

timothy to eight pounds of clover. To seed down with barley, spring rye or spring wheat are preferred, and the best success for this purpose has been had with the common red clover. We have lately tried the awnless Brome grass and find it very satisfactory, but have not yet tested it with clover in place of timothy. From one acre of Brome grass sown with barley in 1896, eighteen pounds of seed to the acre, we cut last year 1 ton 1,210 pounds of cured hay, which was about 200 pounds more per acre than was produced on an average from the timothy and clover. This grass matures very early and is very leafy, and the hay is eaten readily both by horses and cattle. We are feeding Brome grass hay at the present time to a group of fattening steers in a comparative test with timothy. Grasses and clovers are sown here with the usual attachment for this purpose on the grain seed drill, placing the attachment in the rear so that the small seeds drop behind the grain spouts. The land is rolled immediately after sowing. The rolling covers the seed sufficiently and ensures a condition of moisture at the surface which is favorable for the prompt germination of the seed. We have also sown mixed crops of grain for hay. Among the best mixtures tried here the following is recommended: Banner oats, Canadian Thorpe or Duck-bill barley and Golden Vine or Mummy peas, using one bushel of each per acre. These all reach the best stage for cutting for hay about the same time, and the mixed fodder should be cut as soon as the oats are well headed. Any farmer who has dairy cows will find it a great advantage to have a small field of mixed grain to cut green, and should the season be dry and the pasture become poor he will have a most useful lot of fodder which he can feed to great advantage either green or cured. If, however, the season be wet this is a very difficult crop to cure. Mixed grain crops for hay have been found particularly useful in Manitoba and the Northwest Territories.

4. What means do you adopt to maintain the fertility of the land and keep it free from weeds, and what would you suggest as the best means of preserving the moisture in the soil for the various classes of growing crops?

I know of no method by which the fertility of the soil can be maintained so economically as by the sowing of clover with cereal crops every year and plowing under in the fall. If, in addition to this, the land can get a dressing of good barnyard manure of eighteen to twenty tons per acre once in five years, or, still better, ten or twelve tons every three years, and a judicious rotation of crops be followed, land under such treatment may be expected to give good crops and to increase in fertility from year to year. In the use of barnyard manure, it should always be applied fresh from the barnyard as far as is practicable; such a course is much more economical than that of composting the manure. It has not been found necessary in this locality to treat the land in any special way to preserve moisture for grain crops. We have found the Breed weeder a most valuable implement to use to destroy young weeds just as they are coming up. This weeder dragged over the land when the grain is three or four inches high scratches the surface of the soil and roots up the young weeds and destroys them. A man with one horse and a twelve-foot weeder will get over twenty acres or more per day. The weeder should be used not less than two or three times at intervals of three or four days, especially if the weather be showery, so that the work may be done thoroughly. This weeder cannot be used to advantage when the surface of the ground is wet. The scratching and loosening of the surface with the Breed weeder will also conserve the moisture in the soil. With fruit and corn crops we keep the soil in a good condition of moisture for the young plants by early and frequent cultivation with a "Verity" or "Planet Junior" cultivator.

5. What have you to say for or against mixed grains for forage or for feed grain, and sowing flax or rape with oats or barley? If you would use any mixture, state quantities of seed per acre?

Reference has already been made to the usefulness of a limited area of mixed grain for fodder or for hay. I might say that other varieties of oats, barley and peas, or other varieties of grain besides those named, will serve the purpose very well, but we have had the best results from using the several sorts named. The six-rowed barleys usually reach that stage of maturity when they should be cut before the oats and peas are ready, and for this reason a two-rowed sort is preferred. The two-rowed varieties also stool more freely, and produce a thicker mass of foliage.

We have tried the sowing of mixed crops for grain, and have had fairly good returns in bushels per acre, but it is a difficult matter to select varieties which will ripen exactly together, and hence it is not easy to avoid serious waste in the harvesting of such cereals. We have not tried flax or rape with oats or barley, but have tried the flax with mixed crops of grain, and the results have not been satisfactory; flax has given much better results, in our experience, when sown by itself.

WM. SAUNDERS.
Central Exp. Farm, Ottawa, Ont.

[NOTE—Professor Saunders' letter should be of great interest to the farmers of Canada, as the subjects covered have a peculiar value to every farmer at the season of the year almost upon us. We hope to hear from others upon these or kindred subjects, so that by an exchange of views, based upon years of experience, we may all be mutually benefited in the way of more economical methods and larger returns in 1898 and future years.—ED.]

Our Scottish Letter.

