

for a cow to want to drink after eating. Water should be before her at all times. Food and water are important, but still there are other things to be considered.

We know that we can take two cows, feed them just the same, and one will produce more than the other.

Where does it come from. Sometimes from her own body. But then there are cases in which this factor does not account for the difference in yield. It is generally said one cow has the milking function to a greater degree than the other. What is "function?" We might define it as a nice sounding word that we use when "stuck"; in a similar case the untutored Indian gives a grunt and we are just about as wise. If there is not some source from which the cow gets the increased amount of milk then she performs a miracle.

THE VALUE OF AIR

There is still another element that is too often not considered, that is air. Air is as vital to the existence of animal life as it is to plants. A man can go for a long while without food. Some have fasted 40 days and nights. But, deprived of air for 40 minutes we would soon collapse. Just in proportion as we deprive the animal of pure air, we reduce the efficiency of the whole system. Pure air taken into the lungs oxidizes the blood, promotes circulation, aids digestion, and produces the power that enables the animal to accomplish work.

The cow to be a good one must have great lung capacity. To produce well she must have sufficient pure air to fill her lungs, else her superior lungs are of no benefit. The oxygen that she breathes goes to the nerve centers, stimulating them to greater effort. Just exactly how, it is a little hard to explain. However, I will give you an example that I had in my work. Two years ago I had two cows of the same age, same breed, calved on the same date. Each were in about as equal a condition as it would be possible to have them. I tested them for a month at home. One gave right along more milk, also more butter fat, than the other. She could not be taking more from her body; if anything the one giving the least was losing the most in weight. I brought them both down here to a dairy test. This dairy room has a very bad reputation with our men.

VENTILATION OF DAIRY ROOM

The air in there is never good. Sometimes it is very bad. The committees in charge have done all they can to improve conditions, but the building is too high for one thing, and to get enough pure air on the floor where the cows are, it would be much too cold. Then the cows stand with their heads against a solid wall, and the air they breath out cannot get away properly. Part of it must be breathed over and over again. It is bad enough for the cows when they stand up. It is worse when they lie down. Judging by the manner this building, and a lot of the stalls in the country are put in, we should think that the cows breathed through their tails, as the air has a better chance to circulate there. The less boards and other obstructions there are around a cow stall the better.

The way it affected these two cows was that one made no more while here than did the other. She fed all right and was all right, but her superior lung power was of no use to her, as the air was not pure enough. There never has been any big work done in this pen in which the dairy test has been conducted. Yet cows have done better work before coming here, and others have done big work after leaving here. We had better follow this up to show how the air and heat affects heavy milkers. Anyone that has done much official testing knows that big work is not done by the cows if they freshen in the summer. We can get the feed all right and we can get the water all right, but we cannot get the air all right. We

can get it pure, but we are liable to have hot spells. And that will knock a good cow out quicker than anything. We can see a good reason for this: A heavy milker takes so much air into her lungs that when it is too hot, it raises the temperature of the body too much, and the nerve centres are not stimulated.

SHOULD FRESHEN IN WINTER

I was testing two cows in June, 1907. The weather had been nice and the air exhilarating and the two cows had been doing well. Along came one of those very hot spells. The one cow dropped from 2.4 lb. fat daily to 1.85. The other cow had not been doing such good work and did not drop so much. Dairymen are getting wise to the fact that in order to have their cows (that is those heavy producers), do big work, they must freshen in the winter, when the temperature can be controlled. Too much sold is also bad, and no wonder, considering the amount of water the cow drinks and the air she uses.

A cow not milking in the winter will not require so much water. But, if cows are to give a large amount of milk the following summer, they need to be well cared for, and put in good condition for the heavy demand that will be made upon their strength. Pure water is quite as necessary as good feed. A cow kept in an ill-ventilated stable at night, turned out in the raw cold air all day, will not attain the desired vigor. Two winters never miss a right. The cow should have good air all the time. We should avoid all drafts in the stable. Avoid extremes of temperature. Keep the air as pure as possible, even if a little lower temperature must be obtained, and be regular in feeding and milking.

