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A PAPER FOR
Farmers and Stockmen

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(Copy.) Clover Farm, De Kalb, Ill., March 9, 1901.
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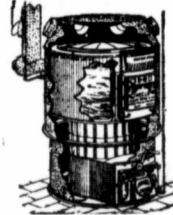
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The Farming World

For Farmers and Stockmen

VOL. XVIII

JUNE 25th, 1901

No. 44

The Hay Crop.

Large Yield Expected—Pointers on Curing.

PRESENT indications are that Canada this season will have one of the largest hay crops on record. The abundance of rain and the good growing weather of the past month or two have caused a most rapid growth of clover, timothy and other hay producing crops in almost every section of the country, and as the season is now well advanced we may look for an extra large yield.

A heavy hay crop brings with it much extra work and care in curing it properly and saving it for future use. But it will pay to give this extra labor to the crop. During the past year or two a new market has developed for Canadian hay. Many thousand tons of last year's crop have been sent to South Africa and it is likely a considerable quantity of this season's will find a market there also. Then large quantities of the 1900 crop have been exported to the United States and to Great Britain, the former being the larger buyer. From July 1st, 1900, the commencement of the crop year, up to April 30th last, there were shipped out of Canada 202,594 tons of hay valued at \$1,645,589. Of this amount the United States took 142,888 tons valued at \$1,059,027. Great Britain 46,220 tons valued at \$414,129, and South Africa 12,630 tons valued at \$160,437. Quite a lot of hay went forward to South Africa during May and later, which will increase the last figure considerably.

THE OUTLOOK.

The outlook just now in Great Britain is not favorable for a good crop. In fact the indications are that there will be a big shortage in the 1901 crop, owing to continued dry weather in the old land. And as a severe draught has also been experienced on the Continent it is doubtful if the crop there will make up for the deficiency in England. The probability is, then, that more Canadian hay will be wanted this coming fall and winter in Great Britain than for several years past, while a fair proportion will find a market in the United States as has been the case during recent years.

Keeping these market conditions in mind it is fair to assume that that there will be a steady demand

for the surplus crop of this year, providing the price is not excessive. To enlarge the market in Great Britain and elsewhere the quality must be good, and therefore it is all important that this season's big crop should be saved in good condition. It will pay farmers, therefore, to give this matter a little extra attention this season in order that none of this surplus hay may be wasted.

HAY MAKING.

It is hard to lay down any definite rules for the guidance of hay-makers, as conditions vary in different localities. The varying nature of the crops to be converted into hay, the dampness or the dryness of the soil, the moisture in the atmosphere, etc., are factors to be considered. A good plan to follow is to begin early, and this is all the more necessary when there is a big crop to be gathered in. If an early beginning is not made the hay cut last may be too dry and woody to make good feed. The best time for cutting clover is when it is in full bloom. If cut before that stage, the amount of water in the crop is so large that it is very difficult to cure it properly. On the other hand, if the cutting is delayed till the heads are brown, though the curing is much simplified, the hay has lost considerable in valuable protein and carbohydrates. Both practical and scientific men who have studied this question agree that when about one-third of the clover heads are turning brown is the best time, all things considered, for making hay.

In cutting grasses, such as timothy, for hay, an early beginning should be made in order that the whole crop may be gathered in before the seeds are ripe and begin to shell. Early-cut hay also seems more palatable to stock and pound for pound more satisfactory than that cut later. However, a larger quantity of carbohydrates may be obtained by delaying the cutting till the seeds are fully formed. For the dairy cow and sheep early cut grass is best, since these animals do not relish hay that is woody and lacking in aroma, as is the case with the late cut hay. For horses and fattening cattle which subsist mostly on concentrated feed, conditions favor later cutting. Some experiments conducted at the Illinois Station show that the greatest yield of hay per acre is obtainable when the seed has reached the dough stage, so

that it is safe to conclude that at or about this stage is the best time to cut the crop.

CURING

In making hay very little can be said. An effort should be made to preserve the aroma in hay as it renders the crop more palatable. Both the aroma and green color should be preserved, and this cannot be done if the hay is left lying on the ground too long and begins to bleach. Likewise, hay should not be left scattered on the ground over night as the evaporation of the dew in the morning tends to carry off the aroma or sweet smell good hay should have. For this reason, if the day is fine, the hay cut in the morning should be gathered into cocks or ricks in the afternoon.

Cutting in the morning and putting into ricks or cocks in the afternoon is one of the very best methods of curing hay in order to preserve its most nutritious and palatable qualities. But of course this method is not always followed because of the extra labor entailed. The more general practice, perhaps, and especially where a hay loader is used is to rake the hay into windrows and then take direct to the barn. If the weather is fine and there is a good drying wind, hay cut in the morning, may, if it is not too heavy a crop, be taken in in the afternoon. But whatever plan is followed, hay should be got into the barn in a condition to be mowed away with just sufficient moisture to allow it to settle compactly when treaded down. Hay put into the barn when it is so dry that it will not pack well is not in first-class condition. Salt and lime scattered over hay when put into the mow tend to prevent fermentation and the growth of molds and mildews. Salt renders hay more palatable. These materials are not essential, but are helpful when partially cured hay is being stored in bad weather.

Destroying Mustard by Spraying.

The application of a solution of sulphate of copper or sulphate of iron for the destruction of mustard has been shown to be a most effective means of getting rid of this weed. Last year some experimental work along this line was carried on at the Ontario Agricultural College, and though not altogether

conclusive, with very satisfactory results. But it is in the Old Land where the most exhaustive work of this kind has been carried on. Prof. Somerville of Cambridge University, has conducted a wide range of experiments during the past few years, and the following are some extracts from his report:

"It was in the summer of 1897 that a Frenchman, M. Aime Girard, published the results of experiments he had carried out on the effects on mustard of a 5 per cent solution of copper sulphate, pointing out that whereas the leaves of this plant, being rough and horizontally disposed, absorb the solution and are killed, the leaves and stocks of grain plants, being smooth and erect, allow the poison to run off and so escape injury. Shortly after M. Bernard suggested that a 25 per cent solution of sulphate of iron would prove equally effective, and might, in addition, be directly beneficial to the grain crop with which the mustard is mixed.

"In the summer of 1898 experiments were conducted at two or three places in this country with the view of testing the value of the discovery. The results obtained in that year were so encouraging that in 1899 the majority of agricultural colleges, and a number of county councils, carried out demonstrations, and the matter attracted widespread notice. During the past three seasons solutions of the sulphates of iron and copper have been tested of varying strength and in varying amounts per acre, and while there are not wanting cases of failure—partial or complete—the great mass of the evidence proves conclusively that farmers have now been supplied with an agent that is capable of rendering valuable service in the eradication of a pest that has long held its ground most tenaciously.

THE SOLUTIONS.

"It would serve no useful purpose were we to describe the many experiments and experimental results of the past three years. They have all been conducted on the same main lines, and all have centred round the same object. While specially weak solutions, or a specially small quantity of solution per acre, have here and there given satisfactory results, there is no doubt that for general use the standard dressing should be 40 gallons per acre of a 4 per cent solution of copper sulphate, or a 15 per cent solution of iron sulphate. To make the former 16lb of material are dissolved in 40 gallons of water, while in the latter case 60lb of iron sulphate are wanted for the same amount of water. Used in these quantities per acre no cereal will be injured beyond a possible temporary brownness at the tips of the leaves, and although peas and beans will show more markedly the effects of the treatment, it is doubtful if they are to any extent permanently injured.

"For spraying mustard mixed with peas and beans, however, it will be asensible not to go beyond a 3 per

cent solution of copper sulphate, or a 12 per cent solution of iron sulphate. But the stronger solutions may be used with confidence for the treatment of cereals, as any little brownness of the leaves soon disappears, and the grain plants are ultimately darker green and more robust than before. Whether this increase of vigour, which is usually observed to follow the spraying of a grain crop, is due to the benefits consequent on the removal of the mustard or is the direct result of what we may call the "tonic influence" of the sulphate on the cereal plants, has not been definitely determined. We know that the vigour of potato plants is markedly increased by spraying with copper sulphate, and thus, apart altogether from the question of prevention or mitigation of disease. It seems reasonable, therefore, to suppose that cereal plants may be similarly benefited, though there can be no doubt that the improved growth that follows spraying is largely due to the suppression of the competing weeds.

TIME TO SPRAY.

"The ideal time to spray mustard is when the plant is 2 or 3 inches in height—usually, in Scotland, in the beginning of June—at which stage it is generally beginning to show the flower-buds amongst the upper leaves. Nothing is to be gained by spraying when the plants are very small, as at this stage a certain proportion will still be in the smooth seed-leaf condition, and it is only after the "rough leaf" has been developed that the poison is thoroughly effective. It may be, too—more particularly in the case of winter wheat—that when the mustard plants are very young they are so much covered over by the cereal as to be largely protected against contact with the solution.

"Then again, care must be taken to prevent the mustard becoming too old before treatment. There are undoubtedly numerous cases of mustard well in flower being successfully sprayed, but, as a rule, mustard so old as that, though severely crippled, is not altogether prevented seeding. Moreover, the grain crop is more liable to injury when it is trampled on in advance growth."

Canada Leads

Referring to Canada's exhibit at the Glasgow Exhibition, The Glasgow Herald, in a recent issue, says:

"The contents of the sections devoted to the colonies reveal in a striking way what noble possessions Britain owns across the seas. Canada, Australia, New Zealand and South Africa are represented. The leading place, alike as regards the number and the extent of exhibits, is taken in the colonial department by the great British dependencies in North America. To give any adequate idea of the varied activities of Canada is no light task. The country is almost as large as the whole of Europe, and larger than the United States, without Alaska; and on a fast train going all the

time nearly six days and nights are required to cross it. About the same period of time is occupied by the voyage from Glasgow to the Dominion, and the quick and regular communication from and to the Clyde and Canadian ports has greatly increased the volume of trade between the two countries. But considering its size and wealth Canada has a comparatively small population. London alone has almost as many inhabitants as the whole Dominion. The population of Canada is estimated at about 5,300,000, while that of the Metropolis, according to the recent census, is 4,536,034, inclusive of the administrative county of London, but exclusive of the "Outer Ring." The Canadians, however, are essentially a working people, making up in zeal and enterprise for lack of numbers; but as there is ample room for millions of more settlers the Dominion Government seldom loses an opportunity of trying to dispel whatever ignorance may still exist as to the character and potentialities of their country. At the Glasgow Exhibition of 13 years ago Canada occupied one of the courts, and in the interval, especially at agricultural gatherings, there have been frequent illustrations given of the seemingly infinite resources of the Dominion. But on this occasion the display eclipses all efforts in the direction indicated, and affords ample evidence of the remarkable progress of Canada. The Government have spared no expense and their scheme, which was admirably supported, in the first place, by those directly interested, has been well carried out by the Commissioner, Mr. H. D. Scott, and other representative men "from the other side." A considerable amount of space has been allotted to the exhibits from the Dominion, but the collection furnished by the agriculturist, the fisher, the forester, the miner, and the manufacturer justifies the concession. It is not only the most complete and interesting that has been seen here, but it is also of such extent as to occupy a handsome and spacious pavilion in the grounds as well as a portion in the Industrial Hall. The products of the farm and the forest, together with agricultural machinery and other examples of rapidly-increasing industrial activity, are housed in the pavilion, while the exhibits of the Industrial Hall consist principally of minerals, food stuffs, furniture and dress goods."

The Embargo on Canadian Cattle.

In the House of Commons on Monday, Sir John Long asked the President of the Board of Agriculture whether he would lay upon the table of the House a memorandum from the Department of Agriculture in Canada protesting against continuance of the embargo on the admission of Canadian live cattle into this country; and whether, since that embargo was imposed, there had been one case of pleuro-pneumonia in the 800,000 Canadian cattle landed at British ports? Captain Sinclair, referring to the same memorandum, asked the President of the Board of Agriculture whether he could now state the substance

of the reply, or indicate the policy of His Majesty's Government? Mr. Hanbury—No such memorandum has yet been received. There were various cases of pleuro-pneumonia between the imposition of the embargo in 1893 and the legislation of 1890. Since that time no cases have been discovered, but, of course, there has not been the same necessity to make the same close examination of the lungs of the slaughtered animals—North British Agriculturist.

The Advance in Beef.

The advance in the price of beef, both in New York and in Chicago, is the natural result of the gradually increasing price of live cattle. Receipts have been more than up to the normal, but the demand has even exceeded the supply. The probable result of the advance in beef may be that more of other meat products will be consumed, such as mutton, which is relatively cheap. There is no probability that the supply of cattle will be heavy during the last half year, though offerings will be augmented by the output of the western ranges. Texas receipts have been remarkably light, and the season of grassers, which is just beginning, is likely to fall below the average in point of supply.—Chicago Drivers' Journal.

Correspondence.

Canadian Dairy Products at the Pan-American.

Editor THE FARMING WORLD:

Through the kindness of Mr. W. W. Hall, Superintendent of the Dairy Department of the Pan American Exposition, I have been able to secure the scores of the May exhibits of cheese and butter, and in order that cheese and butter-makers may know the kind of competition to expect during the coming months, when it is proposed to make a general exhibit from Canada, I have summarized the scores as follows:

There were no exhibits of cheese from Canada in the first competition. The State of New York had 59 entries of export cheese. The highest scored 98 3/4 and the lowest 91. Ohio had one exhibit of export cheese which scored 96 1/4. Wisconsin had three exhibits of export cheese which scored 98 3/4 for the highest and 97 for the lowest.

In creamery butter, the exhibits were as follows:

New York State, 23 exhibits, the highest score of which was 97, and the lowest 91. There were three exhibits which scored 96 and above. Wisconsin had 21 exhibits, the highest score of which was 96, and the lowest 91 1/4. Only one exhibit scored 96 points. New Hampshire had 22 exhibits. The highest score was 95 1-2, and the lowest 88. Minnesota had 19 exhibits, the highest score of which was 95 1-4, and the lowest 88. Connecticut had 19 exhibits. The highest score was 95, and the lowest 92 3-4. Missouri had six exhibits, the highest score being 93 1-2, and the lowest 88. Ohio had ten exhibits, the

highest score of which was 95 3-4, and the lowest 92. Illinois had one exhibit, which scored 95. Michigan had five exhibits, the highest score of which was 95, and the lowest 93 1-2. Massachusetts had five exhibits, the highest score being 95 1-2, and the lowest 90. Iowa had five exhibits; highest score 94 3-4, lowest score 93 3-4. North Dakota had 2 exhibits, highest score 93 3-4, lowest score 93 1-2. Pennsylvania had two exhibits, highest score 93 1-2, lowest 93. Vermont had one exhibit, which scored 94 1-4. There were three exhibits from Canada, made by the Ontario Agricultural College, the highest score of which was 96, and the lowest 93 1-2. The Dairymen of Canada may feel assured that they will be carefully and honorably treated by Mr. Hall, the Superintendent, so far as he can control matters. I had the pleasure of meeting Mr. Hall while in Buffalo during May, and am satisfied that the arrangements for an exhibit of butter and cheese from Canada and the United States will be very beneficial indeed.

partment at future exhibits during the season. H. H. Dean.

Ontario Agricultural College, Guelph, June 18, 1901.

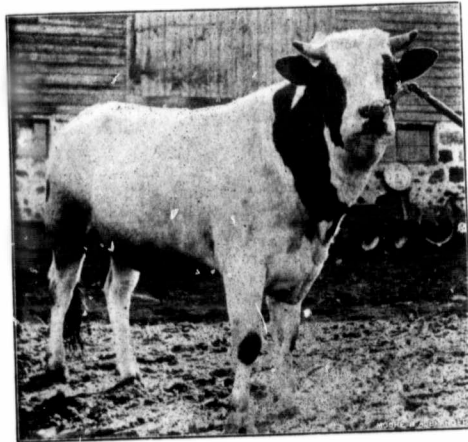
Note.—The judges in cheese in the May competition at the Pan-American were: A. F. MacLaren, M.P., Stratford, Ont.; A. D. DeLand, Sheboygan, Wis., and Geo. G. McAdam, Rome, N.Y. Those in the butter department were: D. Derbyshire, Brockville, Ont.; S. Edward Davis, Elgin, Ill., and L. T. Leonard, Norwood, N.Y., and as far as we know, there will be no changes in future competitions.—Editor.

Argentine Embargo on Live Stock.

Cattle, sheep and swine prohibited from entering that country for six months.

Editor THE FARMING WORLD:

As we have a regular correspondent in Buenos Ayres, we are from time to time kept more or less informed as to what is transpiring there in live stock matters, and re-



WINNIE R'S DEKOL—Holstein-Friesian Bull

The property of Wm. H. Simmons, New Durham Ont. See Pure Bred Stock columns.

