

an acre by 1,700 barrels," equal, we suppose, to 212 tons, or a rainfall of about 2½ inches! Surely the writer must mean "prevent the evaporation of that amount of water"; the mulch cannot add any water to the soil.

Hop-drying is mentioned as having been under experiment by the Kent County Council. In Belgium, too, Mr. A. Leploe has contributed to the study of the process. He speaks of the brewers not liking fertilized flowers; now, we have no little experience in hop growing and in brewing, and we say as a grower, plant plenty of male hops on the windward side of your garden; and, as a brewer, the fecundated female cone contains much more lupuline, than the barren cone. We always chose the cones with seeds in them, because there was more *farina* present, or, as the English say: the fecundated hop has more *condition*.

As for drying hops at a heat never exceeding 95°, at first, to 105° at last, experience tells us that 120° F. is quite safe. As in drying malt, so in drying hops, 4 recurved pipes should be passed from the hot air chamber through the kiln-head or cloth, so as to stand out a foot or so above the hops when the *oast* (1) is loaded. This will rarefy the air and give in a greater tendency to rise through the cowl, preventing the damp from settling on the hops and thereby making them *soggy*. Tin-tubes or pipes, 3 inches in diameter will do very well, and if one is added in the middle, it will be all the better.

As to sulphuring hops, that cannot be dispensed with, as it destroys fungi, and thereby adds to the preservative qualities of the beer. The health of the consumer is by no means endangered by this process, for hops only take up about 0.48 per cent. of their weight of sulphurous acid, of which only about ¼ or ⅓ is permanently retained, the remainder being dissipated in about four weeks.

Rape.—In Colorado, at the State experiment farm, the best yielding fodder crop was rape, which gave 22 tons an acre.

Twenty four tons of turnips were grown on an acre at the Iowa station, and attributed by the experimenter to "frequent and careful cultivation of the surface soil"!

A very useful thing, but it won't grow a root-crop, unless the food is present in the soil.

All tobacco growers should add potash to their manure for that plant, even if the land holds plenty of it already; not for increase of crop, so much, as there is no doubt that tobacco manured with potash does burn better.

Tomatoes.—As usual, we managed to get a tiny piece of land for our tomatoes; in a back yard off 1136 Sherbrooke Street—land very poor, but heavily manured; and there is one queer thing about it: the plants got very little sun, as the fence shut it off by 10 A. M.; now, the queer thing is this: the fruit was ripe about August 18th, very large in size, and by far the best in flavour, when eaten uncooked, we ever tasted! Has any body had the same experience?

Source of fat in milk.—Mr. P. Collier, New-York experiment-station, publishes data for the fat in the food and in the milk in the 90 day breed test at Chicago: summarised thus:

(1) *Oast*, from the Latin, *haurio*, to exhaust. In this case, to draw out the moisture.—Eo

FAT IN FOOD AND IN MILK IN WORLD'S FAIR BREED TEST.

Breed of animals.	Fat eaten.	Fat digested.	Fat in milk.
	Pounds.	Pounds.	Pounds.
Jerseys.....	3,884.2	2,706.2	3,516.1
Guernseys.....	3,756.6	2,486.2	2,784.6
Sherthorne.....	4,101.1	2,932.6	2,410.0
Total	11,741.9	8,125.0	8,710.7

So it would appear that there was upon an average 7.2 per cent. more fat recovered in the milk that was digested in the food given.

Fat from albuminoids (protein).—The great Japanese chemist, Mr. Kumagawa, finds, by experiments, largely carried on, that the animal body is NOT capable, under normal conditions of forming fat from albuminoids. When albuminoids are given in such large quantity that they alone more than fulfil all the food requirements of the animal, the decomposition of the nitrogen-free materials of the food nearly ceases, and the fat and the carbohydrates (les sucres) of the food are almost completely stored in the body as fat.

What say Lawes and Gilbert, in the "Six lectures" now published (1895) by the Government of the United States?

"It is the supply of the non-nitrogenous (les sucres) that is, of the more specially respiratory and fat-forming constituents, rather than that of the nitrogenous (protein) or specially flesh forming ones, that regulates both the amount of food consumed by a given live-weight of animal within a given time, and the amount of increase in live-weight produced." Expts. on sheep. v. p. 242.

The same deduction was made by the same experimenter on pigs:

"The conclusion drawn from the results of the various experiments with pigs was that, in their case, as in that with sheep, it was the supplies in the food of the available non-nitrogenous, or total organic constituents (les sucres) rather than those of the available nitrogenous substance (protein), that regulated both the amount of food consumed by a given live-weight of animal within a given time, and the amount of increase in live-weight produced, produce a given amount of increase." V. p. 245.

But the whole of the summary of the sources in the food of the fat of the animals of the farm is so deeply interesting, particularly when we consider that the greater part of the experiments were conducted as long ago as 1853, and that the two investigators think that "it is satisfactory to find that, applying the best methods of correction which subsequent investigations suggest, the conclusions formerly drawn are confirmed and emphasised, rather than in any way vitiated or modified," (v. p. 247) so interesting, we say, that we propose to give space in the Journal to a page or two of the lecture every month for the present.

