

colts. A proportion of new corn is relished with the oats, and it is both stimulating and nourishing. If well-cured clover hay is used, less grain is needed than if timothy is fed; but in any case, if the animal is not growing and gaining, the provision should be improved.

Ottawa Pig-Feeding Experiment.

Mr. J. H. Grisdale, Agriculturist at the Central Experimental Farm, Ottawa, embodies the results of eight years' experiments there on pig-feeding, from which he draws the following conclusions:

SUMMARY.

The experiments conducted, and reported upon as above, seem to indicate that:

1. It will not pay to cook feed for swine where economy of pork production is the sole consideration.
2. There is a gradual increase in the quantity of feed consumed for every pound of gain in live weight after the average live weight exceeds 100 lbs.
3. The most economical time to slaughter swine is when they weigh from 175 to 200 lbs.
4. The greatest and most economical gains are made when the swine are able to eat the most feed in proportion to their weight.
5. Frozen wheat may be used as a profitable feed for swine.
6. Skim milk adds most materially to the value of a grain ration and 100 lbs. mixed grains equal about 700 lbs. skim milk. The relative value of skim milk in any ration varies with the amount fed, the poorest return per pound fed being obtained when the proportion of skim milk to the total food is the greatest.
7. The average dressed weight of swine is about 76.44 per cent. of the fasted weight.
8. Skim milk is a most valuable adjunct to the grain ration, when hard flesh is desired.
9. Type of animals fed influences character of meat more than breed; i. e., the fact of an animal being a Yorkshire or a Tamworth will not insure a good bacon carcass, but they must also be of a rangy type, and fed in a certain way.
10. Feeding mixed meal (barley, peas and oats) with milk usually insures firm meat.
11. The greatest gains from a given amount of grain appear to be made when it is ground and soaked for 24 hours. Part of grain fed whole is frequently voided before being digested.
12. Mixed grains are more economical than grains fed pure.
13. Pigs whose rations are limited, make, on the whole, more economical gains than pigs that are rushed.
14. Maturity or ripeness of the animal affects the quality of the flesh.

Draft Horse Breeding.

BY A. G. HOPKINS, V. S., WISCONSIN AGRICULTURAL COLLEGE.
MANAGEMENT OF STALLION.

The management of the stallion should always be with a view to foster and increase his procreative powers. In order to do so, good food, good stabling, and plenty of exercise are essentials. The practice of administering drugs to a stallion, with the view of increasing his sexual powers, cannot be too severely condemned. The groom should be cautioned against their use; he should be active, good-tempered, and a thorough horseman, many good horses being spoiled by incompetent grooms.

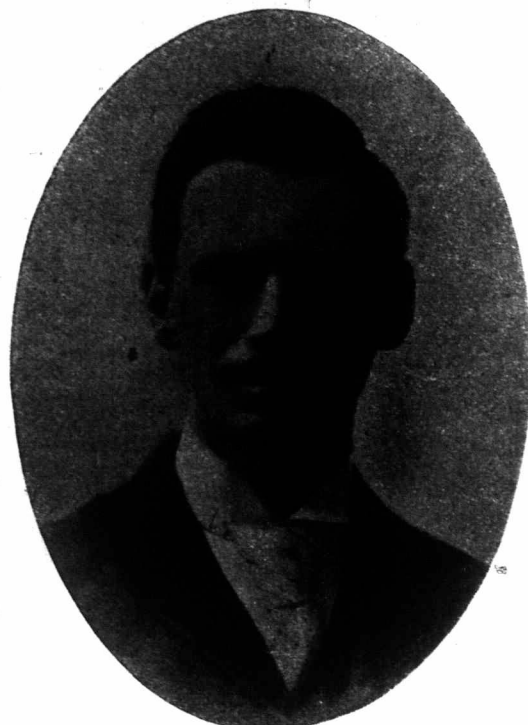
The same hygienic rules must be observed with the mare as with the stallion. During pregnancy she should not be worked too severely, and should not be hitched to any machinery on which there is a pole, at the latter end of such pregnancy; backing in a wagon should not be allowed. Food of a nourishing and slightly laxative nature should be given her as foaling time approaches; if grass is abundant, so much the better.

