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# THE JOURNAL OF AGRICULTURE AND HORTICULTURE

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THE

## Journal of Agriculture and Horticulture

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## Notes by the Way.

*Professor Shutt*, of the Dominion Experiment-farms, has been good enough to forward to us the report of his evidence before the Select Standing Committee of the House of Commons on Agriculture. In it, after informing the Committee that the farmers of the Dominion seem to be growing, year by year, more deeply interested in the means taken by the staff of the Experiment-farms to assist them in their labours, the Professor mentions that a great deal of good has been done by the lectures given by the different members of the staff throughout the country, especially by those delivered to the Normal School students at Ottawa.

Mr. Shutt then proceeds to expatiate on the subject of the "preservation of manure," but of this matter we treated so fully in our article in the last month's numbers of the JOURNAL, that we shall, in the present, only dip, here and there, into the evidence of the witness.

*Constituents of manure.*—A notable difference is noted in the manurial constituents of the farmyard dung from the Experiment-farm and that derived from a considerable number of farms in different parts of Canada. He compares the average Experiment-farm dung with the figures that represent the average on good, fairly well-kept farms, and the results are found to be as follows :

| | Exp.-farm. | Average from other farms. |
|---|---|---|
| Nitrogen, per ton . . . | 12.0 lbs. | 8.0 lbs. |
| Phosphoric acid, per ton . | 6.02 " | 3 08 " |
| Potash " " . | 15.2 " | 9.0 " |

So it is evident that good feeding, combined with care in the preservation of the dung, results in increasing the value of it by one-third of the ni-

trogen, one-half of the phosphoric acid, and one-third of the potash, over the manure derived from the ordinary dung from fairly managed farms. Of course, as we saw in the previous article, the age of the cattle, etc., producing the manure has something to do with its quality, but food and care in its preservation are the principal things regulating it.

*Sawdust*, as an absorbent of the urine, is excellent, but apt to produce a rather uncheckable degree of fermentation in the heap. Peat, or dry muck, is also good, and aids in retaining the soluble nitrogen and potash of the manure.

And now comes, to us especially, a very interesting part of the professor's evidence : on the value of *gypsum*, land-plaster (sulphate of lime), as a fixer of ammonia in the stable and mixen.

Somewhere about 1845, Philip Pusey, Member for Berkshire, England, and President of the Royal Society of Agriculture, in a review of the progress of farming, in the Magazine of that body, mentioned the then general opinion that land-plaster, or gypsum, scattered over the bedding of cattle and horses in the sheds and stables, would prevent the escape of the carbonate of ammonia. Mr. Pusey, a scientific as well as a practical farmer, entered into a disquisition on that point, too long for our space, but came to the conclusion that, although gypsum would indubitably act in the above manner where the matrix, if we may be allowed the word, was in liquid state, that where the question concerned the bedding of stock, a comparatively dry substance, its effect would be nugatory.

In 1888, Dr. Hoskins, then agricultural editor of the *Vermont Watchman*, in reply to a question from us, stated that he had no faith in the absorption of ammonia by a dry substance like ground sulphate of lime (gypsum).

In, or about 1897, Dr. Girdwood, professor of chemistry at McGill College, Montreal, in reply to the same question, told us that Mr. Pusey was right in his opinion that gypsum was useless for the purpose of fixing the carbonate of ammonia in stables. The best thing to scatter of the floor and bedding being what the French call "terreau," that is, mould, or dry bog-earth" ; the action of which, we suppose, would be more mechanical than chemical.

Said Professor A. P. Sharp, of Baltimore, in the *Country Gentleman*, in 1895; "One of the popular bubbles, that I think worth pricking, is the belief that plaster is decomposed by ammonia. (Plaster, we need hardly say, is a compound of lime and sulphuric acid). For this reason, farmers are advised to use it on their manure-pile to fix the ammonia, by setting free the lime and uniting with the sulphuric acid. Such absurd statements are published and repeated in scientific lectures. Every schoolboy ought to know that lime and sulphuric acid are too strong friends to be separated by such a fickle, short-lived gas as ammonia.

"I will say that I am not ignorant of the fact that from a *solution* of sulphate of lime (which is slightly soluble in water), by the addition of a solution of carbonate of ammonia, owing to the insoluble nature of carbonate of lime, a mutual change takes place ; carbonate of lime sinks and sulphate of ammonia remains in solution (precisely Mr. Pusey's idea published just 50 years ago!). But this is not the condition when plaster is spread over a manure-pile with escaping ammonia" ; or as we may add, over the floor and bedding of a stable.

Again, in "Answers to correspondents," in the *Country Gentleman*, of 1897, we find the following : "Can land plaster be economically used as an absorbent in cow-stables? R. F. P.—Answer : We do not think it can. You could better afford to draw common earth, or, preferably, sods or leaf-mould, into the barn, when the weather is dry at midsummer, and store it for use in winter than to buy land plaster."

On the other hand, Professor Macfarlane, the Government analyst at Ottawa, holds that ammonia in stables is fixed by the use of plaster. We have, unfortunately, mislaid the reference, but that is the gist of his statement, and our memory is still pretty trustworthy.

Lastly, in defense of our position, we beg to quote Professor Shutt's words at page 15 of the pamphlet containing his evidence before the Agricultural Committee of the House. We condense it as much as possible, as it is rather long for these pages.

Three tons of horse and cow manure were mixed, in equal proportions, and allowed to ferment alone ; and an equal weight of the mixture, with 50 lbs. of gypsum to the ton, were also submitted to the same treatment. The two lots were put into separate bins on July 15th, 1897, and were allowed to rest undisturbed till the 15th November. They were both moistened from time to

time, to avoid loss of nitrogen. By the action of gypsum, i. e., sulphate of lime, the carbonate of ammonia is converted into sulphate of ammonia, a non-volatile salt.

At the end of the experiment, the manure with gypsum had lost about 50 lbs. less organic matter than the other lot; so, the fermentation of the former had not been quite so destructive of the organic matter has in the latter.

"Passing on to the consideration of the nitrogen, we notice that there were 34½ pounds in each lot as originally experimented with, each lot consisting of three tons of mixed manure. At the end of the experimental period, that with gypsum contained 31·6 and that without gypsum contained 31 4 pounds. The loss in each case was practically the same. This experiment, therefore, did not show that under the conditions of this investigation there was any fixation of the nitrogen by the gypsum. The loss, however, was very small—only one pound nitrogen per ton of manure—and I am of the opinion that the plan was such that it was sufficiently effective without the addition of gypsum. There was very little loss by this method, which briefly I may point out was as follows:—We put the manure into a bin, under cover, made it as compact as possible and kept it damp. Under these conditions we found the loss in nitrogen with and without gypsum practically identical.

*By the Chairman:*

Q. In other words, gypsum was of no benefit?

A. Under the conditions of our experiment it apparently had no effect.

With regard to *phosphoric acid*, the available had been increased from 12 6 to 18.8 pounds with gypsum, and that without gypsum to 17 pounds. But the figures are to close that Mr. Shutt does not attribute the difference in favour of the former to the presence of the gypsum.

There were 69 pounds of potash in each lot. At the close of the experiment, the gypsumed manure tested 55½ pounds, and the other lot 57 pounds. "Here, again, the difference is so small that it may be said there was practically the same quantity in each lot. The presence of gypsum probably had little if any influence upon the potash contained."

## *REPORTS OF THE FARMER'S CLUBS.*

*St. Benoît's Club* (Two-Mountains).—The parish of St Benoît has lately held a very successful festival. The Directors of the Club, assisted by their worthy President, had got up a ploughing match on the 24th of October. There were four classes, and the fortunate competitors were the following:

*Medal Class.*

1st prize, Damien Pilon; 2nd, Anthime Pilon, the son of D. Pilon; 3rd, Napoleon Levert.

*Superior Class.*

1st prize, Dalmas Dufresne; 2nd, Damien Masson; 3rd, Isaac Raymond.

*First Class.*

1st prize, Joseph Charbonneau; 2nd, Napoléon Corbeil; 3rd, Désiré Berthiaume; 4th, Alphonse Angrignon; 5th, Zoël Daoust.

*Boy's Class.*

1st prize, Arthur Pilon, who also won the silver medal offered for competition by Mr. Joseph Lalonde, a tradesman at St. Benoît; 2nd, Napoléon Desjardins; 3rd, Raoul Levert.

The following is something interesting; the MM. Pilon ploughed up a meadow with its standing crop of very abundant, long hay, by means of a chain fastened to the bridle (*batcul*) and the centre of the plough, so that it dragged along the furrow; the hay was first beaten down and then covered by the furrow. (1) The ploughing was done on the property of Mr. Girouard, the Notary.

After supper, at Mr Pilon's, different subjects connected with farming were discussed by the President, Mr. D. Pilon, and the Judges, Mr. F. X. Laurin, Théodule Leroux, Joseph Lefebvre.

*St. François Club, Beauce.—Experiment fields.—Effects of chemical manures on wheat.—Report of Mr. Joseph Bolduc.*—My experiment-field was an old meadow, loamy soil, moderately rich, and rather moist. It was ploughed in the fall of 1897. May 10th, 1898, after harrowing, I spread over half the plot (½ an arpent) 150 lbs. of Capelton superphosphate and 50 lbs. of sulphate of ammonia, mixed with their bulk of earth, and then harrow-

(1) Probably Mr. Girouard, had a superfluity of winter keep for his stock; or else he could not have afforded to waste a fine crop of hay. Ed.

ed the piece, finishing by sowing the whole arpent with wheat, after which I rolled the plots.

(Surely Mr. Bolduc does not mean to say that he did not cover in the seed by harrowing). ED.

The wheat came up well over the whole arpent. The plot dressed with the chemical manure preserved all its natural colour, in spite of the rain and the humidity of the land.

When the crop was cut, at the beginning of September, the manured plot yielded a third more than the other, both in grain and straw.

I am perfectly satisfied with the results from the chemical manure, and intend to use it again.

(*Signed*) JOSEPH BOLDUC.

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*Report of Mr. Joseph Poulin, junior.*—My experiment-field was an old pasture, in rather poor condition; the soil, loamy, in part strong and in part light land. I ploughed it in the autumn of 1897.

On May 10th, 1898, I dressed half an arpent of it with 150 lbs. of Capelton superphosphate and 50 lbs. of sulphate of ammonia, mixed with their own bulk of dry earth. After harrowing properly, I sowed the whole arpent with wheat, covering the seed with the harrows and rolling afterward. (Much better. ED.)

Up to July 20th, there seemed to be hardly any difference between the two plots, except that the wheat on the dressed plot was of a deeper colour than the other. But after that date, up to its ripening, there was a vast difference in the growth in favour of the manured plot, and at harvest the dressed plot yielded twice as much as the check-plot that had received no manure.

