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THE JOURNAL OF AGRICULTURE AND HORTICULTURE

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MAY 1st, 1901

THE
Journal of Agriculture and Horticulture

The Farm.

THE JOURNAL OF AGRICULTURE AND HORTICULTURE is the official organ of the Council of Agriculture of the Province of Quebec. It is issued Bi-monthly and is designed to include not only in name, but in fact, anything concerned with Agriculture and Stock-Raising, Horticulture etc. All matters relating to the reading columns of the Journal must be addressed to Arthur R. Jenner Fust, Editor of the JOURNAL OF AGRICULTURE AND HORTICULTURE, 4 Lincoln Avenue, Montreal. For RATES of advertisements, etc., address the Publishers

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"Kale."—Has any one tried growing kale here? It is a very popular plant in England and makes capital food for sheep; better for lambs in spring than rape as it is not so likely to scour them, though when the hot weather comes on, we prefer rape. Unfortunately, kale-seed is very dear—half-a-crown a pound in England,—but as it can do without hoeing that expense is saved. And this is a most important consideration, for hoeing in this province, the men not being used to the work, costs double what it costs in England. We cannot understand why so many people recommend drilling rape-seed in rows at from 24 to 30 inches apart. It never will become popular here unless the farmers understand that broadcasting rape answers perfectly. Great thick stems are not wanted, but plenty of tender plants full of juicy leaves.

"The harrow" is now ready to go to work on the newly "braided" grain. Not on all soils, not in all seasons; but when a heavy rain has fallen on clay soils, succeeded by a hot, baking sun for a couple of days, a pair of medium harrows drawn along the ridges will do an infinity of good, by breaking the crust and thereby letting in the air, to say nothing of making a mulch of fine mould, which is always more or less retentive of moisture.

After the harrowing, many plants of "charlock," or wild mustard, and other annuals will be found eradicated; besides, many of the side shoots will have been broken off and the whole plants so bruised that the odds are they will not perfect their wicked seeds.

Clover-hay.—Again, and "usque ad nauseam," we cry to all our friends: Cut your clover early and cut it twice. In this part of the province, clover is generally ready to mow by the 24th of June at the latest, and allowing 6 or 7 weeks for the second crop to come to its best, that should be off the land by 20th of August, leaving at least two months good run over the aftermath for the sheep or cattle. This, of course, when no timothy is sown with the clover, as no wise farmer would let young timothy be pastured.

Drying-off cows.—We never heard of the following recipe for drying-off cows before we met with it in an English paper the other day:

Give each cow that is required to be dried 1-2 oz. of alum in a quart of water, repeat this each alternate day for three or four times, that is until 1 1-2 oz. or 2 oz. of alum have been given. This treatment accompanied by the usual missing the withdrawal of milk for once daily at first, and then only milking once in two days, will quickly dry the cows. While this is in progress it is of course necessary to refrain from giving the cows such food that is known to increase the flow of milk.

Cheese.—If, as the "Journal d'Agriculture" admits, "we must not affirm that, to the English consumer's taste, our Cheddars are as good as the true Cheddar, but have to be sold for from 3 to 4 cents a pound less than the latter fetch in the market," is it not time to also confess that the old pastures of Britain, full of a variety of grasses and leguminous plants, may have something to do with the superior flavour of the English goods?

Bacon.—Danish bacon still keep its price at the top of the market. In 1899, the average price throughout the year for bacon in Britain, imported from the States, was 7 cents a pound; that from this country sold for 7.3 cents, while Denmark's production fetched 10.6 cents a pound, a difference of about 3 1-2 cents a pound in favour of Danish over the bacon from the States, and of 3.3 over our own.

Now, although we firmly hold that "old pasture" has a great deal to do with the flavour of cheese, we do not see any reason to suppose that we cannot make as good, firm, well flavoured pig-meat as Dane or Irishman, the food in all cases being similar. Breed hogs of the bacon-type; feed them on barley-meal, skim-milk or whey, or both, and pease; kill the hogs at the right age, and prepare the meat "secundum artem," and what difference on earth can it make whether the hog is got, reared, and fed fat in Denmark or in the province of Quebec?

"A queer practice."—We learn that at Zorra, in Ontario, a rather novel practice has been carried out during the past year in passing the unthreshed straw of the grain-crop through the silage-cutters and then through the threshing-machine! For many years, farmers in England—Yorkshire to-wit—have been in the habit of cutting straw for litter into 4-inch lengths, but chopping it up before threshing is a thing we never heard of.

"Lucerne and rape."—There is every sign that the acreage of both these crops will be greatly increased, this summer, in the province of Ontario. In last year's report—Crop Bulletin, 75,—we find no less than twelve notices, from as many districts, as to the value of lucerne and rape for sheep and hogs. Some talk of lucerne-hay, as valuable, and no doubt it is, but its true place is as a green-fodder. Rape is, of course, valuable for hogs, but we hope our friends in the other province will soon see that it is peculiarly adapted to sheep.

How are you to keep hogs within hurdles? Now, sheep are contented when confined, and will bear being restricted in their range; hogs would be always trying to dodge out of the fold, to undermine the hurdles, etc. For feeding-off green-crops, like rape, where they grow, does not mean turning a lot of stock loose into a ten-acre field, but "parking" the flock of sheep within a certain confined space; giving them a fresh piece at least every other day; so that the land gets an equal allowance of the droppings, both liquid and solid, over its whole surface, and the sheep have a clean plate, so to speak, and a fresh bite as often as is practicable.

"Sow more seed."—If, on the well manured farms of Britain, four bushels of oats to the imperial acre is not too heavy seeding, how can the farmers of this country imagine that 2 bushels to the "arpent" is enough? The arpent is to the acre as 11:13, nearly; so the proper seeding here, on well prepared land, would be 3 bushels 3 gallons to the arpent.

UNEXHAUSTED FERTILITY.

This is a very live question in Britain and more especially in Scotland, where the tenant on a farm is allowed to claim pay for unexhausted manure he has put upon the land he rents when he is leaving. At a lecture recently given by Mr. John Speir, of Glasgow, the subject was well discussed. In answer to the question, "At what rate per annum is the manurial value of certain fertilizers exhausted, as far as the question has been tested by actual experiment?" the answer as far as it concerns farmyard manure on four crops at 17 stations, is as follows: First year, 50 per cent; second year, 24 per cent; third year, 16 per cent, and fourth year 10 per cent. Practically this means that land getting nothing but farm-yard manure should be dressed every fourth year to keep it in ordinary good condition. The best of Scotch farmers work on a system of rota-

tion of crops much akin to this. The manure is supplied in liberal quantity to the green crop—turnips usually—this is followed by a grain crop, then hay and another grain crop, followed by roots again. This gives two grain crops every four years. Few farmers in Canada have adopted a regular rotation of crops, and fewer still are working on a four year one. This gives no opportunity for pasture, but the Scotch farmer believes in working the land steadily and keeping certain fields for permanent pasture, quite apart from the working land. This system is well worth the careful consideration of Canadian farmers.

BARLEY.

Mr. Wrightson, Principal of the Agricultural College at Downton, England, has been growing barley for the last twenty-five years at least, and knows all about that crop. Our readers will observe that he, like ourselves, holds the soil to be the thing most to be considered in barley-growing for malting purposes:

IMPORTANCE OF THE SOIL.

If some agricultural chemist could lay bare the mystery of the land he would have accomplished a most difficult task. The success of barley-growing lies more in the nature of the soil and situation than in any other thing. The peculiarity eludes analysis. It does not reside in the excess of any particular constituent. It probably is due to a combination of texture, composition, subsoil, aspect, and local climate, aided by good cultivation and judicious management of the crop. There are districts in which good barley is grown, but the growers are not "scientific" farmers. If a change of tenancy occurs, the farm is still known for its barley. It is impossible to judge from analysis whether a soil is capable of growing good barley, neither is there any certainty as to the action of fertilisers upon quality.

The question is entirely a practical one. Barley soils are sandy, chalky, or loamy,

and rest upon a naturally-drained subsoil. They are situated in the Southern and Eastern counties, and are not capable of growing the crop to perfection in the North of England or Scotland. They produce a barley of large size, plump in the berry, fair in colour, mellow in cleavage, abounding in saccharine matter, which in most seasons is worth 40s. per qr. or more. They attain the greatest degree of perfection when the soil is not over-manured, and hence on well-farmed land they are better taken after wheat than after roots fed by sheep.

Barley may be grown on a great variety of soils, but it is only in certain districts and on certain farms or fields that the grain attains perfection.

MANURES.

Good condition from previous management is better than direct applications. The effect of farmyard manure, heavy folding, or nitrate of soda tends in each case to produce lathy straw and long ears with thin and badly-coloured grain. Such barley is more suitable for grinding than for malting. Superphosphate is thought to increase the weight per bushel. Mineral manures, such as superphosphate, basic cinder, kainit, and gypsum, although less apparent in effect on quantity, are favourable to quality. They should not be applied without the stamp of experience, either personal or well attested, in the immediate neighbourhood.

SEED.

All successful barley growers are particular as to seed. A change is beneficial, but if a strain of barley is found to suit the land, it should not be lightly exchanged for another. Pedigree seed is also esteemed, and it is true economy to purchase a small quantity with a view to raising a stock. Such barley always sells well for seed, after once growing, away from the producer. The effect of careful selection is not permanent, but it is a common observation that pedigree seed does quite as well, or better, the second year after importation.

QUANTITY OF SEED.

After the varied opinions expressed in these columns some months ago upon the proper quantity of seed oats, it would be in vain to expect agreement as to the proper amount of seed barley. Two bushels of first-class pedigree seed are generally found sufficient; but 3 or even 4 bushels will be required in some cases to meet the different qualities of seed and soil. If any grower of good barley uses 5 bushels I should be surprised, but there is no accounting for the differences of practice.

