

toba, both for wool and mutton. I have often been asked the question both in Ontario and in Manitoba by parties who intended going into sheep breeding: What breed would you advise? I have always said the breed you like the best, because a person will likely be most successful with the breed he likes best. But if a person is going to breed just for dollars and cents, not caring anything about exhibiting or breeding or selling for breeding purposes, then my advice is, buy some good strong grade ewes. Give Merinos a wide berth; I don't think them suited for Canada. Buy a good ram. Don't take some poor scrub because you can buy him for little money. Such a sheep would be dear at any price, while it is difficult to estimate the value of a good ram. You cannot take too much pains or scarcely pay too high a price for a ram. Whatever breed you start with, keep breeding along the same line, and if you are guided by my advice you will soon have a flock of sheep that you will be proud of.

[NOTE.—It is just possible that other breeders have had experience in crossing different breeds of sheep, and do not agree with Mr. Renton in all he says. We would like to hear from such.—EDITOR F. A.]

Crossing Buffalo with Domestic Cattle.

On Lord Steathcona's estate at Silver Heights, St. James, just west of the City of Winnipeg, a herd of buffalo (a representative group of which was portrayed in our Jubilee issue of June 15th last) has for a number of years been maintained. They are confined in a fine large park on the estate. Mr. Traill's experience in crossing them with domestic cattle will be read with interest:

To the Editor FARMER'S ADVOCATE:

DEAR SIR,—In reply to your letter of inquiry as to how far our experience here corresponds with that of Mr. Goodnight, of Texas, in crossing domestic cattle with buffalo, as detailed in the FARMER'S ADVOCATE of the 1st ult. I find, after perusal of the article referred to, that my experience in this line, though of a very limited degree, differs somewhat from that of Mr. Goodnight. I have never yet succeeded in raising a true first cross between the two races, the nearest to it being a bull calf by a three-quarter-bred bull, out of a domestic cow, which was slipped about six weeks before time and only lived a few minutes. This does not bear out Mr. Goodnight's conclusion that three-quarter-bred bulls cannot breed. The bull in question was raised here out of a half-breed cow, which we have still, bred by the late Mr. Bedson, at Stoney Mountain, and who, by the way, also had a half-breed bull, but out of which breed of cattle I do not know. Mr. Goodnight says his pure buffaloes breed only every second year, while ours breed every year, occasionally, of course, missing a year; but we have had three calves from one cow in three consecutive years, and it is the exception when they do not have a calf each year. The great difficulty in raising a first cross between buffaloes and domestic cattle is the inability of the cow to carry the calf to its proper time, as in the vast majority of cases she either dies herself or slips the calf a month or two too soon.

R. M. TRAILL.

FARM.

Fall Care of Meadows.

On grass land that is to be kept for a meadow next season, it is important that the grass get sufficient headway to protect the roots from winter frosts, and also enable it to get an earlier start next spring. The long drouth has no doubt produced a scarcity of pasture for stock in many districts, which may lead farmers to allow the herd to graze too long upon the best fields. As all farmers know, there is at the root of each stalk of timothy a small bulb something in appearance to a diminutive onion. After the hay is cut other small bulbs grow from which next year's crop of hay will form. If the aftermath is cropped closely at this season the roots will be injured, which will result in a lighter crop of hay next year. It is waste economy for the sake of a few weeks' pasture to allow the stock to graze the meadow bare. There is an abundance of food on nearly every farm at present, and if farmers seize the opportunity to give the fields a chance this season by housing the stock early, they will be amply repaid by the larger returns next year. The land requires to be shaded as much at this season as at any other time. When frosty nights are followed by hot sun in daytime the effects are perhaps even worse than during the summer months, as there is nothing that will draw the moisture out of the soil quicker.

A top dressing of manure will add greatly to the fertility if applied at this season or during the winter. If applied now it will protect the roots where the grass has been cropped too closely. The effects of it will also be noticed in the following crop, and it will increase the root growth as well, so that when the sod is plowed under for another crop there is a larger amount of humus made from the decayed roots in the soil.

Good Agents.

We want a good agent in every township to secure new subscribers to the FARMER'S ADVOCATE. Send for sample copies.

Care of Farm Horses.

