

PLAN 2101

FREE STALL DAIRY SYSTEM - 60 COWS

This is a detailed plan set of a free stall dairy barn for milking 60 cows. The basic plan includes 60 free stalls, a feed bunk, and adequate cow passages fitted into a 50-foot clear span building; floor space in the milking herd free stall area is 94 sq. ft. per cow.

Milking System

The milking center (Plan 2142) includes a double-4 herringbone milking parlour. The milking cows are handled as a single herd, with one of the two cow passages acting as a holding area to confine cows waiting to be milked. A single cow passage at one side of the milking parlour returns cows to the other side of the barn after milking.

Layouts

Four possible floor plans are shown on sheet 2 of the plan set. These 4 floor plans each give a basic 60-cow barn with choice of feeding system, manure system, and additional units for maternity/calf, and dry cow/heifer housing.

Sheet 3 consists of the basic barn with optional extensions at each end. One of the extensions (50'x44') includes 33 free stalls and feed bunk for dry cows and heifers. The other extension (50' x 32') includes 3 maternity pens, 3 breeding stalls, 6 pens for calves from birth to 3 months and 12 free stalls for young heifers from 3 to 10 months of age. This provides only enough young stock housing to provide replacements for the 60-cow milking herd, but not enough to raise all of the heifer calves.

Sheet 4 shows the same basic barn with dry cow/heifer area attached at the opposite end, but without maternity/calf area.

Feeding Systems

Each layout on sheet 2 illustrates possible locations of silos, grain storage, feed room, and optional attached hay storage.

Feed bunks are included for either (1) silage and grain, or (2) silage, grain and baled hay. Hay feed bunks have a feed-saving tombstone feed fence, and an optional chain-type silage conveyor in case both silage and hay are fed.

Ventilation System

The basic barn and attached dry cow/heifer area use 'modified environment', ventilation; adjustable flap openings under both eaves and a continuous slot at the

roof ridge provide natural ventilation. Without fans and thermostats, there is no precise control of temperature. The eave flaps can be controlled with a cable and winch to keep out snow, and maintain an inside winter temperature about 50 to 200 above outside. For ventilation in milder weather (above freezing), tilt-in window panels can be opened; for hot summer weather, large sliding doors open for the best possible cow environment.

Since this barn will freeze in typical Canadian winters, electrically-heated waterers are essential.

The maternity/calf area has 'controlled environment', with thermostats and exhaust fans to control ventilation throughout the year. A ceiling center air inlet receives fresh air from an insulated attic duct which uses the roof trusses for framework.

The fresh air inlet is made adjustable by suspending a baffle of rigid insulation under an 8-inch wide continuous slot in the ceiling. This baffle hangs on steel wires suspended from the duct above, and the inlet is easily adjusted by swinging the baffle endwise by means of a control rope at one end. This is an important feature to maintain a high enough air inlet speed across the ceiling to prevent cold drafts at the floor. The plan includes a schedule of thermostat settings and inlet adjustments for various seasons.

Manure Systems

This plan is designed for tractor scraping of the manure alleys, and includes details for 2 manure handling systems: (1) Tractor scrape to a mechanical cross conveyor and manure stacker to an outside storage slab with concrete retaining walls. The walls are required to retain the wet manure which would otherwise ooze away to cause pollution because the manure contains little bedding. (2) Tractor scrape to liquid manure storage tank located under the floor of the barn. This tank has enough storage for one to two months; manure should be pumped to lower-cost storage outside the barn during winter and spring when field spreading is not desirable. The liquid manure system also provides the best method for disposal of wastes pumped from the milking center.

To control water pollution, the manure storage tanks and walled storage slab should be water tight. In either case, plan for sufficient storage to eliminate spreading 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 you start construction.