The method for scoring is for three judges, one Canadian and two Americans for the cheese, and the same for the butter, to score the cheese and butter independently and individually, and their three scores are averaged for each exhibit. In this way there is no doubt that a very fair judgment will be passed upon all the goods scored by the judges in this department; and it is hoped that Canadians will make a strong effort to exhibit in July and again later in the season, that Canadian butter and cheese may be well represented at the Pan-American Exposition.

The butter shipped from the College was made by the buttermaker in the Dairy Department, Mr. J. A. McFeeters, and the scoring of his butter reflects great credit upon him as the exhibit was made from fodder milk which was pasteurized, and consequently did not have so high a flavor as would be found in the natural ripening of cream. Both butter and cheese will be sent from the Dairy De-

partment which acts for us there has been trying to induce us to make further shipments of Short-horn cattle and Shropshire sheep to that country. While we were considering the matter we at the same time were not very much inclined to do so, for the fact that the two former shipments that we made there proved so very disastrous.

However, we may say that for the present at least we need not further consider the matter as we to-day have a letter from Buenos Ayres dated May 10th, in which it is stated that the government of that country passed a law on the previous day prohibiting the importation of cattle, sheep and swine for a term of six months at least, but our letter further states, that this embargo may be extended indefinitely and the embargo is against all countries, so that we as well as all others are shut out for the time being.

W. C. Edwards & Co., Limited. Rockland, Ont., June 15, 1901.

The Economic Value of Feeding Crops*

By Frank T. Shutt, M.A., Chemist Dominion Experimental Farms

We are to devote this opening session of the convention to the consideration of a problem which is certainly one of the most important, and at the same time one of the most difficult, in the whole realm of agriculture—the economic use of feeding stuffs—the profitable conversion of our crops and their by-products into flesh and milk and wool and work.

Though a vast amount of exceedingly helpful information upon this subject is now in our possession, as the result of the labors of scientific and practical men during the past quarter of a century—and especially the last ten years—there is yet very much to be done before we shall be able to say that this complex problem in all its phases is solved. The difficulty lies in the fact that we are dealing with living things. Mechanical problems may be, comparatively speaking, easily solved, but not so those which have to take into consideration life and the various and multifold functions and phenomena that accompany it. The constitution, the vigor, the powers of digestion, the power to resist disease and of assimilating food, vary with the individual animal. They have, in a certain measure, to be studied and recognized in each animal we feed. As with the human being, so it is with farm animals, each has its own power of digestion, its power to convert a larger or smaller amount of food into energy or flesh or milk. We all should recognize this, and instead of being discouraged or disheartened by the difficulties that confront us, we should first master such principles as are well established, and then, as practical men, seek to apply them and to modify their application as the occasion may require, feeling assured that this is the only way towards success. In this matter, as in all others connected with our life-work, the scientific investigator and the practical man upon the farm must work hand in hand. We can learn from each other, and, indeed, in no other way can we hope to achieve success.

FOOD IS THE BASIS OF LIFE.

It is by virtue of the food the animal eats that its life is maintained, that it lives and moves and has its being. The animal creates nothing—neither matter nor force. What it does is to convert its food into its tissues, into heat and energy or the power to work. But the animal is not a mere machine, for it may rightly be said to be composed of the food it consumes. A machine uses crude material, but itself is apart and separate from this material. The analogy sometimes drawn between a cow, for instance, and a machine is, therefore, seen to be only in a measure correct. What are the uses or functions of food in the body? It is important to understand these at the outset.

1st. It is used as a fuel. The body temperature of 100 degrees F. must be maintained. This is only possible by the burning (combustion, as it is called by chemists) of a part of the food. Food is also consumed, directly or indirectly, to produce muscular energy, which is required for not only what we may term external work, walking, drawing loads, etc., but also to pump the blood through the body, and many other physiological uses. As heat is generated in a stove, or energy by the engine by means of fuel, so is the warmth of the body maintained and its energy generated by the food the animal consumes.

2nd. To furnish the materials of which the body is made, and to repair and replace the wastes of the body

feeds is one of degree only. The character and functions of these constituents must now be considered.

Water.
Protein,
Fat,
Carbo-hydrates,
Fibre,
Ash.

WATER.

The percentage of water present depends upon the nature of the fodder. In root crops there is almost 90 per cent.; in green fodders, e.g., corn and grass, there is usually between 70 per cent. and 80 per cent., according to variety, time of year, etc.; in hay we find about 14 per cent., and in corn meal, oil cake, and



Frank T. Shutt, M.A.

which are continually going on, and in this way to protect its tissues from being unduly consumed. Under this second heading would come the production of flesh, of milk, and of wool.

Now, having thus briefly stated the uses that the animal makes of food, let us next enquire as to the character of foods, and learn the various parts their components take in this work.

Though the fodders and feeding stuffs used upon the farm are many in number, analysis shows that they are all made up of the same constituents, the proportions of which depend upon the nature of the plant, or the part of the plant, furnishing the feed. This, you will observe, simplifies the matter very much, for it means practically that the difference between

milling products generally, between 7 per cent. and 11 per cent.

Although water is as necessary to the animal as it is to the plant, yet on account of its abundance in nature no value can be assigned to it in fodders. It must not be forgotten, however, that succulency, a most important quality, influencing greatly both the palatability and digestibility of a food is due chiefly to the presence of the natural or original water. It is succulency that gives to many green fodders a value, as for milk production, above that apparently indicated by their composition.

During the maturing of many foliaceous plants, such as grass, Indian corn, etc., the withdrawal of water, accompanied by other changes, tends to lower somewhat the digestibility and hence the value of some of the

*An address given at Cowansville, Que., before the Dairying Association of District of Bedford, March 12th, 1901. With this article read table of digestible nutrients on page 1105.

constituents. Hence, some plants may be more nutritious in their green and succulent state than they are when ripe and dry, in spite of the fact that in the latter condition the solid food materials may exceed in amount two or three times that found in the green and immature fodder.

FAT.

Of the non-nitrogenous constituents, fat has the highest nutritive value; and this chiefly because it contains a larger percentage of carbon than fibre, or the carbohydrates, in the burning of which in the blood much heat is evolved. By its combustion it generates the greater part of the heat of the body. Its increased value is largely due, also, to the fact that it can be transformed into fatty tissue of the animal much more readily than the other organic ingredients. It aids the digestion and assimilation of the albuminoids and preserves them from undue waste.

FIBRE.

Is the least valuable of the food ingredients. It is the tissue of plants that in part correspond, in function, to that of the bones of animals, viz., the supporting and strengthening of the other tissues. By chemical means it can be separated from the other parts of a fodder as a fibrous or woody material. As plants mature, the fibre, as a rule, becomes less digestible, chiefly owing to the deposition of ligneous or woody matter. In composition and function, fibre is similar to the "Nitrogen-free-extract."

NITROGEN FREE EXTRACT OR CARBOHYDRATES.

Under these terms are included starch, sugars, and many allied substances forming usually the larger part of the dry matter of a fodder. Their function in the animal economy is to produce heat, and energy, though under certain circumstances they become a source of fat.

PROTEIN AND ALBUMINOIDS.

These substances constitute the nitrogenous portion of the fodder. They are certainly the most important and most valuable of all the nutritive ingredients, for in the animal economy they alone can play the part of flesh-producers, entering into the composition of muscle and cartilage and bone, and furnishing essential constituents of the vital fluids—blood and milk. They may also serve in the production of fat, and in the development of heat and energy.

ASH OR MINERAL MATTER.

Is that part left when a fodder in the course of analysis is burned, an operation that destroys and dissipates the organic matter. It is composed chiefly of lime, magnesia, potash and soda, combined with phosphoric, hydrochloric and silicic acids. The functions of these materials in the animal are to assist in the formation of bone (largely composed of phosphate of lime) and to furnish that small quantity of mineral matter found in all animal tissues. It also replaces those saline substances daily excreted.

THE QUESTION OF DIGESTIBILITY.

Before considering the relative values of our various feeding stuffs, there are one or two further matters to be spoken of. It is only that portion of a fodder's constituents (nutrients) which are digested that are of service to the animal. It is the digested food that alone is assimilated and converted into heat, energy and flesh and milk, etc. Hence we must take into consideration the relative digestibility as well as the proportion of these nutrients, when judging of the value of a fodder. We cannot now stay to enquire as to the processes of digestion and assimilation, though it is an extremely interesting subject. How the food is mixed in the mouth with the saliva (which has both a mechanical as well as a chemical effect upon it), rendering soluble all starch and converting it into sugar; how the gastric juice, poured out in the stomach, by reason of certain ferments (pepsin and rennet) and hydrochloric acid, continues this digestion process, chiefly attacking the protein compounds; how the food, passing on into the small intestines, is subjected to the action of other secretions, further attacking starch and protein, but also emulsifying fats (or, rather, saponifying them), and thus aiding in their absorption. All this we must pass by, so that we may have a few minutes in which to consider the ration, that is, the amount of food given to and consumed by the animal every 24 hours.

THE RATION.

The amounts or weights of the various nutrients required by farm animals per diem under different conditions, as at rest, at easy work, at hard work, in full milk, fattening, etc., have been ascertained with a very fair degree of accuracy. We shall to-day only discuss the ration of the cow in full milk. Thus it has been found that such an animal, weighing 1,000 lbs., will require, to give the best results, approximately:

Dry matter.....	29 lbs.
Digestible protein.....	2.5 lbs.
Digestible carbo-hydrates.....	13.0 lbs.
Digestible fat.....	5 lbs.

This is known as Wolf-Lohmann standard, and has been used as a guide by German feeders for many years.

This question has been studied for sometime past at several of the Experiment Stations in the United States and also, to some extent, in Canada. Professor Woll, particularly, has given much time and thought to this problem, and as the result of wide personal experience has proposed the following feeding standard for dairy cows, 1,000 lbs. in weight and in full milk:

Dry matter.....	24.5 lbs.
Digestible protein.....	2.15 lbs.
" carbo-hydrates.....	13.27 lbs.
" fat.....	7.4 lbs.

The chief differences between the American and the German standard are that in the former a smaller weight of protein and a larger weight of carbo-hydrates and fat is given.

To state this in other terms, we may say that the "Nutritive Ratio" (the proportion of digestible protein to the digestible carbo-hydrates and fat) is narrower in the German than in the American standard. The former is 1:5.4; the latter, 1:6.9.

It will not be possible to discuss these figures in any detail to-day, nor would such serve our purpose; it will suffice to point out that our rations, to yield the best results, must conform, approximately, to these standards, and that in all probability that which is nearer to the American will be the most economical.

Now, there must be no slavish adherence to either one of these standards; they should be used only as guides to profitable feeding. We have already emphasized the important factor of individuality, and it is the business of the intelligent stockman to study each animal under his

DIGESTIBLE NUTRIENTS IN ONE HUNDRED POUNDS OF THE MORE COMMON FEEDING STUFFS.

KIND OF FEED.	TOTAL DRY MATTER	Pounds of Digestible Nutrients.			NUTRITIVE RATIO.
		PROTEIN.	CARBOHYDRATES. (Fat 2.25)	TOTAL.	
GRAINS					
Buckwheat.....	87	7.7	53.3	61.0	1:6.9
Barley.....	89	8.7	69.2	77.9	1:7.9
Oats.....	89	9.2	56.8	66.0	1:6.2
Peas.....	90	16.8	53.4	70.2	1:3.2
MILLING BY PRODUCTS.					
Bran.....	88	12.2	45.3	57.5	1:3.7
Wheat Middlings.....	88	12.8	60.7	73.5	1:4.7
Linseed Meal (new process).....	90	28.2	46.4	74.6	1:1.6
Gluten Meal.....	92	25.8	65.6	91.4	1:2.5
Cotton-seed Meal.....	92	37.2	44.4	81.6	1:1.2
Brewer's Grains, dry.....	92	15.7	47.8	63.5	1:3
ROOTS.					
Mangels.....	9	1.1	5.6	6.7	1:5.1
Carrots.....	11	.8	8.2	9.0	1:10.3
Sugar Beets.....	13	1.1	10.4	11.5	1:9.4
HAY.					
Timothy Hay.....	87	2.8	46.5	49.3	1:16.6
Red Clover Hay.....	85	6.8	39.6	46.4	1:5.8
Wheat Straw.....	90	.4	37.2	37.6	1:9.3
SILAGE.					
Corn Silage.....	21	.9	12.9	13.8	1:14.3
Corn Stover.....	60	1.7	34.0	35.7	1:19.9
SOILING FODDER.					
Clover.....	29	2.9	16.4	19.3	1:5.6
Peas and Oats.....	16	1.8	7.6	9.4	1:4.2

care, to have a knowledge of what each animal is producing, to notice how the cow responds in the milk pail to an increased ration. When this is done, the standards will be found most useful as a basis in compounding the various ingredients of the ration and for reference when there is doubt as to economy in present practice.

To facilitate the work of compounding a ration, the stockman should obtain a table showing the digestible nutrients in the various coarse and concentrated feed stuffs. Such a table occurs in many of our text-books—such as Henry's "Feeds and Feeding," a most useful work to dairymen—and from time to time in our agricultural papers. A very little practice with such a table will enable any ordinarily intelligent man to ascertain (provided he knows the weights of the feeds he is using) a knowledge of the ration he is feeding, and to correct, if necessary, its deficiencies and frequently to both cheapen it and make it more effective.

I shall now bring this address to a close by placing before you one or two typical rations. They will be composed of home-produce coarse fodder and grains, together with certain milling by-products found on our markets.

Rations for Dairy Cows, 1,000 lbs. weight, in full milk.

	Digestible			
	Dry Matter.		Protein.	Carbo-hydrates and Fat.
	lbs.	lbs.	lbs.	lbs.
Ensilage	30	6.3	27	3.87
Roots	20	1.8	22	1.12
Clover Hay.....	10	8.5	68	3.96
Bran	4	3.52	488	1.81
Crushed Oats....	2	1.78	184	1.136
Gluten Meal....	2	1.84	516	1.312
		23.74	2.358	13.19

Nutritive ratio. 1.559.

This ration, it will be observed, conforms very closely to the requirements of the standards discussed. For very large cows giving between thirty and forty pounds of milk daily, it might be found to advantage to add one or two more pounds of meal. On the other hand, towards the end of the lactation period, the grain portion of the ration may be reduced.

We may give another ration, using bran only as the bought grain:

	Digestible			
	Dry Matter.		Protein.	Carbo-hydrates and Fat.
	lbs.	lbs.	lbs.	lbs.
Ensilage	30	6.3	27	3.87
Roots	20	1.8	22	1.12
Hay, Clover.....	5	4.2	34	1.93
Straw	10	8.1	31	3.63
Bran	3	2.7	37	1.36
Ground Oats....	1	.9	.69	.57
Ground Peas....	2	1.8	.33	1.07
Ground Barley..	1	.9	.69	.69
		26.7	1.82	14.24

This ration is somewhat lower in protein than the standard, and while it might give good results, it would be wise on the part of the dairyman who seeks to obtain the very best results, to try the effect of adding, say, 1 lb. of oil cake and noting if there was any adequate return.

I can recommend this question of rational feeding to you as one both interesting and profitable, and though we have not time on this occasion to go into the subject more deeply, I shall always be pleased to help, by information, those who may wish to put these principles into practice.

Studies in Nature

Edited by C. W. Nash

The editor of this department will be glad to identify for subscribers any specimens of natural history sent to this office for that purpose and will answer any questions on the subject that may be asked through The Farming World.

Birds of the Roadside

The spotted sandpiper usually raises two broods each season, the young of the first brood being able to take care of themselves and fly well by the beginning of July, at which time the females are sitting upon their eggs for the second brood. The young run and feed themselves almost as soon as they are hatched. Above they are grey with a black stripe down the back and a black line runs from the beak through the eye to the back of the head. Beneath they are pure white. Very pretty graceful little nutes they are, like little pluff balls on stilts, but they are wonderfully active and wise. At the least alarm they run for shelter among the nearest weeds or loose stones and at once squat and hide so well that it is almost impossible to find them. Whilst the young are doing this and so long as an intruder remains near the spot the old birds will feign lameness and injury by slowly running and fluttering on the ground and use every art to lure the observer from the place. Dogs and other animals seem to be invariably deceived by this and always make a frantic rush after the old one, but she manages to gauge her speed so as to keep just a safe distance ahead of her pursuer until she has led him far enough from her little ones as to render the finding of them improbable, then she darts away from her enemy and by a circuitous route returns to her brood.

By the middle of August these birds have all left the province for the Southern States where they spend the winter.