Further Particulars of Dr. Harwood's Farm

The article describing the dairy farm being conducted near Vaudreuil, Que., by Dr. L. de L. Harwood, a well-known doctor, of Montreal, that was published in the November 25th issue of The Canadian Dairyman and Farming World has

land and of the better cultivation it receives, the difference between the crops grown on my land and those grown on the land of some of my neighbors, is most interesting. One of my neighbors and I grew hay in adjoining fields. The land in the two fields was the same. The fence was all that divided the crops. My neighbor got five loads of hay off his land, while I secured 15 loads of land of the same size. I had worked my land thoroughly and had sowed plenty of seed. He had worked his in a great hurry and had sowed about one pound of seed to the acre. The aftergrowth on my land was so good, it might have been cut; my neighbor had none."

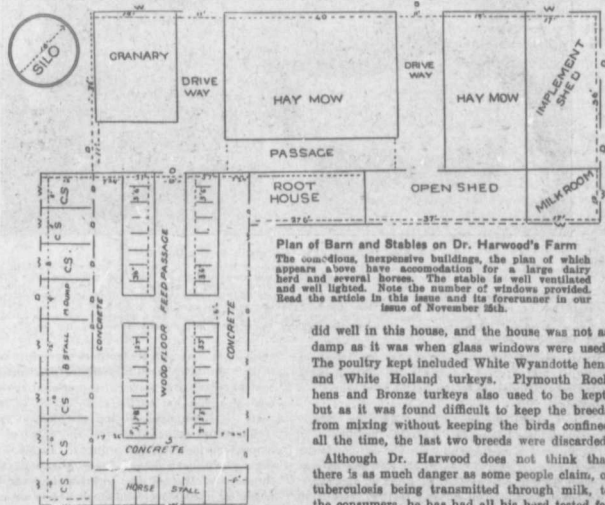
PLENTY OF PURE WATER

Dr. Harwood is a great believer in the importance of having a pure water supply both in the house and in the stable. A pump in his stable, draws water from a well 65 ft. deep. The stock are able to get fresh water at all times. "When I purchased the farm," said Dr. Harwood, "there were three old wells on it. These wells were so shallow, they gathered only the surface water, which was impure. The water used in the house was pumped from the river. I had these old wells filled and have drilled four new artesian wells, ranging from 40 to 80 ft. in depth. The water thus secured is of the very best and is always nice and cold." To prove this statement, Dr. Harwood had water pumped from one of the wells and held a thermometer under it. In the course of a few minutes the mercury dropped from 60 degrees to almost 45.

THE POULTRY HOUSE

Near the barn is a small poultry house, which faces the southeast, in which about 40 birds were kept last winter. (See cut page 9). Although the thermometer at Vaudreuil in winter, frequently falls to 20 to 30 degrees below zero, this poultry house does not contain any glass in the windows. The cotton system of ventilation is used.

A curtain is kept in front of the roosts, which is dropped on cold nights. Last winter the birds



Plan of Barn and Stables on Dr. Harwood's Farm
The construction, inexpensive buildings, the plan of which appears above accommodate for a large dairy herd and several horses. The stable is well ventilated and well lighted. Note the number of windows provided. Read the article in this issue and its forerunner in our issue of November 5th.

did well in this house, and the house was not as damp as it was when glass windows were used. The poultry kept included White Wyandotte hens and White Holland turkeys. Plymouth Rock hens and Bronze turkeys also used to be kept, but as it was found difficult to keep the breeds from mixing without keeping the birds confined all the time, the last two breeds were discarded.

Although Dr. Harwood does not think that there is as much danger as some people claim, of tuberculosis being transmitted through milk, to the consumers, he has had all his herd tested for tuberculosis and he intends to have the herd tested again this winter. He believes that tuberculosis is likely to be transmitted only when it attacks the udder of the cow.

This winter Dr. Harwood is feeding ensilage, clover hay, bran and gluten meal, as well as a mixture that was grown this year, of oats, barley

created considerable comment. The greatly increased yields that Dr. Harwood has secured from his land through intelligent management have astonished some of the more backward farmers in his section. In this connection he said to our representative:

"As a result of the better care I am giving my