

Studies are also being carried out to discover a method of reducing the amount of nitrogen in manure — a process which, if successful will help to cut down on possible nitrogen pollution from manure used as fertilizer. This project, sponsored by the Department, is now under way at the University of Toronto.

At the present time there is growing concern about the problem of animal waste because of the trend to high density feedlots or barn confinement of livestock. While these solid wastes tend to be land polluters, they can also contribute to air and water pollution. How big is this problem? Well, it is estimated that an enterprise comprising 600 dairy cows or 5,000 hogs or 70,000 broilers would involve a waste disposal problem comparable to that of a town of 10,000 persons.

To help cope with this problem our Department has provided funds for research conducted by the Utilization of Animal Wastes Committee at the University of Guelph. In outlining their research program, the Committee pointed out that the agricultural industry has a responsibility to society to develop systems for the control of air, waste and soil pollution that could arise from improper handling and disposal of agricultural waste. The Committee hopes to develop methods of handling and utilizing animal wastes that will minimize handling costs, limit pollution, and provide ways for reusing these wastes in agricultural production. This program has been given top priority for the 1970-1971 period.

A second major contribution in this area has been the "Suggested Code of Practice" for the establishment of new livestock buildings, renovation of existing buildings, and the disposal of animal wastes. This was jointly produced by the Air Management Branch of the Ontario Department of Energy and Resources Management, the Ontario Water Resources Commission, and the Ontario Department of Agriculture and Food. The Code of Practice represents the first formal attempt to provide guidelines regarding the land and location requirements for confined livestock enterprises.

The Department, in cooperation with the Ontario Water Resources Commission, the Ontario Department of Health, and various Federal agencies, also enforces the regulations for dairy plant and slaughterhouses — these regulations include strict requirements for plant design, cleanliness and waste disposal systems.

Information on all phases of pollution or environmental control that involve agriculture is available at any one of the 54 field offices operated by the Extension Branch of our Department.

So far I have mentioned only the pollution problems created by the agricultural industry. Quite often, however, agriculture is the recipient of pollution from non-agricultural sources and unjustly blamed as a polluter in others.

The by-products from primary and secondary industry, which are transported by air and water, can directly affect soil, crops and livestock. While many of these compounds and elements are essential to animal and plant growth, they become toxic beyond certain levels of concentration.

Another example is the problem of untreated urban sewage which contributes a variety of agents to surface waters ranging in nature from viruses to parasitic worms. This type of pollution may pose a serious problem to agriculture if this water is used for irrigation purposes or for washing milking utensils.

Farms located near urban centers and recreational sites may face the problems of air pollution created by insect spraying programs in these areas. This is of special concern to dairy or meat producers.

Farmers growing crops along major highways have found, through testing, that these plants contain abnormal amounts of lead from gasoline.

In the large urban areas garbage or solid waste materials are creating an ever-increasing problem. In one year, Metropolitan Toronto disposes of over one and a half million tons of waste. One nationwide survey found that 1,000 pounds of trash is produced each year for every man, woman and child in Canada.

People today are consuming more, travelling more and throwing away more than ever before. Manufacturers are busy developing throw-away garments, dinnerware and containers of all kinds. These so-called convenience packages increase the accumulation of hard-to-handle waste products.

Many national and local organizations in the United States are joining forces to coordinate their efforts and provide information about fighting the accumulation of solid waste. For instance, the Ecology Education Institute of Berkeley University in California has set itself up to teach people how to channel wastes back into the economic system. They tell shoppers to insist on returnable bottles, and not to buy so-called convenience packaging because cellophane, wax paper, styrofoam and plastics do not decompose naturally as do organic things such as vegetable peelings and meat scraps.

How do we dispose of the solid waste material that is accumulating? To date, the customary methods have all resulted in additional pollution problems. The system of open dumping is a destroyer of irreplaceable land; the burning of refuse is a serious source of air pollu-