Besides the spotted sandpiper two other species classed among the shore birds may sometimes be seen from the roadside. One of these the Killdeer Plover is comparatively common and regularly breeds in the fields; the other, the Bartramian sandpiper or Upland Plover, is both rare and local in our Province. On the Western prairies it is very abundant. This bird though properly classed among the Sandpipers never frequents the water-side or the sands, but confines itself almost exclusively to the grasslands. I used to see it occasionally in the western counties of Ontario every summer and Dr. C. K. Clarke informs me that a considerable number regularly breed in the County of Frontenac. When with us, it resorts to the hay meadows and does not seem to

make itself so conspicuous here as it does on the prairies where its peculiar weird, long drawn whistle sounding from the sky always attracts attention. These birds during the breeding season frequently perch upon posts and fences where they look rather out of place, this habit is not peculiar to the bartramian sandpiper. Many other shore birds have it at this season but at no other time the spotted sandpiper frequently does it in summer and seems to be quite an expert percher for I once saw one balance itself with ease several times on the top of a dead mullen stalk.

All the sandpipers although not web-footed are expert swimmers and divers and the spotted sandpiper is no exception to the rule, though I have never seen one attempt to swim or dive except to escape from danger. Wounded birds when pursued will invariably take to water if unable to use their wings.

Plum Cucurlio (*conotrochelus nenuphar.*)

Adult Beetle.—Color, dark brown, varied with spots of white, yellow and black. Thorax rough; the wing covers have several short ridges upon them, those in the middle of the back forming two humps of a black color, behind which is a band of dirty yellow and white; length about one-fifth of an inch.

Larvae.—A whitish grub destitute of feet; head, light brown.

This insect passes the winter in the adult stage, becoming active in the spring. When the young plums are formed it attacks them, making a crescent-shaped cut in the skin, and laying an egg in the opening. Each female deposits about 150 eggs in the season. Although these beetles show a preference for plums, yet, in their absence they will deposit eggs in cherries, apples, pears, and other fruit. From the egg is soon produced a small white larva, which enters the fruit and feeds within it for about fifteen days. In the case of the plum, the affected fruit usually falls from the tree. The larvae then soon leave it and burrow into the soil to assume the pupal stage, in this condition they remain for about six weeks, when they again change to perfect beetles.

Remedies.—Poultry and pigs allowed to run in the orchards will dispose of the fallen fruit with the larvae in it. Jarring the trees and catching the beetles that fall on a sheet spread beneath, if done early in the season, is a useful remedy. Spraying the trees with Bordeaux mixture, to which Paris green has been added in the proportion given in formula No. 2, (see spraying) will be found the best protection against this cucurlio. The application should be made once before the trees come into blossom, again when the blossoms have fallen, and a third time about a week later.

The Sugar Beet World

Devoted to Sugar Beet Culture in Canada and Allied Industries. Specially Representing the Farmers' Interests.

EDITED BY JAMES FOWLER.

Sugar Beetlets.

Large yields are regularly obtained by those farmers who do thorough, clean work, and intimate that therein lies a big secret of success.

The cost of growing an acre of beets varies in different parts of the country, the size of area planted, the condition of the ground, etc. The range is from thirty to forty-five dollars, or from two to four dollars per ton.

It is easy to grow beets weighing five pounds each, where the soil is rich, by thinning to twelve inches, but such beets are inferior to beets averaging less than two pounds for sugar, and also for stock feeding.

In thinning, the plants are cut off by means of a sharp hoe, leaving bunches of a few plants each, which must be thinned to a single plant by hand.

The harvesting is done either by means of a beet puller or by plowing a furrow near the beets and pulling them by hand.

The topping is done by means of a heavy knife. Topping machines have, as yet, not been successful.

In cleaning the beets, be careful to avoid washing them, as you are liable to waste the sugar, but by brushing you will not lose any. No beet should weigh more than two pounds for a factory beet; some beets will weigh considerably more, but that is due to poor cultivation.

The sugars present in the leaves of sugar beets in largest quantities are glucose and maltose. Cane sugar is present in small quantities only, or is entirely absent.

The increase in percentage of sugar and coefficient of purity during ripening is about three per cent. for the former and about five per cent. for the latter.

Stock beets, including leaves, remove, crop for crop, more soda salts than sugar beets do, but not ton for ton.

Continued cropping to beets would soon show a perceptible reduction in this quantity of sodic chloride, especially if the leaves were carefully removed, but the ground water is rich in salts, and is capable of replacing this as well as the other "alkali" salts removed.

The hardest part of beet raising is to get a full stand all over the field. The poor growth of the seed is due to lack of moisture, too deep planting, and poorly prepared ground.

The factories work on beets hauled directly from the field up to the time freezing weather sets in. Beets to be used in the latter part of the season should be protected from freezing; for this purpose they may be put into shallow pits and covered with straw and dirt, either near the factory in pits provided by them, or in the field.

Simple freezing does not cause any change in the sugar. If thawing can be prevented the crop is not necessarily lost if frozen.

The feeding value of dry pulp may safely be estimated as equal, pound for pound, to the dry sugar beet.

One ton of sugar beets yields about four hundred pounds of dry matter, and only one hundred pounds of dry pulp. One ton of stock beets yields about two hundred and forty pounds of dry matter, which is richer in albumoids and nitrogen free extract than the pulp is; the pulp, however, is a by-product and the stock beets are not.

At Lehi the pulp is placed in silos with addition of about one-half per cent. of its weight of salt. The cattle always have access to plenty of hay, pulp and water. They never feed a pound of grain in fattening the stock, unless the pulp gives out.

John Reimers, Grand Island, Nebraska, had had three years' experience in feeding pulp to cattle. He fed fifty pounds of pulp, twenty pounds of corn meal, a little bran, and oil cake, and the usual amount of hay per day, as a full ration. Hake Bros., also of Grand Island, fed lambs a mixture of four pounds of pulp to one and a half pounds of corn meal, besides hay, as a full ration.

Pointers for Beet Growers

Capitalists and others interested in educating farming communities as to the profits of sugar beet raising can in no other way accomplish so much, in so short a time and at so small an outlay, as by sending *The Farming World*, containing all the news of the Sugar Beet World a few months to the influential men.

And the only sure way for the farmer who is interested in growing "sugar beets for profit," to get all the information relative to the cultivation and harvesting of sugar beets, is to subscribe for *The Farming World*.

And the only way for municipalities desiring to have a beet sugar factory erected in their midst is to let their advantages be known through the columns of *The Farming World*.

And the only way for manufacturers and builders of sugar factories to get in touch with the people interested is to advertise in *The Farming World*.

N. B.—Everybody should subscribe for *The Farming World* and read their "beet sugar" items.

Sugar Beet Thriving in Peterborough.

Mr. E. H. Shuttleworth of Guelph, who has been inspecting beet fields, says:

"Having just completed my June

inspection of the sugar beet plots planted at Peterborough in the townships of Smith, North and South Monaghan, Otonabee and Douro, under the direction of Dr. A. E. Shuttleworth, of the Ontario Agricultural College, by order of the Minister of Agriculture of Ontario, I am pleased to be able to say that I have found them generally in good condition although the season has been cold and the ground very wet. There are two cases where the plants are not up yet owing to the land being so wet that the seed could not be planted at the proper time. But where the land is high and dry the beets show well. Some of the plots are unusually fine. I find the farmers quite interested in the cultivation of sugar beets and they generally follow instructions closely, though some forget. On the whole I think they are doing remarkably well and their plots show it. I had a large breadth of land suitable for the growth of the sugar beet around Peterborough and much more can be made so by draining."

Wallaceburg.

Preparations are being made for commencing the buildings for the Wallaceburg Beet Sugar Co., Wallaceburg, Ont. Contracts will be awarded in a few days for the foundations and other work in connection with the buildings, beet sheds, etc. The labor complications in the U. S. will delay the iron work and machinery somewhat, but it is expected the buildings will be under cover before cold weather. Mr. A. D. Gordon, of Wallaceburg, is president of this company.

Warton.

After nearly five years of hopes and disappointments the Warton Beet Sugar Manufacturing Co. feel that their factory is now assured. Considerable stock has already been subscribed locally, and they are getting as much more as possible. The farmers in the vicinity are subscribing liberally, their subscriptions being payable in beets, on the basis of a certain percentage, being payable each year out of the beet crop. It is understood that the plant will be entirely German manufacture, the builders taking a block of stock in partial payment.

Factory at Walkerton.

Mr. J. Messner, of the Walkerton Beet Sugar Co., is much pleased with the prospects for a sugar factory in his town. The stock is being freely subscribed by farmers and others and contracts for growing beets are being rapidly written up.

Though less than a month at it, nearly 1,500 acres have been secured. Some outside capitalists have been looking over the prospects recently with a view to investing quite a large sum.

The Walkerton Telescope says: Mr. J. R. Shaw, of Toronto, accompanied by his partner, Smellie, Mr. Hobbs, of London, and a Mr. Stewart, of London, England, were in town on Tuesday. These gentlemen are interesting themselves in the sugar beet question, and before investing decided to see for themselves what this neighborhood had to offer. Mr. Stewart, we understand, is a very wealthy man, and has taken a liking to Canada. He regards it as a country of great possibilities and a safe country in which to invest capital. These gentlemen, accompanied by two or three members of the Provincial Sugar Co., drove through the country on Wednesday, and we believe were very favorably impressed with the look of things. We don't think they will find a better location for a sugar beet refinery elsewhere in Ontario.

Cultivating, Thinning, Harvesting and Marketing Sugar Beets.

That sugar beets may be successfully grown at a profit the grower must study the conditions and avoid as much hand labor as is consistent with the good cultivation of the crop, with the conditions at the best there will be a large amount of hand labor which is unavoidable. The first cultivation should, therefore, begin before the beets are up. About three days after the seed is sown take a weeder and go over the field cross-wise of the rows, this will destroy the weed seed which has sprouted. This process with the weeder may be continued until the beets are so large that the tops will break off. This work will give part of the necessary cultivation of the beets in the row and save the labor that would otherwise be expended in hoeing them.

As soon as the rows may be plainly seen the cultivator should also be set at work; if the ground is level a furrow cultivator may be used, but if not a two-row one is the more advisable.

The cultivation should continue weekly until the beets are so large that it is impossible for the cultivator to get between the rows.

Now the thinning: This is the most important process of the whole crop. The success or failure of your crop depends largely upon how wisely and how well you perform this work. A beet should have at least one square foot of surface. Upon the distance apart of your rows depends the distance apart in the row; rows 18 inches apart would be 8 inches in the row. The nearer you can get with good cultivation to one foot each way the more perfect the beet. The thinning may be done by first blocking with a hoe, and then

follow, thinning to one beet, or by carrying a small hand hoe, blocking and thinning at the same time.

After thinning, if the cultivator and weeder are judiciously used, the beets will require but very little hand labor until harvesting begins. It is to be hoped that this laborious task will soon be reduced to a minimum by some kind of a harvester, but at present the only successful harvester is the lifter and knife.

After the beets have been loosened by the lifter, pull about four rows, shaking them well at the same time, laying the beets one way and tops the other in order that they will not become tangled, then place a few baskets or crates along the row; then with a knife in one hand and beets in the other they may be topped very rapidly. A person with practice will soon be able to pull, top and pit an acre in three or four days with perfect ease.

The pits should contain at least two tons of beets and be well covered with tops, and, if they are to remain on the ground some time, be covered with dirt, first placing poles up and down about every four feet. After the dirt is frozen the ends of these may be hitched onto, and the task of uplifting is made easy.

For marketing the crop, use a flat rack with detachable sides. On driving in the sheds remove the side nearest the bin, and a large load may be unloaded in a short time.—Chas. T. Richards, in Michigan Farmer.

Harvesting.

No definite time can be fixed for harvesting beets, but it will be approximately October 1st. Harvesting should be postponed to as late a date as possible, provided the beets are in no danger of second growth and are not exposed to a freezing temperature. The leaves of the ripened beet change from a rich to a yellowish green, become drooping and applied closely to the earth, and many of them die. Harvesting is done by means of a particular kind of plow, with a thin blade which splits the soil between the rows. After plowing the beets are left standing quite loosely in the ground, and can easily be pulled out by the hand and thrown into piles or rows for topping, first shaking off the adhering dirt. The next operation consists of removing the neck. This is done by a large knife, or corn-knife, and the top of the beet or "crown" is cut off so as to remove with the top that portion of the beet to which the stems of the leaves have grown. The object of removing this portion of the beet is to prevent the mineral salts which have accumulated in large quantities therein from entering the factory. These mineral salts exercise a very deleterious influence on the crystallization of the sugar, and therefore must be removed. These tops are excellent for fertilizing purposes and should be allowed to rot on the ground and be plowed under.

The best agricultural practice would point to the use of the beet

tops as cattle food and a return of the manure to the field practically, however, if the tops are once removed from the field the manure seldom gets back to the desired place, hence, unless the tops are fed on the ground where grown they would better be allowed to decay and be turned under to form humus in the soil. Especially is it true if the soil is of a heavy nature, as the tops will furnish in the shape of vegetable matter just the material desired to improve its physical condition. However, the material is an excellent food for all stock, imparting a rare flavor and color to beef and pork and producing rapid gain in live weight.—Beet Sugar Gazette.

Sugar Beets and Cattle Growing

The Standard Cattle Company of Nebraska claims to have been almost forced into the growing of sugar beets and the establishment of a beet sugar factory by the failure to make the profit they desired or were used to making by feeding cattle upon corn. They found that the residuum or pulp left after the sugar was made from the beets was a valuable fattening food for cattle. To fairly test the matter they have some 2,000 acres in beets, and have built a sugar factory at a cost of \$900,000. They find the cost of growing the beets to be \$12.38 per acre for labor, it being done by contract at \$6.92 for thinning and bunching, \$3.47 for hand hoeing, \$1.99 for cultivator. They find that in Nebraska the beets are not at

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Will contract to build complete beet sugar plants, including all machinery and buildings; also furnish the necessary technical and skilled help to operate them.

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NASSAU STREET,
NEW YORK CITY.

Build and Remodel Beet and Cane Sugar Factories
Adaptability of Location Investigated.
Furnish Agricultural and Technical Advice.
Beet Seeds and all Necessary Supplies

their best for sugar-making if harvested before Sept. 15, and thus they must go into a silo or pit before many of them can be used, as they must be all harvested before the frost comes. The pulp must also be preserved in the silo until it is wanted for feeding out. They use beet seed from France and Germany, but are not yet decided as to the best varieties. The crop grown has been about fifteen tons per acre, but the sugar contents have not been as high as expected. The primal object is the fattening of stock upon the pulp, but they had hoped to obtain sugar enough to pay the cost of growing and manufacture, leaving the cattle feed as a waste product costing nothing. The point they do not seem to have reached yet, and there seems to be two problems to solve before they can reach it, or success in one of them may be enough, the growing of beets at less cost, or getting a higher sugar test from them. Thus far, they have beets yielding about nine per cent. of sugar, while in Germany they reach an average of 13½ per cent. To do this in Nebraska means the use of considerable amounts of fertilizer which may increase cost too much, unless partly repaid in the crops following as rotation on same land.

Crop Reports.

The sugar beet crop the past few days has shown wonderful improvement, especially in the western part of the province. With the advent of warm weather you can almost hear the plants growing. Blunching and thinning is well under way, and the farmers as a whole are well satisfied as to the outlook.

Our Exchanges.

We are indebted to the Beet Sugar Gazette for several items of interest to our readers which we have failed to give that excellent journal credit for. This was an oversight on our part for which we desire to offer our apologies.

We are in receipt of Vol. I. No. 1 "Sugar Beets," published by A. L. Teele, Denver, Col. We wish our contemporary success in his undertaking.

Sugar in Fruit.

It is a well-known fact to many, and unknown to many more, that an unusually wet season is not favorable to sugar development in either fruit or vegetables. It is in such a season that we often hear complaints that strawberries and other berries are not as sweet as they should be even when seeming to be well ripened. The same thing has been noticed in melons and proven by analysis in sugar beets. The larger growth caused by wet weather or by copious irrigation may look tempting, but it lacks the rich flavor that is the result of growing on dryer soil. Those who grow only for home use should not select very wet soil if they like rich and high-

flavored fruit or berries, and if a new variety is tested in a wet season do not condemn its quality without another trial under other conditions.

Amount of Seed per Acre.