METHOD OF SEEDING.

Drilling is alleged to be especially suitable for barley, as it insures uniformity of depth. On the other hand, broad-casting is better for securing equal distribution of the seed, if perfectly performed. As this is not by any means easy to accomplish, drilling is, on the whole, the best method.

PROF. WRIGHTSON.

BROME GRASS.

Referring to this grass, Press Bulletin No. 47, Kansas Agricultural Experiment Station makes the following statements: "Awnless brome grass or Hungarian brome grass (*Bromus inermis*) is a native of the dry, sandy regions of Europe and Western Asia. It is a perennial, about the size and somewhat the general appearance of Meadow fescue or English blue grass. It spreads by creeping underground stems or root-stocks. It has been tested by many of the experiment stations, from Canada and North Carolina to Mississippi and California. All recommended it highly for dry, sterile, light or sandy soil."

So far as known "*Bromus inermis*" was first grown in Colorado, at the Arkansas Valley Substation, in the year 1892.

Out of many different varieties, it alone gave sufficient promise to encourage a second trial. In 1894 the home Station at Fort Collins, began investigations as to its value, since which time several sowings have been made in a variety of soils, and

under widely dissimilar conditions. The grass has been grown on heavy clay with scant irrigation, on the same soil with an ample supply of water, on light soil, above irrigation and on heavy soil, approaching "gumbo," with and without artificial watering. Under all these conditions the grass has succeeded to the extent that a thick, heavy sod has been formed, producing an abundance of forage of rather coarse quality, but readily eaten by horses, sheep and cattle. It has never produced hay in sufficient amount to be considered valuable for that purpose, but sown with alfalfa, it promises to be of value for horses. In quality it is believed to be equal to orchard grass, or possibly as good as timothy. It is of course, inferior to Colorado blue stem or buffalo grass, but where successful it will make up in quantity what it lacks in quality, in comparison with these two grasses.

Brome grass produces a very heavy sod, which it is extremely difficult to plow when well set. The ground, to a depth of six or eight inches, will be completely filled with a mass of matted, fine roots, so that the sod will be turned over in solid slices, and remaining of so tough a texture that an excessive amount of preparatory cultivation is required in order to get in suitable condition to receive any other crop. The disk harrow is the only implement known which will finally subdue this sod. As to the effect on soil fertility, nothing definite is known, although a fair crop of flax was grown upon a plot of this sod ground the past season.

In Colorado "*Bromus inermis*" is specifically a pasture grass, and it may be truly said it is the only tame grass yet discovered which can, with any degree of success, take the place of the departing pasture grasses of the plains. The closest pasturing and severe tramping have had no effect in destroying the sod. After having been gnawed tight to the ground by sheep, it shows growth within a week after stock is removed, even in late fall when nights are frosty. In the spring Brome grass affords pasture from two to three weeks

earlier than any other grass known in this locality.

Many complaints are heard from various localities respecting the worthlessness of seed, all of which, thus far, has been imported from Europe. The Kansas Experiment Station reports that about ninety per cent of this seed fails to grow. Experience at this station, last season, seemed to verify this statement, though it is too early as yet to speak with precision in the matter, from the fact that Brome grass comes up very much thicker the spring after sowing, than would have been expected from its appearance in the fall. Whether this is due to some of the seed lying dormant, or to an extension of the root system at some time between fall and spring, has not been ascertained. The fact has been noted elsewhere, and thoroughly proven here, that it is best not to be discouraged over a seeming light stand the first season, but wait until the grass has a chance to show up the following spring before plowing it up or adopting any radical measures.

For spring sowing, Brome grass should be sown early in this country, if it is to be grown without irrigation. With irrigation it may be handled successfully by sowing at any time during the growing season. It requires a clean, well pulverized seed bed, such as wheat would thrive in, and should be covered from one to two inches in depth. Owing to the light, chaffy nature of the seed, we have been unable as yet to sow it evenly, in an ordinary drill, though this would be the ideal way. It has been sown broadcast by hand and harrowed in. The condition of the soil is of more importance than the manner of sowing.

It would not be safe to recommend this grass for indiscriminate sowing. Farmers having portions of land above irrigation, or desiring permanent pasture on almost in the great majority of cases, the fields any kind of land that is not positively wet or boggy, would be justified in trying an acre or two. Sow fifteen to twenty pounds per acre. If successful, it produces

a good quantity of seed the second year, after which the sowing may be extended with small expense.

The grass has done well and is very useful here. There seems no reason why it should not do well elsewhere.

Bulletin 61, Colorado Exp. Station.

MISTAKES IN FARM MANAGEMENT.

F. A. Waugh, Vermont Exper. Sta

Pointing out a man's mistakes is seldom the best way to reform him. That is why I hesitate to take up a subject like this. Nevertheless, the editor has asked me, "What are the most common agricultural mistakes made by farmers in New England? and how can these mistakes be avoided?" I shall take the liberty, therefore, to specify some of the more conspicuous faults of New England agriculture, as I see them. It must be said, however, that the mistakes of the New England farmer are very much like those of the southern planter and the western grain grower. What I have to say applies almost equally to all the agricultural states in the Union, so far as I have observed, and I have seen a majority of them.

Farm management consists of two distinct things, (1) practical agriculture, or the growing of crops, (2) business agriculture, or the selling of crops and the management of the business. Mistakes are made in both these fields.

I.—MISTAKES IN PRACTICAL AGRICULTURE

Mistake 1.—No system of farm management is adopted. There is no settled rotations, though rotation of crops is always admitted to be one of the first principles of agricultural practice. The farming is haphazard. Nothing is foreseen and provided for.

Mistake 2.—Insufficient tillage is given. I never knew a farmer who tilled too much, though I have seen some small areas tilled as often as once a week. Plowing is often only half done, and cultivat-

ing is frequently made to wait till the weeds threaten to choke the crop to death. Tillage for tillage's sake is a lesson very few farmers have learned. The soil is, in a double sense, the foundation of agriculture, and yet many farmers know no more about it than they do of the origin of the Tagal language, or of the dissociation of the general concept.

Mistake 3.—Fertilization of the soil is inadequate and ill-considered. The question is, "How little fertilizer can I get along with?" The question ought to be, "How much can I use and make a profit on it?" Hundreds of tons of fertilizers are bought which are not properly adapted to the ends in view, nor to the land on which they are to be used. Often, too, unnecessarily high prices are paid for the plant food actually contained.

Mistake 4.—Modern agricultural methods are neglected, in the most inexplicable and distressing fashion. I will mention a few specific instances. (a) It has been shown that spraying potatoes will, in a course of years, increase the yield nearly 50 per cent. Yet hundreds of potato growers do not spray. Apparently they can afford to lose half the crop each year. (b) Disinfecting potato seed to prevent scab has been proved efficient to the extent of increasing the crop from scabby seed 50 per cent or over. Yet not one farmer in 50 disinfects his seed potatoes. (c) Cattle are fed on expensive rations totally unadapted to their needs. No definite ration is adopted, or, if it is, it is apt to be an expensive, unbalanced compound of just what happens to be on hand. Corn meal is the concentrate most commonly bought by Vermont dairymen, yet it is precisely the one in which a pound of digestible, milk-making nutrients costs most.

II BUSINESS MISTAKES.

Mistake 5.—Farmers try to do business on too small capital. They cannot buy to advantage, because they cannot pay cash nor even get the best terms of credit. They cannot sell to advantage, because they have not ready money enough to make them independent of buyers.

Mistake 6.—Farmers are unwilling to invest capital when they have it. It has been shown that money invested in spraying apples at the rate of 10c a tree will pay at the rate of \$1 to \$2 a tree. Yet fruit growers hesitate to spray on account of the expense! This is a fact. Hundreds of similar illustrations could be given, showing how the ordinary farmer refuses, when he has it, to spend money for things which are almost sure to yield a profit. Every investment is a risk, of course; and the farmer won't take a risk. He won't often take a sure thing. Yet the successful business man is the very one who risks money shrewdly in investments.

III - POSSIBLE MISTAKES.

The remedies for most of these mistakes are obvious. A man does not need to mismanage his farm unless it suits him better so. Nevertheless I will run the risk involved in stating some of these self-evident facts. (Remedy 1 applies to mistake 1, and so on through the list).

Remedy 1.—Adopt a system of farming. Take up those crops, such as oats, strawberries, milk or wool, best suited to the farm, to the available markets and to the preferences of the farmer. After long study and consultation with successful farmers, adopt such rotations as seem necessary. Work out a system for the management of the crops in hand.

“Hoard.”

SILAGE vs NON SILAGE MILK.

Dairymen who insist that silage is not the proper food for milch cows will find little consolation in the results of an experiment just completed at the Illinois agricultural college. Samples of silage and non-silage milk were sent to local consumers and to hotels in Chicago and Springfield. There was no objection of any of the milk; 118 customers favored silage milk, 65 preferred non-silage and 37 had no choice. “The college believes that if silage is fed directly after milking, there can be no objection to its use as a dairy

cow feed.” If decayed silage is used and the milk is exposed to its odor, undesirable flavors are, of course, absorbed. This test is exceedingly gratifying to those who have urged the use of silage, and further experimentation might well be followed in our middle and New England states.

“Hoard.”

CLOVER AND PEASE FOR SILAGE.

Mr. Drummond, of Petite Côte, Montreal, tried clover silage and, if we remember, did not like it. We saw some, made by the late Mr. Ed. Barnard, at the Quebec Show some ten years ago, but it was all mouldy. Still, if properly treated, there is no reason why it should not be valuable. Ed. J. of Ag.

