

Energy management on the farm

Every year Canadian farms produce more food; the challenge is to do so while consuming less energy. Last year Canadian farmers put food on our table and at the same time exported \$9.5 billion worth of products. In 1981 farmers spent \$1.2 billion on energy. With rising energy prices, energy accounts for an increasing part of farm overhead. Cutting energy costs is critical to our continued competitiveness and is one area where real gains can be made. Research is revealing new practices that can reduce energy use, and confirming the value of many existing practices farmers are using to lower their energy bills.

The Saskatchewan government and Energy, Mines and Resources Canada set up a farm energy management program in 1981 to study 21 Saskatchewan farms. A wide range of types and sizes of farms was chosen throughout the province. Farmers were asked to monitor all energy use in the farmhouse, the barns and on the land.

Meters were put on all gasoline and diesel fuel storage tanks. Log books were kept to record quantities consumed, equipment used, and the job performed at each refueling. The amount of heating fuel and electricity used was calculated from invoices. Fuel use was divided into three categories:

- production — hauling fertilizer, harvesting and hauling crops, grinding feed, handling and hauling manure, clearing land, picking rocks;
- transportation — fuel used for cars and trucks; and
- other — fuel used for such equipment as garden tractors, snowmobiles, lawnmowers, all-terrain vehicles.

A research team of engineers, agricultural economists and energy analysts worked with each farmer to assess the information and come up with ways to cut costs and increase crop yields. The solutions are not new or magical, just sensible.

Using the appropriate machine for any given job yields real energy savings. Machines perform most efficiently when they are cleaned and tuned properly. They can be used more efficiently if the depth of tillage is reduced, if field working patterns

are improved, and if the land is simply tilled less frequently. Less tilling has the side benefit of reducing moisture loss and soil erosion.

The same principles apply to multi-use vehicles. The half-ton pickup is not appropriate for small shopping expeditions. Keeping all vehicles properly tuned and tires at the maximum recommended pressure improves fuel economy. Timers allow engine block heaters to be used for two or three hours in the morning rather than all night.

At harvest time, the energy-conserving farmer leaves strips of tall stubble to hold the snow on the field; this improves the soil's moisture content and crop yield.

Nitrogen fertilizers, produced by using large quantities of natural gas, are expensive. Many farmers rotate legumes with other crops, adding significant amounts of nitrogen and organic matter to the soil. This practice, known as green manuring, can reduce the use of nitrogen fertilizer.

New machinery is being developed to cut

costs. Narrower cultivator tines move more easily through the soil, requiring less energy and creating less wear on the equipment.

Just like other homeowners, farm families are saving energy by turning down the thermostat, maintaining their heating systems, lowering the temperature setting on the hot water heater, using less hot

water, turning off unnecessary lights, reinsulating, sealing cracks. Windbreaks can be planted to shelter the home and farm buildings.

In the barns, the farmer can make sure the heating and ventilation systems are not competing. Thermostats, fans and motors must be kept weatherstripping and clean if they are to func-