Mr. Jothan Allan deals with this question in a late issue of the Michigan Farmer, as follows: In your last week's issue Mr. L. L. Wilson, of Tuscola Co., makes a statement that the sugar factories, through their agriculturalists, exact the farmer to take at least 15 pounds of beet seed for each acre of sugar beets sown, and they do this for the reason, he assumes, that the factories make money from the disposal of their seed. I can assure Mr. Wilson for the Alma factory at least, and I think I can safely say for any sugar factory in the State, that the idea of asking the farmer to sow plenty of seed is for his own benefit in securing a good crop, which of course means success to the factory if they have plenty of beets to cut.

The Alma factory gives its patrons the privilege of stating just how much seed they wish to sow at the time of writing their contract. We have farmers who are sowing 20 pounds of seed per acre as well as some who are sowing only eight or ten. The factories do not charge the farmers any more than the actual cost of the seed. They do not care to make anything on their best seed. No factory would think of giving its farmers anything but the best seed obtainable, as nine and ten per cent. beets cannot possibly be worked by a factory and pay expenses. In several instances our factory has tested beets raised by the farmers from seed that was bought from our store at from 20 cents to 25 cents per pound, and in no instance did they test within three or four per cent. of what the beets raised from the seed furnished by the factory at 15 cents per pound.

It costs too much to raise an acre of beets for the farmer to take any chances of getting a poor stand by cutting his seed supply down 77 cents or \$1.00 worth per acre. It costs just about as much to raise an acre of good beets that will bring \$75.00 or more as it does to raise an acre that will bring only \$40.00. For example, I have seen fields (the first year that the farmer raised

beets when he knows all about it), put in with eight pounds of seed per acre, and a very poor stand when they came up, so poor that at least from four to six beets more could grow in every rod of row. It takes 44 rows 18 inches apart, 30 rods long, to make an acre. Four beets less per rod, would make 160 less in one row of 40 rods, and if they weighed two pounds a piece it would make 320 pounds less per row, and 44 rows, or an acre, would be 14,080 pounds short, or a little over seven tons per acre. The same ground, drilled with the same drill, using 15 pounds of seed per acre, instead of eight, would have easily given 320 pounds of beets more per row or over seven tons more per acre.

The farmers of our factory averaged last year over \$5 per ton for their beets, some getting as high as \$6. Eight tons at \$5 per ton equals \$40; 15 tons, or the amount that could have been raised with plenty of seed, at \$5 per ton equals \$75, or a difference of \$35 by the addition of seven pounds of seed at 15 cents per pound. Take off \$10 for the extra seed and handling of extra beets, and you have left a difference of \$25 per acre. If a farmer had in 20 acres and make such a mistake as that, it would be just an even \$500 loss in one season. Does Mr. Wilson or any other farmer care to take the chances of losing \$500 to save \$21 worth of seed? Or, in other words, might lose in a single season more than seven pounds per acre of seed would cost on 20 acres for 21 years. Now, Mr. Wilson, these are facts that I have seen in the same neighborhood from the same kind of soil and from using the same drill, where the one farmer tried to save seed and the other was seeing how perfect a stand of beets he could get by using plenty of seed. If you have seed that is all of one size, an extra good drill, and soil, in perfect condition for drilling, you may be able to get a fair stand of beets from eight pounds of seed per acre, but the chances are about one in 25 that these conditions are not all favorable. It is impossible with a continuous row drill to distribute eight pounds of seed evenly on one acre, because the seed has such a scraggly, spongy covering that if you close the drill to drill such a small amount there will be lots of skips.

Every grower of sugar beets and other roots should use our

SUB-SOILER

May be attached to any plow.



\$5 invested in a Vessot Sub-Soiler will bring you in bigger returns than \$100 invested in any other way.

S. VESSOT & CO.

108 FRONT STREET EAST

Factory at JOLIETTE, QUE.

TORONTO

The Agricultural Gazette

The Official Bulletin of the Dominion Cattle, Sheep, and Swine Breeders' Associations, and of the Farmers' Institute System of the Province of Ontario.

THE DOMINION CATTLE, SHEEP, AND SWINE BREEDERS' ASSOCIATIONS.

Annual Membership Fees:—Cattle Breeders', \$1; Sheep Breeders', \$1; Swine Breeders', \$2.

BENEFITS OF MEMBERSHIP.

Each member receives a free copy of each publication issued by the Association to which he belongs, during the year in which he is a member. In the case of the Swine Breeders' Association this includes a copy of the Swine Record.

A member of the Swine Breeders' Association is allowed to register pigs at 50c. per head; non-members are charged \$1.00 per head.

A member of the Sheep Breeders' Association is allowed to register sheep at 50c. per head, while non-members are charged \$1.00.

The name and address of each member, and the stock he has for sale are published once a month. Over 10,000 copies of this directory are mailed monthly. Copies are sent to each Agricultural College and each Experiment Station in Canada and the United States, also to prominent breeders and probable buyers resident in Canada, the United States and elsewhere.

A member of an Association will only be allowed to advertise stock corresponding to the Association to which he belongs; that is, to advertise cattle he must be a member of the Dominion Cattle Breeders' Association, to advertise sheep he must be a member of the Dominion Sheep Breeders' Association, and to advertise swine he must be a member of the Dominion Swine Breeders' Association.

The list of cattle, sheep and swine for sale will be published in the third issue of each month. Members having stock for sale, in order that they may be included in the Gazette, are required to notify the undersigned by letter on or before the 15th of each month, of the number, breed, age, and sex of the animals. Should a member fail to do this his name will not appear in that issue. The data will be published in the most condensed form.

A. P. WESTERVELT, Secretary,
Parliament Buildings, Toronto, Ont.

FARM HELP EXCHANGE.

The Farm Help Exchange has been started with the object of bringing together employers of farm and domestic labor and the employees. Any person wishing to obtain a position on a farm or dairy, or any person wishing to employ help for farm or dairy, is requested to forward his or her name and full particulars to A. P. Westervelt, Secretary, Live Stock Associations, in the case of persons wishing to employ help, the following should be given: particulars as to the kind of work, length of period of engagement, wages, to be done, probable length of employment, etc. In the case of persons wishing employment, and the following should be given: experience and references, age, particular department of farm work in which a position is desired, wages expected and where last employed.

These names which received together with particulars will be published FREE in the two following issues of the "Agricultural Gazette" and will afterwards be kept on file. Upon a request being received the particulars only will be published, the names being kept on file.

Every effort will be made to give all possible assistance to the end that suitable workers, male or female, may be obtained. Every unemployed person wishing to engage in farm or dairy work is invited to take advantage of this opportunity.

Help Wanted.

Wanted a good man or boy at once, able to do general farm work near Orangeville. Will pay \$22 per month for five months for a good man, or \$18 to \$20 for a good boy. Might afterwards hire for a longer term.
No. 832 a.

Young man wanted for three or four months, or for longer period if suitable. Must be good to horses and a good ploughman.
No. 827 b.

Man and wife can find steady employment and comfortable home, or if children, a house will be provided, etc., near a good school. Also farmer's wife wants working companion, pleasant home, where kitchen girl is kept.
No. 828 b.

Man wanted for general farm work. Duties to commence immediately. Must be willing and obliging. Will give \$18 a month for five months, or will hire by the year. Address, McD., Sturgeon, Deerpark, Ont.

Young man wanted to work on a farm at Lachine Rapids, Que. Wages \$18 a month and board the year round, for a good and steady man who can plough and understands all other farm work.
No. 829 b.

Good young man wanted to work on a farm at Maxville, Ont. Must be steady and understand farm work. Wages \$15 a month.
No. 830 b.

Young man wanted to work on a

farm in Essex County. Six cows are kept, and man would be expected to help with chores. During haying and harvest would have to work until sundown, at other times until six o'clock in the evening. No. 831 b.

Thoroughly competent man wanted, married or single, for two or three months, to work on mixed farm of 150 acres. Good wages paid for first class man. Would engage by the year. Apply immediately to H. G. Heaven, Boyne, Ont.

Domestic Help.

Position wanted as housekeeper by married woman, 30 years of age. Husband has partial paralysis, though able to help himself, and could probably take care of poultry and do light chores.
No. 936 a.

N.B.—Where no name is mentioned in the advertisement apply to A. P. Westervelt, Parliament Buildings, Toronto, giving number of advertisement.

Farmers' Institutes.

Under this head the Superintendent of Farmers' Institutes will each week publish matter relating to Institute work. This will include instruction to secretaries and other officers, general information about Institutes and Institute work, suggestions to delegates, etc. He will also from time to time review some of the published results of experiments conducted at the various Agricultural Colleges and Experiment Stations of Canada and the United States. In this way he hopes to give Institute members some valuable agricultural information which they might not otherwise receive, on account of not having access to the original publications. If any member at any time desires further information along any of the lines discussed, by applying to the Superintendent he will be put in direct communication with the Institution that has carried on the work.

G. C. CREELMAN,
Superintendent Farmers' Institutes.

Farmers' Institute Notes.

Annual Meetings as Reported by the Superintendent.

Another successful orchard meeting was held on Wednesday, June 12th, at the Experimental Fruit Station located in East Northumberland on the farm of Mr. W. H. Dempsey, near Trenton. Mr. Dempsey had everything in readiness for a large gathering and was not disappointed. Over 300 people were present, and showed by their attention and inquisitiveness that they meant business, and were there for practical instruction.

A GREAT APPLE SECTION.

Mr. Dempsey has on his farm more than 175 different varieties of apples. Of course, these are not all hardy, nor are they all suited to the climatic conditions of Lake Ontario, but it is only by trying them that we can find out which are best.

The Department of Agriculture, seeing how farmers were imposed upon by irresponsible fruit tree agents and nurserymen, has taken upon itself the responsibility of deciding which are the best apples for the different localities. Many thousand barrels of apples are shipped from this immediate vicinity each year, and there is no up-to-date farmer within a radius of many miles who has not been benefited directly or indirectly by the work done on Mr. Dempsey's place.

PRUNING.

Prof. H. L. Hutt, of the O.A.C., introduced the topic of pruning, and the matter was fully discussed by the members. Some advocated high pruning, but the majority were in favor of the lower form, starting the first limbs about 4½ feet from the ground and trimming the branches upward, so as to allow free cultivation well up to the trees.

FARMERS GIVING MORE CARE TO THEIR ORCHARDS.

Prof. Hutt stated that he had been visiting this section for a number of years, and each year he could see a distinct improvement in the matter of cultivation. "Ten years ago," said Mr. Hutt, "it was the rule in many places to leave the orchards in sod and allow the farm stock to pasture under the trees. Now, we see nearly every orchard cultivated, or, at least, not left long in grass."

In reply to a question as to why some fruit growers in New York advocated seeding the orchard and leaving it in grass for many years, Mr. Hutt replied that they did not in any case ever take a crop of hay from the orchard, but cut the grass and left it to dry as a mulch on the surface, and that many of them even ran disc harrows over the surface at frequent intervals. The consensus of opinion at the meeting seemed to be that in this country the best way to care for an orchard was to cultivate up to July, and then plant some catch crop, such as rape or clover (the latter preferred, either crimson or red), and plow this under again the next spring.

ORCHARDS PAY THE RENT.

"It is a poor orchard in this country," said Mr. Dempsey, the Director of the Station, "that will not pay the rent of a hundred acre farm. Of course, there are some years that we have a very small crop, but this does not occur often, and as a rule where the farmer gives the orchard a fair show and attends to the spraying, he can sell his apples in the fall for more than enough to pay the rent or if it be his own place, a good interest on his investment."

WHALE OIL SOAP.

Being near the base of supply of this article (it is manufactured at Conseccon, about twelve miles away), the fruit growers of this section naturally use a good deal of this insecticide. This year, when the aphids was so bad on the plums and cherries, it was found very useful. Some, however, neglected to apply it early enough, and thus the result is a good crop of plant lice now. Those who were sufficiently forehanded to spray when the lice first appeared on the buds, in late April or early May, using about a pint to the gallon, have had very little trouble with lice since.

CANKER WORM PREVALENT.

"We have not," said Mr. Thomas Carlaw, of Warkworth, "one nest of tent caterpillars this season, where there were thousands last year." "In fact," said he, "I have driven to this meeting all the way from Warkworth, and did not see a dozen tents, except a few in this immediate section." This cannot be said of canker worm, but, like most other insects, they are found most common on the farms of those who neglect early spraying. We noticed many trees on the road entirely stripped of foliage. "Ought to have had Paris green early," said Prof. Hutt, "and they would not have canker worm now."

ROTATION OF CROPS IN THE ORCHARD.

As the Institute members passed from one part of the orchard to another, Prof. Hutt pointed out the advantages of using different catch crops in orchard cultivation. "Nitrogen is all right," said he, "and phosphoric acid is necessary, as well as potash, but in order to get all three ingredients into the soil, we can no more stick to one crop than we could to one form of commercial fertilizer. I like to see clover used often. A good rotation for an orchard consists of buckwheat, clover, rye and clover. This gives lots of green stuff to turn under each year."

VARIETIES.

Mr. Dempsey, like Mr. Caston, and many other good fruit-men, stick to the old favorites. "No better early apple," said Mr. Dempsey, "than 'Duchess of Oldenburg,' and for early fall use the 'Snow,' 'Trenton,' and 'Gravenstein,' do well in this vicinity. For winter apples, the 'Ontario,' 'Ben Davis,' 'Stark,' and 'Seek-no-Farther,' are popular varieties with both orchard men and buyers. "We must not forget the boys and girls," said Mr. Dempsey, "and so we always have 'Ribstone Pippins' and, of course, the 'Northern Spy' is always in order."

GRAFTING.

"I see that you are all unanimous that the Tallman Sweet is the stock on which to graft apples," said Mr. Dempsey, on speaking of a report of the Craighurst meeting last week. "It suits us, too," said he, "and you will also see that we have a lot of Spy stocks. There are a lot of others that are good, but we avoid the Golden Russet. It has given us very poor satisfaction as a stock on which to graft winter apples." "How about the Red Astrachan," someone

asked. "There are better," said Mr. Dempsey, "but I have had good results in some cases even from them."

THE BUYER'S STANDPOINT.

Mr. R. J. Graham, the "Evaporator King," of Belleville, was present at the meeting. "This is a great idea," said he, "to get the farmers together and have practical demonstrations in pruning, grafting, budding, spraying, and general discussion on orchard management. As a buyer, I would like to impress one thing upon you, and that is the necessity of producing the very best quality of apples. I know the fault does not all lie with the farmers, as we shippers have to take some responsibility in the matter. At the same time we cannot send a uniform quality of good apples to the Old Country if you do not produce them. It is the same in buying apples as in buying hogs," said he. "If you have a lot of hogs, some of them good and some of them bad, the drover has to take the lot and pay you an average price for them, knowing that he will have to make up on the good ones what he loses on the poor ones. So, when we are buying, we have to take the good and bad alike, and have to get rid of the poor ones as best we can. Our packers classify all apples into four grades in the barrel, called 'facers,' 'followers,' 'fillers,' and 'tails.' The Englishmen complain that in too many cases the 'tail wags the dog.' "No farmer," said Mr. Graham, in conclusion, "can get along now-a-days without adopting new methods, and this applies to orchard management as well as to anything else. You must spray without ceasing," said R. J., "cultivate well, cut down or top-graft the unprofitable trees, and in replanting select only good selling varieties. Remember that there are always three qualities that we look for in an apple,

- 1st, They must all be a good size.
- 2nd, They must be a good color.
- 3rd, They must keep well and stand shipping.

If you can combine these with a good flavor, well and good, but these three must stand first."

Poultry Raising for Profit.

By Robt. Thomson, St. Catharines, Ont.

Nine-tenths of the farmers of Ontario keep poultry, but how many of them can say with what profit? In the majority of cases the farmer will say there is no profit, because the wife and children have the charge and care of them and the proceeds of fowl and eggs sold very often go to keep the family in pin money, or, in many instances, to keep the house in groceries. The farmer does not realize how much money they bring in, nor how much money's worth is consumed at home by himself and family.

In going out amongst the flock in the Districts of Muskoka, Parry Sound, and Algoma, I am sorry to say that in only a small minority of cases are fowl kept as they should be. I find that the chickens are sold, and the old hens kept for years, in fact, I believe in many instances till they die of old age or disease. The flock is

kept in a close, dark, filthy room, hardly ever cleaned out in winter, or they are allowed to hunt quarters for themselves amongst the cattle or in the hog-pens. No attention is given to the selection of the best eggs from good layers and large fowls. But even here, under adverse circumstances and surroundings, I find that the question of poultry-raising is one of the most interesting to the settlers. A large number are raising chickens and eggs for the summer tourist, and find good markets at fair prices. Even at Parry Sound the Christmas turkeys have to be brought in from Old Ontario, and sell from 12c to 16c per lb. At the "Soo" I find chickens (and year-old birds come under this name here) selling at 15c per lb. Summer prices rule, if anything higher.

