

Silage to supersede hay crop

If initial expectations of a research project being conducted by Agriculture Canada's Animal Research Institute materialize, the sound of tractors droning round fields under cloudy, moisture-laden skies will become common.

Dr. Raymond Lessard, a nutritionist and forage-conservation specialist, foresees the day when haying, as a means of providing livestock with winter feed, will be little used on large farms. Silage, in its many forms, will supersede the hay crop as research continues, he says, with the aim of providing low-cost feed with high-protein content, regardless of weather conditions.

Tower silos are commonly used for storing forage, but they have had their shortcomings. The main one is that the forage must be wilted — containing not more than 70 percent moisture — when it is stored because a higher water content causes not only an evil-smelling and less nutritious feed, but also corrodes the concrete walls of the silo.

The Agriculture Canada project involves studying horizontal — or bunker — silos, which although not “particularly new”, Dr. Lessard says, “no one has really studied them to determine their value to the farmer”.

In addition to the six existing tower silos — each of which measures 30 feet in diameter and 80 feet in height — at Agriculture Canada's Farm in Ottawa, two concrete bunker silos have recently been constructed.

Each measures 130 feet long, 35 feet wide and 16 feet high, and is built entirely of concrete with easily replaceable sections in the event of corrosion. Each has a capacity for 500 tons of dry matter — the equivalent of the yield from two harvests from 125 acres of pure-stand alfalfa.

The bunker silos are being filled with corn silage, at 70 percent moisture, and tests will continue through the winter to determine the condition of the silage and the extent of nutrient losses.

The corn silage in one bunker silo is being compacted with a tractor, while that in the second is being left to settle and compact naturally. Tests have already shown that 20 percent more silage will be contained in the packed silo.



Agriculture Canada employees filling the two new concrete horizontal silos

on the Dominion Experimental Farm, Ottawa.

A third silo, a tower, has been filled with corn silage, and similar studies will be conducted on that feed for comparison purposes.

“The main advantage of the bunker silos, in addition to lower construction costs, is that the moisture content of the forage can be quite high — as much as 80 to 85 per cent,” says Dr. Lessard. “This means that forage can be harvested and blown straight into the silo.”

“There's no delay. The farmer will not have to wait for the wilting process to reduce the moisture content.

“In addition, the farmer will need less manpower during harvest time, which is itself greatly reduced. The weather doesn't affect the operation either. As long as it isn't raining too hard, the forage can be cut and immediately stored.”

The problem with haying and conventional forage harvesting is the delay caused by the need for a lower moisture content. In addition, valuable nutrients can be lost from a forage crop — including hay — by leaching during rainfall when it's lying in the field.

International data transmission

Although a person can speak by telephone to another person in almost any country, sending data on telephone lines at high speed across national boundaries still has some shortcomings. Among those examining such possibilities is Dr. Paul Wittke of Queen's University electrical engineering department.

Using Queen's computing centre, Dr. Wittke has recorded test signals over telephone lines between Kingston, Ontario and major centres across Canada to see how well the transmission process works.

Distortions, fluctuations or breaks in lines between two people in conversation are often unnoticed and insignificant, but if such events occur during the transmission of technical data travelling at 9,600 units a second, for example, the result can be disastrous, according to Dr. Wittke.

Professor Wittke is working under a \$48,000-contract with ESE Limited of Toronto, which in turn has another

contract with the federal Department of Supply and Services. The work is sponsored by the Department of Communications.

Sophisticated equipment is required to transmit high speed messages, Dr. Wittke said, and in future it may be possible to operate computerized banking procedures or check credit ratings in a matter of seconds from any point on the map.

Blocking such an eventuality, however, are the diversities of world telephone systems, and the political tangles which result when attempts are made to unify them, Dr. Wittke said.

Dr. Wittke became aware of these problems in December when he was among the Canadian delegates to meetings in Geneva of the International Telecommunications Union (ITU).

Recommendations from Dr. Wittke's research will be presented next month to the International Telegraph and Telephone Consultative Committee of the ITU, and from there they may be taken to the plenary assembly of the ITU in 1976.