

nature renders service difficult or dangerous, artificial insemination is of great value, and is, indeed the only means of treatment.

Though the procedure is perfectly simple, precautions have to be observed, and any carelessness will lead to disappointment. As already stated, the operation consists of placing in the uterus of the female the seminal fluid of the male; any change of temperature is fatal to the vitality of the spermatozoon, and it must be remembered that everything used, including the hand of the operator, must be kept as nearly as possible at body temperature, that is between 99 degrees and 101 degrees. If the mare to be impregnated is capable of receiving the male, the following procedure should be followed as nearly as possible:—The douching and dilation of the os should be carried out, as already recommended, unless circumstances very clearly indicate that they are unnecessary or undesirable. The safety of the operator should be secured by the use of covering hobbles. The inseminating instruments should be thoroughly boiled and left in the water, which must be allowed to cool to body heat. All being in readiness the horse is brought to the mare; directly he dismounts the operator takes the instrument from the water and rapidly dries it on some antiseptic wool or gauze, at the same time discharging any water from it. The left hand should be inserted into the vagina, on the floor of which by pressure of the fingers, a slight depression is made, into which the seminal fluid in the vagina flows. The instrument is passed in by the right hand, and its point is placed in the seminal fluid, and grasped by the fingers of the left hand. The right hand now draws the fluid into the instrument, an assistant being advisable if the operator finds any difficulty at all. The instrument, which is really a syringe, being full, its point is carefully passed by the left hand through the os, and its contents are discharged into the uterus. If all the fluid in the vagina has not been collected, the process may be repeated, without removing the instrument from the vagina. The hand and instrument should be withdrawn and a bucket of water thrown under the tail; the mare should be quietly led about to prevent straining and excitement, and the neighborhood of the male avoided for some hours.

In cases of local injury when the mare cannot receive the horse, the semen may be collected in the vagina of another mare, the os uteri of which has been carefully plugged with boracic gauze, to which a tape may be tied as a precaution. The charged instrument must be quickly transferred from one mare to the other, and the process carried out as already described. It need hardly be said that in such a case the owner must be thoroughly satisfied that the injury will be completely cured before the mare is to foal.

An adaptation of these methods is sometimes used to spare a stud horse, his single discharge of semen being divided between several mares. In all such cases, it is well to excite the unserved animals by allowing them to view fully the act of copulation.

Grow, Not Fatten the Colt.

Develop muscle and frame. No better advice was ever given than to keep the colt growing. It is always advisable not to allow the "colt-fat," as horsemen call it, to slip off the colt. It may be safely stated that more colts are injured by underfeeding than by overfeeding in this country, and yet many a promising youngster has been ruined by being a little overdone while young. The writer remembers a foal which showed great promise, and which developed very fast indeed. He was allowed to suck his dam for a lengthy period, and, at the same time, was fed oats and bran which was good practice, but he also got whole milk which might not have been so injurious had it not been fed in too large quantity. He was literally "stuffed" from the time he was foaled. The consequence was that he made a remarkable growth for a short time and filled out like a mature horse at a very early age, but the filling was excessive fat, and while his appearance was very attractive and he filled the eye well, he soon began to go to pieces. His muscles were flabby and poorly developed, and before he was nearly matured his legs showed unmistakable signs of the results of overfeeding. The fear of feeding too much should not, however, keep those who are raising colts from feeding enough. Growth is what is wanted, not fat. A little cow's milk may be used in addition to the mare's supply especially where the mare is working hard, but skim milk, provided it is fresh and sweet, is generally to be preferred to whole milk, for it must be remembered that a mare's milk is not nearly so rich in fat as is cow's milk, and the fat being removed from the latter leaves the muscle-forming food in it and removes, to a large extent, the danger of overfeeding the colt with fat-producing feed. A liberal portion of bran with the oats in a box in the feed lot, and not accessible to the mare but easily reached by

the foal, is a great aid in developing the colt. Always keep in mind that fat on the youngster in too great quantity is detrimental to his development, and everyone knows that a very thin and underfed colt never makes the horse he would have been had his feeding been sufficient to maintain regular and healthy growth. It is the feeder's business to see that the colt gets enough, but not too much. Many accomplish it with ease; others err one way or the other. There is a great deal in breeding, but there is also almost unlimited opportunity in feeding.

Keeping Up the Mare's Condition.