Poultry-raising, as a branch of farming, or where taken up by cur boys and girls, or business men and mechanics as a separate business, is making great progress in this country and there is a great future ahead for future development. There is no pleasanter work for the boys and girls, or more interesting for our business men and mechanics before and after office hours. As an instance, I met at Bruce Mines a Mr. McDonald, tailor, who is keeping a small flock of Barred Plymouth Rocks. He has to purchase everything in the shape of food that his flock consumes, and has to keep the flock confined on his own village lot. He kept an accurate account of everything he purchased for his fowl, and of all the money received from the sale of eggs and chickens, and last year he realized a clear profit of \$2.10 per head. This is no fancy picture, but one that can be realized by anyone who pursues the business with intelligence, energy, and a thorough knowledge of the work.

The first requisite for success is to begin on a small scale and become thoroughly acquainted with all the details. Then select the variety that is best suited for the purpose intended. If for egg production alone select laying breeds; if for broilers alone, select large, early-maturing birds; if for general purpose, then select a breed like the Barred Plymouth Rocks. Each breed requires a different treatment. Egg-production requires different treatment and care than raising birds for the market. Keep selecting the best, so the flock will be uniform. When your birds are all alike, and also the eggs, you will find the same customers always looking for them, and at top prices.

Provide a suitable room or building; one that is comfortable in winter (without artificial heat), free from draughts or dampness, with plenty of light. A good filling between the outer and inner boards is made by mixing lime and sawdust for mortar. This keeps out vermin and prevents dampness. See that the house is regularly cleaned to prevent vermin gathering.

Try and secure as many eggs in the winter as possible by giving a variety of food. First, in the morning, mix ground grains made into porridge mixed with milk. I also find it pays to boil carrots and potatoes to mix with the meal. For the noon meal,

scatter small grain on the floor, amongst chaff or cut straw, to make the hens scratch and get it. As one gentleman said, "The secret of getting eggs is to make the hens work." Also give, for variety, refuse cabbage leaves, apple parings, sliced carrots, and scraps of meat. For the afternoon meal, before going to roost, I give whole grain warmed in the oven, so that the fowl goes to roost with her crop full of warm, solid food that helps to keep up the animal heat during the night.

I make it a practice to always kill off the birds at from one year to eighteen months; never letting them see the second winter. These year-old birds sell for good prices to certain customers, and they look for them and take them in preference to any other when they know they are only one year old.

Always fast thirty-six hours before killing. This ensures ease in dressing and prevents any taint arising from any food in the fowl if it is not drawn for an hour or two. These last remarks apply very strongly to turkeys. I find, from twenty-five years' experience in raising and killing turkeys for the St. Catharines, Buffalo, and Quebec markets, that these were three requisites,—1st, the bird must be well fattened and of a good color; 2nd, carefully dressed, and 3rd, but not least, the reputation of always having the best turkeys on the market.

I always kill by sticking in the back of the mouth, hanging up by the feet, and pick quickly while warm.

In April and May, when eggs are cheap, it is a good plan to put them away for home use. See that they are perfectly fresh, and place them in a solution of water glass composed of one part to five of water.

For the amount of capital invested, fowl pay the largest percentage of profit of any live stock on the farm.

Strawberry Culture.

By Arthur Peer Freeman

Through the long weary months of winter and opening spring, how often do we wish that summer was here, that we might enjoy fruits fresh from vine and tree. As this longing grows upon us and we count the time that must elapse before our desire is reached, we begin to think of the strawberry that will usher in the many enjoyments that summer brings us. In city, town or country home how eagerly the market place or strawberry patch is watched for the first appearance of this most luscious fruit. When such will contribute to the happiness of every home who would not grow strawberries?

But, aside from this aesthetic view of strawberry culture the commercial man's first question is "will it pay?" Such a question involves a great many circumstances, under which varying answers would be necessary, but if certain fundamental principles are followed a more or less decided answer may be given. If the one intending to engage in this

occupation is of a careless disposition (and thus apt to comply more readily with the conditions of failure, rather than those of success) and satisfied to grow forty or fifty bushels per acre of medium sized berries with which the market is always glutted, the answer may most decidedly be given "It will not pay." On the other hand, should he be wide-awake, eager to learn and take advantage of every opportunity to improve his chances of success, and determined to exert himself to the utmost to have the best crop and the best berries in the neighborhood, the chances are very much in favor of this man having at least a little spending money in his pocket after the season's work is over.

In locating a spot for a strawberry patch, bear in mind that the strawberry is a surface feeder, and consequently easily injured or killed by a surfeit of water, or during severe drouth. The land should be well drained and one that has been previously planted to hoed crops, so that weeds will give as little trouble as possible. Plough the ground in the fall and again in the spring, while in the meantime a liberal coat of barnyard manure should be given. After having ploughed the plot it should be thoroughly cultivated and then rolled. It is then ready for marking out, which may be done in various ways, with whatever the planter has convenient for this purpose. The rows are usually placed about 3½ or 4 feet apart, and the plants 15 to 24 inches apart in the rows, according to the thriftiness of the variety or varieties grown. The choice of varieties is often a very perplexing question, and can only be decided by actual test. Varieties that succeed well in some localities are entire failures in others. In fact, varieties will thus fluctuate on a single farm, according to the variation of the soil. If the intending grower has had no experience in selecting varieties his only safe course is to choose those succeeding best with his neighbors, or such standard varieties as have a widespread reputation. Begin planting as early in the spring as possible so as to get the benefit of the early rains, and thus give the plants a vigorous start. The plants should be well trimmed; all large or dead leaves removed, together with the tips of the roots, which will then branch out and take a firmer hold of the soil. Commence cultivation immediately after planting and continue it throughout the season, thereby keeping all weeds in check, conserving moisture in the soil, and confining the plants to their allotted space in the rows. All blossoms should be removed the first season, and any runners that may make their appearance before the plants are in a vigorous condition to support them.

After the ground is sufficiently frozen a covering of straw or some such material is desirable to keep the ground from freezing and thawing rapidly with every change of the weather, which would break the little rootlets and injure the plants

considerably. This covering should be removed from the plants as soon as all danger of severe frost is over, and placed between the rows. Here it will conserve moisture so necessary at the fruiting season; aid in keeping the berries from being sandaled, and smother out weeds that would otherwise make their appearance.

As the fruiting season draws near all necessary preparations for handling the crop will be in order, and if possible the securing of an ideal market, which, at the present time, is more apt to be found in towns and villages, or in a good home market, as the city markets are frequently glutted and fruit sent there often barely pays expenses.

To be on the safe side start new plantations every year, although in many cases it may be advisable to retain a patch that has already fruited, over for another season. When this is done, the old rows should be narrowed up to about six inches and this strip thoroughly cleaned out immediately after picking ceases. Carefully cultivate the space between the rows, so as to get the soil in good shape to receive the young plants that the narrow strip will soon produce.

In common with all other domestic fruits the strawberry has its insect and fungus enemies. Among the more destructive of the former are the white grubs, a name given to the preparatory stages of the different species of the June beetles. As these work no apparent injury until the patch is two years old, it is advisable where injury is liable to occur, to plough under the patch as soon as the first crop is harvested. Other insect pests are the strawberry sawfly or slug, and the strawberry leaf roller. These may be controlled to a certain extent by spraying. Rust, or strawberry leaf blight—as it is commonly called—is perhaps the most destructive enemy to strawberry culture. This disease, if not checked, soon spreads all over the leaves, and attacks the fruit stems, often completely girdling them, causing them to shrivel up, and the berries are consequently useless. Fifty per cent. of the crop is often lost from this cause. The most satisfactory remedy for this evil is spraying with Bordeaux mixture, which should be applied in July or August of the previous year and before and after blossoming of the fruiting season.

During the past few years strawberry culture has made rapid strides. New varieties are being introduced by the wholesale, many of them splendid acquisitions to our already large supply; but the perfect berry has not yet been reached. Many of our best sorts are chance seedlings, snatched from oblivion by some party seeking for a better berry than he possessed. Then why should not all of us be striving to obtain a more perfect berry, and although we may not reach the high ideal which we seek, we will nevertheless improve to such an extent that our energies will not have been spent in vain.

The Farm Home

When School is Out in June.

I hate t' go t' school in 'spring—
So much fun out o' doors!
I always git spring fever, too,
An hate to do the chores.
Sometimes I want t' quit, but ma
Says, "School will be out soon,
It's time enough fer y'u t' stop
When school lets out in June!"

I look out through th' winder at
Th' woods all green an' cool,
An' wish th't I was there instead
O' bein' here in school.
I'd jest play hookey if I da'st,
When school is out fer noon;
But if pa knew it I'd be dead,
When school lets out in June!

It's lots o' fun t' chase chipmunks,
An' lay 'round in th' shade,
An' go-a-swimm' in th' crick
Or h'ist y'r pants an' wade;
An' once, down in th' holler, pup
An' I tread a coon,
An' got him, too! I wish 'twas time
When school's let out in June!

I wish I war that bumblebee—
He flew right through th' door
An' out th' winder—but I'd never
Come back here no more!
I wouldn't have to speak a piece
An' feel jest like a loon;
I'd be a long way off from here
When school lets out in June.

My Summer in a Garden.

By May Moody Pugh, in American
Kitchen Magazine.

Charles Dudley Warner said that "the love of dirt is among the earliest passions. Mud pies gratify one of our first instincts. The love of digging in the ground comes back to us all with each recurring spring; to own or to have a bit of ground, to scratch it with a hoe, to plant seeds, and watch their renewal of life is the common delight of the race."

It may have been the love of nature and to see "green things growing" which led us away from the brick block to the quiet little cottage shut in by the trees of a neighboring park. Be that as it may, the spirit of generations of ancestry with gardening proclivities held sway during the earliest spring months. For weeks before the frost was out of the ground the leisure hours were given to the study of seed catalogues. When the more than half-acre of specially prepared ground was duly plowed and harrowed, then our garden fever was at its height, and only contact with the cool, moist soil would remove it.

One thing had been definitely settled in the beginning; this was to be none of your little poky, eight-by-ten, made-up-bed affairs, but a great, hundred-foot row, level soil culture—a regular seed catalogue garden. What did it matter that we grew lettuce by the bushel for three people and the rabbits, or, like "Colonel Sel-

ler's turnips," we were hardly able to consume or give away the succession of radish crops we planted, and that the peas, beans, and beets, which came along in their season, had to be sent far and near to whoever would eat thereof.

The family mildly suggested a market stall or huckster wagon, and other pleasant things which our own feel privileged to say; nevertheless, the delight in our garden grew as the season advanced, and when, in the mountains or away at the seashore, other women were taking their morning nap, I, arrayed in my garden costume, was out hoeing and pulling weeds.

My recompense came a few weeks later when I could say to my neighbors and friends, "Come out with your basket and get some fresh vegetables," or when I had the happiness of giving a dinner after her own heart to the author of "Pot-Herbs and Wild Salad Plants."

Later, when the corn and tomatoes appeared, what delightful cob parties we enjoyed. The yellow squashes that grew like Jonah's gourd, the mammoth cucumbers, the succulent Lima and five other kinds of beans, the melons, to which the small boy did ample justice—they were all there in their appointed places.

The crowning glory of our garden was a long trench of peanuts, whose shamrock foliage was a curiosity all summer.

But, you say, such a garden means work. True enough! but there have been compensations.

The pleasure of having the world all to yourself for a little while each morning, of gathering the dainty wild flowers for the breakfast table, of making friends with the birds, from the saucy bluejay and domestic robin to the Southern mocking-bird which came nights and sat on the gable of the ivy-covered barn to sing to his mate—all this rewards the worker.

The Pennsylvania redbird, the meadow lark, the wild canary, bobolink and cheewink, the indigo bird and the brown thrush, the doves that cooed so softly at evening time, the Bob Whites which called so cheerily and answered so merrily all the summer long; Jenny Wren who sat on her box porch and scolded the cats by the hour; Sam, the red squirrel who lived in the hollow tree with Mrs. Sam and several young Sams—we came to know them all, as well as to renew acquaintance with the wild flowers, the anemone, Solomon's seal, digitalis, dogtooth, and wild blue violets, the lovely white larkspur, later the Cherokee and sweetbrier roses, and the sunflowers which grew tall as trees.

Not a little of the pleasure of our summer has been the enjoyment of these, individually and collectively, and we have learned for ourselves Thoreau's "profound secret." The sunbeams, the shadow, the butterflies, the birds, and flowers have told it during the summer in the garden.

Hints by May Manton.

Woman's Tucked Shirt Waist.

The shirt waist that closes at the back is a marked feature of the season and is peculiarly effective when made of fine material stitched in tucks. The smart design shown is admirable in every way. The original is of white lawn with insertion of Valenciennes lace and is charmingly simple; but the style lends itself to many materials and combinations.

The front is tucked to yoke depth only and so forms soft becoming folds below, but the backs are tucked to the waist line and give the snug fit essential to correct style. The sleeves are novel and altogether charming, being laid in two groups of tucks, four each, with lace between. At the wrists are soft cuffs of lace and tucking and at the neck is a stock to match. As shown, the material beneath the lace is cut



3862 Tucked Shirt Waist,
32 to 40 bust.

away to give a transparent effect, but the insertion can be put on as applique if preferred.

To cut this waist for a woman of ordinary size, 4 yards of material 21 inches wide, 3½ yards 27 inches wide, 3½ yards 32 inches wide, or 2½ yards 41 inches wide, will be required.

The pattern 3862 is cut in sizes for a 32, 34, 36, 38 and 40 inch bust measure.

The price of above pattern post-paid is only 10 cents. Send orders to "The Farming World," Confederation Life Building, Toronto, giving size wanted.

Germ Theory.—"Miss Quickstep had miserable health until she became engaged to be married, and then she grew as strong and vigorous as any body."

"She accounts for it on the theory that the love microbe drove all the others out of her system."

A Twilight Song

When the birds awake in the morning,
And the dew is on the grass,
There comes a tremulous whisper,
As the fading shadows pass.
And I listen, wooing, waiting,
For a voice than all more dear,
To speak in the rosy dawning
Love's message to my ear.

Ah! not 'mid the earthly splendor
Of the crimson morning skies
Shall come your voice to me, darling,
Your beauty to mine eyes;
For a veil of darkness hides you,
And my sight is dim with tears,
And my heart is full of the burden
Of the empty future years.

When the shades of evening gather,
And the birds are all asleep,
I fold my hands in the silence,
With a heart too full to weep;
Then I read in the sacred Volume
Of the promise Land of Peace,
Where the hearts beloved are waiting,
And the cares of life shall cease.

Ah! there in the fadeless glory
Of the bright, eternal Home,
Shall come your voice to me, darling,
When I have ceased to roam;
And nought in the pulseless ages
Of the great Eternity
Shall be found to sever us, darling,
Or to shadow you and me!
Kenmare. Norman L. Beurle.

Health Hints.

Few people know the great value of saffron spice as a valuable addition to diet in cases of nervous disorders, neuralgia, dyspepsia, and like ailments. The best mode of administering it is in milk food, such as rice, sago, bread, semolina, corn - starch and other milk puddings. For this purpose the saffron should be tied in a small piece of fine muslin, and boiled in the milk, says a cooking magazine of high repute. Care should be taken to procure the saffron of good quality, and not that previously used for extract purposes, as much of what is sold has been. It can also be used in beef and chicken broth, and in Germany no bouillon is made without it.

Many cases of insanity are attributed to the drinking of strong tea. The water should just boil, the tea be infused for five minutes, and no second brew should be made from the same leaves.

When an invalid's room needs sweeping, the best way is to wipe up the carpet rapidly with coarse towels wrung out of cold water. This disposes of the dirt without annoying the patient either by dust or noise, and is the method employed by trained nurses.

An authority on dieting denounces the use of cold boiled potatoes in any way, stating that they cannot be digested. They are, he says, specially hurtful to children.

The juice of half a lemon squeezed into a glass of water, taken night and morning without sugar, is one of the simplest remedies for torpid liver and biliousness. Daily headache, which medicine has failed to cure, will dis-

appear, and the appetite will be considerably improved.

Lemon rind should never be used without first thoroughly cleansing the lemons, as the spongy surface absorbs germs easily. Let the lemons lie in cold water for a little while, then rub them dry with a clean, rough towel. This is an item of fastidious housekeeping—to say nothing of health—which should be scrupulously observed.

To Kill Black Ants.