Ed. “Hoard's Dairyman” :—I have before me Bulletin No 22, U. S. Dept. of Agriculture. On page 26, under the head of, Composition of Feeding Stuffs, I find corn silage—water, 79.1 per cent; ash, 1.4; protein, 1.7; fibre, 6.0; nitrogen, free extract, 11.0; fat, 0.8.

Red clover silage—water, 72.; ash, 2.6; protein, 4.2; fibre, 8.4; nitrogen, free extract, 11.6; fat, 1.2.

Field pea vine silage—water, 50.1; ash, 3.5; protein, 5.9; fibre, 13.0; nitrogen free extract, 26.0; fat, 1.6.

Would not these analyses indicate that silage made from clover and the pes vines, is very valuable, and if such silage were used, at least for a part of a ration for milk cows, a great saving would be made, over trying to balance the ration with bran and mill feed, or cotton seed meal, gluten feed, etc. ?

What I would like to know is, whether there has been ensilage enough produced from the above feeds to prove them successful ensilage crops. It has occurred to me that among your numerous enterprising subscribers, several have tried these crops and would give their experience, which you could publish for the benefit of your conservative readers, who are the most numerous but who are ready to follow, after they are sure of their ground.

I have 6 silos. I have about 70 acres of clover land; forty acres more I expect to sow to oats and peas. If I were sure the clover and the oats and peas would make good silage, would fill one silo with oats and peas and one with clover and the others with corn.

F. MEISELBACH.

St. Clair Co., Mich.

Clover, and oats and peas have been very successfully used for silage, and we should have no hesitancy in putting them into silos. There is undoubtedly necessity for somewhat greater care in harvesting and storing such crops, and we join with our correspondent in urgent solicitation that those of our readers who have had experience, shall report it for the benefit of their neighbours.

THE CLOVER CATCH.

To secure a catch of clover is a problem always easier to solve in theory than in practice. It can be safely said however, that the number of partial or complete failures which yearly occur on the farms of our province could largely be reduced by a better understanding of their causes, and a closer study of the needs of the clover plant.

Chief among the causes of failure is the poor quality of the seed. Farmers should make it a regular practice to test the germinative power of all seeds bought, and especially so in the case of clover. This can be done by putting, say, one hundred seeds in the folds of a dampened flannel cloth, placed between two dinner plates. All seeds which have sprouted should be removed every day. At the end of 4 or 5 days all good seeds of red clover will have germinated, and the number of seeds left in the cloth constitutes the percentage of poor seeds. It might be well to mention here that as careful an examination of the purity of the seeds should be made as of their germinative power, for it is through impure clover seed that most of our noxious weeds have gained access to our cultivated fields.

The quantity of seed is also an important factor. On account of the high price of clover seed, farmers are often tempted to reduce the quantity sown per acre. This is, however, a poor saving. It should be remembered that it is not safe at any time with the best of conditions to sow less than 14 lbs. of clover seed per imp. acre.

When clover is sown with spring grain, the practice generally followed by Ontario farmers is to sow it with the seed drill at the same time as the grain. The clover seed, however is thrown, by a special attachment, in front of the grain spouts where it does not get covered so deeply as the grain does. This is followed by a harrowing, but the ground is not rolled until it is dry. Rolling at that time grinds the lumps of dry earth and thus forms a covering, a mulch, which, spread upon the surface, prevents the evaporation of moisture.

Whatever be the nature of the ground chosen for growing a clover crop, it should contain a good supply of humus, to keep moisture and furnish plant-food for the young plant. This supply of humus should also be at the top of the soil, within reach of the first roots of clover. It is through overlooking these two principles that the greatest number of failures occur. It has been many times stated that clover brings a large amount of humus to the soil by its roots, but at the same time it would be useless attempting to grow clover (or anything else. Ed.) on a soil completely destitute of vegetable matter.

The lack of moisture, which occurs during the drought of midsummer, after the spring rains is also often a cause of failure. The evil effects of this drought may be prevented by keeping an abundant supply of humus in the soil, which will store away for future use the water brought by the spring rains. They may also be guarded against by avoiding late fall or spring plowing. As a practical writer points out in the "Farmer's Advocate," spring plowing destroys capillary connection between the sub-soil and the surface soil, and the earth has not time to settle down sufficiently to re-establish that connection be-

fore the midsummer droughts. At that time the clover is as unable to draw any supply of water from the sub-soil, as the top part of a wick in a lamp is able to draw oil from the lower part when connected with the latter by only a single thread. To avoid this condition, the cultivation preparatory to the seeding down of clover, should consist in crushing and slicing the soil, by means of the disk harrow or the grubber, and plowing should, if possible, be avoided.

C. M.

Note by the Editor.—Far better to sow clover after the grain is well covered in by the harrows. After that, a bush or a chain-harrow and a roller finish the job neatly. As for spring-ploughing "destroying the power of capillary attraction," that theory does not hold good in practice, as the Scotch farmer used, in our time, to invariably plough for barley, to be sown down with seeds, the second time in the spring; and all late fed-off crops of rape, roots, etc., which in England are generally sown to barley, or other spring-grain, and clover, must, per force, be spring-ploughed.

GRASSES AND CLOVERS FOR PASTURE.

*Portion of an address to Institute members
by Henry Glendinning, Manil, Ont.*

Wheat and barley sold in the raw state, no longer take the lead as the money-making crops of this province, but cattle, sheep, hogs, poultry, and the products of these animals are now the sources of income upon which the farmer depends. We may ask ourselves the question, have we, with these newly developed sources of wealth, placed ourselves and farms in the best condition to produce these articles at the minimum cost?

"Grass the Most Wholesome and Nutritious Food."—The first requisite for the production of cattle, sheep and hogs, after the mother's milk, is grass, it being the most wholesome and nutritious of foods. The grasses possess and combine, in a re-

markable degree, all the nutriments required to build up the body, in the shape of blood, flesh, bone, and fat, and at the same time, so far as food goes, to keep the animal in a perfectly healthy condition. Therefore, pasture or grass is the first essential to the successful growth of these animals and the economical production of beef, mutton, pork, and dairy products. While the farmers have been making great efforts to increase their output of these stock, putting up better buildings, growing more roots, and the introduction, within the last few years, of ensilage, all commodities, by improving their breeds of which have done much to advance the farmer in the art, and reduce the cost of winter feeding, what has been done by the average farmer in regard to his pasture fields? I venture to say, little or nothing, except to seed down in the usual way a few more acres to grass; and what is the usual seed sown? Timothy and red clover, and, perhaps, a little alsike added, making in all about 10 or 12 pounds of seed per acre. Now, let us follow up and see the result.

First year, the seed is sown with the grain, there is no pasture, or, at least, the young plants should not be eaten off. Second year, there is a good crop of timothy and clover for hay, with pasture in the fall, obtained principally from the red clover. Third year, the pasture is mostly timothy, as the clovers, being biennial plants, are nearly all dead. This leaves the ground covered with timothy to the extent of one-fifth, which yields fair pasture up to the last of June. After that time the plants become dry and woody, and they make but an indifferent growth in the fall of the year. Fourth year, there is pasture, consisting of timothy and some alsike clover, the result of self-seeding by the shelling of the clover at the time of cutting the hay two years previously, and some of the natural grasses. Fifth and following years, the same grasses come up with a greater proportion of natural grasses and white clover covering the ground. In this way, during the latter

years, the pasture fields have improved by the filling in of the natural grasses, but, have been plowed up and sown to grain at the end of the third year, just when the pasture was poorest.

"Permanent Pasture."—Many of our best farmers will say that to continue a field in grass for more than two or three years, shows a want of proper rotation, but I consider that it is advisable that each farm should have a portion of the land in permanent pasture. Some may contend that they cannot afford to lay their high priced land down to grass. But when we consider that in Britain, where an acre of land sells for several times the price for an acre in Ontario, and see the large acreage of land that is in permanent pasture, will it not pay to keep a portion of our comparatively low-priced land seeded in the same manner? It is estimated that England has about fourteen million acres in permanent pasture, Scotland about eight millions, and Ireland about nine millions. Most of this land has lain in pasture from time immemorial, and will rent for several times as much per acre as arable fields of a similar character lying alongside.

"Good Pasture After Bush."—The old settlers tell us, and it has been generally conceded, that the pasture grown on the land just after the bush was cleared off was the best we ever had in this country. Let us consider the reason for this. In the first place the humus in the virgin soil, on the surface, had not been lost by being turned down with the plow and the more barren subsoil brought to the surface. Secondly, the fields had to lie sufficiently long in grass for the stumps to rot. This gave the natural grasses and clovers a chance to get well established, and cover the whole of the surface with a close sward which gave the stock a large amount of rich herbage. But as the country becomes more and more cleared up there are less and less of these old natural pastures, and, consequently, more of the temporary and less desirable pastures taking their place. It is a well recognized fact that old

permanent pastures will fatten stock much faster than new or temporary pastures.

"What Constitutes a Good Pasture?"—Let us consider the requisites for a good pasture. The land should be closely covered with plants from the time of seeding, and there should be a succession of fresh grass throughout the whole season from early spring until the frost comes in the fall. Some varieties of grass have their roots spreading along the surface of the ground, and usually start to grow early in the spring and give fine pasture early in the season, but fail during the dry months of the summer. Other varieties have deep roots which go down into the subsoil and stand the dry season well. Some of them will give a green bite to stock during the driest time.

