Dairy Barn Construction

An article describing the dairy barns which have been satisfactorily erected by the Department of Agriculture in Alberta

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The matter of recommending a particular type of dairy barn for use on Western farms is a very difficult problem in view of the fact that the type of barn required by each man will be determined by the special conditions under which he is working. The plan of barn herewith illustrated is one which is in use on some of the demonstration farms of the province of Alberta. It was devised after six dairy barns had been erected on the various demonstration farms, so that the ideas incorporated in this plan are the result of experience gained in the erection of the other barns. It may be explained here that the buildings in use on these farms are intended to be suitable for the use of the ordinary farmer. No attempt has been made at an elaborate plan of building other than will serve in the most practical way for ordinary farm operations.

The plan of the building submitted is 66 feet long and will accommodate 30 cows and leave room for two box stalls and a feed room. If less or more cows were to be accommodated it would merely be a matter of lessening or increasing the length of the barn. Experience has taught us, however, that the width of the barn should not be less than 38 feet in order that there may be sufficient room for passage in front and behind the cattle, and that the manger, stall and gutter be of proper size. If the passage behind the cattle is narrower than 6 feet it will be found impossible to keep the walls clean, and facilities for keeping a dairy barn clean should be one of the very first considerations in building.

The Concrete Work

The cross-section plan of the floor gives measurements which will be found satisfactory to follow in laying concrete. It is advisable to make the length of the stall on which the cows stand longer at one end of the barn than at the other to accommodate both small and large cows. For Holstein cows the stall stand should be about 5 feet 4 inches at one end and sloped to 4 feet 8 inches at the other. The gutter and the manger should have a fall of about 1½ inches in the length of the barn, and where there is drainage from the building it will be well to supply both the gutter and manger with a bell-trap and sewer connection. The elevations of the cement floor thruout should be kept as near a level as possible. For instance, the passage in front of the cattle should not be more than 6 inches higher than the passage behind them. If these different elevations are kept fairly close to a level it will prove convenient in that it does away with steps in the floor which are unquestionably a disadvantage in any floor and prevent the possibility of using a wheel cart for moving feed or other material. It will be noticed that the plan shows a slope of about an inch to the gutter on the cattle stand. After the various measurements of the barn have been determined there are three or four important matters which deserve careful consideration, namely:—Ventilation, light, feed storage, wall and roof construction. These different matters are made fairly clear in the accompanying plan, but may need some explanation.

In the matter of ventilation it will be seen that there are three intakes on each side of the barn and that the intake is protected on both the inside and outside of the barn by a pier. This pier forces the air to come into the barn in a "U shaped" fashion, thus preventing a draft. The size of the inlet in each case is 4 by 8 inches. For the purpose of controlling the amount of air entering the barn, thus helping to regulate the temperature during extreme weather, it is well to have a shut-off in the intake. There are four outlets which commence at the ceiling and go straight to the roof, extending to a point beyond the peak. They are 20 inches square on the inside and provided with a swing damper, by which means it is easy to control the outlet of air at all times. These ventilators are built of two ply of lumber and two ply of paper with a dead air space between. This protection prevents the warm air from chilling with consequent condensation and dripping from the ventilator. This system has been found to work very satisfactorily in Alberta with a little attention on the part of the person who is looking after the barn.

The matter of light is one which does not need much explanation. Windows 3 feet by 3 feet placed about 4 feet apart and hinged at the bottom so that they will open in, with an arrangement to prevent them opening more than 8 or 10 inches, will be found satisfactory.

The matter of feed storage room is one that has not concerned the Western farmer to any very great extent, owing to the fact that there is very little rainfall between the time that the feed is harvested and the time it is consumed by stock. If, however, feed is put thru a cutting box and most of the grain crushed, it will be found advisable to have a fair amount of storage room in the loft of the dairy barn, unless of course the cutting box and grinder are in some other building, in which case it will be possible to reduce the storage room in the dairy barn to a considerable extent. The roof is the expensive part of the building, and a few dollars spent in increasing the height of the walls will be well repaid in the extra satisfaction which will be secured.

Materials and Equipment

We have found that in order to have the barn built well and at the same time be sufficiently warm in the extreme weather, it is necessary to have three plies of lumber in the wall construction' dropsiding and paper on the outside of the studding, shiplap and paper on the inside and "V" joint for an inside lining. This "V" joint gives a splendid appearance to the inside of the building, particularly if it be carried over the ceiling.

