

colts will have at future exhibitions. This is the time when the mare owner must study his mare and the sire to which he contemplates breeding her. The peculiarities of type and conformation in each must be carefully weighed against each other, and pedigrees must be looked into to as far as possible estimate what bearing the laws of inheritance are likely to have on the colt. There are scores of things entirely overlooked by the average man in breeding mares. He fails very often to secure the kind which "nicks" well with the mare by going to extremes. Of course, it is always well to use a sire strong where the mare is weak, but it is never advisable to use a horse abnormally developed in any particular. Choose the horse well developed, strong in every particular, and with good breeding behind him, and plan to get the colts which are bound to be a credit to your stable, and at the same time plan to take the colts to the exhibitions and show what can be done in our Canadian stables. Prove the value of your breeding stock by its progeny.

Fattening Draft Horses.

The Pennsylvania State College Agricultural Experiment Station has recently finished some experiments in the feeding of draft horses which are very interesting. The object of the experiments as outlined in Bulletin 117 of the Station, was to obtain data in regard to the efficiency of three different rations for fattening purposes. As practically all of the horses in the stall are fed home-grown feeds, a ration composed of corn, oats, and mixed hay, which is generally used, was selected as a basal ration. As the digestible nutrients in oats are usually much more expensive than in concentrated nitrogenous feeds, cotton-seed meal was used in place of oats in one of the groups to determine whether the less expensive ration of corn, cotton-seed meal and hay, was equally as efficient as one of corn, oats and hay. As corn silage furnishes digestible nutrients at small cost, a ration of corn, cotton-seed meal, hay and silage, was used in comparison with one of corn, cotton-seed meal and hay, to determine whether horses could be fed silage without detriment to health, or reducing the efficiency of the ration. Observations were made of the health of the horses, rate of gain, economy of grains as measured by the amount and cost of feeds consumed, changes in conformation due to increase in weight, influence of type, condition and temperament of individuals upon their behaviour during the finishing process.

Twenty-one horses, eighteen geldings and three mares, the predominating blood of which was Percheron and Belgian, and whose ages varied from four to eight years—typical market chunks, or light-draft animals, were used. These horses were divided into three groups of seven each, as nearly equal in size, age, sex, condition, conformation, temperament and weight, as possible. Three periods of 28 days each, or, in all, 84 days, constituted the entire feeding period. Horses were carefully weighed and housed in the basement of a general stock barn, tied in single stalls. All feed was weighed separately to each horse, group one getting corn, cotton-seed meal, corn silage, mixed hay; group two, corn, cotton-seed meal, mixed hay; group three, corn, oats, mixed hay. Each horse was started on a grain ration of eight pounds daily for the first week, after which it was gradually increased ($\frac{1}{2}$ lb. daily), until the horses would eat no more additional. Hay was fed according to the appetite of the horse, and silage, where used, was commenced at five pounds daily, and increased to twenty pounds, which was all the horses seemed to relish.

The feeding of corn silage resulted in a slight decrease in total grain consumption as well, and a marked decrease in roughage. Where cotton-seed meal was substituted for oats, the result showed a marked decrease in consumption of grain, and slight increase in that of hay. The average cost of grains varied from 13.4 cents in the silage-fed lot, to 17.7 cents per pound in the lot receiving oats. It is generally agreed among horse-buyers, that the value of a draft horse increases \$25 for each additional hundred pounds of weight, which would show a profit under normal conditions, varying from \$6.30 to \$12.60 on each hundred-pounds increase in weight during the feeding period.

The ability of a horse to lay on flesh is largely a matter of individuality, controlled by disposition, temperament, age, condition, digestive capacity, and type. The average gains made by horses weighing over 1,450 pounds at the beginning of the experiment, were practically the same as those of lighter horses, which would seem to indicate that weight is not a controlling factor in making gains. Mature horses, six to seven years of age, made more satisfactory gains than those four to five years of age. A higher finish was secured on the mature individuals. The most profitable type of horse for feeding purposes is

one which shows every evidence of draft breeding, with clean, short legs, wide cannon, depth and width in chest and middle, showing constitution and capacity throughout.

When the horses were placed in the experiment, a record of the outline of the chest and the middle of the paunch of each horse was made. Measurements after fattening showed that there was little change in depth of body, especially at the heart girth, but there was an apparent improvement in spring of rib, and a very material increase in width of body throughout.

When some of these horses were worked, after the conclusion of the experiment, they lost in weight and condition, and assumed a form similar to that which they had before the fattening period, showing that the horse at hard work may not only utilize his daily rations for the production of work, but may draw upon the reserve energy which is stored up in the form of fat on the body.

At the beginning of the feeding period, the horses were higher at the withers, but when finished, were higher at the croups. This is doubtless due to the deposit of fat within the heavy muscles over the hips.

While there were material increases in both the width and length of croup, the change in middle of chest was so much more marked as to deserve attention. The heavy muscles both in front of and behind the scapula, are so situated that any deposit of fat within them would cause a material change in the width of chest, while the pelvic bones are rigid, and the place of measurement is not materially affected by thickness of muscle, thus any change in these regions would be due to a deposit of nearly pure fat over the outside of the body rather than within it. All girth measurements showed marked increase, as would be considered probable. While additional data should be secured along these lines before final conclusions are made, the results here presented seem to indicate that the greatest change in fattening horses is one of width rather than depth, that the smoothness, symmetry, and general appearance, are greatly improved by the "rounding-out" process, due to deposit of fat within the muscles, and that the form of the individual is largely a matter of condition, while the type is almost entirely due to breeding.