"Preparation for Seeding to Grass."—Land that is seeded to pasture should be clean of weeds and full of plant food if possible. It is a good plan to seed down after a hoe crop with the best and cleanest seed that can be obtained. The land should not be plowed, but worked up with a spring tooth cultivator and well harrowed to make a fine mellow seed bed. The best catch will be obtained by seeding without any grain or nurse crop, but the usual custom is to sow the seed with some kind of grain crop. It may be sown with fall wheat or rye in the early spring, just after the snow has gone off, while the ground is frozen, so that, when it thaws, the small seeds will sink into the soil and bury themselves, on a light harrow may be run over the land as soon as it is dry enough for the horses to work upon without puddling the soil. Barley or spring wheat do very well for spring nurse crops, but the amount of seed grain sown should be at least a peck per acre less than if no grass seed was sown. The small heavy seeds, such as clovers and timothy seed, should be sown from the grass seed-box, so that the seeds will fall in front of the drill. Light seeds, such as Blue grass, should be mixed with the grain upon a floor before taken to the field and the whole sown together. Then give one stroke of the harrows crossways.

After harvest the young grass should not be pastured, but allowed to grow a good top. This will give you good, strong plants to go into the winter with, and serve as a mulch to protect the roots by holding the snow, and keep the ground from the alternate freezing and thawing that we are troubled with in Canada.

"How to Treat a Pasture."—It will be found an advantage to cut a crop of hay the following year, so as to give the plants a good root before the stock is turned on it. After fields have been in pasture for a number of years they are apt to become what is generally termed hide-bound or runout. This is owing to the soil becoming so full of interlaced roots that the air and rain do not readily penetrate it. The result is a short, stunted growth of grass. But it is a mistake to plow up a field of this kind if it is needed for pasture, as it can be easily renewed by putting on a sharp set of harrows and going over it several times, crossing it every alternate time. If it is desirable to introduce some other kinds of grasses into the field this will be found a very good time if the seed is sown before the last stroke of the harrow. This renewing should be done in November after the growth is over for the season. It will greatly improve the pasture if a top dressing of manure is given the field at this time. Fields that are troubled with moss will be greatly benefited by the harrowing. In Britain, where moss is much more troublesome than in this country, they apply pke part of lime mixed with four parts of soil at the rate of about four waggon loads of the mixture per acre.

"A Good Permanent Pasture Mixture."—The following mixture of seed will be found suitable to most places in the province: Timothy, 3 pounds; Orchard grass, 5 pounds; Kentucky que grass, 4 pounds; Red top, 4 pounds; Alfalfa, 5 pounds; Alsike, 2 pounds; White clover, 2 pounds.

Household Matters.

GOOD NEWS FOR THE DRESSMAKERS

I should think the poor dressmakers must be about sick of the tucking, cording, and gathering which has been their lot since these decorations have been so much in vogue. But a time of emancipation has come for them, for amongst the latest French novelties now shown are tucked, gathered, and corded silks, chiffons, etc., which can be purchased to match any plain goods, and which will lighten the dressmakers' work very considerably. These tuckings and cordings being executed by machinery are beautifully true, much more so than can be accomplished by hand. Moreover, amongst the stitchery are introduced lines of fine lace and passementerie in various styles. Of course that such materials are costly goes without saying, but only small quantities are needed for a small yoke, a vest, revers, or even a zouave.

DAINTY NECKWEAR.

An unbecoming gown may often be redeemed and made possible by a dainty arrangement of fichu, scarf, or tie at the neck. For instance, to women whose complexions have lost their first youthful freshness, and whose hair is turning gray, a gray dress is sometimes very trying. Yet few women realise that the useful gray costume need not be abandoned, if only it be fully toned down or relieved at the neck and wrists by a dead-black or soft white garniture of lace, or by a contrasting colour of bright ribbon, which will destroy the unfortunate monotony of tint. Lace is so soft, so beautiful in itself, and so enriching in its effect on a woman's toilette that it should be utilised in liberal measure for house gowns and for all pretty costumes to be worn at home. Abundant use of lace and ribbon will rob any gown of plainness and harmonise well with any stuff, however uncostly it may be. A tall girl with a long swanlike neck may wear



to advantage a scarf with a large loose bow. Her short and plump friend, with a head set low on her shoulders must not muffle herself up till she seems to have no neck to speak of. For her the narrowest band or cord is sufficient to mark the line where the dress ends. A thing to be noticed and remembered in this—that a gentlewoman never tolerates soiled or flimsy or careless neck-wear.

RECIPES.

Liver and bacon is one of those breakfast dishes which are coarse or fine according to the skill and care of the cook. The bacon should be cut in neat strips and carefully fried, taking pains to have no scorching of the fat in the pan. Add a little lard if needed, and fry the liver, first coated nicely with flour. Cook thoroughly, yet with great care not to have it overdone. Take up the liver, keeping it hot over boiling water, and make a nice browned gravy, rich and smooth, in the pan. Pour over and serve, well seasoned. Fried onions are added to suit those fond of the dish. The potatoes are fried whole in deep fat.

MARROW RINGS.

This is a novel and dainty way of cooking our old acquaintance a vegetable marrow, which in its more ordinary style of cooking is apt to be watery and insipid. Take a medium-sized marrow, and cut it into rings about half-an-inch in thickness. Pare off the rind thinly and remove the seeds. Put some fat—clarified dripping is the best for the purpose—into a clean frying pan, and when it boils lay in it the rings of marrow, letting the fat completely cover rings in the pan. When one side is nicely browned turn over the rings, and brown the other side. Whilst this is browning break an egg into each ring; then turn the rings once more that the yolk may be set on both side. Sprinkle with pepper and salt, and send to table very hot.

SUPERIOR YORKSHIRE PUDDING.

Beat up three eggs and dredge in 3 oz. of flour; melt 2 oz. of butter in three quarters of a pint of milk, and while warm add it to the eggs and flour and beat well; add a pinch of salt, unless the butter is salt enough without; put some hot dripping in an oblong pan and pour in the mixture; put in the oven for twenty minutes and then stand it on the hot plate for about ten more to brown on the underside; cut it into about a dozen squares and serve with the roast. The above quantity is sufficient for a pan 12 in. by 8 in.

HOUSEHOLD ADVICE.

FRESHENING PILLOWS.

Perhaps few people understand that feather pillows should be occasionally freshened. In summer the pillows and bolsters from the various beds in the house should every few weeks be laid in the hot sunshine. They must remain there for five or six hours, and be turned once during that time. This process of sunning dries, and, as it were, "fluffs" every feather, making each stand by itself. Anyone who has not tried this will be surprised, on using a pillow thus aired, to note its increased softness and elasticity. The Germans recognise the benefit of the practice when they "sun" the huge feather beds upon which they are accustomed to sleep.

VENTILATE YOUR HOUSES.

It often happens in the autumn, when the weather becomes cooler, and frequent showers are the order of the day, that people become a trifle shivery, and close their windows and keep them closed. Now this is a thing which should be specially guarded against, because badly-ventilated and damp rooms are sources of frequent colds and various forms of illness. The house should be opened to air and sunshine every day, if only for a few minutes, during the coldest weather. This is especially necessary after rain, when everything seems cold and damp to the touch. The first sunny, windy day after a rainy spell

all doors and windows should be opened for a thorough drying out and airing of the rooms. This will prevent the musty odour found in so many houses in the spring and autumn.

TO REMOVE IRONMOULD.

The following excellent method of removing stains of iron rust from linen is in use at the Brooklyn bureau of charities. The spot which has the stain of iron rust is moistened and generously rubbed with cream of tartar. The article is then tightly rolled and placed in a boiler of tepid water, where it remains until the water boils. When unrolled the stain will be found to have disappeared.

Salts of lemon applied to fruit or ink stains on linen while in the boiler will instantly remove the spots. Lift the part affected with the clothes-stick, and apply the salts with a spoon. The water should be boiling.

MAKING THE HEART WORK HARD.

Dr. R. W. Richardson, of London, the noted physician, says he was recently able to convey a considerable amount of conviction to an intelligent scholar by a simple experiment. The scholar was singing the praises of the "ruddy bumper," and saying that he could not get through the day without it, when Dr. Richardson said to him:

"Will you feel my pulse as I stand here?"

He did so.

I said: "Count it carefully; what does it say?"

"Your pulse is seventy-four."

I then sat down in a chair and asked him to count again. He did so, and said:

"Your pulse has gone down to seventy."

I then lay down on the lounge, and said: "Will you take it again?"

He replied: "Why, it is only sixty-four; what a very extraordinary thing!"

I then said: "When you lie down at night, that is the way nature gives your

heart a rest. You know nothing about it, but the beating organ is resting to that extent; and if you reckon it up it is a great deal of rest, because in lying down, the heart is doing ten strokes less a minute. Multiply it by 60 and it is 600; multiply it by 8 hours, and within a fraction it is 5,000 strokes different; and as the heart is throwing six ounces of blood at every stroke, it makes a difference of 20,000 ounces of lifting during the night. When I lie down without any alcohol, that is the rest my heart gets; but when you take your wine or grog you do not allow the rest, for the influence of alcohol is to increase the number of strokes, and in- It may undergo a considerable variation in temperature without overheating or chilling the chickens.

The brooder should be easily cleaned and so constructed that all of the floor space can readily be seen. Inconvenient corners are objectionable in brooders, in fact any corner is objectionable, but if brooders are constructed cheaply, it is almost necessary to make more or less corners. If constructed of wood, circular ones are somewhat more expensive than square or rectangular ones. The floor must not only be kept clean but dry.

Top or side heat is to be preferred to bottom heat, but there must be sufficient bottom heat to keep the floor dry.

As the chickens get a few days old, plenty of exercise must be provided. One objection to many of the brooders in the market is that the chickens are kept too closely confined and not allowed sufficient exercise. It will be a matter of surprise to many to learn how much exercise these little fellows require. With the young chicken, as with the athlete, strength is acquired by exercise, and above all other conditions of growth, strength is the one thing necessary in the young chicken.



The Garden and Orchard.

(CONDUCTED BY MR. GEO. MOORE).