At the time of writing the talk is all of Clydesdales. The great Clydesdale week of the year is just closing. There has been a splendid show of entire horses at Glasgow, and in spite of the fact more than forty of the best horses of the day were under hire for the ensuing season before the show opened. Quite a choice exhibition of heavy draft horses entered the arena. The show is held under the auspices of the Glasgow Agricultural Society, and has been long established as the great Clydesdale hiring fair of the year. In this respect it is not so famous as it used to be on account of the prevailing practice of hiring many horses by private treaty before the show opens. This year forty-nine horses were hired in that way, while as far as has been announced twenty-two were hired at the show, and of the forty-nine not less than twenty-two are the property of Messrs. Andrew and William Montgomery. The consequence of this great trade is to deprive the show of the presence of many of the best horses, only two of the forty-nine horses competing for the premiums offered on Friday. This, of course, detracts greatly from the interest attaching to the event, but there does not appear to be any remedy, as owners will not feed their horses, for the mere sake of winning a prize, when they can have them let and kept in ordinary thriving condition without the risks attending preparation for the showyard. It will be of interest to Canadians as well as Americans to learn that amongst the 71 horses secured to perpetuate the fair name of the Clydesdale there are at least seven stallions bred by Colonel Holloway, Alexis, Ill., and got by Cederic 1087. The winner of the Cawdor Cup, the blue ribbon of the Clydesdale world, this year is Mr. Matthew Marshall, Stranraer, with his six-year-old horse, Hiawatha 10067, a gay and handsome horse, whose sire was Prince Robert 7135, and his dam Old Darling 7365, by Tom 877. This horse has marvellous quality of feet and legs, is a very straight mover, and carries himself with great gaiety. His great merit lies in the quality of his feet and legs, the breadth and flatness of his bone, the style and gaiety of his movement, and the general excellence of his parts in that which is most important in the draft horse, his wearing qualities on the street. Hiawatha is rather narrow and shallow in his top piece, but Clydesdale men will sacrifice much to secure the kind of feet and limbs they want. A son of Macgregor 1487 was placed next to Hiawatha in his own class. This was Mr. William Dunlop's Montrave Mac 9958, a five-year-old horse which got the same position at the H. & A. S. show in July last. He is a lovely horse, except for colour, and his dam, Montrave Maud 11786, is, possibly, the best mare in Scotland to-day. Mr. Riddell followed with Good Gift, a sweet, well-balanced horse, which stood first at the H. & A. S. show in July. This horse goes away beautifully—keeping his hocks together, and showing great style and gaiety. He is not so close in front as he ought to be, but the truth is if that could not be said against him no adverse criticism of his merits is possible. Mr. James Kilpatrick's Cawdor Cup 10045, a gay and gallant big horse, followed, and then came three sons of Prince Alexander 8899, one of the best breeding horses in the country. They are all of one type, and it is a good type.

The class for three-year-olds was well filled, and there was considerable excitement connected with the judging, on account of one set of judges placing Lord Londonderry's horse, Chastelard 10179, first, and Mr. Richard Dunn's horse, the Gay City 10194, second, while another set of judges reversed the order and put Gay City first and Chastelard second. It made things a bit lively, and there was plenty of cheering and counter-cheering from the respective patrons of both horses. They are horses of a somewhat different type. Chastelard is an upstanding, gay, handsome horse—a better trotter than Gay City, but not as good a walker. Gay City is a typical short-legged draft horse, with a fine, swinging tread, and he has great weight and substance. Both horses can be supported as of the best, and the division of opinion amongst the judges was fairly reflected amongst the public. Gay City, it may be worth mentioning, is out of an own sister of the horse Tinwald Chieftain, which took a good many prizes in Canada, and his sire was the noted Cawdor Cup champion horse, Prince of Carruchan 8151, which he greatly resembles. Gallant Robert, a stylish young horse, by the same sire as Hiawatha, was placed third, and the fourth was Royal Carrick 10270, a horse of excellent quality, bred in Scotland, but owned by an English gentleman near Birmingham. The fifth horse, Prince Thomas 10262, also from England, was a hot favorite with many for first place. He is a very handsome horse, of a good color, and was bred by Lord Londonderry. A son of Prince Alexander was sixth, and a Clydesdale bred in Ireland was seventh. In the two-year-old class the most notable fact was the success of the sons and grandsons of Sir Everard 5353.

The annual meeting of the Clydesdale Horse Society was held on Thursday evening, when fairly satisfactory reports were submitted. At the dinner which followed the meeting, some remarks were made regarding the relative weight of the Clydesdale and the Shire, but in view of the fact that the geldings of the Clydesdale type at the Royal Manchester beat the Shires even when patrons of the Shire were judging, it is evident that

the Clydesdale can hold his own with his Southern rival in respect of weight, and greatly excels him in quality and activity. It was also stated at the meeting that while the average life of a London dray horse on the streets was seven years, the Clydesdale working alongside the Shire, and doing the same work, in spite of an apparent absence of the grossness of the other, lasted longer. This was not a theory, but an ascertained fact in the stable of a large brewery which had been visited. The Shire is being splendidly supported by wealthy patrons, and that is where it has a great "pull" over the Clydesdale. Horse for horse, however, the Clydesdale can more than hold his own.

"SCOTLAND YET."

DAIRY.

Wise, Systematic Management of the Dairy Herd Brings Good Results.