Some of the best gains in the 84 days were: Horse No. 1, Group I.—195 lbs., at a cost of 9.54 cents per pound. Horse No. 16, Group II.—Gain 201.7 lbs., at a cost of 10.83 cents per pound. The smallest gain was made by Horse No. 23, Group III., of 81.7 lbs., at a cost of 29.63 cents per pound. Gains seemed to be made more according to type than to feed.

The results are summarized as follows:

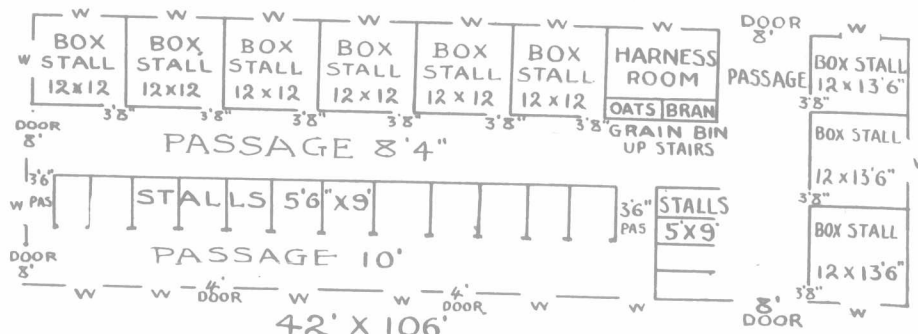
1. Silage, which is made from mature corn, is free from mould, has not been exposed to air too long before feeding, and is properly supplemented with other feeds which will make up the deficiency in protein, can be fed to horses with safety when care is used to have them become gradually accustomed to it.
2. Horses fed silage as a portion of their ration consumed less grain, made their gains at lesser cost per pound, were sleeker and better finished than when fed on rations not containing silage.
3. Using cotton-seed meal to replace oats, resulted in a cheaper ration, a larger gain, smaller cost of gain, and a higher finish in fattening horses.
4. The cost of gains varied from 13.4c. to 17.7c. per pound; the rate of gain, from 1.59 pounds to 1.78 pounds per head daily, due to selections of rations for fattening purposes.
5. The cost of gain due to individuality of horses in Group 1, varied from 9.54c. to 19.83c.; in Group 2, from 10.83c. to 19.05c.; and in Group 3, from 11.53c. to 29.63c. per pound.
6. The rate of gain depends upon the ration used, and the temperament, disposition, age, condition, and type of individual.
7. The most profitable horse for feeding purposes is one that shows every evidence of draft blood, with clean, short legs, wide canons, deep and wide both in chest and in middle, showing constitution and capacity throughout.
8. There is little change in depth of body or length of body from fattening, the greatest change being an increase in width, and an apparent improvement in the spring of rib.
9. The greatest changes in form due to fattening are noted in those parts of the body where the natural covering of muscle is thickest.
10. The height at withers is greater in a thin

horse than the height at croup. When finished, the height at croup is greater than that at withers.

Note.—Feeds were valued: Corn at 50 cents per bushel; oats, 35 cents per bushel; cotton-seed meal, \$32 per ton; mixed hay, \$12 per ton, and corn silage, \$2.50 per ton.

A Fine Horse Barn.

The large horse barn, a plan of which appears herewith, is situated on the Oak Park Stock farm in Brant County, Ontario. This barn is 42 feet wide and 106 feet long, stands on a cement foundation, the walls being built of hollow cement blocks. The ceiling is 10½ feet high with 14 feet posts. All the posts in the basement are oak, and all partitions are two-inch dressed oak 5 feet high. Partitions are fitted with stall guards and the box stalls have one-inch gas pipe 2½ feet high on top of the partitions and four inches apart. Passages are floored with concrete, stalls are floored with two-inch plank, and the floors of the box stalls are clay. All the windows are three feet by four feet. The plan shows all the other points.



Better Shoeing Needed.

Editor "The Farmer's Advocate":

I have taken much interest in reading your valuable paper for over a year, and have advised several of our best farmers to subscribe for it, telling them they did not know what they were missing in not having it to read. One of the most worthy items which deserves attention, appears in your issue of March 13th, "Encourage Good Horse-shoeing." I cannot quite agree with the writer that the blacksmiths are willing to learn, which they could do by studying some good authority on horse-shoeing, and then putting it into practice, but they think they know it all, and go right ahead destroying the feet of more good horses than you have any idea of. This is in reference to country blacksmiths, who really never learned the art, but picked up what they do know from some unskilled workman who was not fit to handle a horse's feet, say nothing about shoeing them.

Stanstead Co., Que.

J. B. REED.

LIVE STOCK.

Care and Feeding of the Stock Boar.

Editor "The Farmer's Advocate":

In the successful management of a herd of swine, to obtain the highest possible returns, the care and feeding of the stock boar are of great importance. Even after making the proper selection and having assurance that the quality of the boar is excellent it becomes imperative that all conditions are fulfilled to get the greatest benefit from his qualities. He may be of the best breeding and a superior individual but the care and feed used prior to, and his physical condition during the breeding season will regulate in a large measure, the vigor and value of his offspring.

If a young boar has been selected his welfare depends upon his care and feeding for the first six months. During this time he will be developing the largest part of his body and hence demands the most care. The strength and vitality of his body will also depend on the foods but the care he receives plays an important part in this development. He may be allowed to run with one or two pigs of his own size and will develop faster and show more contentment by being given this privilege. No special precautions need be taken as all will be least the first four months. After this he should be taken apart and fed on the bulky, frame-growing ration longer than those intended for market.

The feeds used should be such as shorts and oatmeal fed with skim milk until he is three months old followed by using a slight amount of barley in combination. A ration of one and a half shorts, one of peas and one of barley will be adaptable. Or, one of shorts, one of ground oats, one of peas and half barley for youngsters may be fed to the boar until he is eight or nine months old to develop him more toward