THE COUNTRY SCHOOL.

Mr. James Wilson, Secretary of Agriculture, for the United States, has written a most interesting article in the "Youths' most interesting article in the "Youth's and its grounds, insisting that every school house should be surrounded by a well kept garden instead of being built in a pasture, on an uncultivated space, or a vacant wood-lot.

From an agricultural and political point of view, his arguments are most conclusive. By means of this cultivated lot, the boy-farmer would be early inducted into the study of the processes of nature, and the means by which they may be developed or controlled; while the knowledge he was acquiring from text books would be put into practice before his eyes, and after all, more can be learned from observation than from mere books.

When it is considered that the basis of prosperity in any country is agriculture, it appears to be of the utmost consequence that the rising generation, upon whom devolves to prosecute the industry to the best advantage, should be educated in, and taught to love the pursuit which will be the future work of his life, and upon the success of which, not only himself, but the body politic depends. Again, if the school was made attractive by its surroundings, it would be a place which the child would learn to delight in, and the joys of home would not, to the same extent, be missed.

And not only should the school grounds be tastefully laid out, and planted with trees, shrubs, vegetables and flowers, but the scholars should be taught their names and uses, and a certain part of each day set apart for them to help in the keeping up of the garden, so that they would have a lively interest in it, and be furnished with object lessons which would be of great value to them in their future career.

Simple A B C lessons should be given to the more advanced pupils in the sciences

immediately relating to agriculture. How much easier it would be for the professors in Agricultural Colleges if the young people entering them had received a certain amount of primitive instruction, and had already learned to love the work before them.

There is, happily, a growing interest on the part of those in an official capacity, in all progressive countries in the training of the young agriculturist, and a steady advance is being made.

The twig is easiest bent when it is young, and impressions made in childhood often mould the after life; it is therefore evident that the school is the place where the seeds of knowledge relating to rural pursuits should be planted and fostered.

The teacher, however, should be fitted for this work in the Normal School, in which the study of soil, plants, and animals and their cultivation or care should be part of the course of instruction.

In addition to the garden, every school should be provided with a microscope, by means of which minute objects in the soil, or fungi and insects which infest and destroy the crops, could be examined and their habits studied, or those which change fertilizers into plant food could be noticed. The wonders of nature revealed by the microscope are well calculated to arrest the attention, even of the careless, and the knowledge thus acquired will be of the greatest service in the active future career of the student.

If children could be led, by these means to take an interest in these things, the next generation would learn to farm on scientific principles and the good resulting is incalculable.

The Dairy.

E.-ONTARIO-DAIRYMEN.

Low prices for next season.

Arthur Hodgson, president of the Montreal Butter and Cheese Association, said the exporters and makers should come together more frequently. The cause of the

high price of cheese last year was because no fall cheese was left over from 1899. The factories closed up at the end of October in 1899 and everybody in England was consequently hungry for cheese last May. Last fall 50,000 to 80,000 cheese were made in November, and if this is followed by a big make in April, low prices will rule this year. There should, therefore, be no making in April.

Prof. Dean, of the Ontario Agricultural College, gave two addresses. He said that the land separator enabled the dairyman to take more cream out of his milk, and, either for home dairy work or cream gathering, it was a great benefit, but there were difficulties in its use. The majority of farmers are not careful enough to keep the separator clean. The cream is too seldom collected and new cream is dumped in among the old. This had had a very bad effect in Australia, and would have in Canada also.

The century's progress.

C. C. James, Deputy Minister of Agriculture, spoke of the wonderful expansion of this country within the last century. Fifty to 100 years ago farmers were busy making homes out of the wilderness with incomes derived largely from timber, ashes, grain and furs, 25 years later there was a step upward, when settlers came in, bringing cows and horses. There was a more marked step upwards 25 years later, when co-operative cheese and butter making was introduced. Dairying has made more progress than any other industry. Fruit-growing followed later, and to-day the farmer has a bright future before him in the development of butter making, the bacon trade, poultry, fruit and pure bred stock. The people were now assisted by the Government as never before, which aided by giving information, helping conventions, farmers' institutes, publishing reports, bulletins, etc. People must place themselves in proper relation to all these helps.

But it would not do to depend too much on that class of help. The best of our prosperity would always depend on our

own push and a careful study of the problems we have to deal with. Many think agriculture the hardest of all work, but this is a mistake, and the more skill we acquire the easier will all our work become and the more profit will we get out of it. If the attractiveness of agriculture is pointed out and kept to the front, more boys will be willing to remain on the farm. There are new features opening up every day which make it attractive. The future of Canada does not depend on her mines, her fisheries or her forests, but on her agriculture. What great possibilities are behind it all. The average milk output per cow in Ontario is 4,000 lbs. If this were increased to 7,000 lbs., the average of the herd at the Agricultural College, it would increase the value of milk products in Ontario by \$12,000,000. Girls and boys should be properly trained and fitted for

Faults in cheese and cheesemaking.

On this subject some pretty severe things were said by men who certainly ought to know what they speak of. Messrs. G. G. Publow, chief instructor, and J. A. Ruddick, spoke from their standpoint as experts. Jas. Alexander and Arthur Hodgson, of Montreal, as buyers, not only denounced the skill of some of the makers, but charged them with downright rascality of a kind that is sure to seriously damage our reputation on the English markets. Mr. Publow went over the old ground about using only healthy cows, clean milk, and cleanliness all through. Makers ripened the milk too much to begin with and shipped the cheese too green. Cheap makers and poor factories help their work of degeneration.

J. A. Ruddick had a very hearty reception, and spoke on a good many points that must have attention if our credit is to be maintained. Clean flavor, fine texture, even color and neat make-up are all points that mean money when we want to sell. We should aim to equal the best English and Scotch cheese in quality. He found many undesirable flavors in last summer's make of cheese. Acidic cheese were quite numerous last September and October, due

to warmer weather than usual, and the milk being too mature before setting. Pasty cheese is due to too much moisture. Flavor can be traced largely to the milk. Makers should reject all bad milk. Patrons lose more by bad milk than by tampering with milk. This will not be remedied until the maker is relieved from responsibility for tainted cheese. He is made the innocent scapegoat. Many patrons do send good milk and should be protected from those who do not. There have been serious complaints about the boxing. Very often 50 per cent of the boxes are broken, and fully 10 per cent are broken in all cheese. Boxes should be heavier and closer fitting. Damp boxes are too numerous in the fall, due to being used when new. All boxes should be thoroughly dry before cheese are put in.

"Canadian cheese," said Jas. Alexander, one of Montreal's leading exporters, "has gone back in reputation fully five years owing to the poor way in which it has been sent out. Some factorymen are so sharp they cut themselves by trying to send out whey for cheese. Poor cheese can always be detected in the freight sheds at Montreal."

Mr. Alexander would like to see laws passed compelling factories to use the milk of three or four hundred cows, to have proper equipment, and a competent maker. Cheese should not be made in November.

Arthur Hodgson, another well-known buyer, backed up all that had been said by Mr. Alexander. Factories which sell November cheese are sure to suffer the next season. Exporters never lost as much by inferior cheese as they did last year. He had seen it in some warehouses perfect in flavor but lacking body.

Mr. Hodgson said driving too hard a bargain with the cheesemaker is poor economy. Some of the naughty tricks practiced by cheesemakers include putting a chunk of white curd in the centre of a colored cheese. Sometimes from the same factory he gets cheese varying from 60 to 90 pounds in weight. It is hard to con-

vince English buyers that these cheese came from the same factory.

These four practical men did the right thing in telling the ugly truth about the degeneration of Canadian cheese, and making it plain that trickery is a poor substitute for honest and skilful work. A good character is only good when it is properly taken care of.

"N.-W. Farmer."

The Grazier and Breeder.

NOTICE TO THE BREEDERS OF THE PROVINCE OF QUEBEC.

The breeders of the Province of Quebec, who have stock of pure blood and entered in the herd-books, are at liberty to enter, free of cost, in the columns of the ensuing Nos. of the "Journal of Agriculture," with their names and addresses, the names of the stock they have for sale, with the number, age, and breed of the same.

PURE-BRED STOCK FOR SALE.

The farm-school of Ste-Anne de la Pocatière.

Ayrshires: One 2-year-old and one yearling bull, and several younger bulls and heifers.

Sheep: ram and ewe-lambs; Cotswold and Shropshires, registered.

Swine: yearling and spring pigs, Berkshires.

Dawes & Co., Lachine.

Jersey and Ayrshire cattle, and Berkshires.

A. Moussau, Berthier-en-haut.

Ayrshire and Canadian cattle; Shropshire and Cotswold sheep; Berkshire and Yorkshire pigs.

**J. N. Greenshields, Isaleigh-Grange
Danville.**

Guernseys and Ayrshires ; Shropshires ; large Yorkshires and Berkshires (imported stock).

H. D. Smith, Compton.

Herefords ; Shropshires ; Tamworths and Berkshires. Fifty young Tamworths, 6 to 8 weeks old, \$5.00 each, free on board cars at Compton.

**FEED AND CARE FOR DAIRY STOCK
FOR GREATEST PROFIT.**

That great American authority on Dairy-ing, Mr. C. P. Goodrich, has recently expressed himself, that, "if we are to get the greatest possible profit out of a dairy cow she must be brought up right."

This is quite according to natural laws, and is applicable to the raising of all farm or other live stock for profit. In order to produce a cow which will give us the greatest profit, the heifer must be fed right, from the start. One must have a clear and definite idea of what one wants and work to that end from the beginning.