Besides, in my opinion, the chemicals had saved the wheat from the "rust," for another arpent of wheat, treated with farmyard dung, was far more affected by the rust, and the wheat was not so good.

In short, I am very well satisfied with the result of the experiment, and intend to use these artificial manures again.

(*Signed*) JOSEPH POULIN, Jr.

The Judges of the Competition, MM. Godefroid Quirion and Fortunat Poulin, awarded the first prize to Mr. Joseph Poulin, jr., and the second to Mr. Joseph Bolduc. (Very vague statements, as to yield, in both reports. ED.)

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*Baie St. Paul Club, (Charlevoix).—Experiment-fields.—Effects of chemical manures on wheat.—Report of Mr. Ovide Simard.*—My experiment-field was an arpent of land rather light than heavy. After spreading 150 lbs. of superphosphate and 50 lbs. of sulphate of ammonia mixed, on half an arpent, I incorporated them with the land by a good harrowing.

I did not remark any great difference during the period of growth, except that (on the manured part?) the colour was deeper and the leaves larger. From the dressed half-arpent I got ten bushels of fine, full-berried wheat; from the other half of the plot, only 7 bushels.

I had sown the whole arpent with clover; on the dressed half-arpent, the clover hard grown well in the fall, and it had the advantage of one-half over the non-dressed half-arpent.

(*Signed*) OVIDE SIMARD.

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*Report of Mr. Joseph Cimon.*—I prepared an arpent of heavy land, half of which received no manure; the other half arpent I dressed with 200 lbs. of superphosphate and 60 lbs. of sulphate of ammonia; having mixed the two, I spread them on the ploughed furrow and harrowed them in; I then sowed the wheat. (The method of covering the seed should be mentioned. If the grain was sown by hand on the harrowed surface, it could not be buried deep enough. One almost universal fault in the country is that wheat is put in too shallow. ED.)

On the dressed half acre, the wheat grew more quickly, the leaf (or flag) was broader and of a deeper colour, the ears one-third longer, and not one failed. From it I got 9 bushels of fine wheat.

The comparative half-arpent only yielded 6 bushels, a good deal of it dark in colour and much thinner in the berry.

I have also used these chemical manures on maize and potatoes, and the results were as good as when I used good farmyard dung.

(*Signed*) JOSEPH CIMON.

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*Effects of chemical manures on mangels.*—The experiment-fields were prepared as advised by the official programme governing the competitions, and Messrs. Alfred Côté and Geo. Tremblay were the fortunate competitors.

The reports of these gentlemen show that the effects of these chemical manures were considerable, both as regards the growth and the weight of the mangels when harvested.

So highly are these manures appreciated in our

district that it is the intention of all our farmers to buy large quantities of them for use in the coming season.

(*Signed*) OCT. SIMARD,
*Secretary of the Club.*

### *THRESHING RESULTS (England).*

I can now add my testimony to the general satisfactory yield of corn crops. Wheat is yielding well, and in my own case I noticed that sacks of 4 bushels each were filled with wheat at intervals of three minutes from the machine. Twenty sacks were, in fact, threshed in an hour, and 120 sacks in a short day. Oats I saw filling sacks at the rate of one in two minutes. Wheat is yielding even on light land 5 quarters per acre, and that over large fields, which is not only satisfactory, but seldom seen on this particular class of land. It shows the benefit of cake feeding and sheep folding, and is not due to phosphatic manuring or nitrate of soda. The very poor price at present realisable is the only drawback, and one may well become tired of waiting for better.

After six months one feels that after all it would have been better to have sold in September or October.

A slight rise in price would render the holding of wheat a wise step, but, in the meantime, there is interest on money and possible in'ury from rats to be taken into account. The holding back of so much straw from the land must also be injurious where wheat is held over year. The general opinion appears to be at present that prices will remain quiet.

## The Farm.

### *FURTHER EFFORTS TO IMPROVE THE SEED GRAIN OF CANADA*

During the past ten years continuous effort has been made by Professor Saunders, Director of Experimental Farms, to improve the quality and increased the productiveness of the seed grain used by the farmers of this country. During that time about 120,000 packages of three pounds each have been sent out to over 100,000 farmers, who have greatly benefited thereby. This work is being continued this year, and these samples are in great demand.

This season, under instructions of the Minister of Agriculture, a new feature has been added to this work. A select number of farmers have been chosen from each county or constituency in Canada, selected mainly from among those who have shown by the returns they have made regarding samples received in the past a special interest in this subject. Nearly 5,000 of these farmers have been invited to join in this special test which will be made in each instance on plots of one tenth acres each. The quantities of grain to be supplied, which is being mailed free from the Experimental Farm, are as follows: Oats, 8 lbs.; spring wheat, 10 lbs.; barley, 10 lbs.

Fourteen varieties which have been thoroughly tested at all the experimental farms, and have proven to be among the best sorts grown, have been chosen for these trial plots. Six of these are oats, viz.: Abundance, Banner, Improved Ligowo, American Beauty, Bauarian and Golden Giant; four spring wheats, Preston, Stanley, Percy and Advance; two two-rowed barleys: Beaver, and Sidney; and two six-rowed barleys: Royal and Trooper.

Every farmer entering on this test has had his own choice of variety, but can only receive one sample. At the close of the season the results obtained in each county will be published so that this test will, to some extent, be a competitive one, and will show the value and usefulness of these several sorts of grain in the various provinces of the Dominion.

The following particulars are given by Dr. Saunders in reference to the introduction of the varieties chosen for this special test and the record they have made as to crops during the past four years:

The ABUNDANCE oat was imported from France by the Experimental Farm in 1891, and has been grown each year since with very satisfactory results. It is a white oat with a branching head and a fairly stiff straw, a vigorous grower, and very productive. In the uniform test plots at the Central Experimental Farm it has given an average yield during the past four years of 66 bushels 37 pounds per acre. The Abundance oat has been similarly tested at all the the experimental farms throughout the Dominion, and has given, as the result of four years' trial, an average crop of 65 bushels 9 pounds per acre. The largest crop yet given by this variety at any of the experimental

farms was had at Indian Head N.W.T., in 1895, when it produced 108 bushels 28 pounds per acre.

The BANNER oat was first grown at the experimental farms in 1890, and has been sown each year since and has given heavy crops. From the outset it has shown great vigor and has been very productive. It is a white oat with a branching head and a stiff straw. In the uniforme test plots at the Central Experimental Farm it has given an average yield during the past four years of 70 bushels 21 pounds per acre. The Banner oat has been similarly tested at all the experimental farms throughout the Dominion, and has given, as the results of four years' trial, an average crop of 71 bushels 17 pounds per acre, which is the largest yield given by any variety. The heaviest crop yet obtained from this oat at any of the experimental farms was at Brandon, Man., in 1898, when it gave 106 bushels 6 pounds per acre. In 1895 at Indian Head, N.W.T., an 18 acre field of this oat gave an average of 106 bushels per acre.

The IMPROVED LIGOWO oat was imported from France by the Experimental Farm in 1891, and has been grown each year since with very good results. It is a white oat, large and plump, with a branching head and stiff straw, a vigorous grower and very productive. In the uniform test plots at the Central Experimental Farm it has given an average yield during the past four years of 65 bushels 30 pounds per acre. The Improved Ligowo oat has been similarly tested at all the experimental farms throughout the Dominion, and has given, as the result of four years' trial, an average crop of 64 bushels 6 pounds per acre. The largest crop yet given by this variety was had at Indian Head, N.W.T., in 1896, when it produced 92 bushels 32 pounds per acre.

The AMERICAN BEAUTY oat was first grown on the Experimental Farms in 1891, and has been tested each year since with very satisfactory results. This is a pale yellow oat with a branching head and fairly stiff straw, a vigorous grower and very productive. In the uniform test plots athe Central Experimental Farm it has given an average yield during the past four years of 62 bushels 32 pounds per acre. The American Beauty oat has been similarly tested at all the experimental farms throughout the Dominion, and has given, as the result of four years trial, an average crop of 71 bushels 16 pounds per acre, which stands at the head of the list for productiveness. During the past season (1891) a five acre field of American Beauty gave at the Central Farm an average crop of 82 bushels 11 pounds per acre. The largest crop yet given by this variety was had at Brandon, Man., in 1898, when it produced 113 bushels 18 pounds par acre.

The BAVARIAN oat was first grown on the experimental farms in 1895, and has been tested each year since with good results. It is a white oat with a branching head and a stiff straw, which has shown much vigor and been very productive. In the uniforme test plots at the Central Experimental Farm this oat has given an average yield during the past four years of 62 bushels 13 pounds per acre. The Bavarian oat has been similarly tested at all the experimental farms throughout the Dominion, and has given, as the result of four years' trial, an average crop of 66 bushels, 33 pounds per acre. The largest crop yet obtained from this variety at any of the experimental farms was at Brandon, Man., in 1898, when it gave 109 bushels 14 pounds per acre.

The GOLDEN GIANT oat was first grown on the experimental farms in 1893, and has been tested each year since with satisfactory results. It is a yellow oat with a sided head and a fairly stiff straw, which has proved vigorous in growth and very productive. In the uniform test plots at the Central Experimental Farm this oat has given an average yield during the past four years of 65 bushels 7 pounds per acre. The Golden Giant oat has been similarly tested at all the experimental farms throughout the Dominion, and has given, as the result of four years' trial, an average crop of 64 bushels 19 pounds per acre. The largest crop yet obtained from this oat at any of the experimental Farms was at Indian Head, N.W.T., in 1895, when it produced 104 bushels 4 pounds per acre.

The PRESTON wheat is a cross-bred sort produced at the Central Experimental Farm, Ottawa, in 1888, by fertilizing the Ladoga wheat with the Red Fife. It is a bearded variety which has shown great vigor and productiveness. It has a stiff straw and ripens on an average about four days earlier than Red Fife. At the Central Experimental Farm it has been tested alongside of a large number of other sorts, under similar conditions for four years, and has given an average yield for this period of 26 bushels 4 pounds, which is 2 bushels, 4 pounds per acre more than that obtained from any other sort at Ottawa. The Preston wheat has been similarly tested at all the

experimental farms throughout the Dominion, and has given, as the result of four years' trial, at all these farms an average of 32 bushels 17 pounds per acre, being 1 bushel 17 pounds more than that obtained from any other variety tested. The largest crop yet given by the Preston at any of the Experimental Farms was at Brandon, Man., in 1895, when it gave 48 bushels 20 pounds per acre.

The PERCY wheat is a cross-bred sort, produced at the Central Experimental Farm, Ottawa, in 1888, by fertilizing the Ladoga wheat with the White Fife. It is a beardless variety with a stiff straw, which has shown much vigor and productiveness, and ripens on an average about four days earlier than the Red Fife. In the uniform test plots at the Central Experimental Farm it has given an average yield during the past four years of 21 bushels 7 pounds per acre. The Percy wheat has been similarly tested at all the experimental farms throughout the Dominion, and has given, as the result of four years' trial, an average of 30 bushels 24 pounds per acre. The largest crop yet obtained from this variety at any of the experimental farms was at Indian Head, N. W. T., in 1898, when it gave 45 bushels 20 pounds per acre.