FOALING.

As foaling time approaches, evidenced by enlargement of the udder, waxing of the teats, falling in over the hips, enlargement of the vulva, and increased docility and quietness, she should be placed in a roomy, well-aired and lightly-bedded loose box, and placed under the care of a trusty attendant. If present at the foaling, which, if normal, only takes a very few minutes, and if everything is going on favorably, little or no assistance is needed. If, however, after protrusion and rupture of the water bag, if after the interval of one or two hours no further progress is made, skilled veterinary help should be summoned to rectify the probable abnormal presentation. The membranes should be removed from the head of the foal as soon as it is born, the navel string divided and tied at about one to one and a half inches from its body, and a solution of carbolic acid, 1-25, or bichloride of mercury 1-500, applied to the navel soon afterwards. Daily dressings for three or four days are advisable. If the foetal membranes (afterbirth) are retained, they should be removed by a veterinarian or skilled person, and an antiseptic uterine douche given not later than twenty-four hours after foaling. The foal should be got up to suck as soon as possible after birth, so as to ensure its getting the colostrum (the first milk, which contains a purgative principle). Some breeders administer a little (teaspoonful) of unsalted butter, and thus prevent that bane of early foalhood—constipation.

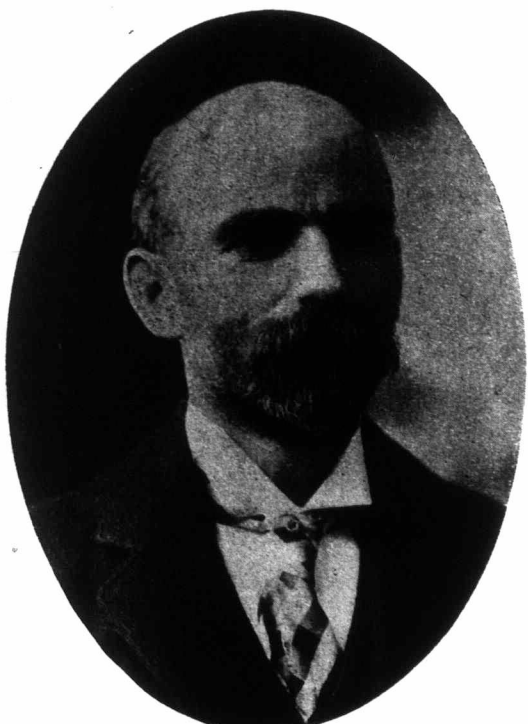
THE FOAL.

The foal should be watched carefully, to see that the urinary and fecal passages are patent. If constipation does ensue, rectal injections of tepid water and soap, glycerine or a cone of soap introduced into the rectum, are to be recommended. If necessary to work the mare soon after foaling, she should only be worked for half the usual period and returned to the stable, so as to allow the colt to suck her. Later on the mare may be kept away the full working period, for a half day, but if warmed up when brought to the stable, she should be allowed to cool off, and some of the milk removed



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from her udder, before allowing the bolt to come to her. By so doing the breeder will tend to avoid intestinal derangements in the foal. The practice of allowing the foal to follow its dam around during the working period cannot be too strongly deprecated. The mare should be fed bran mashes for a few days, while convalescing from the foaling, and tepid water should be given her to drink, followed in a few days by the addition of oatmeal to the ration, which should be supplemented by good pasture or hay. Care should be taken that milk does not accumulate in her udder (a common occurrence), as the foal, when quite young, is incapable of taking



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all the milk supplied. A box should be fixed up in the stall, and feed put in it for the foal, who will soon learn to nibble. A mixture of bran and oatmeal, moistened with milk, is very good; by this method it can be taught to drink cow's milk, a very desirable accomplishment as it grows older. At from seven to ten days after birth, a halter should be applied and the little fellow handled for a few minutes each day. This procedure should be kept up until the time of breaking. At six to eight months old the foal is weaned, and as it eats well by this time, little loss should ensue.

THE COLT.