SIR,—As the milk record year of Mr. E. D. Tillson's Annandale Farm herd of cows has not yet ended, the following only have completed their milking period: Twenty-one cows gave 224 053 pounds milk, an average of 10,689 pounds, producing 448 pounds butter per cow. The crack cow of the herd gave in eleven months 17,731 pounds of milk, totaling up 785 pounds of butter. This same cow last year recorded 647 pounds of butter, although for a time "under the weather."

Cows are fed a ration per day of ten to twelve pounds grain, composed of wheat bran, pea meal or pea and oat chop, oil cake or cotton-seed meal, from 40 to 55 pounds ensilage, clover hay and occasionally cut cornstalks, balanced so as to give a nutritive ratio of 1:5 or 1:6, or as near this standard as is consistent. In selecting above foods the market price governs the selection in determining the foods to buy. A supply of fresh water and a quantity of salt are always before the cattle. In every case individuality of cow must be carefully considered and fed accordingly. Heifers are bred, as a rule, to come in when two years and two months old, and their first year's milking extended to fourteen months thereafter. Ten to eleven months constitute their milking period, the average being about ten months. Each cow has tag name and number, with corresponding number in register, with date of service, name of bull used, etc. Each cow's milk is weighed separately once a week, and the whole herd has a periodical test by Babcock tester. Cattle are fed clover hay at 5:40 a. m.; ensilage and grain at 7:30 a. m.; and at 4 p. m. again grain and ensilage; 6 p. m., clover hay. Occasionally added to this ration is a feed at noon of cut cornstalks. We make it a rule to disturb cattle as little as possible, and any rough handling means instant dismissal to employee.

JOHN D. MACLEAY, Manager.

"Annandale Farm," Norfolk Co., Ont.

A Year's Complete Record.

All up-to-date dairymen keep records of the milk and butter product of their cows, but in order to know the exact profit obtained from feeding each one a record of the food she consumes is also required, and to make this demands more time and trouble than most people can give. The following record includes both food and product.

The imported Guernsey cow, Bretonne 3660, was tested for one year, from Oct. 20 '93—when she was 9 yrs. 10 mos. old—to Oct. 19 '94. The grain was weighed every day, and the ensilage and hay occasionally. Her milk was carefully weighed each milking. The butter-fat determinations were made by the Babcock tester the middle of each month, each test being of a composite sample of eight consecutive milkings. The values assigned the various foods in the following table are those used in the Holstein-Friesian Association's recently issued instructions for "food tests" of the cows of that breed. They are supposed to represent a fair average of the market prices in various parts of the country. In the 365 days Bretonne ate:

Ensilage, 11,655 lbs., at.....	\$ 2.00 ton—\$11 655
Hay, 1448 5 lbs., at.....	8 00 " 5 794
Bran, 3750 lbs., at.....	10 00 " 18 750
Corn meal, 2242 lbs., at.....	12 00 " 13 452
Cotton seed meal, 358.5 lbs., at.....	20 00 " 3 585
Oil meal, 406.5 lbs., at.....	18 00 " 3 659
Ground oats, 166 lbs., at.....	13 00 " 1 079

Total cost of one year's food.....\$57 974
Product: 11,218 1/2 lbs. milk, containing 602.91 lbs. butter-fat, = 709 lbs. butter, 85% fat. Cost of butter per pound, 8.176 cents; 709 lbs. butter at 25 cents per pound would have brought in \$178.25, or \$120.28 net profit.

When fresh of course she made her butter considerably more cheaply than the average for the year. Thus, in November, 1893, she made 79 lbs. at 6 7c., and in February, 69 lbs. at 6 9c. per pound. Highest percentage of fat, 6.1; lowest, 5.2.

W. S.

G. H. BECKETT, Grey Co., Ont.:—"I received my 'Binder' in first-class condition. I am well pleased with it and your valuable magazine. I have taken the FARMER'S ADVOCATE for fifteen years, and would not like to do without it."

The plan of the fine structure owned by Mr. the merit of the well lighted, high on level ground is intended only changed slightly and the box str run back under large pen for the same general plan adapted to a one of the large copied. The barn proper high and the making the store large by the ing over the drifter is used loads of hay moved from or on a permanent purpose. A ge the center of b pose of grinding straw, gulping water, etc. drive floor and and walks behi putting down and also for v lating shafts r stables to eve not proved effe tended to have to the cupolas o roof. In additi indicated in th there are fanl terior doors.

GARDE

Ever

To the Editor FA
SIR,—The ti preparations f Unless for larg as a few hundr house. Last y for myself, wit toes, celery, o pansies, etc. M low milk pans with holes for soil. The small sown on the su sprinkling of s was sown a litt Until the seed t the pans may kitchen stove o place. They sh warm (not hot) kept moist, but never be allow cold. I someti stove to warm them there loo young and te not advisable. in a short time is required wit thicker the se quickly it will plants begin should be set and when the transplanting ters must tak again becom should be set three inches ap convenient if t screws, which the time for tr ground has arr cut in squares center of each be taken out nizing the fact too deep sowing Middlesex C

Ren

Rotation of and practical diseases. It m leaf-blight by year, and to stroying the p been harvested

GEO. A. CL without liked y