About the best way is to entrap them in sponges dampened in sweetened water and set about their haunts in saucers. They will fill the pores of the sponges, which may be dropped into scalding water. They will generally make a scramble from the sponge as soon as it touches the water, so not many will die within it. Borax, also salt, is recommended to scatter upon the shelves. We tried the salt with pretty good success. They often nest under the house and creep in through tiny crevices. When the ant-hill can be found nothing is so effectual as bisulphide of carbon. Pour an ounce into each of several holes made by a stick and close the holes quickly with the foot. The bisulphide penetrates through the underground tunnels and kills the ants in great numbers. Applied liberally this will exterminate them from the lawn.

To Remove Spots, Etc.

If spots have been caused by hot dishes or hot water they can be removed by holding a hot shovel a few inches above the spot, or pour some lamp oil on the spot and rub it hard with a soft cloth. Then pour on a little spirits of wine or cologne water and rub it dry with another cloth. The white mark will disappear and the surface look as well as formerly. A good dressing for these sills and which would cover the spots is made from the following formula: Take linseed oil, put it into a glazed crock with as much alkanet root as it will cover. Let it boil gently and it will become a strong red color. When cool it is ready for use. It will be necessary to get the proper shade when using it in connection with other parts of the window casings.—Fanny Love.

Canada Attracting Attention in England.

The following extract from the London Daily Telegraph is somewhat flattering to Canadians:

"Here is a short and true Canadian story worth more than many a three-volume novel. "Up in the Gatineau Valley there lived a man named Meldrum. He had several daughters, and they went into the fields and picked out the big early heads of wheat from large, vigorous plants. The seed from these Meldrum cleaned thoroughly and sowed again. He thus got exceptionally good plants with large heads and fine wheat. With this wheat he took the gold medal at the

Paris Exhibition, and for years afterwards Meldrum wheat sold at fine prices for seed." Bettering the moral Sir W. C. Macdonald, of Montreal, at the instance of Professor Robertson, has given \$10,000 (£2,000) as prizes for young people in Canadian farms who produce from seed-plots of a quarter of an acre the finest ears of wheat and oats yearly and the best produce in three years. In this way 700 young men and women in the provinces of the Dominion are studying scientific farming by "selection of the fittest." The worthy Yorkshireman, a good farmer, too, who said oracularly fifty years ago that "steam was in its infancy, but agriculture had reached perfection," was a little premature, perhaps! We may learn something yet even from our own Colonies."

Ironing Made Easy.

Dry the starched articles perfectly, then dip them in a pail of boiling water and pass them through the wringer twice. They may then be ironed at once, or they may be rolled up in a dry cloth. The fabric may be ironed with greater ease after being dampened in this way than sprinkled in the usual manner. Turpentine in starch gives an added whiteness and lustre to the ironed article. Use one tablespoonful to a quart of starch.—June Ladies' Home Journal.

SITUATION WANTED

By young Englishman, who wishes to learn Canadian farming. Quite willing to work. Comfortable home of more consideration than wages.

Address
G. W. HIVES
Toronto Post Office

FOR SALE

Valuable farm of eighty odd acres, one mile from C.P.R., 1 1/4 miles from Vankleek Hill, 1/2 mile from school, 1/2 mile from cheese factory. Splendid brick house, outbuildings, orchard, running water. Stock may be purchased with farm; 18 cows kept.

Apply to R. C. POTTER
Vankleek Hill, Ont.

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Seekers'
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Excursions
to the
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North West

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(All Rail or S.S. Alberta.)

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A PAPER FOR FARMERS AND STOCKMEN.

Publisher, . . . D. T. MCANISH.
Editor, . . . J. W. WHEATON, B.A.

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THE FARMING WORLD,
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TORONTO.

QUESTIONS AND ANSWERS

Remedy for the Horn Fly

A subscriber at Spa Springs, N.S., asks us to publish a remedy for the Horn Fly.

The Horn Fly may be kept off cattle by an application of any combination of carbolic acid oil, but by far the best remedy is to puff over the animals a mixture of pyrethrum and Spooner's phenyl powder in the proportion of one ounce of pyrethrum to one package of phenyl powder. The best way to apply this is to puff it over the cattle from a common insect powder bellows, when they are in the stable. It only takes a few minutes to go over a large number when they are placed in the stalls, and an application every day or two will, during the season of the fly, effectually protect the cattle.

The Western Fair.

Canada's oldest and ever-popular exhibition will be held at London on September 5th to 14th, 1901. It promises to be a record breaker in all the essentials that go to make up a varied exhibition of the products of the soil, the skill of the dairyman, the judgment and the knowledge of the breeder of thorbred stock, the skill of the artisan, and the general perfection to which agrarian operations in this country and all that pertains thereto, may be brought.

It is only when such are concentrated and brought within the compass of a day or two of pleasurable sight seeing, that one is enabled to realize at a glance the richness of the section from which the Western

Fair draws its patronage, and the vast possibilities of the land we inhabit.

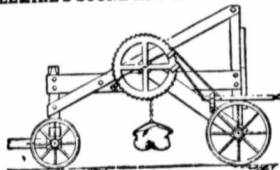
At the Fair Grounds conveniences have been increased, and exhibitors will be pleased to know of such additions to, and alterations in the prize list as are calculated to give the greatest amount of satisfaction to the exhibitor. The speeding in the ring—always a feature of the Western Fair—will this year be more attractive than ever. Larger prizes will be given.

High-priced attractions have been secured, including Lockhart's celebrated Troupe of Elephants. The condensed prize list, and simplified entry form, may be had on application to J. A. Nelles, secretary, London, Ont.

Toronto's Prize List Out.

The prize lists for Toronto Exhibition, which is to be held from Aug. 26 to Sept. 7, were issued last week and provide for the closing of entries for live stock, dairy products, ladies' work, fine arts, honey and all classes of manufacture on Saturday, Aug. 3rd; for grain, field works and horticultural products on Saturday, Aug. 10th, for poultry on Wednesday, Aug. 14th and for dogs, on Saturday, Aug. 17th. Prize lists can be had on application to the Secretary, Manager H. J. Hill, 82 King street, east, Toronto, to whom entries must also be made. Some minor re-arrangements of classes have been made, as previously noted in these columns, but the principle change consists in the increase of premiums in every section of live stock and dairy products. Upwards of \$35,000 will be distributed this year in the agricultural classes, which is largely in excess of the amount given at any other annual fair on this continent. In the Shorthorn classes this year the premiums are increased one third in value, while to every class additional sections have been made. Special attention is also given to dairy product, an innovation worthy of note being the giving of two challenge trophies for the best makes of creamery butter and cheese. Two hundred dollars are also offered for butter-making competitions to which male and female students, farmers' wives, daughters and farmers' help are eligible. Then there is also the proposed experiments in sugar-beet cultivation, etc., in addition to all which is that Toronto Exhibition and the Pan-American are working in thorough harmony so that an exhibitor at one can exhibit at the other, each being in close order of holding. Farmers throughout the country are specially urged to show at Toronto this year, as distinguished visitors and purchasers are coming from all over the world and the liberality displayed by the executive towards the agricultural interests have never been excelled or even equalled anywhere. The smallest farmer has an equal chance of winning with the largest providing he has only the stock or the products. One of the features will be a large exhibit of French-Canadian horses and French-Canadian-cattle, for which special classes have been created.

LEMIRE'S STONE AND STUMP LIFTER



The New Stone and Stump Extractor patented by Lemire. Capable of lifting 18,000 lbs. Has no equal for lifting and carrying stones, etc., for placing stones so as to build up fences to 5 ft. high, and leave the ground in a condition fit for mowing and reaping machines. After the hooks are adjusted on the stones, the only thing to do is to pull the lever. You can lift up a thing, carry it and place it on a stone fence in 10 minutes. The agricultural societies and clubs of farmers should all buy it. Price moderate. For complete details address—John Amiraux, 40 Lansdowne Ave., Toronto, Ont., or Plessisville Foundry, Plessisville, Que. This Stone Extractor is guaranteed for the extraction and transport of 40 to 50 stones a day, fixed in fences.

Cheese and Butter

Makers of these articles, in many instances, do not pay the necessary attention to the quality of the salt they use. Some people think that "salt is salt," and it does not matter where it comes from or who makes it. This is a great mistake, for it is essential that it produce the best Butter or Cheese nothing but the purest salt should be used.

The number of prizes obtained by users of

"RICE'S or COLEMAN'S" DAIRY SALT

at the various exhibitions is conclusive proof that these brands of salt stand unrivalled. For prices, etc., address

R. & J. RANSFORD,
Clinton, Ont.

Butter Flavor

Windsor Salt is an absolutely pure Salt. Because there are no foreign substances in Windsor Salt your butter will have the rich, delicate flavor that a pure Salt alone can yield. Successful butter makers use it.

Windsor Salt

Best Grocers sell it.



ROCK SALT for horses and cattle, in ton and car lots. Toronto Salt Works, Toronto

American Holstein-Friesian Breeders.

The sixteenth annual meeting of the American Holstein-Friesian Association was held on June 5th at Syracuse, N. Y. Ninety-four members were present. The reports of the various officers showed a most satisfactory condition of affairs. The Superintendent of Advanced Registry reported a total of 361 entries, the largest number since the inauguration of the official tests. Nearly 10,000 certificates of registry were issued, a large increase over last year, and double that of three years ago. The Secretary of the association is F. S. Houghton, Putney, Vt.

Canadian Jersey Breeders.

The annual meeting of the Canadian Jersey Breeders' Association was held on Saturday, June 15th, at Dentonia Park Farm, the property of W. H. Massey, Toronto. There was a good attendance, and members were present from all parts of the province. After transacting the business which brought them together, the members were entertained in a very hospitable way by Mr. Massey. A fuller report will appear later.

Breeding for Mutton and Lambs

For several years the Wisconsin Experiment Station has been working in the direction of establishing a flock of mutton sheep, in which the lambs for an early spring market should be of the best, as well as older sheep valuable for mutton. As a result of their investigation so far they say that one chief consideration is to secure good rams. This does not mean high-priced prize-winners, as they almost invariably prove infertile or incapable of service. When rams are vigorous without having been pampered or starved, and show that they have the qualities desired, they will give good value received even at high prices.

The ewes should be selected from those that are the deepest milkers, that suckle their lambs the best, and that have dense fleeces for their own protection. The best mothers are invariably among the leans when the lambs are weaned, and they should be chosen by the record they have made as mothers, and not on points of style or smoothness. They are apt to vary in quality of lambs raised from year to year, and it is not always wise to reject a ewe because of poor lambs one year, if she has good records for previous years, or a ewe the first year if she is known to be of a good-milking family and appears all right.

The ewe lambs to be kept for breeding should be fed liberally from the first with oats and the best pasturage. This course insures good weight of body and fleece, and after the first year it is hardly possible to check their growth, as they will have the necessary vigor to provide for themselves.

In a grade flock where lambs are to be sold to the butcher uniformity is important, and a ram that has proven a good breeder should be bred to the same ewes year after year as long as possible, but when necessary to change get one that has not the same faults of fleece or form as the ewes, or has good qualities which they lack. If the ewes are uniform this is easier than when they are a flock of mixed character.

Rape for Brood Sows.

My experience with Dwarf Essex rape last year may be of interest to some of your readers residing in this state, writes C. B. Jones of Minnesota in Prairie Farmer. I selected a rather low piece of meadow land, composed of timothy sod, plowed it about six inches deep, then harrowed it until I had it fine enough for an onion bed and so it would retain the moisture, as the first of the season was very dry and hot. I sowed the rape seed in drills, about two feet apart, at the rate of about 2½ pounds to the acre, using the Dwarf Essex seed. I think the drill should be from 2½ to 3 feet apart. The better the land the wider the space should be between the drills, as rape, like most other plants, grows more rank on heavy soils than on thin.

As I stated in the beginning of this article, the soil was dry when I sowed the seed. I put it in about an inch deep, then rolled it until it was firm. The seed, which resembles ruta baga seed, came up in a few days, the young plants resembling ruta bagas very much, but I never saw ruta bagas or any other plants make such a growth. After the rains came it grew about 2½ feet high and covered the space between the drills completely. I commenced feeding it as soon as it was a foot high and fed it until Oct. 20, principally to hogs which I had in a lot near by.

They ate it greedily and made a rapid growth. I also fed some to the milk cows in the fall, but they did not seem to relish it as the hogs did, owing possibly to the abundance of other green feed at that time. I do not think it a desirable forage for milk cows, as it imparts to the milk that undesirable flavor that turnip tops give it. I have never found its equal as a succulent food for brood sows and growing pigs. It is necessary to keep the ground well cultivated between the drills until the plants are a foot or more high.

He Didn't Like the "Ad."

"I want to see you about this advertisement of mine," said the men's furnishing goods man to the editor. "Here I've just got started in town and you go and mix my ad all up in a way that'll make me the laughing stock of the whole place. See the way it starts off:"

"Call and examine the elegant things I have put on. Sale this week."

"Now what on earth possessed you to put that period in there? Now keep that fool sentence in mind and listen to the rest:

The . . . **GEM FENCE MACHINE**
Beats them all, 120 rods 10-bar fence in 10 hours. **COILED SPRING** and other fence wire for sale at lowest prices. Write **McGregor, Banwell & Co.** Box 23, WINDSOR, ONT.



BULL-STRONG!
....PIG-TIGHT....
An Illinois farmer said that after harvest he had fully 500 bushels of loose oats on the ground that he could not secure any benefit from, because the fence around the field would not turn hogs. Figure the loss for yourself. He also said, all this would have been saved, if he had used the Kitchman Woven Wire **Coiled Spring Fence**, and the value would have gone a long way towards paying cost of the fence. With the **Duplex Machine**, any farmer can make it himself at the actual cost of the wire. Catalogue free for the asking. **C. Q. DAVIS & CO.** Box G-115, Freeman, Ont.



WILSON'S HIGH CLASS SCALES

Every Farmer Wants Our **Diamond Steel Rearing**
2,000 lb. SCALES
SPECIAL JUNE PRICES!
WILSON'S SCALE WORKS
50 Esplanade Street E., TORONTO.



IDEAL STEAM COOKER

Leads the world, and is recognized by all Cooking experts and housewives as the best.
Cooks a meal over one Burner, on Gas, Gasoline, Oil, Electric, Coal or Wood Stove.
Reduces fuel bills fifty per cent.
No offensive odors. No steam in house. No tired housewives. No burning of food.
Will ship Cookers, express paid, to any address on receipt of the following prices:
6 Ideal Cooker, cooks for 3 to 6 persons, . . . \$5 00
7 Ideal Cooker, cooks for 5 to 8 persons, . . . \$6 00
Agents Wanted. Address
The U.S. SPECIALTY CO.,
93 Adelaide Street East, TORONTO, ONT.



Spooner's "PHENYLE"
Powder
"Phenyle"
GERMICIDE DISINFECTANT...
KILLS CHICKEN LICE
and Lice on Horses and Cattle, and Ticks on Sheep. Keeps them Healthy. Easily applied; no dip required.

60lb. boxes, 1lb. packages, 25c. lb.
70lb. pails, 15c. lb.
400lb. barrels, 10c. lb.

If your Druggist does not sell it, send direct to
ALONZO W. SPOONER,
Laboratory, PORT HOPE, Ont.
It will cure and prevent hog cholera. 2A

"First, there's underclothes, dirt cheap; some I took from a bankrupt in New York. Are you listening?"

"Then there's an unlaundersed shirt which you surely won't consider stiff at ninety cents. My new pattern sleeve and stocking supporters have caught on, and will hold their own. Please inspect them. That's fine, ain't it? 'I have five hundred pairs of kid gloves on my hands which I must work off at once.' What d— nonsense! But that ain't all, see here."

"Anyone who likes a high collar will find my 'Sawear' brand at twenty-five cents quite high enough."

"Now see the way it ends up."

"By the way, that unlaundersed shirt opens in front. Call and see it. Open evenings."

"What's open evenings, the shirt? What d'yer want to run everything in together that way for? See them two men look in here and laugh as they went by? They've been reading that ad. I don't see how you could have done it," and he took a handkerchief out of the show case and wiped a tear from his eyes while the editor slowly scratched his head in puzzled silence.—Clothing and Furnisher.

Something About Weeds.

The following are fourteen ways in which they may be introduced and spread:

1. Mixed with seeds of grasses, clovers and grain sown on the farm rarely by screenings bought by the dealer and mixed with clover seed.
2. By live stock, carried in the hair or fleece or carried by the feet; in some instances passing alive with the excrement.
3. By unground feed-stuff purchased.
4. In barnyard manure drawn from town.
5. In the packing of trees, crockery, baled hay and straw.
6. By wagons, sleighs, threshing machines.
7. Sometimes by plows, cultivators and harrows.
8. By railway trains passing through or near a farm.
9. By ballast of boats at wharfs.
10. By birds, squirrels and mice.
11. By water of brooks, rivers and by washing of rains.
12. By the wind aided by little wings, down, or drifted on the snow.
13. By dropping seed to the ground from extending branches and repeating the process.
14. By creeping root-stocks, as June grass, quack grass and toad-flax.

