

and by public reports. To help fight the fires, fire bombing aircraft are used. A communication system includes a network of ground stations, radiotelephones, fireline radios, aircraft radios, telex and facsimile. A network of 125 primary weather stations supplies information to determine fire weather indexes and aids in detection patrol planning.

Manitoba also has a network of lookout towers and an aircraft detection system and ground patrols. Public education in fire prevention is carried out through radio, television, newspapers, pamphlets, signs, films and tours.

Saskatchewan has a network of 50 lookout towers and an aircraft patrol during the dry season. Helicopters and fixed-wing aircraft capable of water-dropping provide aerial support. There are also six land-based Tracker aircraft which drop long-term fire retardants.

Alberta relies on a network of 50 lookout towers and patrol aircraft during high hazard periods.

In British Columbia, forest fire prevention and suppression is vital to sustained yield management. Contracted air tankers, fire spotter aircraft and helicopters are employed during the fire season for early discovery of forest fires.

One of the biggest problems in recent years has been the spruce budworm. In Newfoundland in 1981 budworm outbreak declined from 1980, largely due to natural causes, but an epidemic infestation continued to plague areas of Nova Scotia and New Brunswick. CFS scientists provided survey information and advice to the forest industry and provincial governments. The Laurentian Forest Research Centre in Quebec carried out aerial spraying of concentrated formulas to combat spruce budworm biologically. Areas susceptible to the worm were marked and guidelines were published for predicting fire mortality caused by the budworm.

In Ontario there was a reduction in the area infested, mainly because the budworm population declined, and spraying was less prevalent than in 1980.

8.1.4 Wood industries

Canada's forests provide raw materials for several large primary industries. Estimated quantities of wood cut in specific years are shown in Tables 8.4 and 8.5. Much of the output of the forest industries is exported; the sawmill industry and the pulp and paper industry contribute substantially to export trade providing a large part of the foreign exchange necessary to pay for imports.

The standard industrial classification (SIC) subdivides the wood industries group.

Primary wood industries include sawmills and planing mills, shingle mills, veneer and plywood mills and particleboard plants and use mainly roundwood as a raw material.

Secondary wood industries manufacture part of the production of primary wood industries into a

variety of products in sash, door and other millwork plants, and by manufacturers of prefabricated buildings, manufacturers of kitchen cabinets, wooden box factories, the coffin and casket industry, the wood preservation industry, the wood handles and turning industry, and miscellaneous wood industries.

Sawmills and planing mills produce lumber as the most important single commodity. British Columbia is the leading province. The total value of shipments in 1981 amounted to nearly \$5.0 billion. Lumber accounted for \$3.6 billion.

Shingle mills. Most shingles and shakes in Canada are produced by BC mills. Considerable quantities are produced by establishments classified to other industries and by individuals intermittently operating one or two shingle machines or producing shingles by hand.

Veneer and plywood. Hardwood veneer and plywood is produced mainly in the eastern provinces and softwood veneer and plywood almost entirely in British Columbia; Douglas fir is most commonly used because large sheets of clear veneer can be obtained from its large-diameter logs. Of the hardwoods, birch is the most important. Most raw materials are of Canadian origin but some decorative woods are imported, particularly walnut.

Softwood veneers are further manufactured into softwood plywood by Canadian mills. Some hardwood veneers are shipped to other mills in Canada for further manufacture or to the furniture industry for veneering. A significant portion is exported.

8.1.5 Paper and allied industries

The standard industrial classification also subdivides the paper and allied industries group.

The pulp and paper industry is the most important. Part of its production is consumed in Canada or serves as raw material for paper-using or secondary paper and allied industries. A great part of it is exported, particularly newsprint and various types of pulp, most of it to the United States. Some plants included in the pulp and paper industry classification convert basic paper and paperboard into more highly manufactured papers, paper goods and boards. Their output is only a small part of Canada's total production of converted papers and boards. (Tables 8.9 - 8.11)

Asphalt roofing manufacturers produce composition roofing and sheathing, consisting of paper felt saturated with asphalt or tar and, in some cases, coated with a mineral surfacing. Total shipments in 1981 were valued at \$268.6 million.

Paper box and bag industries include manufacturers of folding cartons and set-up boxes, of corrugated boxes and of paper and plastic bags. Total shipments in 1981 amounted, respectively, to \$557.2 million, \$1,050.3 million and \$695.2 million.