en six weeks old, and a value
ced on them at that age. They
22 weeks of age, and a record
nt of feed used each week. Feed
ows, prices being per ton of each
nd oats, $28.00; ground barley,
ob, $18.00; shelled corn, $28.80;
5.00; bran, $23.00; low-grade
g, $32.00; shorts or middlings,
ob, $18.00; shelled corn, $28.80;
green feed, $2.00; skim-milk,
, $6.00; whey, $3.00; pasture
charged at 75 cents per hog.
profit the value of the hogs,
nd watered, was taken at 9

able gives some information re-
, as reported by the five con-
ed the greatest profits. They
the winners in the counties
igures are the average for one

ROM FIVE DIFFERENT
COUNTIES.

cost of duction.	Av. value.	Av. profit.
$12.53	24.84	12.31
13.63	24.84	11.21
9.14	19.65	10.51
8.06	18.69	9.83
9.33	18.72	9.39

embered that these averages
om the results submitted by
n each county; they are simply
ort of the winner in each

nce the winner in Grey County
erage value of his hogs at
per pound these hogs must
e average 276 lbs. Remem-
were only 22 weeks or less
ge, this young man must be
ing how to provide pork.
ne that at 6 weeks the young
unds each, which is a good
hat age. This would leave
and weight put on in 16
The total cost was $12.53,
n this $4.00, which was the
en 6 weeks old, we find the
6 weeks and making 226 lbs.
or $3.77 per cwt.
ort in another way we find
the different meals to be
30 per ton, or 1½ cents per
hey have been given values
efficiency as compared with
uite fair to use the word
all these feeds, and speak
h 1½ cents per pound. For
meal would be equal in feed-
lbs. of milk, and each would
1½ cents. Reducing all
meal it is found that each
put on for $3.77 or almost
eal, calculating such at 1½

United States have shown
are required to produce
igs weighing from 50 to
weighing from 150 to 200
of meal to make 100 lbs.
Day, at the Ontario Agri-
d at the following results:
2 lbs. required 310 lbs. of
gain; from 82 to 115 lbs.
of meal for each 100 lbs.
115 to 140 lbs. required
lbs. gain, and those weigh-
lbs. required 455 lbs. of
of gain. At the College
were grown to 170 lbs. of
meal for 100 lbs. of gain,
e time they were weaned.
he pig the more pounds of
each pound of gain.
rinted here to show that
y some of the contestants
with the teachings which
considered correct. We
erodox for farmers to ad-
esults which do not agree
ine. However, since the
Hogs for Profit Competi-
ished, setting forth the
and seeing that these
th the reports on experi-
by paid officials, it seems
ntion to the matter and
be done this coming sea-
various reports, and per-
final information regard-
of gain.
he young men were un-
perimenting, and did not
f recording every little
ake up the daily allow-
se the profits would be
roduction low in propor-
ut not recorded.

Lighting and Ventilating the Stock Barn.

By E. S. Archibald.

The importance of proper buildings for live stock is admitted by practically every stockman, yet buildings which are correct in every detail are exceedingly rare on Canadian farms. The two great essentials in a barn are, first, convenience, to increase the housing capacity of such a building, and in storing and distributing feed, thus saving labor; second, sanitation to improve the health of the animals and the quality of the products. This latter essential may be obtained only by having tight, water-proof floors, easily washed and disinfected; sufficient light in the barn in order to carry on the work, to add cheerfulness and profit, and good ventilation. The ideal barn might be described as being from 36 to 42 feet in width, having two rows of either ties or box stalls running lengthwise of the building, for the greatest conveniences and best lighting and sanitation. Wider barns are difficult to light to the centre, while narrower barns are not sufficiently commodious. Concrete makes the best flooring. The ceiling of such a barn should be from 8½ to 9 feet above the cattle stands. The walls should be well but cheaply built. Light should be provided at a minimum of 6 square feet, and a maximum of 10 square feet of glass per cow. It is the purpose of this article to deal exclusively with the subjects of the proper lighting and ventilation of the barn.

LIGHTING THE BARN.

To the thoughtful, intelligent farmer the needs for sufficient light in the stock barns are apparent; nevertheless the average barn in Canada contains less than ½ square foot of glass per cow, and even these windows are often so dirty that no direct sunlight may penetrate to the floors of passages and stands. Reasons why a barn should be well lighted are as follows:

1. In order to save labor by being able to work quickly.
2. To show and induce cleaning up the dirt and filth of the barn, which is harboring and spreading such dread diseases as abortion, tuberculosis, etc.
3. To make the barn bright, cheerful, and comfortable for the animals. This means greater production and greater profits.
4. To show the animals to better advantage, either for feeding or selling. The former point is important, for many a cow has been lost in a dark barn, where had she been seen more carefully at an earlier date, the cause of mortality might have been eliminated.
5. To show the animals in such a light that the needs of better feeding are apparent. This will disgrace the unprofitable cow and the farmer who is a poor feeder.
6. Glass is often cheaper than concrete or masonry work, and is not a great deal more expensive than lumber. There is no reason whatever for barns being dark, other than the fact that the average farmer will not think carefully on this subject.