Selling Horses at Chicago.

Mr. J. S. Cooper, President of the Horse Commission Union, Chicago, gives the following description of the resolutions governing the auction sale of horses on that market:

Every animal is sold under a guaranteed representation, and is tried by the purchaser before being accepted, and must be in all respects according to the conditions of the sale. All kinds of vehicles and appliances are at hand to show horses according to

their several uses, either as drafters, drivers or saddlers, and all sales are void if the animals fail to perform according to the recommendations.

A horse sold sound must be so in every particular, free from vices and able to pass a perfect veterinary examination.

A horse sole serviceably sound must virtually be a sound horse for all useful purposes of his class. He must be perfect in eyes, wind, not lame, not a cribber, and be able to do as much work as a perfectly sound horse. He can be serviceably sound and be a little rounding on the curb joint, but not curbed or branded. He cannot be scarred from fistula, or have hip down, but may be slightly cut at the knee, or puffed a little about the ankle. He cannot have scars or blemishes that constitute deformities, or blemishes and scars that deteriorate his value more than a trifle, or that in any way impairs his usefulness for work. Car bruises must be of a temporary nature.

A horse sold to wind and work must be sound in wind, a good worker, not a cribber or weaver, and everything else goes with him.

A horse sold for a worker only must be a good worker, and all imperfections go with him.

A horse negotiated at the halter is sold just as he stands, all imperfections, blemishes and unsoundness go with him. He is sold without recommendation and title only is guaranteed.

Whether the animal is sold to work singly or double, he must have all other qualities recommended by the auctioneer at the time of his sale. Any horse proving different from the recommendation on which he is sold can be rejected, but the purchaser must examine and try the animal on the day it is sold, or within the required time specified by the rules and regulations governing sales adopted by the Horse Commission Union at the Stock Yards.

Matter Enough.—"Mamma!" cried little Willie from the bathroom, "please get me another sponge."
"Why, what's the matter with the one you have?" asked the mother.
"It's full of holes and leaks awfully," was the reply.

When writing to advertisers please mention THE FARMING WORLD.

Scotch Collie Pups

Sire, Maple Leaf Perfection (Imp.) 5371; dam Cora of Fairfield 5607.

These pups are finely marked, and are bred from extra good working strains.

Write for particulars.
C. E SMITH, Scotland, Ont.

NO SPAVINS
The worst possible Spavin can be cured in 45 minutes. Curbs, Splints and Ringbones just as quick. Not painful and never has failed. Detailed information about this new method sent free to horse owners.
Write to-day. Ask for Pamphlet No. 1.
FLEMING BROS., 58 Bay St., Toronto, Ont.

Stock

IMPERIAL HOLSTEIN-FRIESIAN STOCK FARM

10 Young Bulls from one month to four months, bred from Winnie's De Kol.

W. H. SIMMONS,
New Draught

The Up-to-date Herd Tamworths

Bred from sweepstakes herd. Young stock of both sexes for sale.

W. H. McCUTCHEON, BRUSSELS, ONT

RETTIE BROS.
HOLSTEIN-FRIESIAN BREEDERS
A few choice young animals for sale. **RETTIE BROS., NORWICH, ONT.**

GLEN CRESCENT SHORTHORNS AND OXFORDS.

A few shearing rams by imported "Royal Windsor 5th" and one two-year-old bull for sale.

J. W. WIDDIFIELD, Uxbridge, Ont.

MAPLE LODGE STOCK FARM.

Shorthorns For Sale.

A few choice young bulls, and some excellent heifers and young cows. Our cows were awarded first prize at Prov. Dairy Test, 1899 and 1900. Imp. Knuckle Duster, and imported Sir Wilfrid, at head of the herd. Leicester sheep, imported and home bred. The best. **A. W. SMITH, Maple Lodge P O., Ont.**

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AT FARNHAM FARM

50 Superior Yearling and Two Year Rams.
2 Extra Fine Imported Lambs.
100 Ram Lambs.
And a number of good Yearling Ewes and Ewe Lambs.
—PRICE REASONABLE.

HENRY ARKELL, Arkell, Ont.

FOR SALE

Four year old Bull. Lord Lavender = 26855 = Bred by John Miller & Sons, Brougham. Price \$125.

For particulars, address

H. PARKER
Durham, Ont.

OAK LODGE YORKSHIRES



are acknowledged to be the best type of bacon hog to produce the ideal carcass for the best English trade. **CHAMPIONSHIP HERD AT TORONTO INDUSTRIAL EXHIBITION FOR NINE YEARS** also sweepstakes on Dressed Carcass at Provincial Winter Show. We have on hand now a large herd of different ages. Our prices are reasonable and the quality is guaranteed to be choice. Write

BRETHOUR & SAUNDERS,

Burford, Ontario

PURE-BRED STOCK

NOTES AND NEWS FROM THE BREEDERS

These columns are set apart exclusively for the use of breeders of pure-bred stock and poultry. Any information as to importations made, the sale and purchase of stock and the condition of herds and flocks that is not in the nature of an advertisement will be welcomed. Our desire is to make this the medium for conveying information as to the transfer of pure-bred animals and the condition of live stock throughout the country. The co-operation of all breeders is earnestly solicited in making this department as useful and as interesting as possible. The editor reserves the right to eliminate any matter that he may consider better suited to our advertising columns.

Horses.

I. Devitt & Son, Freeman, Ont., write:

We have recently shipped to Mr. A. E. Quickfall, of Waterloo, Ont., the Clydesdale colt, Prince James. This is a good, clean, strong boned colt that will make a big smooth horse, and will do some good in the old county of Waterloo. He is by Grandeur II., his dam by Douglass Macpherson. Mr. Quickfall also purchased the Shorthorn bull, General White, a good straight animal, that will make a good big one. He also bought a Holstein bull calf.

To Mr. Robert J. Porteous we sold the Clydesdale mare Jess with a foal by her side. This mare has been a prize winner in the past, having been shown at five fairs and winning as many first places, and she will no doubt be heard from again. Our mares are doing well, we have several yet to foal. All are looking well, the young things are coming along nicely.

Grandeur II. is doing well since Toronto Horse Show and his foals are coming good and strong. He is proving himself one of the best stock horses in Canada. We have several young stallions that will be heard from later on.

Our Shorthorns are looking well, and our cows are all in calf to imp. Pure Gold, a bull that was sold for a long price to go to South America by Mr. Pettit.

Cattle.

Wm. H. Simmons, New Durham, Ont., writes: "The imperial herd of Holstein Friesian cattle still continue to do good work. They are now giving 800 lbs. of milk a day. The herd numbers twenty cows, and five of them are two-year-olds, while three came fresh at eighteen months old. Cubana 2nd freshened on Dec. 25th. Katey Kent on Dec. 20th, Bessie Pietjde, 18 months old, on Dec. 18th, Bessie Pietjde, 18 months old on Dec. 25th, Pietjde, 4th imported from U. S., on Dec. 28th, Katey Kent 3rd, three years old, on Jan. 10th, Lizzie Pietjde (two and half years old), on Jan. 9th; Lym-tie of Tritona, imported from U. S., on Feb. 10th, Rose of Kent, on Feb. 20th; Charlotte P., on April 20th; Little Katy Kent (18 months old), on May 3rd, Jemima Cubana (two years old), on May 1st, Bell of Kent, on May 3rd, Cubana 3rd, on Jan. 5th, Spot, a grade two years old, on Feb. 1st; Baldy, a grade cow, on Dec. 20th; Lina, a grade cow, on Feb. 1st, Strip, a grade cow, on May 1st, Spot, a grade cow, on Dec. 20th; Themke Cubana, on April 1st.

I have just stated what time they were fresh in milk so as to show

what they can do after being in milk so long. These cows made 2,000 lbs. butter before April 1st. Some farmers think it does not pay to have cows freshen so early, but I think it does where you have ensilage and roots. I still have a few bull calves to sell, out of strictly first-class cows at reasonable prices."

Referring to the combination sale of Canadian Shorthorns held at Chicago on June 5th last, The Breeders' Gazette says: "Wednesday's sale by Canadian breeders and importers was a pronounced success so far as the females are concerned but, as has been the case at nearly all the sales held this spring, bulls were not in such keen request. There were no sensational prices made, in fact the top was materially below the highest prices reached at Mr. Platt's sale last August, but a gratifying feature was the activity of the bidding and the remarkable steady range of prices throughout. Mr. Martin Flynn, the veteran breeder of Des Moines, Ia., evinced his confidence in the trade by paying \$1,500 for the good Cruickshank cow imp. Victoria 67th, with a beautiful red heifer calf at foot sired by Lovat Star. Mr. E. W. Bowen of Delphi, Ind., who will be remembered as the purchaser of imp. Orange Chief at Mr. Platt's sale of last August, was a good bidder and secured a few valuable females, including the Duthie bred cow Vain Beauty, after an interesting competition with General Manager Arthur G. Leonard of the Chicago Yards. Mr. Leonard made further progress towards the establishment of a Shorthorn herd by the purchase upon this occasion of the imported heifer Pauline 9th, the Kinellar-bred Ury heifer Trout Creek Lady and the handsome roan imp. Rosemary 31st with heifer calf at foot by Mr. Coch-rane's imp. Joy of Morning. Mr. S. S. Shelby, a young Missouri breeder, had the good fortune to secure the richly-fleshed imported bull Fashion's Favorite at the comparatively low price of \$825. As will be seen by the subjoined report the cattle were widely distributed throughout many different States."

Sheep

In Scotland the sheep stock sales in the border districts are now over for the season. All through there has been a better feeling than there has been for a year or two, well-bred stocks of all kinds selling well and in some cases commanding high prices.

One Teaspoonful of Pain-Killer in hot water sweetened will cure almost any case of flatulency and indigestion. Avoid substitutes, there is but one Pain-Killer, Perry Davis. 25c. and 50c.

HORSEMEN! THE ONLY GENUINE IS GOMBAULT'S CAUSTIC BALSAM.

*Your genuine washing the synonyme of
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Sole Agents & Proprietors for the
U.S. & CANADA. CLEVELAND, O.*

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. **Removes all Bunches or Blemishes from Horses and Cattle, SUPERNDES ALL CAUTERY or FIRING.** Impossible to produce scur or blemish. Every bottle is warranted to give satisfaction. Price \$1.50 per bottle. Sold by Druggists, or sent by Express, charges paid, with full directions for its use. Send for free descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Toronto, Ont.

Giles' Liniment Iodide Ammonia

For Either Man or Beast

Each kind put up in 25c., 50c., and \$1.00 bottles. Horse dealers find it invaluable in their stables.

Every druggist should have it; if not, they can get it from us, or we will send it on receipt of money and 25c. extra for express.

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ST. LAWRENCE COFFEE HOUSE

78 and 80 King St. East

"RESTAURANT" TORONTO

Dinner for 80c.

6 Dinner Tickets \$1 Served from 11.30 to 3
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Farmers and their wives visiting Toronto will find this to their taste.

The London Daily ...Free Press

Second Edition at your Post Office daily. Contains latest cable dispatches and market reports.

Ask for Sample Copy ..\$2 per year.

THE LONDON FREE PRESS PRINTING
CO., Limited, LONDON, CAN.

FITS Liebig's Fit cure for Epilepsy and kindred affections is the only successful remedy and is now used by the best physicians and hospitals in Europe and America. It is constitutionally recommended to the afflicted. If you suffer from
EPILEPSY, FITS, ST. VITUS' DANCE,
or have children or relatives that do so, or know a friend that is afflicted, then send for a free trial bottle and try it. It will be sent by mail prepaid. It has cured where every-thing else has failed.
When writing mention this paper, and give full address to
THE LIEBIG CO., 179 King street west, Toronto.

Market Review and Forecast

Office of the Farming World, Confederation Life Building, Toronto, June 24, 1901.

There has been no special activity in the wholesale trade during the week. Conditions of trade, however, continue sound and healthy. Crop prospects all over the country are encouraging. This gives business a healthy tone and inspires confidence in the future.

Wheat.

The wheat situation is not as strong as a week ago, and as the harvest approaches and a big yield is assured the general market is more depressed. It would seem that just now prices are shaping towards a lower level than at any time during the year. Any adverse influence in crop conditions would, however, cause a reaction. The Price Current of last week sums up the situation as follows:

"The wheat markets had a weakening tendency during the week, with an average decline on western markets of about $\frac{1}{2}$ ¢ per bushel. Improved crop prospects continued to be the predominating influence upon prices. European crop news as well as American was in the main of a favorable nature, causing prices, both for cash wheat and future contracts, to favor buyers. The primary movement of wheat is fair, and visible stocks are decreasing slowly. Exports show some falling off, but are of fair average proportions, but the export demand is claimed to be rather quiet."

The prospects for a big wheat crop in Ontario are bright, while the Canadian West will likely have the largest in its history. A 40,000,000 bushel crop is figured on for Manitoba alone. The present outlook for European crops is not so good as it was a few weeks ago.

Locally the markets have ruled dull and weaker in sympathy with the break in the west. Quotations are 63¢ to 65¢ for red and white, middle freights, goose, 63¢ and spring at 67¢ east. On Toronto farmers' market red and white bring 68¢ to 69¢, spring life 68¢ and goose 62¢ to 63¢ per bushel.

Oats and Barley.

Oats are easier and the market has a downward tendency. On this market No. 1 white east are quoted at 31¢, No. 2 at 29 $\frac{1}{2}$ ¢ to 30¢, north and west at 30¢ to 30 $\frac{1}{2}$ ¢, middle freights. On the farmers' market oats bring 35¢ to 36¢ per bushel.

The barley market keeps steady though quiet at 40¢ to 41¢ as to quality and point of shipment. On Toronto farmers' market barley brings 41¢ per bushel.

Peas and Corn

Prices for peas remain steady at about last week's quotations, the figures being 68¢ middle freights and on the farmers' market 66¢ per bushel.

The corn market has ruled quiet with little activity reported in the Western States, where shipments on export account are light. However, in the face of the limited demand and improved crop conditions prices have held steady. No. 2 Canadian yellow is quoted here at 39 $\frac{1}{2}$ ¢ west, and 44 $\frac{1}{2}$ ¢ on track, Toronto.

Bran and Shorts.

Trade in these is rather quiet, quotations being \$12.50 per ton for shorts and \$10.50 to \$11 for bran, west. City mills here sell bran at \$13.50 and shorts at \$14.50 in car lots f. o. b. Toronto.

Hay and Straw.

The hay crop this season is likely to be a very large one and yet the prospects of this do not seem to have any depressing effect on the market, which is steady and firm. Quotations here for baled timothy hay are \$9.50 to \$10 for car lots on track, Toronto. Car lots of baled hay are quoted at \$4.75 to \$5 per ton. On Toronto farmers' market hay brings \$11 to \$13, sheaf straw \$8 to \$9, and loose straw \$5 per ton.

Eggs and Poultry.

The demand for eggs at Montreal is falling off somewhat, but still there is a good demand at steady prices, quotations there being 10 $\frac{1}{2}$ ¢ to 11¢ in case lots. Egg supplies are coming forward more freely here and the market is active at 11 $\frac{1}{2}$ ¢ to 12 $\frac{1}{2}$ ¢ for selected stock and 10¢ to 10 $\frac{1}{2}$ ¢ for smalls. On Toronto farmers' market eggs bring 11¢ to 14¢ per dozen.

On the farmers' market here dressed chickens bring 60¢ to \$1.00 per pair and ducks \$1.00 to \$1.25

per pair. Turkeys are selling at 11¢ to 13¢ per lb.

For the week ending June 27, the Canadian Produce Co., Toronto, will pay 13¢ per lb. for live chickens.

Fruit

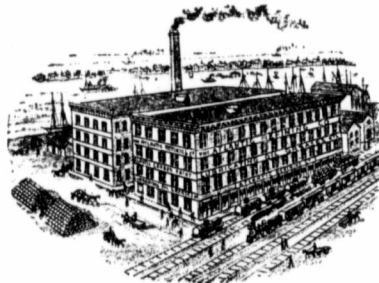
Canadian strawberries are beginning to arrive on this market in larger quantities. Quotations at the Toronto fruit market are 6¢ to 9¢ per box in large lots.

Cheese.

There has been a further stiffening in cheese values and the market is strong. Prices are gradually advancing and are now approaching what they were last year for the same period. At Montreal the market is reported somewhat quiet and prices there do not warrant the figures in the country. At the local markets, however, a marked upward tendency in prices is noticeable, 9 $\frac{1}{2}$ ¢ being the ruling figure at nearly all the markets later in the week. This is a good figure for June cheese and our dairymen have no reason for complaint. With good pastures and a large flow of milk, and good prices to back it up there is money in the dairy business.