If possible, it should be placed with other weanlings or with an old horse for company. From weaning time till put to work, the period of adolescence, is the critical period of the foal's life; neglected during its first two or three years, it will become stunted and spoiled forever. It must not be forgotten that a growing animal, such as the colt is, needs an abundant supply of nitrogenous food in order to furnish material for the proper growth of bone and muscle; on the other hand, the colt must not be pampered and deprived of exercise, or overfed, or the result of going to these extremes will be a soft, flabby-muscled horse, with puffed hocks. The straw-stack boarding-house regime entails misery on the colt, in the form of unthriftiness, worms, and other troubles. If a colt does not appear to be doing well, in spite of good fare, an examination should be made for lice or worms, and the teeth should also be examined. Contrary to the general opinion, colts at two and three years often suffer from teething; in such cases the veterinarian is indispensable. The feet of the colt should have unremitting attention; superfluous horn should be removed at regular intervals; neglect to do so will result in premature lameness or blemishes. Colt foals, unless of A1 quality and registered, should be castrated at one year old. There is no gain by leaving them unaltered until two or three years old; should they die at the latter age, the loss is more severe. Stabling, shoeing, watering and feeding are subjects of themselves. Suffice it to say that the stabling should be roomy, well lighted, well ventilated, and so arranged that the horses can see one another. Shoeing should be done at regular intervals, say once every six weeks. Watering and feeding will depend a great deal on the owner and attendant, save that regularity of supply is a *sine qua non*, and also that the quality must be right and the quantity ample. Watering should be done previous to feeding, as a rule.

FARM.

Growth of the Ontario Agricultural and Experimental Union.

The Ontario Agricultural and Experimental Union was started in 1880, and was composed of professors, students and ex-students of the Ontario Agricultural College, who paid the annual membership fee of 50c. The objects of the association were to form a bond of union among the officers and students, past and present, of the Ontario Agricultural College and Experimental Farm; to promote their intercourse with the view to mutual information; to discuss subjects bearing on the wide field of agriculture, with its allied sciences and arts; to hear papers and addresses delivered by competent parties; and to meet at least once annually for these purposes. Each member had the privilege of receiving seed for experimental purposes, and was expected to report to the Union the result of any experiments which he conducted, and also to give his experience on such subjects as came under the scope of the association. It appears, however, that no definite system of experimental work was started until 1884, when Dr. Hare arranged a plan of action, and nine or ten ex-students volunteered to assist in conducting experiments. By the end of 1885 not many results of the co-operative experiments had yet been obtained, as only three complete reports of one year's work had been received since the Union was started six years previous. The annual meetings, however, had been interesting and profitable, and a foundation was being laid for future work.

In the spring of 1886 a new committee was appointed, and the co-operative experimental work was started in real earnest. In the following summer twelve experiments were conducted uniform tests in agriculture, on their own farms, and eight good reports were secured as the result. From that time onward the development of the work has been of a very substantial character, and the results are now received with eagerness by the best farmers of the Province. The present work embraces agriculture, horticulture, live stock, dairying, bee-keeping, noxious weeds, insect pests, and soil moisture. In 1889 the agricultural experiments were conducted with fertilizers, fodder crops, roots, potatoes, grains, grasses and clovers, on three thousand, four hundred and eighty-five farms, and occupied twelve thousand and thirty-five plots; and the horticultural experiments were conducted with the various kinds of small fruits on upwards of two hundred farms throughout Ontario. The summary results of these co-operative experiments will be presented and discussed at the annual meeting of the Union, to be held at the Agricultural College, Guelph, on the 6th, 7th and 8th of December. Those who purchase a single ticket to Guelph for those dates, and get a standard railroad certificate, properly filled out by the ticket agent, will get free transportation to the starting point when returning.

The president during the past year has been Mr. H. L. Beckett, B. S. A., Hamilton, and the secretary and director of experiments, Mr. C. A. Zavitz, who has justly earned a high place for himself as experimentalist on the staff of the Ontario Agricultural College, the practical and high standard of his work attracting recognition not only throughout America, but in Great Britain as well.