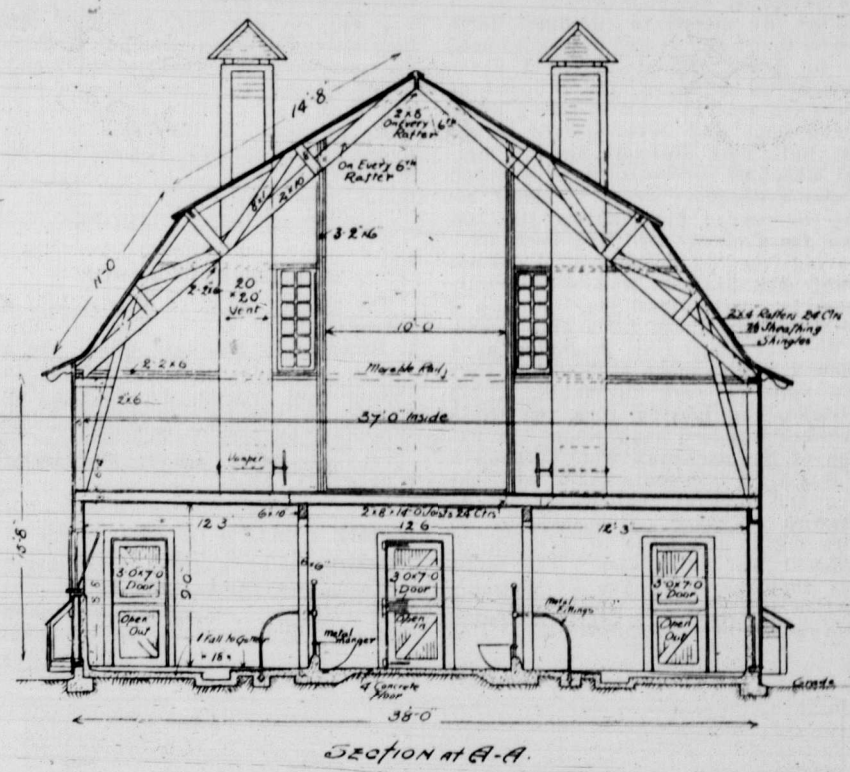
The hip roof has been used in the construction of all our dairy barns for the reason that it affords considerable extra room for storing feed, that is, in comparison to the straight roof. In order to properly secure a hip roof it is necessary that there be a truss on at least every sixth rafter and that the truss be collar-tied to the hip. This is necessary in order to prevent the roof from springing out when the hay-slings are being used. It also affords extra protection to the roof in case of high winds.

Dairy Barn Equipment

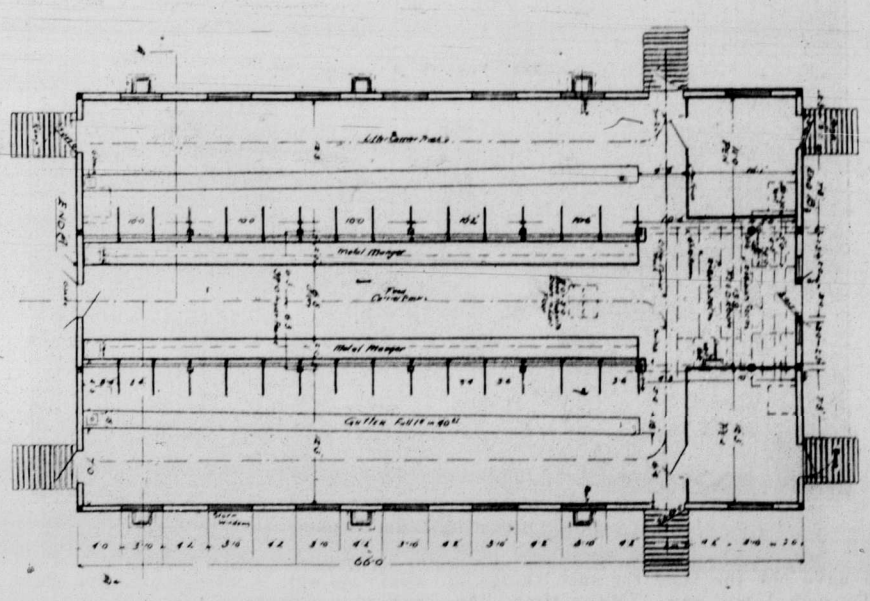
Under the head of dairy barn equipment brief discussion might be made of the kind of floors, stanchions and machinery. In the first place it is generally admitted that cement floors are superior to planks, in that they are more durable and also much more cleanly, and, if there is no cash outlay for drawing gravel and laying the cement, it is not so much more expensive than plank floors. There is an objection that the cement is cold on the cows' udders and that the legs sometimes become injured from lying on the cement. These objections, however, can be avoided if plenty of straw is used for bedding.

The steel stanchion has now come into such general use that a recommendation for it is scarcely necessary. They are handy, durable and safe. In the matter of hay-slings these too are in very common use and are a labor saving device which are well worth their price. If one is engaged in the dairy business at all extensively it will be found in the interest of economy to have some form of power in order that feed may be cut with the cutting box and that grain may be crushed or ground. The plan in use on the various demonstration farms is to have a ten horse power gasoline engine located on a cement base just outside the dairy barn. A belt connects this engine to a shaft in the loft of the dairy barn from which shaft other belts connect the grinder and the cutting box.

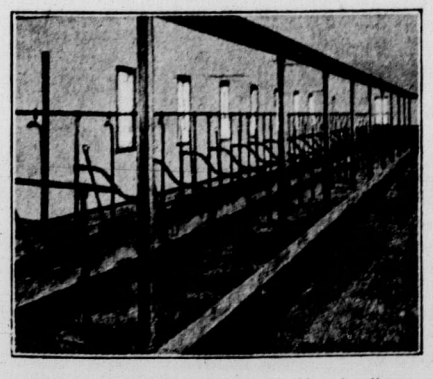
This, in brief, outlines the style of dairy barn which has been found very satisfactory in the province of Alberta. If any one wishes to secure further information respecting construction or equipment, the writer will be pleased to answer any correspondence and to supply blue prints of the barn which has just been described.



Section showing framing, arrangement of ventilation and stalls



Plain of dairy barn in use on some of the Alberta Demonstration Farms



Modern equipment aims to provide cleanliness and comfor.

Interior of modern dairy barn. Light, sanitary and comfortable

HOW TO INCREASE PRODUCTION

Tho Oklahoma was opened to settlers only twenty-six years ago and each settler got a farm, now the majority of the farmers are tenants. Living is precarious. The only persons certain of income from the land are the owners. This is in the inevitable drift and the only way to block it is to tax the land values only.

It is easier to succeed in the House of Commons than in business.—Mr. Bonar Law.

Tuberculosis is a vicious by-product of an incomplete and ill-formed civilization.—Sir Robert Philip.