

There are 1,610 agricultural research scientists in Canada. The total investment in supporting agricultural research is an estimated \$175 million annually (equivalent to about 1.8 per cent of Canada's gross farm income). Federal and provincial departments of agriculture, universities and industries share in this research effort.

The Canadian Department of Agriculture conducts more than half of the research and assumes two thirds of the annual cost. It employs 900 professionals from all scientific disciplines and operates a network of 47 research establishments. Seven of these are on university lands. The Research Branch of the Canadian Department of Agriculture cooperates closely with provincial governments, other federal departments (in particular the departments of Environment and of Regional Economic Expansion and the National Research Council), international agencies, farm organizations, agricultural industries and universities.

Specific research programs are designed (1) to determine optimum conditions of soil and climate for specific crop and animal production; (2) to create improved varieties of crops and breeds of animals; (3) to improve crop management techniques and animal husbandry through biological and engineering studies; and (4) to develop new and improved methods for the preparation and preservation of food. A new Crop Development Fund provides up to \$1 million annually to help bring new crops, new plant varieties and new management techniques into practical use.

Of particular concern are soil survey and evaluation, biosystematics and protection of the environment. Intensive research programs have been designed to reduce losses caused by disease, weeds and insects. Such protection re-

*IDRC-assisted seine netting in Malacca, Malaysia.*