FARM-WORK FOR OCTOBER.

One of the peculiarities that must strike the eye of a stranger arriving in the province of Quebec in the autumn—a stranger acquainted with the principles of farming, *diēn entēdu*,—is the

disinclination manifested by so many farmers to prepare their land for the coming year. One would really think that the spring season was a long one in this latitude, and that there was plenty of time to plough, sow, and harrow after the snow takes its departure.

Many have taken it into their heads that a fall-furrow is of no use in shortening the spring tide work. They imagine that the alternate thaw and frost, succeeded very probably by heavy rain, will batter down the furrow and leave the land in a worse state than it would have been if left untouched in the autumn. Well, if the ploughing is done in such a fashion as to lay the furrow broad and flat, we do not say the fall-furrow will be in a nice position in the spring, but if a well constructed plough be used, and the furrow be cut, say, 7 x 10 inches, or so as to lay it up at an angle of 45°, all the frost, thaw, and rain of the roughest spring we ever have here will never batter it down.

Plough all the land you intend to sow, in 1896, whether it be intended for grain, roots, or green crop, and whether the land be sand, gravel, loam, or stiff clay, pick up your "crumb-furrows" and pack them closely; draw plenty of water-furrows, and open them well where they empty into the ditches; you may then rest at peace throughout the coming winter, feeling that you have done all man can do to obviate the inconveniences of a climate like ours.

Potato harvest is, we hope, over; though in '93 and '94, on October 9th, we were sorry to see our friends at Sorel busy with it. Depend upon it, when potatoes are ripe, the sooner they are out of the ground the better. The weather we are having now—heavy rains and the glass at 80°—(Sept 11th) will not only be likely to start a second growth in the tubers, but will certainly promote the ravages of the disease if it is prevalent.

Sugar-beets.—We have had no news of the beet-crop; whether it has been largely grown or not we do not know. One thing is certain; if the crop itself is not largely remunerative, the immense improvement its cultivation makes in the succeeding crops of the rotation must commend its practice to all men of common sense.

The herd will of course be taken in at night and be well fed in the morning, before being turned out to grass. The calves of the year will be all the better for a good feed of clover-hay, as the grass with a touch of white-frost on it is mighty apt to produce looseness of the bowels if taken into an empty stomach.

Sheep, with their warm jackets, can stand out all the 24 hours for many a day yet; but they, if they are eating mangels or turnip-tops, will be all the better for some dry food.

Swine.—We never knew cooking food for farm stock of any description pay, except boiling potatoes for pigs. Jerusalem artichokes certainly do not want cooking, but, as yet, this va-

luable crop, that does so well here, is rarely grown. It is as easy to grow 600 bushels of these tubers on an acre, as it is to grow 180 bushels of potatoes. Whether you grow lean hogs for Liverpool bacon, or fat hogs for London bacon, remember that a stunted animal never makes good meat. We still see, in our Gloucestershire paper, that the great bacon curing firm at Calne; Wilts., is very glad to get pigs that carry 2½ inches of fat down the back. Our own idea is that good bacon and hams cannot be grown without pease. Pickled pork is one thing, bacon and hams are another, and the feeding for the two articles is quite different. One thing is certain: it will pay no one to keep export pigs over 8 or at most 9 months from birth. Keep them growing steadily all along, finish them on pease, and they will suit any market, London, Liverpool, or Calne; but the great, brutal, over-fat, eighteen months old hogs, bristled like wild-boars, with knees and hooks, as big as those of a working ox, are nobody's money, except it be the hard-working *shanty-men's*, who, *au reste*, have no choice.

The horses.—As soon as the teams come into regular hard food, which will be, at any rate, about the middle of the month, we cannot too strongly recommend the practice of giving each horse a cold bran-mash, over a week, at night. We saw this custom followed out regularly for many years, and in our paternal stables, where there were never fewer than 18 horses, of all kinds, from hunters and ponies, to cart-horses and colts, no veterinary surgeon was ever needed during an experience of at least 20 years.

Poultry—With such a skilled practitioner at the head of this department of the *Journal* as Mr. A. G. Gilbert, of the Central-Experiment-Farm, it would be a complete work of supererogation were we to presume to offer an opinion on the care of poultry during this or any other month; only, when it comes to the treatment of the same in the kitchen, *j'y suis*, or rather, editorially speaking, *nous y sommes*.

The Poultry-Yard.

Development of the Poultry Interests.—Proposed shipments of choice poultry to Great Britain by Cold Storage.—A circular on the subject.—Help from our farmers wanted.

(A. G. GILBERT.)

It is now some time since the *Journal of Agriculture* began to advocate the development of the poultry interests of the country and to place such information in the hands of its numerous agricultural readers as to enable them to practically aid in the development of that industry. The shape that immediate development could take was pointed out as follows:

1. New laid eggs to sell during winter, the period of high prices.
2. Early chickens of large size for our home market.
3. Choice turkeys, geese and ducks for our home market or for shipment.
4. New laid eggs with flavour intact for our home summer market, or for shipment.
5. Eggs of large size and choice poultry for shipment to Great Britain.
6. By the shipment of a superior quality of eggs and poultry to secure a permanent British market such as France and other countries have now.