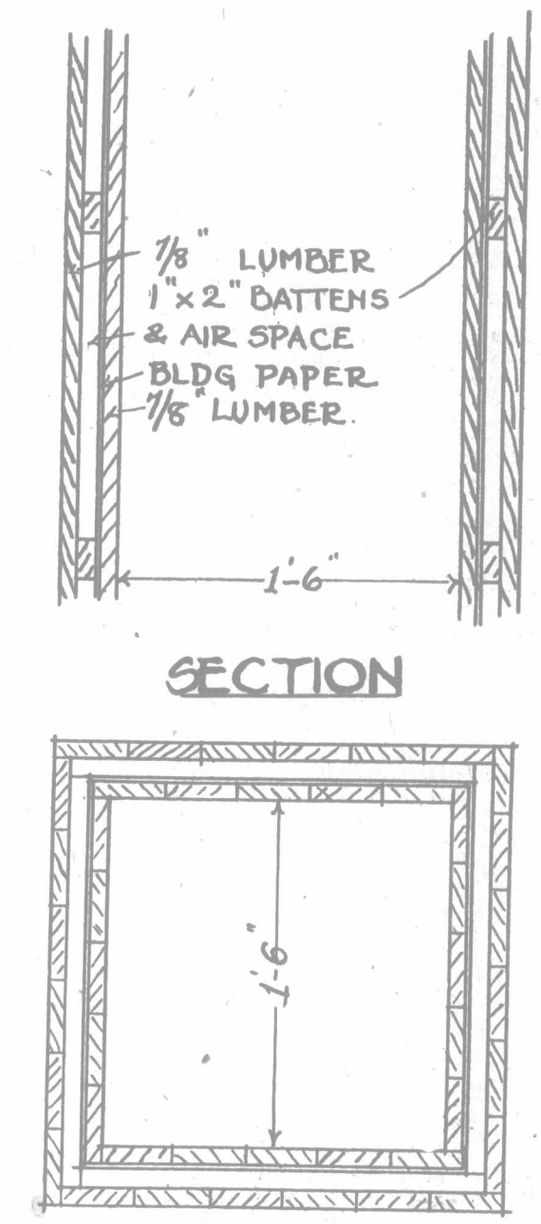
INSTALLING THE WINDOWS.

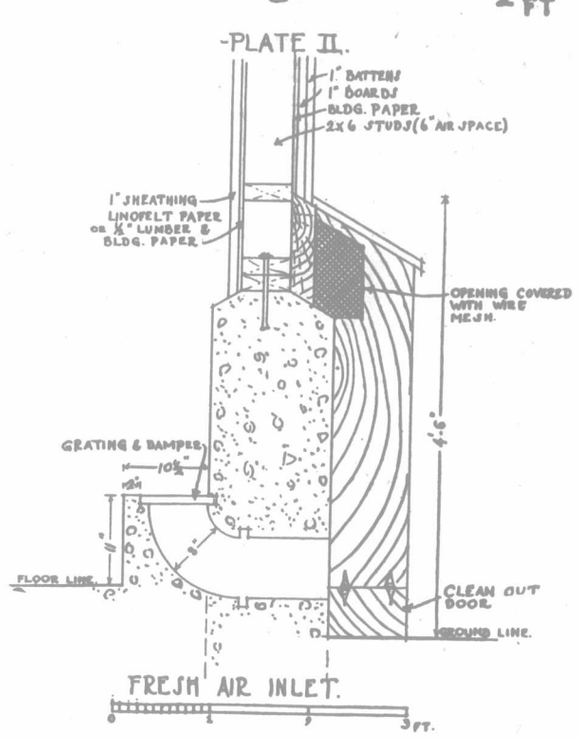
When it is possible, the best window frame to install is one containing two equal-sized sashes, the one placed above the other, the upper one being hinged to the top of the lower and dropping inward with some cheap regulating device. Each sash should contain six lights, each approximately 10 by 12 inches. Whatever the form of window, the main considerations are that they hinge inward, and that sufficient windows be supplied to provide from 6 to 10 square feet of glass per cow. Such a system of windows makes an auxiliary ventilation system in the very warm weather. Storm windows are very often advisable, as they increase the warmth of the barn in extreme weather, and the inner windows will not frost up and darken the barn. Where at all possible windows should be distributed, to a certain extent at least, on all four sides of the stable.

WHY VENTILATE THE TABLE?