The STANLEY wheat is a cross-bred sort, a spor, which occurred in the variety known as Prestont a cross between Ladoga and Red Fife. This is a beardless sort with a stiff straw, which has shown much vigor and productiveness, and ripens about four days earlier than Red Fife. In the uniform test plots at the Central Experimental Farm it has given an average yield during the past four years of 22 bushels 41 pounds per acre. The Stanley wheat has been similarly tested at all the experimental farms throughout the Dominion, and has given, as the result of four years' trial at all these farms, an average of 29 bushels 4 pounds per acre. The largest crop yet obtained from this variety at any of the experimental farms was at Nappan, N.S., in 1896, when it gave 49 bushels per acre; the second largest crop was at Brandon, Man., in 1895, when it gave 43 bushels 30 pounds per acre.

The ADVANCE wheat is a cross-bred sort, which was produced at the Central Experimental Farm in 1888, by fertilizing the Ladoga wheat with the White Fife. It is a bearded variety with a stiff straw, which has shown much vigor and productiveness, and ripens on an average about three days earlier than the Red Fife. In the uniform test plots at the Central Experiment Farm it has given an average yield during the past four years of 21 bushels 20 pounds per acre. The Advance wheat has been similarly tested at all the experimental farms throughout the Dominion, and has given, as the result of four years' trial, an average crop of 29 bushels 8 pounds per acre. The largest crop yet obtained from this wheat at any of the experimental farms was at Brandon, Man., in 1895 when it gave 46 bushels 20 pounds per acre.

The variety of two rowed barley known as BEAVER is a hybrid produced by crossing the Swedish two-rowed barley with the Baxter, a six-rowed sort. This cross was effected at the Central Experimental Farm in 1889, and it has been tested each year since with satisfactory results. It has a stiff straw, is a vigorous grower and productive. In the uniform test plots at the Central Experimental Farm it has given an average yield during the past four years of 42 bushels 9 pounds per acre, which is the highest yield obtained from any of the varieties tried at Ottawa. The Beaver barley has been similarly tested at all the experimental farms throughout the Dominion, and has given, as the result of four years' trial, an average crop of 41 bushels 12 pounds per acre. The largest crop yet given by this variety was had at Indian Head, N W. T., in 1896, when it produced 66 bushels 32 pounds per acre.

The variety of two-rowed barley known as Sidney is a hybrid of the parentage as Beaver. This cross was effected at the Central Experimental Farm in 1889, and this barley has been tested each year since with satisfactory results. It has a stiff straw, is a vigorous grower and productive. In the uniform test plots at the Central Experimental Farm it has given an average yield during the past four years of 39 bushels 38 pounds per acre. The Sidney barley has been similarly tested at all the experimental farms throughout the Dominion, and has given, as the result of four years' trial, an average crop of 39 bushels per acre. The largest crop yet obtained from this variety at any of the experimental farms was at Indian Head, N.W.T., in 1896, when it produced 61 bushels 42 pounds per acre.

The Royal six-rowed barley is a hybrid which was produced at the Central Experimental Farm in 1889 by crossing the Swedish two-rowed barley with the Baxter, a six-rowed sort. It has been tested each year since with satisfactory results. This barley has a stiff straw, is vigorous in growth and productive. In the uniform test plots at the Central Experimental Farm it has given an aver-

age yield during the past four years of 53 bushels 26 pounds per acre. The Royal barley has been similarily tested at all the experimental farms throughout the Dominion, and has given, as the result of four years' trial, an average crop of 45 bushels 4 pounds per acre. The largest crop yet given by this variety at any of the experimental farms was at Brandon, Man., in 1895, when it produced 65 bushels 30 pounds per acre.

The Trooper six-rowed barley is a hybrid of the same parentage as Royal. It has been tested each year since with satisfactory results. This barley has a stiff straw, is vigorous in growth and productive. In the uniform test plots at the Central Experimental Farm it has given an average yield during the past four years of 48 bushels 17 pounds per acre. The Trooper barley has been similarily tested at all the experimental farms throughout the Dominion, and has given, as the result of four years' trial, an average crop of 46 bushels 29 pounds per acre. The largest crop yet given by this variety at any of the experimental farms was at Indian Head, N.W.T., in 1896, when it produced 67 bushels 14 pounds per acre.

It is a good plan to apply manure to clover in the fall.—[A. E. Geer, New London Co, Ct]. *A new discovery ?*

### *MANURING PERMANENT PASTURE.*

In his letter on the above, in last week's *Gazette* Mr. Hughes comments on a scarcity of farmyard manure as available for grass land, and the necessity of artificial supplements being used thereon. In mixed farming there usually is a scarcity, or, at least, preference is mostly given for farmyard manure being used on the arable portion, and it generally finds its way thither. The season for such preference may possibly be a fairly good one, whether defined or not. Anyway, the application of 10 tons of good farmyard manure per acre upon grass would probably exhaust the forbearance of most farmers before half the field had been so treated. Frequently, then, grass land gets little but stack-yard scrapings, as chaff and compost, considered scarcely desirable on arable land. Hay fields, or portions of them, may upon favourable occasions get some actual farmyard manure, but grazing lands very rarely indeed. Therefore comes the consideration of artificial applications which Mr. Hughes claims. He also shows lucidly that there is a tendency for nitrogen to accumulate in land passing into pasture, and points out the effect of phosphates applied. No doubt the grazing with young stock is very similar to dairying in the respect to which he alludes. As to the influence of lime with which basic slag is combined, there is no doubt that, judging by results, it has an advantage, which, with this phosphate as so combined, gives an increasing interest from an agricultural aspect, which we are gradually recognising as of further advantage. What has been practised here on permanent pasture by a leading farmer is to repeat the slag dressing at the third year. Upon the first improvement this gives an available balance in hand, and it is found that this gives permanency to the feeding standard. No doubt the amount of lime afforded by a slag dressing is such that a repetition at the period mentioned is by no means outside of recurring requirements. On this farm there is an old grass pasture which was dressed with slag tow years ago, and the herdsman is desirous that a further application should be given, and thinks it would then be capable of carrying older cattle forward, and become a top pasture. The man is observant and interested as in the case of his own ; quite bearing out Professor Wrightson's remarks on farm men.

Mr. Hughes refers to the time when artificials should be applied. This, of course, may be influenced by circumstances, but I think that in practice the earlier in the year that dressings of all kinds can be applied to grass land the better, and that as a principle March should be forestalled as far as possible in ordinary practice. W. P.

### *PREPARING THE SEED-BED.*

To ensure the thriving of almost all plants a sufficient and continous supply of moisture is needed, and this can only be furnished if careful attention be paid to the preparation of the seed-bed. The best soil for the retention of moisture is a fine, loose earth, tolerably rich in humus or decaying organic matter ; but not, of course, light and loose enough to permit the rapid passing of air through it, because the all-important moisture would then be carried away. In cases of this latter kind it is advisable to firm or compact the soil as much as possible, and to leave the actual surface

to a depth of from one to three inches to form a loose surface mulch, so breaking up the capillarity tubes, and preventing undue evaporation. Apart from the saving of moisture the earth mulch shades the soil and prevents it from cracking in dry weather. For early sowings it is specially important to prepare a fine, loose soil, because this tends to raise the temperuture of the land. It must be borne in mind that many seeds will not germinate if planted early and when the soil is cold. Depth of sowing is a matter which does not receive the careful thought and consideration it really ought to do, and a very great proportion of the failures which annually occur are due to injudicious sowing rather than to any defect in the seeds sown. Indeed, it is probable that with such seeds as clovers more than half the seeds sown are wasted, either owing to their not being sufficiently deeply covered and so not securing enough moisture, or to their being buried so deeply that the seedlings have a hard struggle to reach the surface. To obtain the best results make the seed-bed fine and warm, sow at the proper time, and firm the soil down immediately after sowing to ensure the action of capillarity being carried on. Of course the surface soil between the rows ought to be left as a mulch in the manner previously mentioned. When clover and grass seeds are sown in a cereal it is impracticable to prepare a proper bed for them; but if this sowing be made in spring the rains will help to wash the seeds into the soil, and there is, moreover, less risk of very hot weather drying up the germinating seedlings. It is, however, always essential to roll summer and autumn seedlings. To recapitulate, a good seed-bed can only be obtained where the ground is properly drained, has been well broken up, and has had its surface harrowed down into good condition for sowings. It should be unnecessary to add that lands inclined to be heavy or clavey must not be worked when they are wet; but the fact that if tilled while so dry as to be dusty they will puddle badly when the rain comes is one that will bear repetition.

### THE CARE OF THE PLANT

There are three main objects to be borne in mind in the subsequent care of the plant, these being the supply of moisture, feeding the plant, and the destruction of weeds, and these three aims can be practically attained by proper tillage, which improves the mechanical texture of the soil by loosening and deepening it, so that plants obtain a better foothold, and by equalising the conditions of soil heat and moisture through the season of growth. Again, it helps to conserve moisture by checking evaporation and deepening the reservoir of the top soil. The checking of evaporation is accomplished by producing an earth mulch with surface tillage; besides all which cultivation materially helps to set free plant food previously locked up in the soil, both by admitting air and by hastening the decomposition of the organic manures present. Surface tillage must be afforded whenever the ground becomes hard, and as often as may be necessary to provide an earth mulch. Speaking generally, tilled crops require tillage every ten or fourteen days, especially early in the season. Even broadcasted crops can sometimes be tilled with advantage very early in the season by running a light harrow over them. Of course the harrow destroys a few plants, but the moisture conserved is full compensation. In this way wheat may advantageously be harrowed very early.

### A PLEA FOR DRAINAGE

As few fodder plants endure stagnant water, drainage must be considered a necessary preliminary to forming pastures on all clay or peat soils in which the best natural grasses do not thrive, for no matter what expense may be incurred in the seeding and after management of a more or less sodden pasture, sooner or later the most nutritive and productive plants will be replaced with worthless sedges, mosses, &c. The presence of stagnant water makes the land very cold by evaporation, and so neutralises the beneficial influence of solar heat on vegetation, besides preventing the necessary percolation of air and water in the soil. As a consequence vegetation starts late in spring and becomes dormant early in water-logged soils, on which, too, the treading of cattle is most injurious to the young shoots of pasture plants. In brief, it is absolutely essential to the wellbeing of the best pasture plants that the soil in which they grow should not be too wet.

### A SUBSTANTIAL FACT

In the choice of varieties useful hints can sometimes be gathered from an examination of the indigenious flora, but such considerations are always subservient to the vital necessity of selecting only the most productive and nutrititious species, which will also provided palatable food for stock and it is very important to entirely omit those grasses that produce flower-culms freely in autumn.