What is wanted, is a cow capable of consuming, digesting and turning into milk large quantities of good milk producing food. We don't want the cow to turn her food into flesh and body-fat, only just enough to keep up her strength and health. To get such a cow the calf must not be fed on food that is too fattening. The calf should be fed its mother's whole milk for a week, then substitute skim-milk for a part of her feed gradually increasing the proportion of skim-milk ; in about two weeks, the milk may be all skimmed. When the change is made to skim-milk it is best to add a little oil-meal gruel, or better still flax-seed jelly. A tablespoonful of oil-meal a day is enough at first, but it may be gradually increased to two tablespoonfuls.

The oil-meal is prepared by dissolving it in hot water, and then mixing it with the milk.

The flax-seed jelly is made by boiling the seed, this can be mixed with the milk, but not more than half as much flaxseed should be fed as oil-meal. The milk should always, especially when the calf is young, be fed warm and sweet, and warmed to blood heat. When skim-milk is fed, it should be pasteurized immediately after being separated, in order to keep it sweet for the whole twenty-four hours. Thus the milk goes to the separator at about 7 a.m. and the skim-milk is pasteurized and cooled before 9 a.m. and will be ready to feed at noon, enough being kept cool, for the evening and next morning feeds ; but if through neglect or otherwise, the skim-milk begins to sour before the morning, scours will surely be the result if it is fed in that state, as, although calves have been known to thrive on sour milk alone, yet, it is impossible to succeed if one feed is sweet and another sour.

It is better to feed three times a day when the calf is young. The quantity of milk to feed the calf will vary greatly. Judgment must be used, but be sure not to feed too much, don't feed more because the milk is skimmed. (1) It will do to feed 12 to 15 lbs. a day when young, and this can be increased somewhat as it grows older. The calf should be induced, as soon as possible, to eat hay and oats. Some nice early cut clover hay should be put before it. Oats may be put in its mouth, or on the end of its wet nose, when it will lap out its tongue and get some of the oats in its mouth.

It is just as well to keep up this kind of feed for 6 or 8 months, it will make the calf grow rapidly, build up its frame and muscles, but will not make a dairy-bred calf fat. If it has been induced to eat all the coarse fodder possible by having it of the best quality and of the most palatable kinds, furnished in variety, the calf will develop a large stomach and a great capacity for eating and digesting food. It is more advantageous to have calves dropped in the fall, for, after the milk and other

(1) If you do you will have a fine lot of bones ! Ed.

winter feed is taken from them and they are put on good pasture, they will keep growing right on. The next winter they should be fed on a good muscle-forming ration, like clover hay with a little bran or a few oats, with ensilage and straw for a variety.

If a heifer calf,—no matter how well-bred in dairy lines she may be,—is allowed to run with her mother and have an abundant supply of whole milk till she is six months old, she will be permanently injured for a dairy cow. If in addition to this, she should be fed fattening foods, like timothy hay and corn, and kept very fat up to the time of becoming a cow, and you then ask her to give you a good lot of milk she will, as Prof. Robertson says, say to you, "I cannot; you taught me to make tallow." (1)

Great stress must be laid on this point of bringing up the heifer right, and keeping her from forming the beef habit. There are too many heifers, that ought to have turned out superior cows, but which have made very ordinary ones from this cause. They give a good mess of milk for a short time, then the flow falls off, and, if good feeding is resorted to to keep it up, the beef habit asserts itself and beef is made instead of milk.

The heifer should commence the business of her life, that is giving milk, at about two years of age. After coming in she should be fed but little grain or concentrated food for a few days. Good hay and a little bran, at first, is enough. The grain feed can be gradually increased till in three or four weeks she is on full feed. Now she should be fed to her full capacity. By that I mean all the food she can consume, digest and turn into milk. It takes a certain amount of food to sustain life. This we call the food of support, which is roughly speaking, from one-half to two-thirds of "full feed." The only part of food we get any return from, is what is fed in excess of the food of support. If only the food of support is given the cow, she can only live

and give no milk without taking it from her carcass. This she cannot do except for a short time, so in feeding that way we simply throw away the food we do give. Let us suppose that the food of support of a certain cow would cost six cents a day; and suppose this cow could consume and make good use of 10 cents worth of the same kinds of food a day, and on this she would produce one pound of butter. Then suppose we attempt to compromise by cutting down the feed to 8 cents a day. We should have 6 cents of food of support, and 2 cents of food of production which could produce only one-half pound of butter a day, making the food cost of a pound of butter two day's feed or 16 cents.

Suppose we should try still further to economize in feeding this cow and feed only 7 cents worth of feed a day. Then we would have 6 cents food of support and one cent food of production which could produce only one-fourth pound of butter, or it would take four days at 7 cents a day or 28 cents in feed to produce a pound of butter.

The poorer we feed the greater will be the cost of a quart of milk, or a pound of butter, or a pound of cheese.

Although it is advisable to feed to full capacity on the score of economy and profit in production, yet it is wise not to feed all the grain or concentrated food the cow will eat to the exclusion of some of the coarse fodder she ought to eat, especially when, as is usually the case, the same food elements cost less in the form of coarse fodder than in concentrates. Besides which, a cow is equipped with a stomach and digestive organs made for dealing with coarse fodder, and we have brought up our heifer in such a way as to develop that capacity, therefore, a large proportion of her daily ration must be coarse fodder, or she cannot be in good health.

On the other hand, a good dairy cow cannot get enough of bulky fodder to do her best and therefore must have some grain or concentrated food. But the question is: What proportion of her food

(1) Has this ever been proved by experience? E.D.

should be concentrated? The highest authorities claim that about one-third and never more than one-half, of the entire weight of her daily food should be concentrated. But this must only be considered as a general rule, and needs to be modified to suit each individual cow. It is a good plan to feed grain somewhat in proportion to the quantity of milk or butter a cow can be made to produce. Those that can be made to produce the most should get the most grain, and those that do not respond well to the grain food in milk, but go to laying on fat, should have less.

The feeder must watch his cows, and see what they do with their food; watch to see that they eat it up clean with a good appetite; watch to see that it is well digested; watch to see what is done with it; whether it goes to the milk pail or on the cow's back.

No more food should be given a cow than she will eat up at the time. Have none left over in the manger to be mused over and breathed on. They will eat more, and do better, if they are fed in this way.

(To be continued).

H. WESTON PARRY.

The Poultry-Yard.

FEEDING SMALL CHICKS.

Chickens do not require food for the first twelve to thirty-six hours after hatching. One of the best foods they can be fed the first few days is stale bread soaked in milk. This should be crumbled fine and placed where the chickens have free access to it; and where they cannot step on it. One of the difficult problems for the amateur poultryman is to devise some means for feeding little chickens so that they can consume all of the food without soiling it. If placed on the floor of the brooder or the brooder run, the larger part of the food will be trampled upon and will soon become unfit to eat.

A simple and efficient feeding trough

may be made by tacking a piece of tin about 3 1-2 inches wide along the edge of a half-inch board, so that the tin projects about an inch and a half on either side of the board, bending the tin so as to form a shallow trough, and fastening the boards to blocks which raise it from 1 to 2 inches from the floor (see Fig.) The trough may be from 1 to 3 feet long. It is within easy reach of the chickens and so narrow that they cannot stand upon the edges. Food placed in such feeding troughs can be

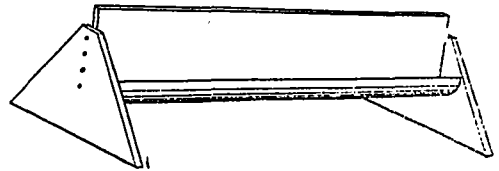


Fig. 4. —Feeding trough.

kept clean until wholly consumed.

Granulated oats (with the hulls removed) makes an excellent food for young chickens. There is, perhaps, no better grain food for young chickens than oats prepared in this manner. It may be fed to good advantage after the second or third day in connection with the bread sopped in milk. A good practice is to keep it before them all the time.

The chickens should have free access to some kind of grit after the first day. Coarse sand makes an excellent grit for very young chickens. As they get a little older, some coarser material must be provided.

Milk is an excellent food for these young fowls, but requires skill in feeding.

One of the great difficulties in rearing fowls is to carry young chickens through the first two weeks without bowel disorders. Too low temperature in the brooder, improper food and injudicious feeding, even if the right kinds of food are given, each plays an important part in producing these disorders. After the first ten days milk may be given more freely, perhaps, than during the earlier stages of the chick's existence. As the chick becomes a little older, more uncooked food may be fed. A mixture of fine middlings, wheat bran, a little corn-meal, and a little

linseed meal mixed with milk makes a valuable food. Hard-boiled eggs may be fed from the beginning, but, like milk, require more skill than the feeding of bread sopped in milk. On farms where screenings from the various grains become really a by-product, these form a cheap and efficient food for the little chickens. Wheat screenings, especially, form one of the best foods, particularly if they contain a considerable portion of good kernels that have been cracked in thrashing. Then, too, the screenings contain a number of weed seeds that have some feeding value and are relished by the fowls. They not only provide sustenance, but give variety, and this, in a measure, improves the general health.

Drinking fountains require close attention. Small chickens drink frequently and oftentimes with their beaks loaded with food, which is left, to a greater or less extent, in the water supply. As it is necessary to keep these fountains in a tolerably warm atmosphere, they soon be tainted and emit a disagreeable odor. This condition must not be allowed to exist, for all the food and drink consumed by fowls should be wholesome. It has often been said that "cleanliness is next to godliness," and certain it is that cleanliness is next to success in poultry keeping. The drinking fountains must be kept clean. If automatic fountains are used, great care must be exercised in keeping them clean and free from bad odors.

