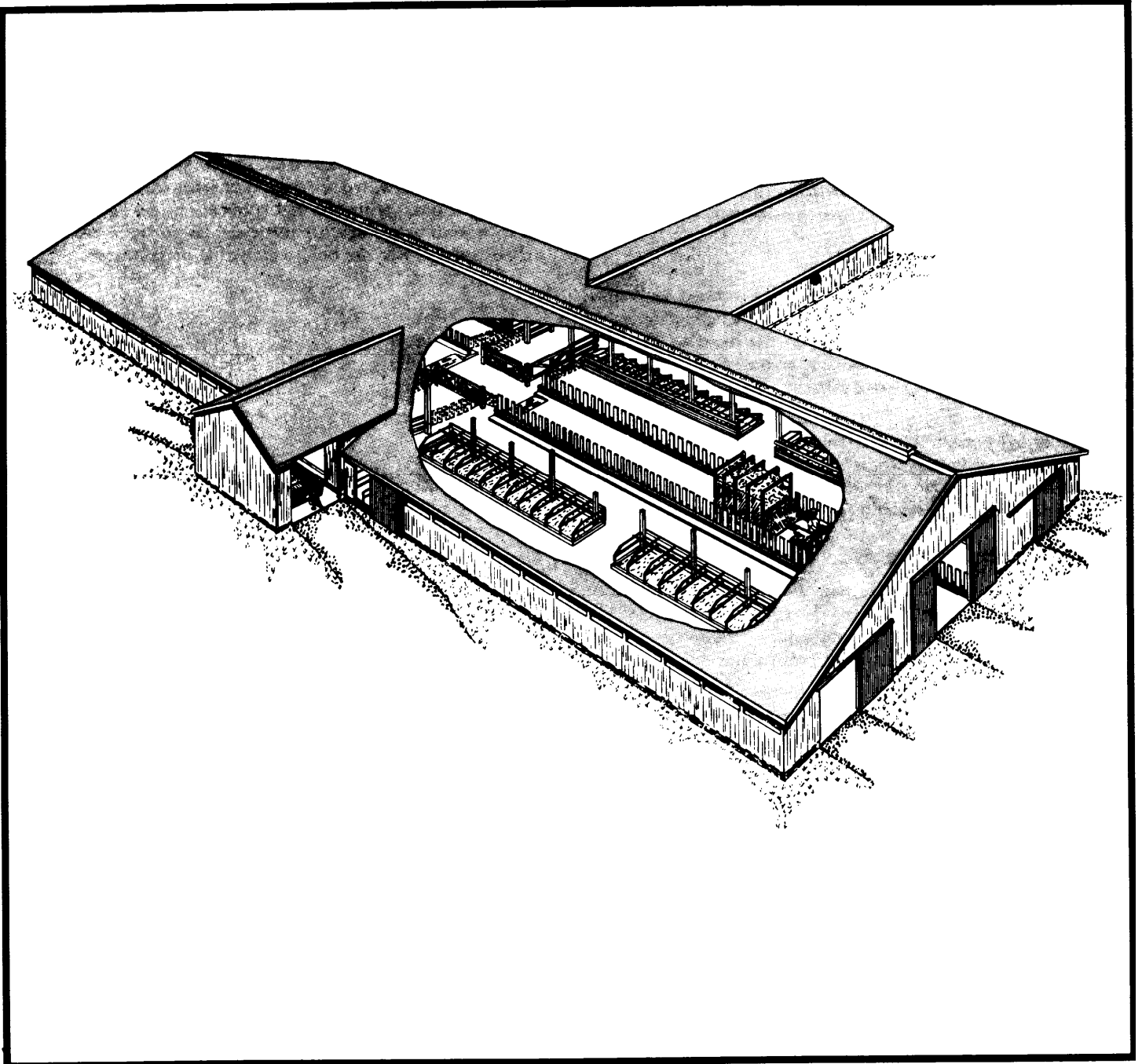


FREE STALL DAIRY SYSTEM - 200 STALLS



The Canada Plan Service prepares detailed plans showing how to construct modern farm buildings, livestock housing systems, storages and equipment for Canadian Agriculture.

This leaflet gives management information and describes one of these detailed plans. To obtain a copy of the Canada Plan Service detailed plan, contact your local provincial agricultural engineer or extension advisor.

FREE STALL DAIRY SYSTEM - 200 STALLS

PLAN 2106 REVISED 06:05

This is a detailed set of plans for a free stall barn to house, feed and milk a herd of 200 cows. Basically the plan consists of an 86-ft span building with two rows of free stalls on either side of a center drive-through feed alley.

MILKING SYSTEM

The milking center (Plan 2502) is located at the center of the main barn to minimize cow travel and to permit the herd to be divided into 4 groups of 50 cows, grouped according to milk production or stage of lactation. One of the groups could be dry cows and bred heifers. The milking parlor can be either a double-4 or double-8 herringbone (for 1 or 2 persons milking). The milking center also includes tie stalls and box pens in an adjacent area for breeding and veterinary purposes. The milking parlor has 2 return alleys to allow cows to return to their own quadrant of the barn without crossing other cow areas.

FEEDING SYSTEM

The main feature of this barn is the drive-through feed alley. This allows all types of feed (green chop, silage, chopped or wafered hay and concentrates) to be delivered to the cows with a self-unloading power box in amounts desired. A feed saving tombstone feeding fence separates the cow passage from the feed alley.

A further advantage is the elimination of expensive, often troublesome mechanical feeding conveyors. Feed storages can also be located away from the main housing structure providing more flexibility in site selection and better fire separation.

VENTILATION SYSTEMS

This plan shows the 'modified environment' ventilation principle. With this, the inside temperature will only be 3 to 5°C warmer than the outside temperature during the winter months. It is essential therefore to use frost-proof watering units.

This plan is not recommended in colder regions (where winter temperatures often drop to -25°C or lower). The wet manure in the cow passage will freeze preventing scraping until warmer weather returns.

With modified environment, some insulating material such as sheathing plywood should be placed under the roofing to reduce condensation, freezing and dripping in winter. Continuous eave and ridge openings are provided to allow a natural movement of air through the building. Two continuous eave openings are located just behind the face boards; these openings can be regulated by cable and winch from 2-inch minimum to 8-inch maximum. The 8-inch ridge opening is flanked on both sides by vertical baffles to help exclude snow and rain.

The open eave and open ridge ventilation system can be supplemented in spring and fall by tip-in panels which extend continuously along each side wall of the building, and in summer by large sliding doors near the corners of the building.

MANURE HANDLING SYSTEM

Two tractor-scraper manure handling systems are shown in this plan. In freezing weather sprinkle urea fertilizer on the cow passages just after cleaning; this helps cleaning by preventing manure from freezing to the floor.

The tractor scrapes manure to: (1) a mechanical cross conveyor and manure stacker to a large storage slab beside the barn. This storage slab has concrete side walls to confine the manure for later loading and spreading; (2) a low buck wall opposite the milking center. Here the tractor bucket lifts and loads the wet manure over the wall and into a manure spreader. The spreader must be capable of carrying sloppy manure without dribbling; conventional box spreaders for example should have a hydraulic end-gate for this purpose. The spreader carries manure to a remote storage or directly to the field.

To control water pollution, manure storages should be constructed and located to prevent seepage into ground and surface water supplies. Plan for sufficient storage to eliminate spreading of manure on snow, frozen ground or sensitive crops. For most farm situations, spring and fall applications are best, requiring up to 6 months storage. Obtain approval for your plans from proper local authorities before construction is started.