When eating the leaves of a grass animals must of necessity bite off the top of the undeveloped stem, too, so that the appearance of a flower stalk in a well-grazed pasture is an obvious proof that that particular plant has been passed over by stock, and it is surely evident that all species which are rejected by animals are undesirable, notwithstanding their possibly high nutritive value as ascertained by chemical analysis. For permanent pastures short-lived plants should be excluded to prevent deterioration, and possibly failure after the third or fourth year. There is no period of deterioration in pastures laid down only with the best and most enduring species, such as cocksfoot, meadow fescue, meadow foxtail, tall fescue, timothy, the meadow grasses, white clover and a little yarrow ; and, generally speaking, these thrive where any pasture plants flourish.

QUANTITY OF PASTURE SEEDS PER ACRE

The Woburn experiments have demonstrated that the use of 10,000,000 living pasture seeds per acre produces a heavy yield ; and this may be made the basis of calculations for estimating seed mixtures for pastures and hay. The average number of grains in 1 lb. of pure seed of each of the principal grasses and clovers has lately been given in the list following ; but this value is relative only, since some speciesvary greatly :—Meadow foxtail-grass, 907,000; sweet vernal grass, 924,000; tall oat grass, 159,000; yellow oat grass, 2,045,000; crested dogstail grass, 1,127,000 ; rough cocksfoot grass, 5795,00; tall fescue grass, 318,200; meadow fescue grass, 318,200 ; sheep's fescue grass, 680,000 ; hard fescue grass, 680,000 ; perennial rye grass, 336,800 ; Italian rye grass, 285,000; timothy, 1,170,500; smooth stalked meadow grass, 2,400,000; rough stalked meadow grass, 3,250,000; lucerne, 209,500; trefoil, 328,000; sainfoin, 22,500. red clover, 279,000; white clover, 740,000; and alsike clover, 707,000. From these data the number of germinating grains in 1 lb. of any seed is readily ascertained if its percentage of germination be known.

## *A FARMER'S TRIP TO PARIS.*

For a long time past I have kept my eye on French productions, especially in the agricultural line. I know how they go this side, but I was desirous of obtaining more knowledge as to how they were produced at the other end. So last week seeing that the French Agricultural Show was on I determined to pay a visit to Paris, and pick up a few wrinkles if possible.

### *Apple culture in Normandy.*

Dieppe reached, the train soon speeded us on through fair Normandy. Here apple culture can be seen at its best. Each tree in each orchard is carefully pruned ; not a single branch crosses, neither is a tree overcrowded. An immense amount of care and attention must be bestowed on these trees. In the water meadows I noted that the water was just being turned on, but not a sign of sheep or cattle was to be seen in the fields. Past Rouen we came to

### *The Peasant Proprietorships.*

The hedgerows were remarkable by their absence. The vast level was cut up into the queerest shaped allotments it is possible to imagine. Some were planted to rye, others to vetches, others had seemingly seeded themselves down to a bastard ley, whilst others appeared quite derelict ; then came a few wider patches of grass land that were evidently well cared for, and on them might be seen numbers of sheep. The shades of night had fallen when Paris was reached.

### *The Paris Show.*

On the next morning I moved along in the direction of the show.

After having inspected the French breeds of cattle I glanced at the Shorthorns. Well may the French breeders be proud of them ; they have produced a nice, level, beef type. In the young bull class there were fifteen entries, some of the prize-winners in which would have done well in England. In the class for bulls above one and under two years old there were twenty-two entries, whilst in the old bull class there were fourteen. French breeders evidently do not practise the very reprehensible system of feeding up the females for show purposes. Thus only eight entries were made in the yearling heifer class, whilst nine were made in the class for heifers between two and three years old, and four were made in the cow class. This shows that the Frenchmen keep their true breeding animals at home. But the females were not of the true type that now go to make up the modern milking Shorthorn. In the few classes set apart for the Jersey breed there were only twenty-eight entries, and several of these were of very second-rate quality. The Dutch breed is

still evidently cherished in France, and the milch kine of this race had some splendid udders. The Normandy peasants brought a number of their small allotment cows, which are to the breeds of France what the Kerries are to England. Their udders werre filled in such a manner as to denote their milking capabilities. The prizes for fat stock showed that our neighbours across the Channel do not go in for our Smithfield early maturity, the chief prize going to splendid four and a half years old steers of the Nivernais-Charolais breed. These are nearly pure whites, they were very large, and had splendid rounds, and evidently the choicest roasting meat.

***Sheep and Pigs.***

In a glance round the sheep pens I expected to have seen more representatives of English breeds present, but the only English breed represented was the Southdowns; there was a considerable number of these and their crosses present. But above everything I noted that the French sheep were shown in their natural condition without any of that pernicious colouring which has become such a feature of our sheep pens in showyard England. Also on the side of each sheep that is shorn is left a patch of wool about four inches in diameter, so that the judges can form a just estimate of its length and quality. French sheep are small and produce small legs of mutton and small joints. In the show there were two good races of pigs, the Craonnais and the Normandy, whilst the others were decidedly a bit off from an English farmer's point of view. Berkshire breeders would have been a trifle more than surprised if they could but have seen the White Berkshire. This English breed was very poorly represented, whilst the Tamworths did not come in for a single entry. Yorkshires of the Middle White variety were the pigs most in request, either as pure or for crossing purposes. There would seem to be a grand opening in France for an English pig breeder with a little push about him.

***Fruit.***

As regards the produce section attention must first of all be given to the splendid fruit trees. Clean, wellgrown, and beautifully shaped were they, the apple trees especially, which were mostly grafted on the wedge principle. There was an admirable show of fruit, the favourite table apple being *Reinette du Canada*, and it was also awarded the chief prize in the fruit section. There was an excellent exhibit of cider apples of some forty varities, accompanying each of which was an analysis. One of the richest cider fruits, Pomme rousse de Bellefends, analysis read as follows: Specific gravity, 11·01; sugar, 218·37; tannin, 3·8; acidity, 1·70. This variety of apple tree blossoms the second week in May, is a good sized fruit, and is stated to be a free cropper. Placed over these cider apples was an official card recommending the following varieties: Argile, Bedau, Hemmet, Petit Muscadet, Medaille d'Or, Maryabal, Peau Vacher, Musquée, and Krouse de Cerne. Numerous varieties of pears were shown, most of which are well known on our English markets.

***Cheese and Butter.***

There was a magnificent display of French cheese, all arranged in a most tasteful manner. Such could not, however, be stated of the butters, which were shown in every variety of odd lumps, no taste, none of that dainty artistic ability of the French applied to it; it was a lump of butter, that was all. But some of the lumps were of excellent flavour.

***Cider.***

The cider could not be said to come up to the average of our English shows; most of it was thick, and lacked that life and sparkle which distinguishes our highclass English ciders.

## *ROTATION OF VEGETABLE CROPS.*

To the amateur it is often a perplexing matter to know what crop should follow another. Knowing the difficulty this class find in this phase of garden management I thought at this season of the year a note on this subject would be as useful as it is opportune. A systematic rotation of cropping in the vegetable garden is no doubt one of the chief elements to success. The amateur, though, very often finds that a perfect system in rotation of crops is an impossibility, owing to the ground being too limited to admit of one crop following another in proper order. The essence of rotation in cropping is that an exhausting crop should not follow one of a similar nature, as, for instance, cabbage should not occupy the same site two years in succession. From experience I have been able to controvert this idea, which has become fixed in the minds of many persons. Such rigid lines are not absolutely necessary, provided a proper preparation is made for each crop.

### *Brussels sprouts, Broccoli, &c.*

For example, Brussels sprouts, broccoli, kale, savoys, and cauliflowers may be grown on the same ground for fifteen years consecutively. A method of management somewhat in this way should be adopted though. When the cauliflower and early broccoli are cleared off the ground in November, a heavy dressing of manure is dug deeply into the soil at once. On this piece Brussels sprouts are planted in April, Thus for the previous five months the surface has been exposed to all kinds of weather. In digging the ground was left as rough as possible, so as to create as large an area as possible for the influence of the weather. The early broccoli and cauliflower then go on to the ground last occupied with Brussels sprouts and late broccoli. Such practice as this successfully carried out tends to illustrate how fixed notions of rotation in cropping can be violated. Success cannot be obtained, though, without heavy manuring, deep digging, and early planting, so as to give a long season of steady growth.

### *Potatoes.*

Potatoes, too, which are considered to be an exhausting crop, may be grown on the same land for a number of years, provided it is thoroughly well managed. Where, however, the opportunity exists of one crop following another, in accordance with a system, potatoes or the Brassica tribe should succeed onions, peas, beans, or any of the various root crops, such as carrots, parsnips, or beet.

### *Celery.*

Celery is a good crop to precede potatoes carrots, beet, or parsnips. The earthing required for the celery causes extra digging and stirring of the soil, therefore favourable to deep-rooting subjects like parsnips particularly. Onions are a good crop to precede early cabbage, as the ground for the onions having been well tended and made rich by frequent top-dressings of manure and occasional soakings of the soil with liquid manure, thus rendering it richer than where an exhaustive crop like cauliflower has been growing. The ground, too, seldom requires digging after the onion crop, as it is generally kept scrupulously clean and is firm, and this is what cabbage revel in, especially if the soil is light in character.

### *Peas.*

Peas are, perhaps, more accommodating than any other vegetable. Belonging, as they do, to the leguminous section, they do not absorb their supply of nitrogen absolutely from the soil. Peas succeed best with abondance of space between the rows; these ought at all times to be sown so that the rows will run north and south as the plants obtain an equal share of sunlight on all sides. This is not so when the rows point east and west, as the haulm on the southern side obscures the sun from the northern portion of the row. It is a good plan to sow a row of peas, and then plant about four rows of potatoes, then follow with another row of peas. This is an economical plan, and grows peas really well—much better than sowing the rows say 4 ft. apart, and filling in the space with broccoli or winter greens of any kind. Peas may follow any green crop if not sown among the potatoes, as a special preparation is generally made for peas in the shape of extra manure, which is added in a similar manner to what is followed in celery culture. E. M.

## *GREEN FORAGE FOR SIX MONTHS*

With ordinary care and foresight it is not a difficult task to provide a succession of palatable green feeds from the 10th of May to the middle of Nov. Rye sown the previous Aug. and again late in Nov. gives the first available green feed, lasting until early clover. Early sown oats or oats and peas followed by late sowings at intervals of 10 days provide for July. Hungarian sown in June takes us through early August and sweet corn sown every two weeks from May 15 to July 1 is ready to use. Barley carries us along until the ground freezes. Immature corn fodder, however, is poor feed. A surprisingly small area in green crops will carry a good stock of cows through the summer.—[N. B. Douglass, Middlesex Co, Mass.—*Homestead.*

## *FODDER CORN.*

In the cultivation of the Indian corn crop, a few points are important. They are still either unknown or overlooked by many farmers. A corn crop should get a good start. The land should be fully manured near the surface, or the corn should be planted in a seed bed prepared by the ploughing under of sod or clover.