Nothing less than frequent scalding with steam or hot water will answer the purpose. A cheap, efficient drinking fountain may be made of a tin can with a small hole in one end near the side of the can, under which is soldered a crescent-shaped piece of tin, forming a lip or a small receptacle for water. If the can is filled with water and then placed on its side, a small quantity of water will run out of the opening and remain in this crescent-shaped lip. As the chicks drink this water, a quantity of air will pass into the opening and a little more water will flow out. This kind of fountain will keep before the chicks a small quantity of water at all

times accessible. By exercising care and keeping the fountain thoroughly clean, satisfactory results are easily obtained from this arrangement.

MEAT FOOD

When fowls are kept in confinement, it will be necessary to supply some meat food. Finely cut fresh bone from the meat markets is one of the best if not the best kind of meat food for laying hens and young chickens. Unfortunately, it is not practical for many poultrymen to depend wholly on this product, for the reason that it is often inconvenient or impossible to obtain, and when once secured it can not be kept in warm weather without becoming tainted. Tainted bones should be rejected as unfit for food. Skim milk may be substituted wholly or in part for meat food without a decrease in egg production provided the proper grain ration is given.

GRIT.

It is necessary that fowls have access to some kind of grit if grain food be fed in any considerable quantities. During the summer months, when they have free access to the yards or runs, it will not be necessary to provide grit; providing the soil is at all gravelly. If, on the other hand, the soil is fine sand or clay, it will be necessary not only to provide grit during the winter months, but throughout the whole year.

Small pieces of crushed stone, flint or crockery ware will answer the purpose admirably.

There are many poultry supply houses which keep constantly on hand crushed granite in various sizes suitable for nearly all kinds of domesticated fowls.

Crushed oyster shells, to a large extent, will supply the necessary material for grinding their food and at the same time furnish lime for the egg shells. Chemical analysis and experiments, together with the reports from many practical poultry-

men, show conclusively that the ordinary grain and green food supplied to laying hens do not contain enough lime for the formation of the egg shells. It will require several times as much lime as is ordinarily fed of good, strong egg shells are to be produced.

Crushed oyster shells will supply this necessary lime if kept continually before the fowls, trusting to them to eat the amount needed to supply lime rather than mixing the shells with food. The judgment of the fowls can be relied upon in this respect.

Swine

THE CARE OF THE SOW AND HER LITTER.

Ed. "Hoard's Dairyman" :—March and April are the months when the majority of the sows farrow, and as these months are now open us, it behooves us to be on the lookout that the coming litters are given the very best opportunity to come into the world, under the most favorable auspices. With comfortable sleeping quarters, the sows in pig require very little care previous to farrowing. Sows should not in any case be confined, but, on the other hand, be given the free run of the barn yard.

In my own case I have always good results by feeding freely of roots, as turnips and mangels. A mature sow will eat a half bushel of these roots a day, in two feeds. A half dozen sows are given three half basketfuls in the morning and the same in the evening, with two or three quarts of whole oats at noon, or a warm drink of water and middlings at noon. Sows eating so much roots will not drink much, if any, cold water, but will always greedily take a warm drink of slop.

If I had no roots for my brood sows, I do not know how I would get along without them. I should have to give quite a lot of slop, as dry feed, for a sow in pig is not suitable. Whole corn, however, has not such a constipating effect as the same

ground. If I had, therefore, to feed the brood sow on corn largely, I would endeavor to feed morning and evening unground, and give a warm slop of middlings at noon.

Like all of our domestic animals, at or near parturition, the chief point to be watched, is constipation. A week before the farrowing time comes round, which may be ascertained by calculating 115 days from the date of service, the sow must be closely watched, see that she has a comfortable place by herself to farrow. This need not be very large, but, if the litter is expected in the month of March, it must be made as warm as your own bed room. This can often be done by partitioning off a small place with blankets or logs, leaving an enclosed nest of about six feet square.

When a lot of sows are to farrow early in the spring, the cheapest and most satisfactory way is to heat the hog house by steam coils. Then as feed cookers are now made which we use to cook feed and heat water in the feed room in one end of the hog house, and which are so fitted that the whole building may be steam heated, while the cooker is being used for cooking or heating purposes.

I have such a cooker at my place, by which I can cook a barrel of feed, heat a barrel of water and heat the hog house, all at the same time. I first saw the advertisement of this cooker in the "Dairyman" and many of your readers, no doubt, are using this Rippley steam cooker, made at Grafton, Ill. It is certainly the latest thing in feed cookers, and with one of them, there need be no terrors for early spring farrows.

Along the walls of the brood nest, nail an eight or ten inch plank, ten inches from the floor. This is a wonderful protection to the infant pigs. I am so positive of the economy of this scantling along the walls, that to allow a sow to farrow, without this protection, would be to court disaster. Last spring, one of my sows farrowed in a pen, in which the scantling was broken away on one side. I neglected to

nail it in place with the result that I lost two pigs by the sow lying on them. "I locked the door after the horse was stolen," but as there were six others, I immediately placed the plank in position and no

Allow the sow to sleep in this brood more pigs were ever laid on.

nest, by herself, but don't confine her here all day. If the bowels do not show free action, give a one-fourth pound dose of Epsom salts, and feed bran slops, chiefly for the week up to farrowing time. If the bowels are right, everything will likely go all right. No straw should be placed in the pen for ten days before parturition. About two days before the sow is due, give her a good bed of straw and let her work a flattened, hard bed for herself. Let her out every day, but feed her in her pen and let her sleep there. Feed lightly for a day or so before farrowing time.

On the day the pigs are due, having previously arranged her pen, be very watchful, and be prepared to sit up all night, if necessary. Remove her pigs from her sight and hearing as fast as they are born. When she is through, has moved around a little and cleansed herself, and had a drink of warm water, give her the pigs and you will find all will go well, and you have got for your attention a fine litter of pigs that will be valuable to you, instead of a lot of dead pigs. This kind of attention pays.

Sometimes it will be necessary to feed the young things before permitting them to draw from the life-giving fountain. It sometimes happens that a sow is several hours in the throes of parturition. I sometimes have sows that suffer greatly, and from four to six hours elapse before the farrowing is over. In this case, while the infants are taken away and placed alongside the fire, each may have a small teaspoonful warm sweetened milk, which wonderfully revives and strengthens them.

High bred sows are much more susceptible to troubles at farrowing time than are cold blooded ones. Now and again a sow gets ugly, snaps at her pigs, and frequently kills them. This is sometimes caused by the sharp teeth of the little pigs,

which in their efforts to get milk or a teat away from each other, they use pretty severely on the sow and bite into the teat. Generally, however, when a sow snaps at her pigs and kills them, the fault is not in the sharp teeth in the little pigs, at all, but in the sow's system. The sow is constipated, is feverish, has not been properly looked after, and all that, and her ugliness is but a reflection of her abnormal system or condition.

Some people break these little teeth. I never do; nor do I take much stock in this theory of black teeth in little pigs. Certainly, there is no harm, and some good in breaking out these teeth. Although the teeth are generally black, the color has nothing to do with it. The reason is simply that the tooth is pointed, is growing in such a manner as to cut and prick the pig, consequently it happens, in a few cases, he does not eat the food he should. These he nothing looks meaner, nor reflects the character of the owner, better than to see a sow with two or three little pigs following her, when probably a little care for a few days before farrowing, a little effort to make the nest safe and comfortable, and the loss of one night's rest, would mean a full litter of eight or ten pigs, instead of two or three miserable runts.

J. A. M.

Hermanville, P. E. I.

THE CAUSE OF SOFT BACON.

The remedy and how the bacon trade may be better regulated.

To the Editor of "Farming":

The problem before us now is, what are the real causes of soft bacon, and how best to overcome them. Of all our farm live stock there is none so much affected by varied conditions as the hog. The excitability is so great that even the flesh is disturbed with all sudden changes and frights. These heated and disturbed conditions just previous to the time of slaughtering tell their tale upon the carcass. Let the hog settle down quietly a few days be-

fore killing and get well cooled, and the irritated ones will overcome their fevered condition and their flesh will show it. Is there no difference in the character of the meat of the animal killed in the chase, and one killed when at rest? The observations of the past century say there is, and more has been done within that century to lay bare the minute details of animal existence and their products than in all the previous centuries put together.

Another cause is poor feeding. It is useless to ask and call for good finished feeding by all the farmers of the community, when as yet there is no test to detect the living firm-fleshed from the soft and poorly-finished hog.

The only safeguard would be for the packers to purchase unfinished hogs and finish for themselves. This they will not do as it wouldn't pay. Neither will it pay honorable men to do so, when their product will realize them no more than the cheaper fed of the more unscrupulous.

Our exporters are continually calling out for a steady all-the-year-round supply. Are there any other farm products supplied all the year round? The farmer sells his product when he has it fitted. It is the merchant's business to supply the market at the time when the markets are at their best, and he must devise means for preserving the product until such times as the best market can be obtained. These packers and merchants will soon be asking us to supply them with eggs before they are laid, so that they may get them fresh.

Their excuse is they have adopted the Wiltshire curing, and it requires a fresh supply all the year round. The best remedy is to cure better so that it will keep longer during the summer period, and spring a new name for such cured sides.

Well-cured bacon will keep a long time under favorable conditions, but half-cured Wiltshire bacon will not. The British public want the lightly cured meat all the year, and so they do all their other out-of-season products, but they pay considerably more for them, often double and treble, so they must they do if they want lightly-

cured Wiltshire bacon from Canada throughout the year. Farmers in Canada will then find a way of supplying a little more of the out-of-season bacon hogs, just as they are now finding a way to get fresh eggs at Christmas, but it costs money and extra pains and consequently it requires so much higher price, or it will not pay to supply.