On many farms the horses present such an unthrifty appearance as to tend to lead one to believe that they were half starved. This, however, is seldom the case, as the horses usually receive the best food the farm affords. But the manner of feeding, as well as the other management in the way of providing sufficient light and proper ventilation in the stables, is worthy of the attention of every horse owner throughout the country. The old style of bank barn, with low stables and very few windows, is a most unhealthy habitation for horses. Where wooden flooring is used with no underdrainage there will accumulate in a short time enough of the soilage from the stable to keep the horses unhealthy and hard looking, no matter how well they are otherwise cared for. In the modern stables more care has been given to the floors and windows; but only in a few cases is to be seen a proper system of ventilation. Without a sufficient supply of fresh air the blood cannot be kept in a proper state, and when the horse exhales the carbonic acid of the blood is given off into the air. Carbonic acid cannot accumulate where a circulation of air is provided, and this should be accomplished without causing a draft to strike the animals. In attempting to ventilate by windows a draft is often created, as ingress must be provided for fresh air and an exit for the foul air. In order to get a properly ventilated stable it is necessary to have apertures at the roof to allow the foul air to escape, and openings lower down to permit of the ingress of fresh air. When the stables are vacant the windows and doors should all be opened to admit of a supply of pure air.

There is a great difference of opinion in feeding among horse owners, but as digestion begins at the mouth, it is necessary to prepare the food in a way that it will be thoroughly masticated. This is especially necessary in the case of working horses, as they require to masticate their food in as short a time as possible, in order to get sufficient time for rest. The harder the work the more the bulk of food should be diminished, and its nutritiousness increased. To ensure this the hay should be reduced in quantity and the oats increased in proportion, always remembering, however, that a certain amount of bulk is necessary, and the horse cannot live upon oats alone. Chopped hay and crushed oats dispense with an immense amount of mastication, while thorough assimilation is secured, waste averted, and strength and time saved. Many years ago the London Omnibus Company tried an experiment on 6,000 horses with cut and uncut hay, ground and unground grain. Half the horses were fed ground oats, cut hay and straw, the others got uncut hay and unground oats. The horses which had twenty-six pounds of ground oats, cut hay and straw did the same work as well and kept in as good condition as those that had thirty-two pounds of uncut hay and unground oats. This was a saving of six pounds of feed per day to each horse, and was estimated at five cents per day per horse, or \$300 per day on the 6,000 horses. On the average Canadian farm the saving by such a system would amount to quite an item at the end of a year. It is considered that as the horse is forced to chew everything thoroughly there is less danger of overloading the stomach. This is very important, as it is the ruin of many horses, causing rupture of the air cells of the lungs, if they are put to work at once, resulting in broken wind and heaves. A veterinary surgeon, of Limerick, Ireland, Mr. R. H. Dyer, in an article on "Preparing Food for Horses," in the *Farmers' Gazette*, referring to the size of the horse's stomach, says:

"It is not much larger than the human stomach, comparatively. It is singular that there is so little knowledge of structure of the interior of the horse. It may be asserted that the second large intestine is so constructed that it contains a very large proportion of solid food, regulated in such a manner that it enters in a small degree with other parts of the digestive system, and, consequently, from its position, very little with the contents of the chest. It is an admirable and wonderful arrangement."

On the preparation of food, he says:

"During my youth chaff of hay and straw was cut by men, who carried it about from stable to stable. Since that time machinists invented a chaff-cutting machine, as well as one to bruise or crush oats and beans, which were expensive, unless purchased by persons keeping several horses, which saved labor, &c. Nowadays a mixture is sold by dealers—known as chops—composed of hay, straw, oats, beans, peas, Indian corn, &c., prepared for the purpose of feeding. The advantages are several, viz., cheapness, and proper quantities supplied to the horses, which latter is a vast improvement upon the usual system of throwing large quantities of hay into racks, which would enable them to consume a larger quantity than there was need of. It is always better to know the precise quantity a horse can digest properly than the hazardous act of days gone by. I am not aware that any improvement can be effected on chops. Bags containing one cwt. are sold at from 6s. to 7s. each, so that the humblest horse owner is able to purchase. I am aware that car owners have discovered the value of chops. Race horses and hunters are also supplied with a certain proportion of the chop mixture, which ensures, it may be asserted, good health."

It is customary among many good Canadian feeders to mix bran with the oats to assist in mastication, but if it is fed for no other purpose it will be found preferable to feed chopped hay and ground oats. Where carrots or turnips are grown they may be used as a laxative, as they are usually cheaper than bran. Though clover hay has a higher feeding value than timothy, it is often rejected on the ground that it may develop heaves. If it is cut up and mixed with the grain, and fed in a damp condition, it will not affect the lungs. Farm horses kept in this way, and not overworked, should present as bright and healthy an appearance as a person could desire.