If the land be foul with weeds or grassy, a surface cultivation at two intervals of ten day

each, early in the spring, will give the weeds a chance to start, when they will be destroyed by the tillage preparatory to the planting of the corn. The labour of keeping the field clean during the summer will be very much lessened by such a treatment in the spring.

A variety of corn should be selected which will arrive at the glazing stage of growth before the usual period of frost in the autumn.

It should be planted in rows or hills not less than three feet apart. If in rows, it should be planted so thin that stalks will not be closer than three to the foot in each row; if in hills, from four to six stalks per hill. If the seed be sound and of a high percentage of vitality, about twenty pounds of seed per acre is enough.

It is usually a good plan to harrow the corn crop with light harrows when the plants are about four inches above ground. That is particularly beneficial if the ground it at all crusted, as after a rain. But the ground should be dry enough to be in good working tilth before the harrowing is done. The cultivation should be frequent and always shallow. The roots of the corn plant grow out sideways; where the cultivation cuts these off, great injury to the crop is done.

The best stage at which to cut the corn crop for ensilage, is when the kernels in the ears are of full size, but before they begin to harden. That is usually the stage when the lower leaves of the corn stalk become yellow and withered. At that time the plants will contain the largest quantity of digestible matter, and will be in their best condition for preservation. The feeding value per acre is greatest when the crop is nearly mature but not ripe.

## Household Matters.

(CONDUCTED BY MRS. JENNER FUST).

### SPRING CLEANING.

Spring will soon be upon us, bringing with it duties that cannot be neglected.

This year, extra care will have to be taken in house cleaning. Owing to the very trying winter we have just passed, with its ever varying changes from heat to cold and the reverse, coupled with attacks of influenza, which has visited so many houses and left behind it so many ailments to fight against, many people are ill prepared to cope with more.

A slight cold is apt to send the weak ones back to their beds, which seems to be the safest place for them on these occasions.

Children who are not strong are susceptible of the slightest change, and have to be watched with the keenest anxiety even to the too sudden change of rooms.

So this spring is a most anxious one for the mothers of families, who must feel thankful if they have got through the winter unscathed.

They will need all their time and strength to go through the annual labour of overseeing that every nook and corner of the house is looked after.

Happy are those people who have the strength of mind and body to do this work themselves, or have the good fortune to have trustworthy people who will do it faithfully for them; slurring over work is one of the great evils of the day.

It is sad, but too true, that there are but few faithful workers at the present time, and it is this that makes housekeeping such a trial to many.

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Insect and vegetable life grows so quickly with the spring time that it needs a good head to hunt and find out the many little corners where the former will, if left alone, soon multiply and show what mischief is done by neglecting to hunt and clean out their little haunts in good time.

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### INSECT DESTROYER.

A very good and safe insect-destroyer will be found in alum. It should be bought in the lump and boiled in water until dissolved.

While still hot, apply it with a feather or brush to any crack or cranny whence insects are found to emerge. Ants, beetles, etc., are killed with it, but it is not poisonous to any animal.

There are many other insect-destroyers well known, but it is better to use a very safe one where there might be children.

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Acetic acid, carefully dabbed with a camel-hair brush into the centre of a corn or wart, will remove these pests and discomforts after a few applications.

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## BREAKFAST DISHES.

### OATMEAL SHOULD BE WELL COOKED.

Oatmeal contains a larger proportion of nitrogen than meal prepared from other grain, and requires much cooking. It is a most wholesome, nutritive,

and economical food, and should be more extensively used than it is. When not thoroughly cooked, it is, however, very indigestible, and also tends to produce waterbrash. The coarser qualities require quite half an hour's boiling. It should also be eaten slowly to insure its being well mixed with saliva; a crust of bread may be eaten with it with that object.

### THE BROILING OR FRYING OF FISH.

In either case the fish must be clean and well washed, then left to dry for an hour or more, rolled in a clean dry cloth which will absorb all the moisture left from the washing. If you are going to broil fish it must be well floured and seasoned before placing it on the gridiron. The fire for broiling must be carefully prepared and be quite free from smoke, it is a good plan to scatter a little salt on the red hot cinders before commencing to broil. Make the gridiron hot, then rub with a little fat to keep the fish from sticking. If you intend your fish for drying, brush it over with egg, then sprinkle with very fine bread crumbs, and if you want it to have a particularly good appearance do this a second time, then fry in a sufficient quantity of boiling fat to cover the fish completely. Clarified dripping is by far the best medium for frying fish, butter is far more expensive and yet does not give so good an appearance, and lard makes the fish soft. The fat for frying fish must cease bubbling and be perfectly still with a pale blue smoke arising from it. A small piece of bread dropped into it should immediately turn a golden brown.

### SHIRRED EGGS.

Liberally grease the egg dishes with butter and place them in the oven for an instant. Carefully break an egg in each cup and bake in the oven for eight minutes. Remove, season with salt and pepper and one half of a teaspoonful of melted butter to each egg. Serve at once.

### EGGS WITH CHEESE.

Butter well the bottom of a flat dish and an inch up the sides. Over this sprinkle grated cheese. Drop the eggs on the cheese without breaking the yolds, season with salt and pepper. Pour a little sweet cream, or rich milk, over the eggs, and sprinkle well with grated cheese. Cook in a moderate oven fifteen minutes.

### BAKED MILK.

Put sweet milk into a jar, covering the opening with white paper, and bake in a moderate oven until it is as thick as cream. It may be taken by the most delicate stomach.

## DIFFERENT WAYS OF COOKING APPLES.

### CHARLOTTE OF APPLES.

Peel some good baking apples according to the size of the pudding wanted and drop them into cold water as finished; have ready boiling on the fire in a lined pan a syrup of sugar and water; quarter and core the apples and put them in, and stew till soft; butter a pudding mould and line it out carefully with thin slices of stale bread dipped in melted butter; brush over with white of egg to make the slices adhere; fill into the top with the stewed apples, finish off with a slice of bread dipped as before in melted butter; put it in the oven for an hour; gently detach the pudding from the dish with a blunt knife, turn it upside down on the ashet, let it stand a minute or two; draw off the mould and serve with cream and castor sugar.

### APPLES WITH TAPIOCA.

Peel and core as many apples as will fill the baking dish they are to be cooked in, stuff the apples with as much brown sugar as they will hold, place them in the dish, and fill up with a cup of tapioca; pour in as much water as it will absorb, and strew some more sugar over the top; cover closely and cook till soft and the tapioca in a jelly; serve with cream and sugar.

### APPLE CHEESE.

Soak ¾ oz. gelatine in half a pint of cold water for an hour, peel, core, and slice 1½ lb. apples and put on the fire with the gelatine, ½ lb. white sugar, and a few pieces of rough ginger. Stir and boil till soft, and pass through a wire sieve; when cold, but not set, add a gill of switched cream, pour into a casserole mould, turn out when wanted, and fill in the centre with switched cream, on which sprinkle a little pink sugar.

### APPLE TRIFLES.

Stew four or five large apples, peeled, cored, and quartered, in a pint of water, a few pieces of whole ginger and sugar to taste. When cooked

but not broken, take them out and boil the syrup till thick, strain and put aside to cool. Make a rich custard with three eggs, one gill of milk and one gill of cream, flavour it with bayleaf or ratafia, switch till light and stiff 1½ gills of double cream, and flavour it with sherry. Put the apples at the bottom of a glass dish, pour the syrup over them, then lay the custard on in spoonfuls, then the cream, and sprinkle pink sugar over the top.

LEMON PUDDINGS.

A nice change about this time of the year from the plum pudding and mince pies is a lemon pudding. Lemon puddings are made in many different ways and are good either baked or boiled. First I will give the recipe for a boiled one. Take half a pound of bread crumbs, 6 oz. of fine chopped suet, 6 oz. of sugar, the rind of a lemon cut fine, and the juice. Mix with two eggs, and steam for two hours in buttered mould. Serve with sweet sauce flavoured with lemon. Now for a baked pudding, which is somewhat of a novelty. Boil half a pint of milk, then stir into it two tablespoonfuls of butter, and let it cool. When it is perfectly cold mix it with four well-beaten eggs, add two tablespoonfuls of white sifted sugar and the juice of a large lemon; line a pudding dish with puff paste, pour in the pudding mixture, and bake in a rather quick oven for half an hour. Serve very hot.

# The Poultry-Yard.

***An Important Letter from a large poultry-dealer in England.—An avenue of wealth to our farmers.—An old story repeated. —Will cramming machines be necessary?***

The following letter, which is published in the *Carleton Place Herald* of 21st inst., two days ago, was received by Messrs. Yuill & Sons, farmers, near Carleton Place. Ont., from Mr. James Ruddin, of Liverpool, England, one of the largest dealers in poultry and game in Great Britain. The letter is a most important one, for it shows the demand there is for Canadian poultry, of a superior quality, in the English market and the possibilities of a great and profitable trade development, in the near future. Indeed, it may be said with truth that the market only awaits the production of the poultry by our farmers of the quality and in quantity required. It will be remembered that it was Mr. Ruddin, who so successfully handled the experimental shipment of fattened poultry sent last fall by Professor J. W. Robertson, and which shipment showed a profit of 50 cents per pair, after paying all expenses! It is also to be borne in mind that the birds composing that shipment, were purchased in the neighborhood of Carleton Place, by Messrs. Yuill & Sons, and were fattened by them. The birds were first and second crosses into which Barred Plymouth Rock had largely entered. Some were thorough bred Rock cockerels. The letter says:

"The whole transaction was so completely successful and satisfactory in every particular that I am loath to let time pass without venturing to enquire as to your intentions in regard to the export to England of your fattened Poultry. Being the first to handle your stock I would hope to continue to do so; being sure that no one in England could offer you the same facilities, service and interest that I command. Anticipating, therefore, that you will be inclined to favour me with your consignments I take this early opportunity of encouraging you to extensive operations in Poultry for the coming season. You need have no fear as to the ultimate results. Only turn your Poultry out in the same order and condition as you did the experimental lot and I will see that profits shall accrue. I am confident that I can create a large trade in Canadian Poultry if I am able to secure responsible and reliable feeders and packers like yourselves. The business will need co-operation of a willing and intelligent order. The trade will then be readily established and it will only be the packer's fault if he does not maintain his position and hold the business. I might say that the English market receives Poultry from every country in Europe as well as from Australia and New Zealand. I can state, however, without the slightest fear of contradiction that the Canadian Poultry has no compeer and therefore no competitor on equal terms. For not only is the Canadian Poultry superior as to quality and suitability, but its condition is always assured through the services of the refrigerator. I hope to call on you in June or July. Meanwhile, I hope to hear from you at your convenience."

