

ly clean, though, trouble is bound to follow, with the loss of the quarter.

B. C.

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[Note.—It is generally advisable not to attempt to cut away these lumps in teats. More harm than good generally results unless great care is exercised and a competent operator in charge.—Editor.]

Points About a Dairy Barn.

It requires considerable time and planning to construct a proper dairy barn and after the frame work is up and boarded in the arrangement of the stables means a good deal. By a little systematic planning and forethought, feeding and chores in general may be so executed as to save the herdsman hundreds of miles of travel and months of extra work, when taken in the aggregate. The matter of lighting, ventilation and size of stalls and passage ways is a matter upon which few agree. In a bulletin issued by the Kentucky Agricultural Experiment Station many points are brought forward and definite recommendations made. With reference to light it says, sufficient windows should be used to allow four square feet of light for each cow and the windows should be so placed as to insure an even distribution of light. In arranging windows particular care should be taken to avoid odd-sized panes, otherwise when a pane is broken a larger pane must be cut to replace it. Probably the best size of pane for ordinary use is one 10 by 12 inches, each sash containing nine of these panes and each window consisting of a single sash set flush with the inside of the wall and hinged at the bottom so as to open inward. This directs the current of incoming air upwards over the backs of the cows, thus avoiding a direct draft. Windows should be placed $4\frac{1}{2}$ to 5 feet above the floor to prevent breakage by the cattle.

The distance from the floor to the ceiling of the dairy stable should not be less than $7\frac{1}{2}$ feet in the clear and 8 feet is preferable. The distance should not exceed 9 feet since a greater height results in the stable being cold during severe winter weather. The United States Government's score card for barns calls for a cubic space of at least 500 cubic feet per cow. However, if plenty of ventilation is provided by open windows and an effective ventilation system somewhat less cubic space will be sufficient to provide for the health of the cows.

Regarding the placing of rows of cows with their faces toward or from each other the matter is debatable but when the cows are facing outwards the width of 36 feet in the stable will permit of a driveway wide enough for a team to be driven through from end to end and the manure being loaded directly from gutter to wagon or spreader and taken at once to the field and scattered without additional handling, thus allowing a great saving of time and work. If the barn is narrower than 36 feet it will not be possible to drive through with a team or remove the manure in this way. The gutter, says the bulletin, should have vertical sides 6 or 7 inches deep on the stall side and 4 inches deep on the opposite side. The width should be at least 14 or 16 inches in order that it may be easily cleaned with an ordinary shovel. The gutter should be given sufficient drop to carry off the water when the stables are washed out. In placing sewer pipe to carry off the flush of water it is better, where possible, to use them at the end as any trouble ensuing where they are placed in the centre of the stable will necessitate the tearing up of the cement floor in order to clear the drain. The width of the narrow alley back of the two rows of cows facing the centre should not be less than 4 feet. The alley should have a slight fall toward the gutter. The standard width of a cow stall is 3 feet 6 inches. For small cows a width of 3 feet is some times used, but this is rather narrow. A 14-foot bent accommodates 4 stalls, $3\frac{1}{2}$ feet wide, a 10-foot bent 3 stalls, 3 feet 4 inches wide, and a 12-foot bent 4 stalls, 3 feet wide. For small cows the length of stall from gutter to manger should be $4\frac{1}{2}$ feet; for long cows, like the Holstein or Shorthorn, 5 feet and for very long cows $5\frac{1}{2}$ feet. The platform should not be too long as this will cause the droppings to fall upon the platform resulting in the cows being soiled when they lie down.

Concrete mangers are recommended in this bulletin, the dimensions of which reach up to 30 inches in width from the stanchions to the extreme front of the manger. It is preferable to have the mangers water tight in order that the stock may be watered in them. The chutes for hay or litter, the grain bins and the feeding room should be conveniently located in order to make the distance as short as possible that the herdsman must walk when doing chores.

At this season, particularly in case of animals confined in pens, the dirty coats and fleas are bad as well as the cattle barn & in the house and the

Watering Cows in Winter.

Editor "The Farmer's Advocate":

We have been asked a number of times during this winter how often cows should be watered. On some farms this appears to be a very much debated question, especially between the "Boss" and the "Hired Man." Generally speaking, the "Boss," especially one who does not work in the stable says, "water the cows two or three times a day." The "Hired Man" argues in favor of watering once a day only, especially where the cows are turned out of doors to water, which means considerably more work for the stable man. It is strange how our inclinations tend to influence our judgment and actions: Where the "Boss" is inclined to suspect laziness on the part of the hired help, he is apt to insist on watering the cows frequently, as it worries some men, and not a few women, "to see the hands 'settin' round doin' nothin'."

Let us look into this question and see if we cannot arrive at some basis that will be satisfactory to all parties concerned, including the cow, who must not be forgotten in all our arrangements on a dairy farm.

The chief factors deciding the number of times a day which a cow should be watered are—labor available, convenience for watering, condition of weather, and amount of milk which the cows are giving.

Before discussing these points suppose we take a brief glance inside the cow and look at the internal arrangements for holding water. In this respect she differs from nearly all other common, domestic animals—the cow carries a large storage tank, having a capacity of from 30 to 40 gallons. This is a factor which will aid us in deciding on the number of times daily which a cow should receive water. If necessary we see that she can store a large amount of water in her body and make use of this as she requires it—can turn on the tap or start the pump going, so to speak, whenever and wherever she needs water. The chief function of water in the cow, as everywhere in Nature, is as a carrier—in this case of nutritive material to, and waste matter from, the various organs and parts of the cow. The other main use of water in the economy of the cow is to regulate the temperature. A cow consuming a large amount of feed is running a furnace on her inside that calls for a good deal of water to regulate it. If she does not get the water needed, there is a danger of the boiler bursting, or at least going wrong. It is because of this fact that a cow, as a rule, like a person, prefers a cold drink to one that is lukewarm—neither hot nor cold, which makes you want to "spew it out of the mouth." While there is some danger of a cow becoming chilled by drinking too much cold water, especially when the cow is run-down in vitality, the danger here is not nearly so great as many people imagine. This fact also explains why, as a rule, it does not pay to warm water for cows. In saying this, the writer knows there are special cases where a warm drink is advisable, but we are considering average, normal conditions.