The farmers are beginning to know the packers pretty well now, and if they continue to practice lowering the prices at the time of the output, the farmers will recognize it, and either leave the pens empty or find some joint method of disposing of this important product. In this particular there is a magnificent market in Britain for loins of pork, and now that our fresh meat conveyance is almost perfect, it would be well if this trade was opened up. There is no portion of the animal so much in demand in Britain as the loin of fresh pork and fresh chops, and this part of the carcass makes the poorest bacon. The juicy nut-like flavor of the loin is entirely lost by salting and curing. It gives us in its stead a hard, salty, lean meat with a rim of fat without even a line of lean. If these loins were packed and forwarded they would command the highest price as pork, and we should have left the best streaky meat for curing and exporting as bacon, and these streaky sides would keep longer and fresher than full sides, while we have a good market for the remainder of the carcass at our own home and in the Northwest. It is a curious coincidence, but the British eat very little fresh pork in summer but very much in the colder season, and this is the very time when we are best able to supply this choice joint.

ELLIS.

THE VALUE OF PASTURE IN SWINE FEEDING.

We have had several inquiries lately as to the value of pasture for hogs, and more especially as to the value of alfalfa or lucerne for this purpose. During the past

four years a series of experiments along this line have been conducted by the Utah Experiment Station to ascertain the profitability of different methods of utilizing pasture and green foods for swine. The quality of the meat produced was not taken into account, the economic side of pork production only being considered. As the quality of the meat produced is an important factor with us in all methods of feeding the bacon hog, these experiments will not have the value they otherwise would for our readers. However, as they deal with the economic side of the question very fully, the following summary of the experiments will be of value to our readers :

1. In pork production economic use may be made of pasture in connection with a full grain ration. This is shown not only by the average results of all the experiments conducted but also by every point of comparison in each separate test. The average shows the gains of the pasture sets to be 33 per cent. the higher and to have been made on 10 per cent. less grain.

2. The average results of four seasons' experiments show quite conclusively that mixed pasture is not beneficial to pigs having a full supply of grain and skim-milk.

3. The average of the seven trials, made in both pens and yards gives results favorable to grass feeding in connection with grain rations. The pen sets having green stuff made 33 per cent. greater gains than those without, and required 40 pounds less grain for each one hundred pounds of gain.

4. Pasture with grain rations, averaging all the experiments, gave slightly better results than green stuff cut and fed in connection with grain in pens and yards. Where lands are cheap and labor comparatively dear, it seems advisable to follow the pasture method.

5. Pigs running on pasture with partial grain rations produced gains at the least cost per hundred pounds, the quantities of food required standing in the following relation: Full grain ration 100, three fourths 94, one-half 82, and one-fourth 66. But the total gains of those receiving full

grain rations were so much greater that even with the smaller rate of profit the total net gain per pig very much exceeded that of the partial ration.

6. In the quantity of grain required for one hundred pounds of gain, the sets having a one-fourth grain ration excelled in every test requiring the lowest amount and giving the highest per cent of profit.

7. In rate of gain the sets receiving a full grain ration were the best, in all cases making the largest total gain and giving decidedly the highest total profit.

8. Alfalfa without other food, whether pastured by pigs or cut and fed to them in pens, furnished only enough nutriment for bare maintenance. When additional food was given the rates of gain were nearly proportional to the extra quantities they received.

9. Alfalfa supplies a good supplementary food in connection with bran and grain, but it is too coarse and bulky to be fed alone to the pig whose digestive tract is especially adapted to concentrates.

10. Alfalfa hay and sugar beets each give profitable returns in connection with a limited grain ration in winter feeding.

11. In 2 out of 3 experiments better results were obtained by feeding bran and corn meal or ground wheat dry than wet. The average of the three tests gives a result slightly favorable to the dry food in rate of gain but favorable to the wet in the amount of food required for one hundred pounds of gain.

12. In the several tests reported the feeding qualities of unsprayed sows were found to be fully equal to or slightly better than those of barrows.

13. In a single test with sprayed and unsprayed sows, the results were slightly favorable to the open sows.

“The Farming World.”



ONTARIO YORKSHIRES IN MANITOBA.**Prof. Day replies to "Manitoban's" criticisms.**

Editor "The Farming World":

In your paper of July 31st, I notice there is a communication signed "Manitoban," which criticises some of the Yorkshire hogs which have of late been sent to Manitoba. Everyone will agree that it is possible to go to extremes; and there is no doubt that it is possible to breed Yorkshires so much of the "greyhound" type that their usefulness will be impaired. At the same time it is possible to go to the other extreme and breed Yorkshires towards the short, thick type which, for the export trade, is also a serious drawback. I may also say that there is no need to add a foot to the nose and ears of the animal in order to get a modern Yorkshire. An inch or two would be nearer the mark. Instead of saying, "What is the use of reducing the diameter of the head a few inches and adding a foot to the head and ears?" I would say, "What is the use of reducing the length of the nose one or two inches and adding ten or fifteen pounds to the weight of the neck and jawl, which have practically no market value?" I do not think that swine-breeders generally, or even packers, claim that the Tamworth is the only bacon hog; and, even in Tamworths, we find breeders who are so anxious to shorten the nose that they are shortening up the hog generally and injuring its usefulness.

In careful experiments here, we have found that it is not the pig which becomes very fat which necessarily makes the most economical gain. We find that a hog that grows rapidly and forms bone and muscle rather than fat is a more economical producer than the short, chubby, fat type which is so much admired by many people. If a hog or any other animal is to make rapid gains it must be a large eater. We cannot get something from nothing, and so long as the hog's constitution has not

been injured by injudicious breeding, the long-sided hog with medium width of back will be found an economical producer (though he may not get extremely fat) if anyone cares to use scales in connection with his foods and his hogs. With the old-fashioned type of Yorkshire we find a short, turned-up nose, a heavy jawl, a thick neck, a tendency to heavy, rough shoulders, and a somewhat short side. Of course, any person who likes this type of hog is at liberty to breed it, but he must not ask the packer or the Old Country consumer to fall in with his fancy. If we do not wish to cater to the English trade, than we may breed Yorkshires, or any other breed of hogs, as pleases our fancy; but, if we are anxious to firmly establish our trade with Great Britain, then we must breed hogs, whether they be Tamworth, Yorkshire or Berkshire, with good length of side, smooth shoulder and comparatively light head; and I think any swine-breeder will admit that as soon as we follow this line of breeding the nose will be found elongated in sympathy with the rest of the stretching process. It is almost impossible to obtain a hog of sufficient length of body for the modern bacon trade and at the same time have it possess a short, stubby nose. It is true that the nose is of no market value, and a few inches more or less make very little difference in the weight of the pig, but a few inches in diameter of the head makes a very considerable difference in the weight of the hog, and also adds very much to the weight of the cheap part of the carcass.

While I am a strong advocate of breeding a lengthy type of hog, at the same time I think it well to offer a word of caution against going to extremes, because there is no doubt that there is a limit to the length of body which a hog may safely carry. If we go beyond this limit weakness of constitution is likely to be the result.

Of course, I have not seen the hogs which "Manitoban" has criticised, and probably there may be sufficient ground for his condemnation, but I think he has made a

mistake in objecting to an inch or two of extra length in the nose of a hog, since it is a well-known fact that length of nose and length of body usually go together. He has also made a mistake in assuming that a hog with a comparatively long nose is necessarily an expensive hog to feed. We have fed long-nosed hogs in comparative tests which made very much more economical gains than many of the short-nosed hogs.

There is a common and ill-founded prejudice among breeders against moderately long noses in hogs, and I would like every farmer who doubts the truth of what has been stated in this letter to make some careful tests in feeding and weighing hogs of different types. He will find that there are surprises in store for him.

Trusting that "Manitoban" will take this in the spirit in which it is offered, I am very truly yours,

G. E. DAY

Ontario Agricultural College, Guelph,
Ont., Aug. 3, 1900.

**FEEDING OF THE SWEEPSTAKE YORK-
SHIRES AT THE PROVINCIAL
WINTER FAIR.**

By *J. E. Brethour, Burford.*

In making a report of the system of feeding and care given to the pen of hogs which won the sweepstake at the Provincial Winter Show at London, 1899, I would say first that I took special care in the selection of these pigs that they should have the required length and form necessary to produce carcasses suitable for the English trade. The pigs having been selected carefully, were treated in the following manner: They were allowed to suckle the sow until two months old, then weaned and fed upon wheat middlings and a small quantity of skim milk, given four times daily until three months old, a small quantity of barley and cornmeal being added as

they grew older and were able to stand stronger feed; but after they were three months old their feed was composed largely of green clover, and, later in the season, green corn and rape. For six weeks previous to the commencement of the finishing period, they were allowed the run of a small field of artichokes which they dug and ate at their own free will, being given a small quantity of whole corn scattered broadcast. This system of feeding was inexpensive and promoted a good development of muscle and a healthy condition. The finishing period lasted about a month, when they were confined to the pen and fed upon a mixture of chopped wheat, oats and corn, which was fed to them in liberal quantities during the finishing period. One danger to guard against in the production of high-class bacon is, to avoid over-feeding while the pigs are young and during the growing period. Such food should be given as will develop bone and muscle, and sufficient exercise should be allowed to induce good healthy digestion. One cause of soft pork is too high feeding when young, and sufficient attention not being given to the development of a healthy, vigorous condition of the pig. Soft pork is not so much a matter of what you feed as how it is fed, and the form or condition the pig is in to properly utilize the food given. It is useless to try and make a bacon hog from a pig that is inclined to be short and thick. This class of pig must be underfed to induce a growth of bone and muscle, and, when finished, it will have a hard, coarse quality of lean meat, with the fat soft and oily. A hog having good length and depth of side, when well fed from birth, will furnish a carcass full of lean juicy meat, with an even distribution of fat throughout the entire carcass. I would say in conclusion that, to produce an ideal "Wiltshire side," the form of the pig is of as great importance as the food given. Food is only wasted in trying to produce bacon hogs from short, thick pigs.

From "Farming."