JAMES RUDDIN.

A VERY IMPORTANT LETTER.

The above letter should be carefully read and thought over by every farmer and his family in the Province of Quebec. Why? Because it is a call from a leading merchant in England for an unlimited supply of poultry of a superior quality. Such poultry, as the farmers of the Province of Quebec can produce in any quantity, if they will only set their minds on doing it. An avenue of great and immediate wealth is thus opened to our farmers. Have they the genius to rise equal to the occasion? Undoubtedly they have. For what the Messrs. Yuill have done, the farmers of the Province of Quebec can also do. It may be said that it will not pay an individual farmer to raise chickens and ship them to Mr. Ruddin, in quantity. Well, let us suppose the shipping is done by Montreal merchants. Have the Quebec farmers the stock in their barnyards which will make the large birds surely to be sought for? The ordinary barnyard nondescript will not be looked at. It is as well to understand this fact now as later. The common "dunghill," as it is more tritely than classically termed, is fast going out of date for the home market. It will assuredly not do for export.

AN OLD STORY REPEATED.

Time and again, during the past few years, has it been pointed out in the columns of the JOURNAL OF AGRICULTURE by the writer and later on by his friend and co worker Mr. S. J. Andres, that no breed will make heavier market chickens, more rapid flesh formers, or, better winter layers than Plymouth Rocks, Wyandottes or Light Brahmas, with preference for the first named. Only to-day I read in Mr. S. J. Andres' letter in your paper of the 15th inst., which reached me this morning, the most gratifying statement that, "eight Cockerels, Barred Rocks, *five months old, dressed and ready for table use weighed 65 lbs., without any special fattening.*" Such birds would surely be snapped up by dealers in either England or the United States. And the date is not far distant when no other sort of poultry will be tolerated in our home markets.

WILL SPECIAL FATTENING BY MACHINE BE NECESSARY?

If the farmers of your Province will only breed thoroughbred Plymouth Rocks, Wyandottes or Light Brahmas and give them the proper care and food from time of hatching, until they are ready for sale, I do not think it will be necessary to use a cramming machine. The birds intended for market should be penned up and fed all they can eat of the waste of the house, mixed into a crumbly mash, with finely ground oatmeal, *moulli* or, shorts, with skim milk, grit and green stuff and you will have all the *flesh* development you can wish for. An occasional feed of cut bone will be relished. It will be better to have a fixed hour for feeding, if the chicks are penned up and fed by crammer. Say morning and late afternoon. But it must be borne in mind that, if the chicks are neglected *in the first five weeks of their* existence, they will never fully recover from the neglect. In other words, and they have been used in these columns before "a chicken which has become 'stunted' from being 'stinted' of food in the first five weeks of its life will never make a satisfactory market fowl."

THE WHOLE MATTER.

The whole matter summed up amounts to this. Our farmers are asked to take advantage of an unlimited market with a superior quality of poultry. What are they going to do about it? Mr. Ruddin says that Canadian poultry, such as sent to him, has no compeer. It cannot be outrivalled by any country in the world! Our climatic conditions are favorable. Food is cheap and varied in kind. A refrigerator service carries the product in perfect condition to market. Again, I ask our farmers, what are you going to do about it?

A. G. GILBERT.

Central Experimental Farm,
Ottawa, March 23rd, 1899.

## *CIDER MAKING*

In the paper read before the Farmers' Club last Monday by Mr. C. W. Radcliffe Cooke, M. P., on "Our Apple and Pear Orchards and their Produce," he spoke as follows in reference to cider making:—

The actual process of cider making is simple enough. It consists of crushing or grinding the fruit when it is in a fit condition, that is when it is ripe and mellow, and expressing the juice. When cider is made on a large scale, machines by which the fruit is torn into bits by toothed rollers and then passed between stone rollers, and which can be worked by steam power are essential; but

I own, myself, to a preference for cider made in our old-fashioned stone mill, in which the fruit is put into a circular stone trough called the chace, and crushed by a heavy stone roller or runner as it is termed, actuated by horse power. I fancy—it may only be fancy—that the thorough grinding to which the fruit is subjected by this latter process, and the consequent exposure of the pulp to the air, improve the colour and quality of the juice. But as I said, for making on a larger scale, quicker methods are necessary, and I know of no mills better made than those of Messrs. Workman, of Slimbridge, in Gloucestershire.

If the pulp after passing through the mill be placed in open tubs or vats and there allowed to remain for some hours, varying with the ripeness of the fruit and the temperature of the air, and stirred well from time to time, some of the beneficial effects which the pulp gets in the old-fashioned way of grinding can be obtained. The pulp after macerating as described, or as is more usually the case where time is an object, immediately it is ground, is put in a press between a series of cloths which contain it and through which the juice filters as pressure is applied. At the first pressing the pulp is not subjected to the full pressure of the press, but when the bulk of the juice has been extracted it is taken out of the cloths, put again into the mill, re-ground and pressed a second time, and I am told that where powerful hydraulic presses are in use, this process is sometimes gone through twice. The juice, however, that runs from the first pressure is reckoned the best. In Herefordshire and adjoining counties, as generally in France, the pulp after the first pressure is re-ground a second time with water, and this when pressed yields what we term washings, or family drink, and what the French call *petit cidre* or small cider. This family drink is a palatable beverage which many prefer for draught to cider made clean, and there used to be a good demand for it in the mining districts of South Wales; but this year the strike of miners almost put a stop to the trade there.

The real difficulties of the cider maker begin after the expressed juice is put in the casks for the purpose fermenting. The first fermentation is, to my mind, somewhat different from the subsequent alcoholic fermentation. It appears to be an effort of nature to be rid of the matters in suspension in the liquid so as to get it in a clear condition for the subsequent vinous fermentation. The practice, therefore, is to pump the juice as it runs from the press into hogsheads or into large vats holding several hundred gallons. If the first fermentation proceeds favourably the liquor will throw up the bulk of matters in suspension on the surface and at the bunghole. In the case of open vats the crust can be skimmed off as it forms. After a time, which varies with the temperature and the condition of the fruit—early and unripe fruit fermenting more irregularly and tumultuously than ripe and later fruit—the liquor should become fine, or drop bright, as it is called, between the two lees—the crust at the top and the lees at the bottom, which consist, so chemists inform us, for the most part of spent ferment germs. This is the time to rack off the clear liquor into a clean cask, where it may be bunged down, a sort of syphyon or bent tube, terminating in a vessel of water, being inserted in the bung for the escape of the gas without any inlet for the atmospheric air. Large makers who require a supply of cider of uniform quality run it through a filter when the first fermentation has subsided, and thence into large vessels, such as brewers use, holding several thousand gallons, from which they draw it into casks or for bottling, many running it a second time through the filter.

I have said that the first fermentation is, to my mind, somewhat different from the subsequent, for this reason. If when the cider has dropped bright between the two lees it be tested, it will be found to be nearly or quite as sweet as the juice when it ran from the press, whereas if the fermentation had been a vinous fermentation some of the sugar would have been converted into alcohol. Tested also by the saccharometer, the density of the bright liquor will be very little less than the density of the juice, showing that there has been little or no diminution in the solids in solution, the main of which are saccharines. Yet this first fermentation, by some called tumultuous fermentation, is the most important process, because if the juice be not properly cleared, either by natural effort or artificially, at first, the subsequent fermentation will never proceed satisfactorily. Thus it is for this reason that filtering is so much resorted to, and is in many cases necessary, although same of the best and richest cider I ever tasted was that which had dropped bright naturally, been racked into a clean cask, and never touched afterwards.

But assuming the liquor to have successfully passed the stage of tumultuous fermentation, and

to have been racked, after filtration or without, into the vessels in which it is to undergo a gradual process of slow fermentation which will transform it from mere apple juice into cider, it will still require careful watching so that fermentation may not proceed too rapidly, or that by the intrusion of bad ferment germs, the character of the liquor may be altered, and it may become thick and cloudy. If fermentation follow a natural course, and care be taken to exclude the external air, the cider is not likely to lose its brigtness in any great degree, but it must be watched and tested from time to time if it be intended to put it on the market, either in cask or bottle, with some of its natural sweetness still remaining. If the weather should be unusually mild, fermentation will proceed more rapidly than anyone would suspect, and it may become necesary to rack into a sulphured cask, a process which will generally arrest further fermentation. If the cider be allowed to ferment until all the sugar has been converted into alcohol it loses its sweetnees and becomes dry, or as it is usually termed hard In this state it is preferred by many cider drinkers, and by those whose constitution will not allow them to drink any liquor containing sugar. But after it has reached the stage of dryness there is always danger lest vinous fermentation having came to an end, acetous fermentation should follow, with the result of turning the cider into something akin to vinegar. Moreover, the general public, and a considerable number of cider drinkers too, prefer a drink which has not reached the extreme point of dryness when all the saccharines have been fermented into alcohol; and in the case of cider intented for bottling it is essential that some of the sugar should remain, otherwise there will not be sufficient fermentation in the bottle to produce the sparkle and effervescence grateful to the palate, and to some extent, contributing to the dietetic value of the liquor. The object, therefore, of the cider maker is to arrest fermentation at the right point, and unless recourse be had to effect this object is to regulate the temperature, because fermentation ceases below a certain temperature, or to rack into freshly sulphured casks. All this, however, involves care, trouble, and labour, and consequent expense, especially where large quantities of cider are dealt with. The practice, therefore, prevails to a much larger extent than is desirable of using preservatives, which destroy the ferment germs, and acting as an antiseptic prevent furthur change in the liquor, with the result that it will retain its sweetness as well as its brightness for, practically speaking, any length of time.

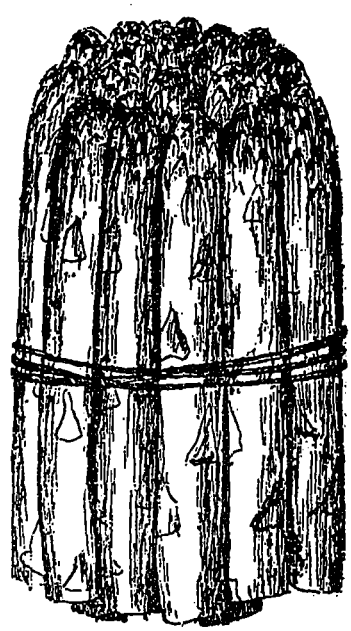
# The Garden and Orchard.

(Conducted by Mr. Geo. Moore.)