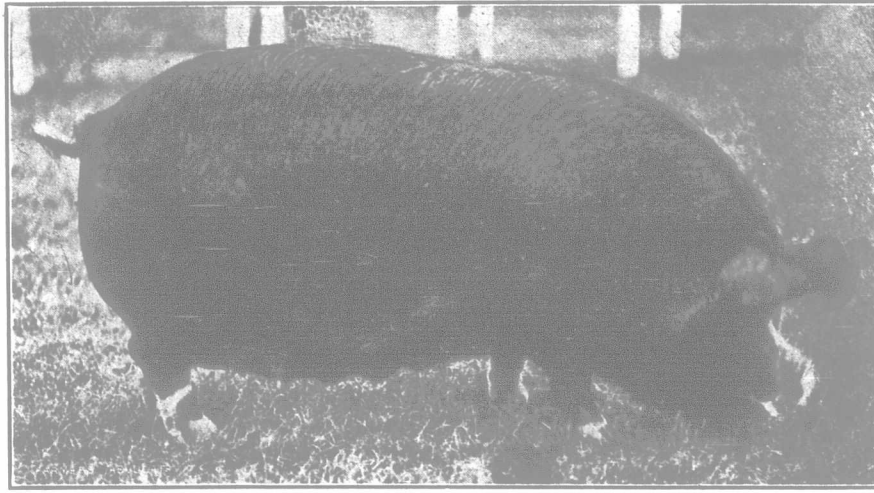
A few days ago we visited a farm where a little horse breeding is done as a part of the mixed-farming operations. A particularly choice Clydesdale filly, with a three-weeks old filly foal by her side, was observed taking her evening meal of oats in a comfortable, cool box stall. The proprietor said: "This mare is a very heavy milker, and we have to feed her well or she would fail in flesh. Last week I was away for several days, and the boys left the mare in the pasture, not bringing her in for her night and morning feed, and she failed considerably." The mare when seen was in beautiful condition, and the foal showed the well-fed appearance characteristic of young stock getting a generous supply of the dam's milk. The mare and colt are on good pasture, but this is not thought enough to make the most of the colt and herself. Remember she is only a three-year-old mare. She was bred as a two-year-old, and to all appearances has not suffered thereby, being an excellent proof of the advantage of early breeding. She took her end of a doubletree, doing the farm work up to foaling time, and it is wonderful what the oats are doing to keep up her condition and promote rapid growth in the foal. While the foal is young and before he commences to eat, this is the only way to increase his food supply, and there is no doubt but that the mare's milk is the very best feed for the colt. A few oats for mare and colt along with the grass do much for both, and the feeding of them to a young mare which is suckling a colt is decidedly advantageous.

LIVE STOCK.

A nice shade tree or clump of trees in the pasture is a great comfort to the stock during the summer season.

Is the bull getting the exercise he requires? This is the heavy breeding season, and exercise means strong vigorous calves, and lots of them.

For the bull nothing equals the grass paddock, into which he may be turned at nights. Keep him in a darkened box stall during the day, away from the intense heat and the troublesome flies.



A Good Type of Berkshire Breeding Sow.

Let the brood sows out to pasture. There is no surer method of producing large, strong litters than by giving both the boar and the sow as much as possible of free range.

The "flush" of the grass is over, and the time has arrived when the live stock is likely to test the fences. Poor tumble-down fences mean breachy stock and endless trouble throughout the summer, for once started to break into other fields the stock seldom forget the trick.

An English judge recently placed the value of a sheep-worrying terrier at a farthing. This dog was valued by his owner at \$25, but we would be inclined to place his worth as a minus quantity. No dog which kills or worries sheep has

any value whatever, and the sooner such useless canines are put out of the way the better.

Get the feeding pigs outside. Nature never intended that they should be kept closely confined in small ill-kept pens generating foul odors and alive with flies. Pure air, green fields, with protection from sun and rain provided, and a large plot to exercise in is a great aid in the production of pork at a profit.

One of the best combinations in stock farming is a herd of heavy-milking cows, either of the dual-purpose or strictly dairy kind, and a number of brood sows kept to produce pigs to consume the skim milk on the farm. If the cows are good dual-purpose animals, stockers and feeders of a high order may also be produced. This makes a nice business when a flock of breeding ewes is kept, and enough working brood mares to do the farm work and raise a few colts. It is an interesting and profitable line of farming.

Nothing satisfies the appetites of sheep more than a change of pasture. As the summer advances and the grasses composing the pasture dry, wither, and become stale, it is a good plan to change the sheep from one field to another from time to time. If they are kept off a field for a few weeks the grass gets a new lease of life, and is a good deal fresher than when they are continually tramping and picking over it. The aftermath on hay fields makes an excellent change for the sheep, and serves to relieve the old pastures.

A few years ago the Bureau of Animal Industry of the United States Department of Agriculture, after years of experimentation, developed a serum which has been demonstrated by repeated tests to be very effective in preventing hog cholera. In many States this serum has been prepared and distributed to farmers with the result that large sums of money have been saved, but thus far no systematic effort has been made to eradicate hog cholera. In some work which is now begun the control and eradication of the disease will be the main object, the serum being used in connection with the necessary quarantine and educational measures.

How to Handle and Market Wool.

Wool growing should be one of the main branches of the sheep business, but, owing to a complication of conditions, prices have not been as high in Canada in recent years as they might have been. In the Ontario bulletin, just issued on "Sheep raising in Ontario," the subject is taken up, and, while considerable has been written the past few months on the wool question, too much cannot be done to impress upon growers the importance of taking more care in producing and grading their crop.

Some years ago, says the bulletin, one of the reasons given for sheep raising not being more profitable than it was, was the comparatively poor price paid for wool, and no doubt there was a great deal of truth in it. If a better price had been obtained for wool, it would have increased the profits from sheep raising, and thus induced the farmers of the province to keep more sheep. This is not true to the same extent to-day, and buyers claim that if the clip of wool was properly handled they would be able to pay still higher prices.

With the object of determining what improvements in the marketing of wool would be most likely to have the desired result, inquiries were made of a large number of firms throughout the province manufacturing wool goods, asking them what classes of woollen goods they manufactured, the kinds of wool used, where they purchased it, the amount of Canadian wool used, and what criticisms they had to offer with reference to it, and what suggestions, if any, they would make with reference to the marketing of it. From the replies received from these various manufacturers the following conclusions are drawn:

London rules the wool markets of the world, and when our manufacturers cannot obtain what they want nearer home, they buy their supplies there. If we do not supply their demands and they go to London, we will suffer to a certain extent because our wool is constantly in competition with wools produced in Australia and other