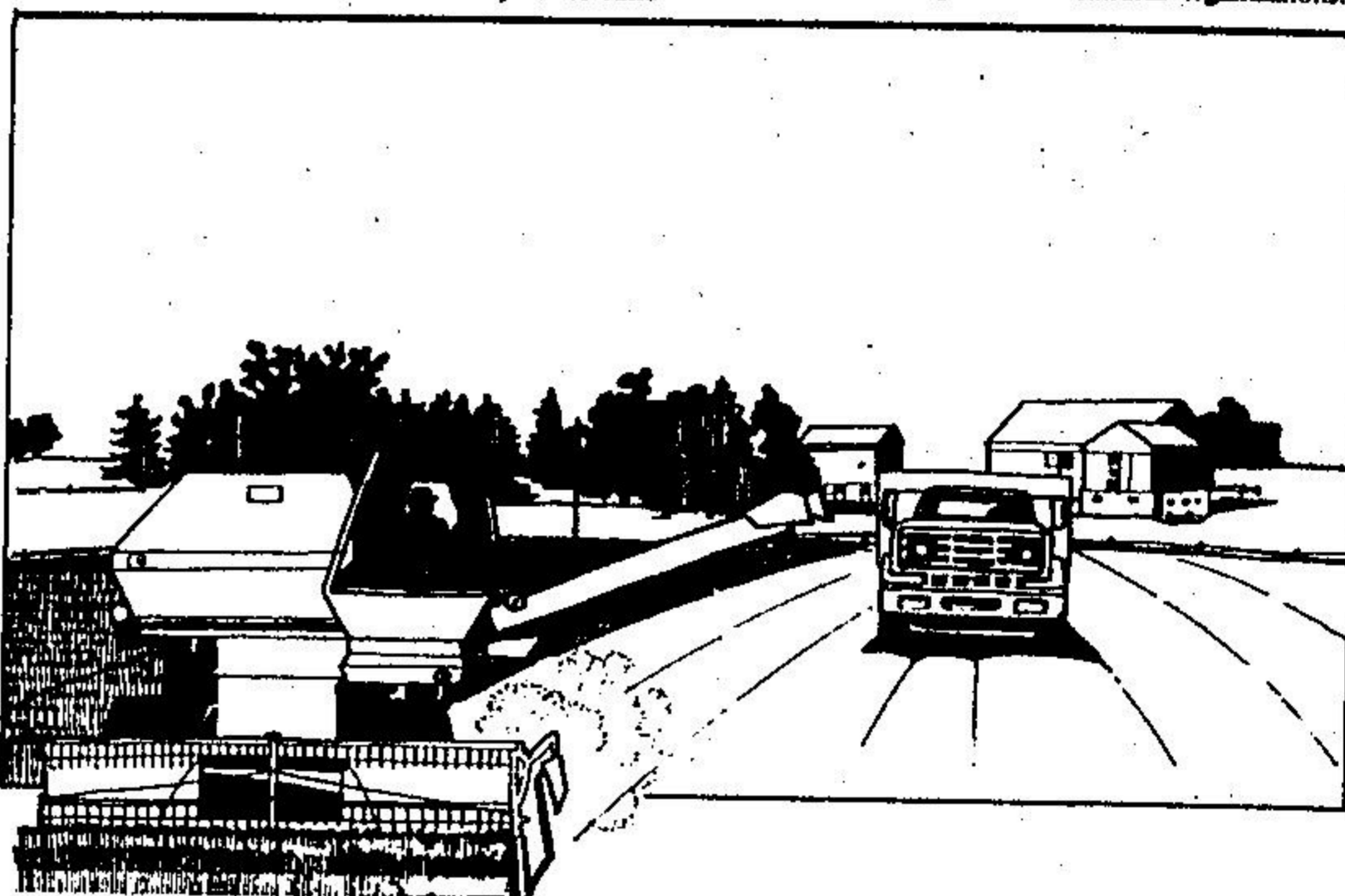
tion efficiently. Lighting can be reduced.

The success of this program is pointing the way to improved energy efficiency. If the steps identified were taken by all Saskatchewan farmers, the total energy bill could be cut by as much as 20 to 30 per cent.

The Canadian Farm Energy Management Task Force is another organiza-

tion promoting energy conservation on the farm.

The task force provides farm organizations with audiovisual and brochure material on farm energy management, assistance in the presentation of workshops and coordinates an interprovincial information exchange. The task force can be contacted through provincial agricultural organizations.



Replacing windows for energy savings

Thinking about replacing some of the windows in your home? Whether you're doing it for aesthetic reasons or to save on your energy bills, keep the following factors in mind so that the windows you purchase will help put money back in

your pocket.

During the winter, large areas of glass can alternately chill and overheat a room. In the summer, overheating is frequently a problem.

A single pane of glass has an RSI value of about 0.16, which means that it

loses about 10 to 20 times as much heat as the same area of properly insulated wall. Heat transfer through windows is affected by:

- the number of layers of glass or glazing material;
- the amount of air space between the layers; and
- the thermal resistance of

the frame and sash materials.

Storm windows, or double glazing, will cut the heat loss through single-glazed windows almost in half, but in many parts of Canada triple glazing is worthwhile, particularly for north-facing windows.

Both double- and triple-glazed units are available factory sealed, with dry air spaces between the panes ranging from 6 mm to 15 mm. Seals are usually guaranteed for 5 to 20 years. If the seal breaks, moisture may leak into the unit and accumulate between the panes.