## SEASONABLE NOTES ON MARKET GARDENING.

### *Asparagus.*

The list of vegetables may be divided roughly into two classes, as regards their general reception by the people. There are vegetables which have gradually come into general use, and are recognized as part of the popular food; others are considered as fancies and delicacies, and have a more limited circle of customers. Among the former class may be placed peas, potatoes, carrots,



A Bundle of Asparagus.

parsnips, turnips, cabbages, coleworts, cauliflowers, savoys, broccoli, scarlet and broad beans, rhubarb, leeks, onions, lettuce, radishes, celery, etc., etc., ; whilst in the latter category may be included asparagus, beet, spinach, French beans, endive, salsify, artichokes, etc,, etc. It is difficult to draw an exact line, but the multitude

takes one product, and every one favours it ; thus peas and potatoes are articles of universal consumption, whilst many retailers in poor districts will not touch spinach or artichokes, as they have no customers to appreciate them. This is merely given as an illustration of a predilection which exists for or against certain vegetables.

### *History and Cultivation*

Asparagus, the plant under review, though indigenous to Great Britain, requires much care under cultivation.

At the commencement of the century it was considered quite a luxury, and reserved for feasts, and holidays. The consumption has increased of late years, and may be attributed to two reasons. The large consignment which have arrived from abroad is one reason, and the better condition of the middle and lower classes at home is another whilst both have tended in the direction of making what was a rarity an article of frequent appearance. Large quantities of forced asparagus are seen in the metropolitan and provincial markets, and though it has hardly the form or flavour of good home-grown *grass*, yet it has its place in commercial imports, and comes acrss the channel freely. Yet, notwithstanding wider popularity and an increased circle of admirers, asparagus is not considered an ordinary item in general use, and many thousands in this country have never seen the vegetable at table.

Its cultivation cannot be considered difficult, though some soils may be unsuitable for its production. Wet land, or land of a clayey character, would be unsuitable for that purpose, as the young shoots—the edible part—are fragile, and in making their way through the intermediate soil would become twisted and mishapen, unless the mould above the stools was tender and tilthy.

These are two ways which are followed in the cultivation of this vegetable, and both systems have their admirers and supporters. One plan is to adopt a series of alternate beds and alleys ; the other is to raise the crop on the flat, with a slight moulding to the rows for blanching.

### *Alternate Beds and Alleys*

It is generally advised that there should be a liberal dressing of manure at the start, as beds once made remain for many years, and our ancestors suggested that a cartload of well-rotted farmyard dung should be appplied to every perch of ground. A rough suggestion of this sort conveys very little meaning to an exact mind, because carts vary so in size and capacity. If the land had a dressing of forty tons per acre, and only a part of the field is under crop, then there would be a larger amount of manure on the cultvated portion than appears at first sight. To explain more clearly, suppose the beds to be four feet wide, and the alleys two feet wide, then only then only two-thirds of the land would really benefit from the manure.

The seeds should be sown in a bed in the month of April ; then, when the young seedings appear, they must be carefully weeded, and not allowed to be overthick on the ground. If the little plans come up too close together, the smaller ones should be extracted, to give ample scope that those remaining may stouten and become sturdy by the following March. By raising the plants in a seed-bed less ground is needed the first year and the second year the strongest plants can be selected, which is a great advantage.

In marking out the site of the plantation it is well to have the length of the beds equal, as more convenient for many purposes. Let them be of a comparatively short length, as when the crop has to be gathered it is generally carried out of the alley in handfuls to a flasket placed at the end, and to carry a long distance in this fashion is tedious. Great care is needed in transporting the fresh-cut asparagus to be shed or homestead for tying, as the shoots are spalt, and the buds easily break.

In setting out the yearling plants the ground must be lowered a trifle where the beds are to be and the space earth placed for the moment in the alleys, when the roots are carefully placed, the mould should be put back, so the ground will be about level the first year ; the second year more earth will be taken from the alleys, spaces, or paths and laid on the top, which he sometimes called *landing*, as the sides of the beds have to be banked up. Three rows should be planted on each bed, and the plants spaced about 15 in. apart.

### *Cultivation on the Flat*

The cultivation of asparagus on the flat is often recommended to-day, and the wider the rows are placed apart the finer are the buds or shoots producted. If the distance of the rows is 3 or 4 feet asunder, then some other crop must be grown between the rows, so that the ground, though not

occupied by the predominant crop, is utilised in another way. Peas are sometimes sown to fill up the space, but a short-haulmed variety, such as William Hurst, should be selected for the purpose Then at the season when the asparagus is expected the mould is raised over the stools with a hoe in the form of a ridge. This is doue to bleach the stems or shoots, as the value of the vegetable depends so much on its appearance. The art of growing asparagus is the production of a white stem or stalk tipped at the end with rose colour, darkening to purple at the extremity. This is the form that is admired by epicures at home and abroad. The shoots must be straight and comely, and the colour is essential. The flavour and delicate taste are only secured when these particulars are observed. For this reason in warm seasons the grass must be cut four ffve days in the week. The cutters must begin early on Monday morning, or the quality will diminish as the sun rises in the horizon. The thin, green shoots are called sprue, and when the product is well graded make a third size.

Much imported and forced asparagus has not the best possible characteristics, and does not command the price of the finest English. Connoisseurs are fastidious both here and abroad, as to asparagus. It is a luxury, and those folk that can afford luxuries are apt to be critical. Much of what we see on sale in shop windows would not be considered up to stantard by competent judges. Cold weather retards the supply, and consignments have not been very abundant at present.—*Eng. Ag. Gazette.*

## *SPRAYING MUST BEGIN EARLY.*

Before the buds are open the orchard should be thoroughly sprayed to prevent such diseases as scab of the apple, leal spot of the cherry, currant and gooseberry, mildew of the gooseberry, anthracnose and rot of the grape, peach leeaf curl, peach scab and rot, scab of pear and rot of plum, and numerous others, all of which begin developing early in fhe spring before the leaves appear on the trees. Of course it must not be expected that this one spraying will kill all the disease, but it will tend to check all early developments and sprayings later in the season, made necessary by the appearance of insects and other fungous diseases will tend to completely destroy the fungi started now. Before beginning to spray, however, the orchard should be well pruned and all the brush removed and burned. Not only must the branches taken from the trees be raked up and disposed of, but all dead leaves, bark of trees and any material which has accumulated during the winter. This will dispose of many germs at the very outset. The

COMPOUND WHICH IS MOST EFFECTIVE

at this season of the year is bordeaux mixture, which should be made in two strengths. The formula is as follows : Copper sulphate 6 lbs, fresh quick-lime 4 lbs, water *a* 25 gals, *b* 50 gals. The one weich is diluted up to 25 gals is the stronger solution and is to be used in spring when the trees are comparatively dormant. The other is a weak solution and can be applied after the leaves have opened. To make this bordeaux mixture dissolve the copper sulphate in hot water by suspending it in a gunny sack so that the sack touches the top of the water. In this way it will dissolve more rapidly than any other. In another vessel slake the lime, adding the water slowly, strain the lime through a cloth and add the milk of lime to the copper solution, dilute with water to 25 or 50 gals, and the mixture is ready for use.

While spraying is a comparatively simple operation, the directions must be carefully followed. Keep close watch of the orchard, and when any trouble appears apply the appropriate remedy at once. Another method of preparing the mixture which is recommended by the Cornell exper sta was fully described in this journal March 4. This should be given a trial, as the results are said to be very satisfactory. The bordeaux mixture is about all that is necessary for the first spraying. In about two weeks, or just after the leaf buds are swelling and after the blossoms have dropped from fruit trees, another application of bordeaux should be made. This should be applied to apples, cherries, currants, gooseberries, grapevines, peach trees, pears, plums, blackberries and raspberries, If the buds are opening, before the second spraying is made 1 lb of paris green should be added to every 175 or 200 gallons of the bordeaux mixture. This compound will destroy any leaf-eating insect which may be on hand at that time. If the bordeaux mixture seems unnecessary at the time of the second spraying, use paris green alone at the same rate, adding 2 to 3 lbs of fresh slaked lime to every 200 gals of the solution to prevent

burning of the foliage. Green arsenite can be used in place of paris green, and it is cheaper. Keep the mixture stirred at all fimes during the application so that it will be of uniform strength. For

TREES OR SHRUBS AFFECTED WITH SCALE

there are several modes of treatment. One is to spray with a strong solution of whale-oil soap. Dissolve 1 lb of the soap completely in 2 gals of water and spray thoroughly. Young nursery stock should be given special attention in this respect. If it is not practicable to use whale-oil soap, kerosene emulsion answers as well. It is prepared by dissolving ½ lb of hard soap in 1 gal of boiling water, then adding 2 gals of kerosene. Churn this through a force pump until the oil is thoroughly emulsified, then dilute to 30 gals. The solution can sometimes be used much stronger, but unless the trees are dormant the strength given above should be applied. Opinions differ as to the practicability of applying mechanical mixtures of pure kerosene to trees when dormant. The Cornell exper sta thinks a 20 per cent mixture of kerosene can safely be applied to peach trees. Apple trees will not be injured by a 50 per cent solution. The station concludes, however, that a 20 per cent solution is harmless to all plants and is destructive to all kinds of insects, even the San Jose scale. It would probably be well to experiment with this before applying it extensively, but the weak solution will hardly cause any loss.

The spraying must be thoroughly done in early spring as well as later in the season. Every part of the tree must be touched, for if some of the scales escape they will multiply so rapidly that the trees will soon be infested again. Care must be taken, however, not to apply too much kerosene, for if it is allowed to accumulate so that it will drip from the trees there is always danger of injury. The fine spraying nozzles which create a mist are most satisfactory. Every part of the tree will be dampened and no harm done. Sprayers of all kinds are on the market. For large orchards it is best to get a big one and attach it to a pump or a tank on a wagon. For small plots where only a few trees are to be sprayed, some of the knapsack sprayers costing about $5 will answer every purpose. One of these ought to be on every farm, not only for spraying fruit trees, but for vegetables, and later in the season chinch bugs on corn.

### *TOMATOES ON STAKES.*

Where the tomato is to be trained to poles, make the rows 3 ft apart and set the plants 2 ft apart in the rows. One acre will then contain 7260 plants. By setting so that the plants in one row will come opposite the open spaces in the next the sun gets in among them better. [A. A. Halladay, Windham Co, Vt.

## Live Stock.

### *MILKING PRIZES FOR RED POLLED CATTLE.*

At a meeting of the Council of the Red Polled Society, last Saturday, February 18th, Mr. R. Harvey Mason, who presided, brought forward the following scheme, passed by the Committee of the Norfolk Association, for a dairy class at the Norfolk Agricultural School :—

(1) That no cows or heifers calving on or after May 28th be eligible for entry at the forthcoming show.

(2) All animals entered to have their milk weighed at each milking and accurately recorded in pounds, from May 28th (last day of entry) to June 27th (the day prior to the show day), at the farms where they are kept. The morning's milk of each of the days above mentioned to be included, and the evening's milk, with the exception of that of June 27th.

(3) The Red Polled Society to arrange for inspection of the records by surprise visits, and to bear the cost of the work. A record of each animal's milking from May 28th to June 27th to be sent to the Secretary of the Norfolk Agricultural Society on June 27th, signed and declared to be correct by the owner.