Butter.

The butter market also rules strong and active, notwithstanding the fact that a large make is going on in the country. There is a good export demand. Montreal quotations are from 19 $\frac{1}{2}$ ¢ to 20¢, though holders of good quality are asking more money, 20 $\frac{1}{2}$ ¢ to 20 $\frac{3}{4}$ ¢ being asked in several cases. Creamery is quoted here at 21¢ for prints and 19¢ to 21¢ for tubs and boxes. The market for dairy butter has been fairly steady and the heavy



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Atlantic Refining Company, Foot of Jarvis Street, TORONTO, ONT.

offerings of late well bought up. The demand shows a slight decrease but there is no lowering of values, choice quality being quoted at 15c. to 16c. in a jobbing way. On Toronto farmers' market pound rolls being 13c. to 16c. and crocks 11c. to 15c. per lb.

Wool.

There is no improvement in the wool situation and there is no demand for export. It is reported that all of last year's clip is still in the hands of the dealers. Some few fleeces have been offered here but the views of buyers and sellers are very divergent. Here wool fleece washed is quoted at 13c. and unwashed at 8c. per lb.

Cattle.

The cattle situation, generally speaking, shows little change where prime quality is offered. This commands top prices and is in active demand. Cattle quotations are steady. The run of live stock on Toronto cattle market on Friday, the last one of the week, was fair, consisting of 463 cattle, 2,700 hogs, 391 sheep and lambs and 75 calves. The receipts of fat cattle were light, but sufficient for the demand. The quality of exporters was not as good as those delivered earlier in the week and consequently prices were not as high. Had there been the same quality offered prices would likely have been as high. In the butchers' classes the quality was generally fair, and a few lots of very choice quality were offered, all of which had been stall-fed. The grass cattle offered were generally of unfinished quality. There were few feeders and stockers on the market. The bulk of the milk cows and springers offered were of poor quality. Calves ruled strong, there being some of good quality offered.

Export Cattle.—Choice loads of these are worth from \$5.25 to \$5.35 per cwt., and light ones \$4.85 to \$5.12½ per cwt. Heavy export bulls sold at \$4 to \$4.50, and light ones at \$3.75 to \$4 per cwt.

Butchers' Cattle.—Choice picked lots of these, equal in quality to the best exporters', weighing 1,050 to 1,150 lbs. each sold at \$4.50 to \$4.80 per cwt., good cattle at \$4.40 to \$4.65, medium at \$4.30 to \$4.50, and inferior to common at \$3 to \$4.25 per cwt.

Feeders.—Heavy, well-bred steers, from 1,100 to 1,200 lbs. each, sold at \$4.50 to \$4.75, and other quality at \$4.40 to \$4.50 per cwt. Light steers weighing 900 to 1,000 lbs. sold at \$3.50 to \$3.75 per cwt.

Stockers.—Yearling steers, 400 to 800 lbs. each, sold at \$3 to \$3.40, of colors, and inferior quality at \$2.50 per cwt.

Calves.—These are steady in Buffalo, veals bringing \$5.25 to \$6 per cwt. At Toronto market ordinary calves bring \$2 to \$8 each.

Milk cows.—These sold at from \$25 to \$45 each.

Sheep and lambs

The market for export sheep is lower, and lambs continue firm. On Friday quotations for sheep were \$3.50 to \$3.60 for ewes, and \$2.50 to

\$3 per cwt. for bucks. Spring lambs are steady at from \$2.50 to \$4 each.

Hogs.

There was a large delivery of hogs on Friday. Farmers evidently are selling all they can when prices are high. Competition on the market is most keen, and even drovers in the country are bidding against one another to such an extent that in some sections farmers are getting Toronto prices at home on the farm. It was reported that the Peterboro Packing Company offered \$7.37½ at Stonville for a car load of hogs destined for Toronto market. However, prices on the market did not come up to the Wm. Davies & Co.'s quotations as given in last issue. On Friday the Toronto market quotations were \$7.12½ for select bacon hogs, and \$6.62½ for lights and fats; unculled car lots selling at \$6.90 to \$7 per cwt.

For the week ending June 27th the Wm. Davies Co., Toronto, will pay \$7.25 for select bacon hogs, and \$6.75 for lights and fats.

Horses.

Prices at Montreal are reported steady, owing to the export demand, which is taking a good many animals out of the country. Quotations there are \$180 to \$350 each for carriage horses; \$190 to \$225 for heavy drafts; \$100 to \$225 for roadsters, drivers and saddles, and \$110 to \$140 each for remounts.

The chief event at Grand's last week was the selling by auction of 36 Indian ponies, consigned by the Hudson's Bay Company. They sold at from \$17 to \$58 each, and are very useful for farmers who desire to secure cheap horses for knocking about and to save their better ones. These ponies, however, are no use for breeding purposes. The people of Western Canada are getting rid of these ponies as fast as they can in order to make room for a better class of horses. In the regular classes about 60 horses were sold, chiefly roadsters and drivers, at \$75 to \$135 each. The market for heavy drafts is expected to improve later on. The fall is a better time to sell these.

The Usher Shorthorn Sale.

The dissolution sale of the Queenston Heights herd of Shorthorns, the property of Messrs. Isaac Usher & Son, took place on Wednesday, June 19th, at Queenston. There was a fair attendance, many breeders being present from a distance, including several from the United States—Wisconsin, Indiana and New York States being represented. Forty-five animals were disposed of at very good prices, considering that they were not in good selling condition. Had the herd been properly fitted up for the sale at least 25 per cent. would have been added to the prices obtained. As Mr. Hudson Usher explained at the opening of the sale that the firm only decided to dispose of the herd a few weeks previous, owing to a dissolution of partnership having taken place, and there was not time to get the animals in proper condition. The ani-

mals were, however, in good, sound, healthy, breeding condition, affording a much better opportunity to the buyer than to the seller for bargain making.

The sale was conducted by Captain T. E. Robson, M. L. A., Ilderton, Ont., who, it is needless to add, performed his duties in a manner acceptable to all concerned. No fancy prices were realized, but a good fair average was obtained, indicating that an active demand still continues for well-bred Shorthorns. The fact that most of the cows offered had been bred and had calves running with them made it possible for breeders to secure good bargains at reasonable prices. In several instances this was the case and some splendid calves were sold with the cows at bargain prices. The Queenston Heights herd has been known for the good milking qualities of many of the Shorthorn cows. This was easily seen in the fine condition of many of the calves, and will account to some extent for the thin appearance of many of the cows which showed in many cases more of the dairy than the beef type.

The following is a list of the sales made with the purchaser's name and the price:

- Vacuna 44—36718—and calf, J. H. Newton, Hewett, Ont., \$125.
- Henrietta Cameron — 38550 — and calf, W. H. Taylor, M. L. A., Parkhill, Ont., \$165.
- Delta—41746—and calf, A. J. Golden, Kingsville, Ont., \$160.
- Langdale Lass (Vol. 18.)—D. J. Wilson, Egerton, Wis., \$135.
- Lucy Gray—28580—D. J. Wilson, Egerton, Wis., \$135.
- Lucy 7th (Vol. 18) and calf, James Brown, Thorold, \$115.
- Lucy 6th (Vol. 18)—James Brown, \$100.
- Red Moss Rose — 23625—and calf, James Brown, \$115.

Columbia Air Churn



The Butter Wonder

In time, quality and quantity. The only perfect and scientific butter churn. Perfectly granular butter from sweet or ripe cream in from five to seven minutes. Not by old-time friction or agitation, but by air scientifically applied to the cream. Are you looking for a churn? Then buy the newest and most up-to-date churn on the market—

"The Columbia"

COLUMBIA AIR CHURN CO.
Confederation Life Building, Toronto

Gold Leaf Lady—33115—Wm. Simpson, Chippewa, \$75.
 Lady Brock, Vol. xvii.—Ontario Agricultural College, \$125.
 Grassmere Gem, James Brown, \$50.

Rose Hill—21161—and calf, Major McGillivray, \$150.

Fanny—33326—and calf, Felix Sumdean, St. Davids, Ont., \$190.

Lady Gilmour—12271—John Sibbeth, Chippewa, \$65.

Cherry—33325—James Brown, \$110.
 Cambria Rose — 37676 — James Brown, \$55.

Angel—30965—and calf, E. Garrison, Brockport, N. Y., \$160.

Amanda—37674—and calf, Ontario Agricultural College, \$180.

Zora 31st—37680—and calf, James Brown, \$105.

Queenston Maude—Vol. xvii. — R. Mitchell & Son, Nelson, Ont., \$105.

Eastdale Maid — 37677 — James Brown, \$50.

Queenston Belle—40996 — W. H. Easterbrook, Freeman, Ont., \$80.

Lavinias Queen — 37063—and calf, James Brown, \$105.

Irene (Vol. 17) and calf, W. H. Easterbrook, \$130.

Edith Mac (Vol. 17) and calf, James Brown, \$145.

Bonnie Queenston 2nd—42266—Ontario Agricultural College, \$145.

Monument Rose 2nd—42273—W. H. Easterbrook, \$70.

Bonnie Queenston — 37675— Wm. Simpson, \$120.

Jewel of Greenway—21152— James Brown, \$55.

Lexey—35938—James Brown, \$85.

Rose Allan 2nd, Vol. xvii., Joseph Snyder, Chippewa, \$85.

Violet of Queenston—42277—James Brown, \$60.

Lady Beatrice, (Vol. 18.) James Brown, \$65.

Maid of Evelyn—42272— James Brown, \$60.

Queenston Maid—42274—Mitchell & Son, \$60.

Jubilee 2nd — 28234 — Geo. T. Stearns, Marion, N. Y., \$65.

Lady Grant—41447—W. H. Easterbrook, \$110.

Bulls.—Lord Gloster—26995—Major McGillivray, \$225. Glengarry — 34670 — Geo. T. Stearns, \$80. General White — 34652 — John Nesbitt, St. Catharines, \$66. Guardsman's Heir — 37038 — D. T. Willson, \$175. Niagara Chief — 34648 — G. W. Ryck-

man, St. Catharines, \$55. Kinellar Duke—92327—J. Smith, St. Catharines, \$60. Archie Stamford—34650 — D. P. Warner, St. Davids, \$55.

Seed.

Up to within recent years most of the sugar beet seed used in this country was grown in Europe. Lately seed has been grown commercially in Utah and New Mexico. At the Colorado station seed from Utah gave better results than imported seeds, while seed grown in New Mexico gave as good results as German seed, but not as good as German seed. In the light of these experiments there can be no doubt that sugar beet seed can be grown in the United States fully equal to the best imported seed." At the Nebraska station large seed obtained by sifting yielded 5.3 tons more beets than small seed obtained by the same method and containing the dried up and shrivelled seed. The sugar content of the beets grown from the large seed was also 1 per cent. higher, but the purity was the same in both cases. At the same station seed was immersed for a moment in 80 per cent. solution of alcohol. The heavy seed, that sank immediately, when planted yielded beets containing 14.3 per cent. sugar, with a purity co-efficient of 80.2, while the light seed that floated, yielded beets containing 11.3 per cent. of sugar with a purity co-efficient of 77.3 per cent.

In talking some men never stop to think, while others never think to stop.

CANADIAN PRODUCE CO.

36 & 38 Esplanade East
 TORONTO

want every chicken
 in Ontario

AND

WANT AGENTS TO BUY THEM

U S U S

The Improved U. S. Separator

HAS LED in the past,
 IS LEADING at present,
 WILL LEAD in the future,

because of its



- Clean Skimming
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- One-piece Frame
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Prices range from \$50.00
 upward

Write for illustrated catalogues
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 Vt. FARM MACHINE CO., BELLOWS FALLS, VT.

**BELL .. PIANOS ... AND
 BELL .. ORGANS.**



Built to last a lifetime
 By the Largest Makers
 in Canada.



BELL is the Musician's Favorite

The BELL ORGAN AND PIANO Co., Limited, Guelph, Ontario
 Catalogue No. 41 Free

NOW IS THE TIME

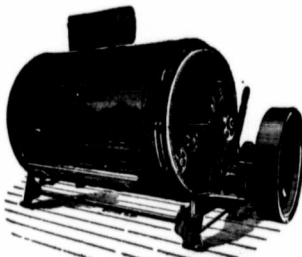
And the only time to do anything worth doing. If you have consistently studied the situation you know you need a combined churn in your creamery.

**THE VICTOR COMBINED CHURN
 AND BUTTER WORKER**

Is the machine that will get you in line to compete with other creameries employing modern apparatus. It will increase your yield, improve the quality of your output and save you labor. Larger dividends to the patrons. Let us quote you prices.

All this means more money in the treasury and larger dividends to the patrons. Let us quote you prices.
 Bellers and Engines, Australian Boxes, Refrigerating Machines, Hansen's Butter and Cheese Color and Rennet Extracts, Wells, Richardson & Co.'s Improved Butter Color, Spruce Tubs, Stearns' Style Spruce Tubs, Victor Combined Churns and Worker, Ideal Skim Milk Worker.

CREAMERY PACKAGE MANUFACTURING COMPANY
 COWANSVILLE, QUE.

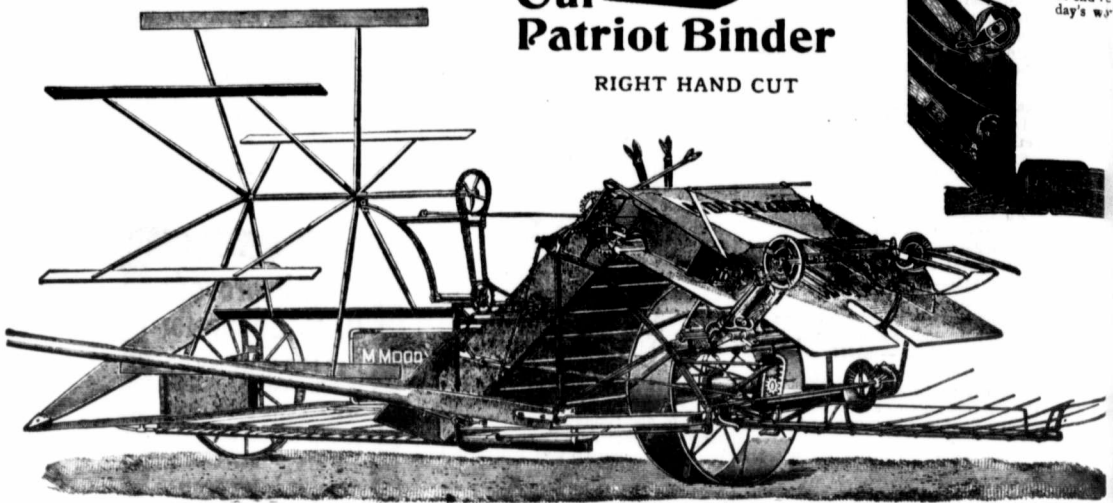


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Absolutely the most reliable and most up-to-date binder made.

Labor-Saving Farm Machinery

MATTHEW MOODY & SONS Terrebonne, QUE.

IDEAL MILK TICKET

THE old-fashioned pass book has been discarded by every up-to-date factory.

The Monthly Statement Card shown here is exact size of front. It is made of stout Manilla, and can either be delivered by the milk-hauler or sent to the patron in an ordinary envelope. On back of card rules are given for "The Care of Milk."

The Cards are now ready; order early.

PRICE:

25c. for 100; or a package of 1000 for \$2.00

Post-Paid.

A factory of 100 patrons will require from 800 to 1,000 tickets during the season.

ADDRESS

The Farming World

Confederation Life Building, Toronto.

Monthly Statement

Of Milk delivered at the _____

Factory during the month of _____

By _____

PUBLISHED BY THE FARMING WORLD, TORONTO

1900	1ST WEEK	2ND WEEK	3RD WEEK	4TH WEEK	5TH WEEK
	LBS.	LBS.	LBS.	LBS.	LBS.
Monday					
Tuesday					
Wednesday					
Thursday					
Friday					
Saturday					
Weekly Totals					
Per cent. of butter fat in milk					

Total milk supplied for the month.....lbs.

Total butter-fat supplied for the month.....lbs.

On the dates underlined the milk was sour or badly tainted.

The butter-fat test covers the milk supplied for the week or weeks intervening between the last test and the one indicated by the per cent. of fat in above table.

Mistakes or complaints, if reported to the maker or the secretary, in writing, will be promptly attended to.

Read carefully and observe the rules, governing the care of milk, on the back of this card.