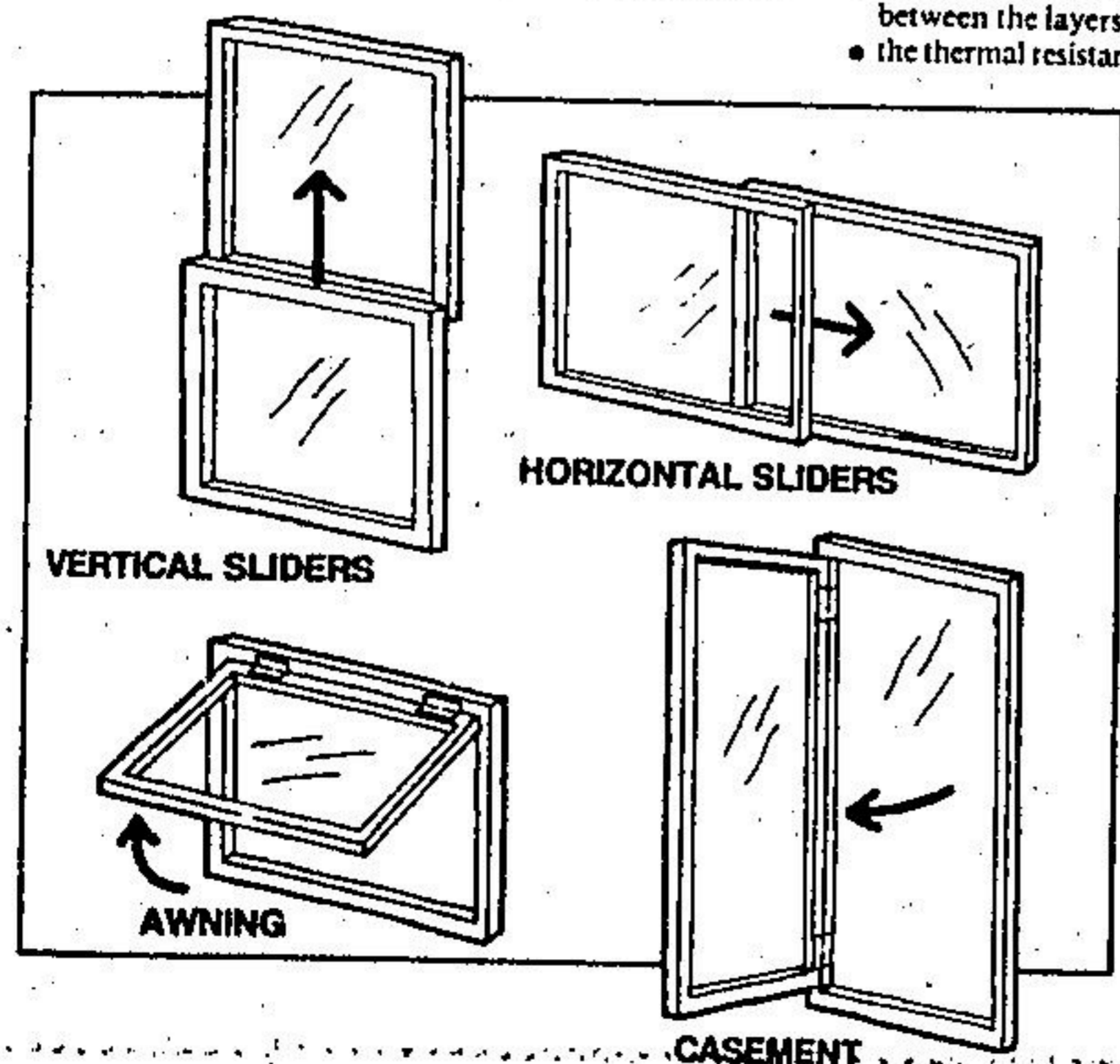
Triple glazing can also be achieved by installing a sealed double-glazed unit and protecting it from the elements by attaching a storm window outside. But remember, to avoid condensation problems it is important that the inner panes be more tightly

sealed than the outer pane. In the coldest regions of the country, a system of triple glazing will usually pay for itself in decreased fuel bills within 15 years. The material of the frame you choose will also affect the amount of heat loss. Metal frames are the most durable and require

very little maintenance, but they transfer heat in summer and cold in winter. Metal frames with a thermal break (a piece of material like plastic or wood placed in the centre of the frame) are more energy efficient.

Wood frames have a

much higher thermal resistance than metal frames, but they require regular maintenance. Frames are available with a vinyl coating over the wood, which reduces the upkeep. Some are completely vinyl; these have an insulating capacity somewhere between that of wood and metal.



FOR QUALITY PRODUCTS WITH EXPERT SERVICE

Artisan
windows and doors limited
CALL 877-5413
LAKESHORE ONTARIO

AGE MECHANICAL LTD.

**PLUMBING: REPAIRS, ALTERATIONS
NEW WORK, DRAIN CLEANING.**

**HEATING: HOT WATER, GAS,
STEAM, SHEET METAL**

**ACRYLIC TUB
&
SHOWER REPAIR**

877-3638

846-6270