(4) The amount of milk given at the show not to be the only point on which the animals are to judged, but the milk of the morning and evening of the first day of the show to be weighed and tested with a Babcook or similar tester, and the amount of butter-fat ascertained and handed to the judges, together with the record of milk taken as above. (N.B.—This record to be duly considered in regard to the date of calving.)

The judges to be requested then to judge the animals giving points as follows :—

One-third for quantity of milk ;
One-third for quality of milk ; and
One-third for appearance and quality of the animal as a general purpose cow.

### *CATTLE FOR THE GENERAL FARMER*

H. C. PRICE, NEW-YORK

What kind of cattle shall the general farmer raise? The general farmer is the man that follows diversified farming, corn, wheat, barley, hay, oats and horses, cattle, sheep and hogs. He neither devotes all of his land to raising one kind of grain, nor feeds all of his crops to one kind of stock. He does not depend upon one thing entirely for his income, as does the specialist. Stock are kept in order to feed the crops raised on the farm to the greatest advantage and to preserve as much of the fertilizer constituents of the crops raized as possible. But they are obstacles to spectalized farming that at present seem insurmountable. Cattle are kept on these farms for two purposes, to furnish milk and butter and to produce meat. The milk and butter produced are primarily for the use of the farmer's family, and the surplus is usually sold in the open market. The calves are raised by hand on skim milk, and the steers are kept until they are two or three years old and them sold to local butchers or to shippers. The heifers are kept to replace their mothers, or else are sold as milch cows. It is very evident that the special dairy cow is not suited to this class of farmers, although she would admirably fill the requirements for milk and butter, yet her calves woutd de worthless for feeding purposes. On the other hand the syecial beef cow cannot fill the bill, because she cannot yield enough milk to supply the family wants and raised her calf. Neither can the farmer afford to kept both classes, one to supply milk and butter and the other to supply feeding cattle.

But the kind of cattle demanded must be a combination of both the beef and dairy animal, or as Prof. Shaw has christened them, the dual purpse cattle. They must produce a good quantity of fairly rich milk and their calves must make good feeding cattle. The cow herself must be of of good size and capable of being fattened easily, so that when her days of usefulness are passed as a milch cow she may be easily fattened for beef. Although the dual purpose cattle stand midway between dairy and beef cattle they do not result from the first cross, any more than the hackney results from a cross between a heavy draft horse and a trotting horse. But they form distinct breeds and the breeding of dual purpose cattle requires as much and if any difference, more skill than the breeding of special purpose cattle. The dairy quality must not be developped at the expense of the beef quality, nor the beef at the expense of the dairy. Both qualities must be advanced together, and it takes skill and experience in breeding to do it.

Probably no one breed is ideal as dual purpose cattle, but the Shorthorn, the Red Polled and the Devon approach most nearly to it. It is from these breeds that the general farmer must look for his supply of dual purpose cattle. The breeders of these should recognize the importance of developing both the beef and dairy qualities, and all tendency to breed for single or special purpose should be eliminated.

## Manures.

### *BUYING CHEMICAL MANURES.*

Chemical manures are, so far as they are of use to agriculture, onty so much Nitrogen, Potash and Phosphoric Acid. For example, a ton of Nitrate of Soda contains 320 pounds of Nitrogen, the remaining 1680 pounds are mere dead weight and useless to the farmer, but they are a part of the framework which holds the Nitrogen together and cannot be dispensed with. Muriate of Potash contains 1000 pounds of actual Potash per ton, with only 1000 pounds of dead weight. When a farmer buys a ton of Muriate for say $50 00, he gets 1000 pounds of actual Potash for the $50.00 ; that is, he pays 5 cents per pound. A ton of Kainit at $15.00 would cost per pound of actual Potash just 6 cents, so that it is very evident the Muriate is far the cheapest Potash. This indicates how important it is to watch the quality of fertilizer materials offered for sale.

Another point of almost equal importance is, the quality of the fertilizer. Some forms of Nitrogenous fertilizer materials give up their Nitrogen to plants very slowly, and the same is true with regard to certain forms of Potash and Phosphate materials. As a general rule, fertilizers must be soluble in water before plants can mak

use of them. This is particularly true of Potash and Phosphates. Fortunately the most reliable supply of Potash, German Potash Salts, are always solube in water, but it is different with Phosphates.

In the use of chemical manures, it is well to bear in mind that on tilled soil they can be applied at any time without danger, of any considerable loss. In fact, it is advisable to apply early in the Spring as possible. On frozen ground they would of course wash off, but as soon as the land has opened is the correct time to use minerals. This is of greater importance the shorter the period of growing weather. GEO. WILSON.

## The Horse.

### *FOALING TIME*

Mares probably suffer less, and require less assistance than the other animals which are the object of the breeder's care during the time of parturition. The time occupied in the act of foaling is generally very short, often not exceeding half an hour, and if the presentation is a natural one—that is, the presentation of the head and fore-legs of the foal, no assistance is required; in fact, the majority of mares foal without being observed at all, and no attention is afterwards paid to the animal so long as every thing goes on well.

#### PREPARATIONS

A correspondent inquires if it is necessary for several things to be done in anticipation of the birth of a foal. For example, he asks whether the groom should sit up all night when the event is expected, until it has happened? What should be done if the hind legs are presented? How soon after birth the foal should be made to suck? if the navel string should be cut? and when the skin (membranes) which envelop the foal should be broken; how the mare should be fed, and when the colt may be turned out to grass? We may safely assert that none of the circumstances referred to necessitate any special action. It is, of course, advisable to watch the mare when the time of foaling approaches, but under ordinary conditions she may be worked and fed as usual to within a month of the period, when a little extra care is required to avoid over-exertion or injury, which may cause the death of the foal. Absolute inaction is not beneficial at this time, and if the mare is not kept in a paddock she must be regularly exercised.

The great object should be to keep the animal as nearly as possible in ordinary working condition; more harm is done by a system of pampering than by the adoption of the opposite course, although both extremes are bad. At the time of foaling, as we have already observed, no interference is necessary as a rule, and the foal, if healthy and well developed, may be left to seek its food guided by its own instinct. If too weak to help itself assistance may be given, but it will rarely be required.

#### ASSISTANCE

Among false presentations the hind-leg presentation is the only one which requires an adjustment and our experience is that it offers little or no impediment to delivery. In nearly all other forms of mal-presentation the rule is to place the fœtus in the natural position, with the fore-legs presented and the head pointing between them if possible. To do this in many cases requires all the skill, patience, strength, and endurance of an experienced practitioner, and the aid of such a one should always be obtained, if it is desired to save the lives of the mother and offspring. The amount of mischief which is done by the unintelligent use of force in the attempt to assist delivery is incalculable; and most practical men would endorse the opinion that when it is not absolutely clear to the attendant what should be done, the best thing is to do nothing.

#### PUTTING THE FOAL TO PASTURE

The weather must guide the breeder as to the time this should be done. Certainly the best place for mare and foal is a paddock with a shed in it for shelter. A foal so placed will be able to shift for itself much earlier than one which has been kept in the straw-yard or stable, and at the age of seven months will be nearly independent of the dam.

#### CASTRATION

A further question as to castration can only be answered conditionally. Everything depends upon the growth of the foal. Some animals are sufficiently advanced in form by the age of eighteen months to justify the operation; two years old will be the average time, and in weakly animals, a delay of six months or even a year is to be recommended. The spring of the year or the autumn should be selected for the operation, and the colt should be turned out again immediately afterwards. Animals which are kept shut up after castration often suffer from congestion and die, while those which are turned out and compelled to move about instead of being allowed to mope in a corner of the field, usually do well. G.

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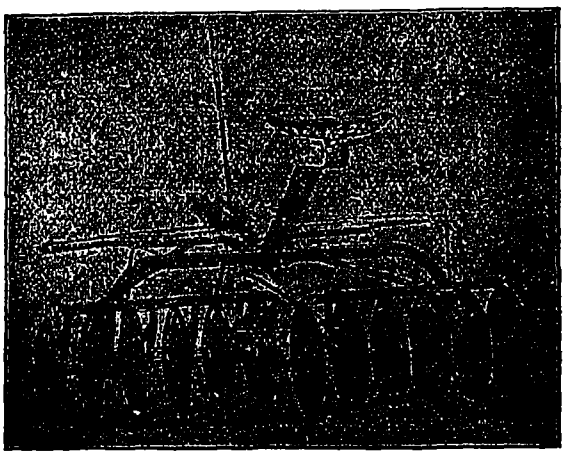
AGENTS cannot get a better line of implements to handle. Every machine with *COSSITTS' NAME STAMPED ON IT, WILL SPEAK FOR ITSELF.*



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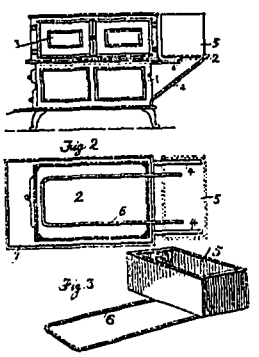


This boiler can be adapted to any kind of stoves. Its chief merits are to give boiling water for feeding animals of a farm two or three times a day, without spending any more wood than required for the cooking of meals, leaving to the wife the use of all the stove and giving her boiling water for washing and other purposes. The water remains clean, the pipes are galvanized inside and outside. The boiler is made of galvanized sheet iron, we also make them in any other metals. The cover is handy.

No taps. 1o It goes quicker to take the water with a pail. 2o No danger to children. Satisfaction guaranteed in all respects.

**COURCHENE & CIE, - St-GABRIEL DE BRANDON, P.Q.**

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The Deering Harvester Co., Chicago, wishes to announce a new departure in the manner of distributing its goods in Quebec and the maritime provinces. Hereafter we will deal direct with the farmers through our local agents; thereby bringing us in closer relationship with the farmer and insuring to our patrons the best and latest product of our factory. We have established a complete organization of general agencies and transfer houses in all the larger cities with resident the local Agents in smaller towns where our machines and binder twine, with all kinds of supplies and repairs, will be kept constantly on hand.

We offer the most popular and most modern harvesting machines ever placed on the market in any country. The demand for Deering goods during 1898 exceeded the capacity of the largest factory in America. We have no hold fashioned, out-of-date machines to dispose of, and any man who buys Deering goods will testify as to our policy of treating the farmer fairly in good times or bad. Last year we sold 50,000 more machines than in any previous year and our works were never idle day or night, so great was the demand for Deering "Light Draft Ideals". The capacity of our plant has been greatly increased by the addition of ten new buildings with eleven acres of floor space, and we now employ 6,700 men, or more than any single manufacturing plant of any kind in America.

*DEERING HARVESTER CO.*

*CHICAGO, U. S. A.*

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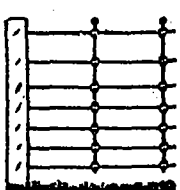

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