Coming back to the factors which govern the number of times daily a cow should receive water, let us consider them briefly.

LABOR.—On many farms where the help kept in winter is limited, where the owner possibly does all the work, and where he begins to "scratch matches" about 4.30 a.m., as I heard a farmer's wife express it recently, it is unwise to turn the cows out twice a day for water. Begin watering once a day early in the winter, and when the cows grow accustomed to it, they will store in their water tanks sufficient for 24 hours under ordinary conditions. Where there is plenty of labor and cows are accustomed to receiving water twice a day, they will look for it and will probably give more milk than if watered but once a day. It is also a good method of exercising the cows, but more especially the muscle and patience of the hired help. A man who can turn out, and put back in the stable, a herd of cows twice daily, all winter and never lose his temper, deserves a place in the catalogue of saints. His wife, if he has one, should be proud of him, if he hasn't a wife, some woman should get busy and capture him on the spot, because he is a jewel more rare than diamonds on a farm.

CONVENIENCE.—If the stable be equipped with a watering device, and there is plenty of water available, cows may be watered two or three times a day, but personally we do not favor having water in front of the cows all the time, because it is more or less unsanitary, and because under these conditions cows are seldom turned out of doors for exercise and fresh air. The combined manger and water trough, we believe to be the best arrangement, and this to be used only in cold and stormy weather.

WEATHER.—During ordinary weather, and even on cold days, if the sun be shining, we believe it better that cows should be turned out for a short time each day for exercise and fresh

ercise, and because of the good effect of sunshine on the health of all animals. While they are out, water may be supplied to the animals and the stable cleaned and aired. The milk cows especially should not remain out too long. Dry cows and heifers may be left out longer, if not too cold or stormy.

MILK YIELD.—Cows giving a large flow of milk—60 to 100 pounds milk daily, should be watered several times a day. Such a cow will drink from 15 to 25 gallons of water in 24 hours.

We thus see that many factors have to be considered, but as a rule watering cows once a day is all that is necessary on average dairy farms in winter. H. H. DEAN.

POULTRY.

Get the Broody Hen and the Incubator Busy.

The season is fast approaching when many farmers will be setting hens or operating incubators to bring out the necessary flock increase for 1915, or to raise chickens for sale. This is a case where the early bird catches the worm. The best success, both with chickens for sale and with chickens to be kept in the flock for laying purposes, comes when these are hatched fairly early in the season. Farm poultry raisers who wish to make the most profit from their flocks will do well to bring out their hatches in March and April. It has been found by experience that pullets hatched in these months prove better winter layers the following season than those hatched either too early or too late. The difficulty with pullets hatched too early is that they often moult in the fall, and this sets them back so much that they do not commence to lay until toward the following spring. Of course, pullets hatched late in the season cannot be expected to lay early the first winter. It is a well-known fact that a pullet must reach maturity in growth before she will lay to any appreciable extent, so that from the viewpoint of the farm flock it is now time to have the incubator in operation or to have eggs hatching by the natural method.

THE NATURAL METHOD.

There are many theories and just as many practices used by poultrymen and general farmers in setting hens. There is nothing very difficult about it, and yet one person who applies himself closely to the work in hand will make a far better success than another who simply rolls so many eggs under the hen and pays no more attention to her until the time he expects the chickens to arrive. A hen should not be disturbed very much, but it is necessary for the poultry-keeper to watch her more or less closely and see that she is doing her work properly.

In choosing hens to set it is never advisable to pick out those of what are generally known as non-sitting breeds, such as Leghorns, Andalusians, etc. True it is that very often some of the older hens of these breeds make very good mothers, but on the other hand we have seen these hens remain on the nests a week or ten days and then completely recover from their incubation tendencies and commence laying again. This is disastrous, of course, and the poultry-keeper cannot afford, as a general thing, to take a chance, especially when he is setting high-priced eggs and is extremely desirous of obtaining early chickens. We would prefer then to select hens of some of the weightier breeds, such as Plymouth Rocks, Wyandottes, Orpingtons, or even some of the straight meat breeds, such as Cochins, or Brahmas. There are other breeds which make very good sitters, but we just mention these to give readers an idea of some of the best. In fact, some of the most successful broody hens we have ever known have been mongrels of some of the heavier breeds, and these may often be picked up at small cost, even early in the season, and put to profitable use where the poultryman does not see fit to purchase an incubator.

Always make a point to prepare nests well for sitting hens. It is well to have the nest shallow but yet deep enough to keep the eggs from rolling from under the hens, and at the same time the bottom of the nest should always be big enough to hold the setting without the eggs being crowded too much, one upon the other. In an effort to increase the number of eggs under the hen many make their nests too narrow in the bottom and the eggs pile up and often breakages occur, and experienced chicken raisers know what it means to a hatch to have the eggs smeared by others being broken in the nests. This often ruins a setting of eggs altogether. Use plenty of short straw or chaff in the bottom of the nest, and make the nest big enough to hold the eggs without any crowding whatever. The hen must have room to move the eggs in the turning process which she looks after daily.

Next set a hen in a place where other hens are not likely to lay in the nest with her. Hens

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INCUBATOR

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