The more important reasons for the absolute need of a good ventilating system might be briefly listed as follows:

1. Reasonably warm stables are required for milch cows and some other classes of stock. The specialized dairy cow has been developed for the purpose of making large quantities of milk with the least possible feed and at the lowest cost. During the severe weather of winter a minimum temperature of 40 degrees, with a maximum temperature of 55 degrees is most satisfactory. Hence, the warm barns of to-day have been evolved from the single-board, cold stables of twenty years ago.
2. Warm, tight barns have no circulation of air unless some ventilating system is provided.
3. The animals soon use up the oxygen in the stable and replace this with the carbon dioxide gas exhaled from the body, which latter, in any considerable quantity, has a suffocating and poisonous effect upon the animals. Ventilation draws off the air laden with carbon dioxide gas and provides pure air containing the necessary oxygen. This latter element is absolutely essential in liberal quantities to produce healthy blood in the system, and the most economical digestion and utilization of feeds. The best authorities tell us that a cow weighing 1,000 pounds breathes 2,800 cubic feet of air in twenty-four hours, containing 11 pounds of oxygen; or a horse weighing 1,000 pounds breathes 3,400 cubic feet of air, containing 13¼ pounds of oxygen, in twenty-four hours. It is necessary to supply at least one-quarter more fresh air than is consumed by the animals.
4. Animals excrete even more moisture than carbon dioxide gas. It is estimated that a cow gives off from her breath alone over 10 pounds (1 gallon) of water in twenty-four hours, but this does not include the moisture given off through the skin or by the bladder and digestive organs. The damp stable is one which is not ventilated, hence, contains both moisture and carbon dioxide. Damp quarters for stock induce rheumatism, chills, pneumonia, digestive disorders, and many other complaints. Animals which are damp cannot withstand cold. Dampness is the breeding ground of our worst contagious diseases.
5. Animals maintained in a poorly-ventilated barn require from one-quarter to one-third more feed to maintain bodily weight and condition and to maintain production than those kept in proper surroundings. This money lost may be the difference between profit and loss on these animals.





THE PRINCIPLES OF VENTILATION.

The three principles upon which ventilation is based are as follows:

1. Circulation of air is absolutely essential: where there is no circulation, moisture, carbon dioxide, and other gases will accumulate.
2. Warm air is lighter than cold air, hence rises to the ceiling. Again, warm air will contain more moisture than cold air, hence there will be greater dampness near the ceiling than at the floor. However, if this condenses on the walls or ceiling it will fall back to the floor or on the the animals in drops.
3. Carbon dioxide and some of the other stable gases are heavier than air, according to some authorities, such as Prof. W. H. King. However, recent investigators of the King and other ventilating systems find more carbon dioxide and other gases together with the moisture at the ceiling rather than at the floor, due largely to the gravitation of the warm air.

Hence the practice of proper ventilation becomes a question of keeping a constant circulation of air and drawing off the moisture, carbon dioxide, and other gases with the warmer air containing the same.

THE ESSENTIALS OF A GOOD VENTILATING SYSTEM.

1. Whatever the system may be, the first and greatest essential is that it be intelligently handled. There is no automatic ventilating system to suit all changes of temperature, humidity, etc., and the man in charge of the barn must regulate the ventilation to suit these conditions.
2. A reasonable amount of warmth is necessary in the barn to give a proper circulation of air. There must be several degrees difference between the inside and outside temperatures. The warmth of the stable depends upon the number and size of the animals housed therein and the feed consumed. Stable air which is too warm is apt to be foul. However, cold air is not always pure, in fact it may be most vile.
3. The walls must be reasonably tight, else cross drafts will often spoil the ventilation when it is most needed. A dead air space constructed in the wall is necessary to maintain a dry stable wall. The cold penetrating a solid board, stone, or cement wall condenses the moisture on the inside of this wall and retards ventilation. If the wall is of wood, board or sheathe on the inside of the studs, thus making an air space in the centre. If the wall is of stone or cement it will probably be necessary to line the inner side, leaving a 2-inch air space between.
4. Ceilings. The single-story barn with or without the monitor roof cannot be ventilated to good advantage in parts of Canada where there are extreme weather conditions. A loft above the stable, where hay and straw are stored, provides excellent insulation and prevents condensation of moisture. A tight ceiling gives the best ventilation and allows the cleanest barn. If no fodder is stored in the loft above,, it will be necessary to insulate the ceiling similar to the walls by sheathing on the underside of the joists, thus making a dead air space.
5. Capacity of barn. Too many animals crowded into a low, narrow barn cause so much heat that it will be difficult to ventilate without drafts. On the other hand, too few animals in a large space evolve so little heat that proper circulation of air is impossible. Arrange the barn to suit the cubic air space per cow for best ventilation. For example, in the dairy barn containing twenty-four cows, here illustrated, the three passageways total approximately 18 feet in width; the height of ceiling in this barn should not exceed 9 feet above the floor of cattle stands. In a barn of these dimensions each cow is allowed approximately 600 cubic feet of air. From 500