Fall Cultivation of the Soil.

BY WM. RENNIE, FARM SUPERINTENDENT, O. A. C.

Much depends on the fall cultivation for the success of the following season's crop. It is important to have the land in the very best shape at time of freezing up, so that the crops can be sown early in spring with the soil in the best condition.

At the Ontario Experimental Farm we are following a four years' rotation as follows: Two years grass (hay or pasture); 3rd year, corn, roots, rape and peas; 4th year, grain, and at the same time we seed down. Half of the grass land is plowed early in fall, about three inches deep, thoroughly harrowed and pulverized with a disk cultivator, or, if sufficiently rotted, a spring-tooth cultivator, and again harrowed. This will help decompose the vegetable matter, and on the surface where it is required. About the end of October we spread all the barnyard manure that can be gathered on that portion of the land intended for corn and roots. We then cover it with a double moldboard plow, making drills about 21 inches wide. These drills are easily leveled down in spring by harrowing and cultivating. Land prepared in this way leaves the animal and vegetable matter mixed on the surface in the best shape for plant food.

Preparing the Corn, Root, and Pea Land for Grain.—The pea land is gang plowed lightly, and thoroughly harrowed and pulverized with a disk cultivator before sowing fall wheat. The decomposed vegetable matter on the surface retains sufficient moisture, so that the wheat is not effected with drouth. The corn and root land is not plowed, but cultivated, and drilled with the double moldboard plow, about 21 inches wide. The turnip land is drilled without being cultivated, turning the tops into center of the drills. By this method the decomposed vegetable matter is saved from leaching or evaporation. In spring these drills are simply harrowed and cultivated down, leaving the decomposed vegetable matter on the surface where it is available for plant food, in order that the grain and grass seed may get an abundant supply. Land that is drilled only requires cross furrows in low places to carry off the surface water.

Preparing Land for Spring Crops.

To the Editor FARMER'S ADVOCATE:

The question as to what condition our plowed land should be left in at the time of freezing is one of great importance, more particularly so on our heavier clay and clay loam soils. With light sandy soils it is not so necessary that they be well plowed in the fall, as we often find farmers situated on those lands who have good results from spring plowing. I presume, however, that your enquiry refers more particularly to our heavier soils.

Our plowed lands, with the exception of those fields where we have had corn and roots, should, after having been gang-plowed lightly, harrowed and rolled directly after harvest, be plowed a good furrow in depth during the fall, and the drier the soil when it is done the better, so long as we are able to do the work satisfactorily. Plow the land well; have it in a loose, open condition in order that the frost of winter (which is the most effective pulverizing agent we have) may be enabled to do its work more thoroughly, and you have the land in the best condition for winter. When spring comes we confine ourselves exclusively to surface cultivation, as this surface soil, which has been thoroughly pulverized by the frost, is in the very best condition for receiving the seed, starting germination and furnishing the tender rootlets with that nourishment which will ensure its rapid and continuous growth.

Upon our corn and root land, however, which we have manured on the surface the previous winter and kept thoroughly cultivated during the growth of these crops, we do nothing in the fall but perhaps cultivate on the surface with the scuffler, as this surface soil which has received the manure the previous winter and been kept as a mulch during summer is the very best soil we have for receiving the seed and grass seeds in the spring.

Huron Co., Ont.

THOS. McMILLAN.

Training Collie Dogs.

It would be difficult to estimate the value of a properly trained Collie dog on a farm where stock is kept. While it will be largely influenced by the judgment of the owner and the number of boys he has to do herding, etc., a good dog is a treasure, while a useless one is a continual annoyance and a curse. Since we commenced giving Collie dogs as premiums for the securing of new subscribers we have sent out a large number of beautiful puppies upon whose training their usefulness will largely depend. We are anxious that not one of these shall be spoiled in training, nor allowed to grow up useless, and therefore give the following good advice as we find it in the *Country Gentleman*:

"The best sheep-dogs are trained from early puppyhood, and it is a difficult matter to begin with a full-grown dog and make him serviceable. In England and Scotland, where they are trained to the greatest perfection, the pups are reared in the sheepfold, and sometimes are suckled by a ewe. They grow up with a perfect acquaintance existing between the sheep and themselves. They see the daily work of their mother or of other dogs with the flocks, and by imitation they soon take part in it themselves. When half-grown the shepherd