

and will be perfectly at his ease with 40 or 50 ewes, provided he be kept away from his brides for a few hours daily, and well fed, by himself, on cracked pease and oats.

Why should not two or three farmers, living close together, join their flocks and buy one ram between them as is done up North by Terrebonne farmers?

Of course, we do not mean to say that a ram lambed in May, and poorly fed till service time, would be able to do the above work; but all ram-breeders like Mr. Wood, or the Snell's of Ontario, and other like men, lamb down their ewes early and prepare their lamb-rams for the autumn's campaign.

We may take this opportunity of mentioning that the heaviest *Hampshire-down* pen of three lambs, at last December's Smithfield Club Show, weighed 218 lbs. a piece, and had made 0.71 lb. a day since their birth. This is within 4 lbs. a head of the weight of the heaviest *Southdown wethers*, at the same show, and they had only made 0.35 lb. a day since birth; just one half as much! Of course the weights are live-weights. The *Hampshire-down* would probably dress in the neighbourhood of 35 lbs. a quarter, as the percentage of carcase to gross weight was returned by the butcher as 64.60%; not bad work for a lamb!

(To be Continued.)

## RAPE.

As autumn feed for lambs, I believe there is nothing that can nearly equal the rape crop. While there are some of the leading breeders who have grown rape to a large extent for several years, yet I am surprised that not a greater number take the advantage of this most valuable crop for their lambs. We have had a large amount of experience with rape during the past five years, at the Agricultural College, and I wish to state that my estimation of the value of the rape plant for autumn feed increases every year. I could, if necessary, say a good deal upon this crop in its relation to the fattening of sheep and lambs in the autumn months, but to do it justice would extend this paper to too great a length. I would, however, like to draw your attention to a few facts in regard to this crop. We have grown rape as the only crop upon the land during the season, thus having it under favorable conditions. This rape, when pastured by lambs produced on those animals live weight increase at the rate of 762 pounds per acre. (1) This is certainly high and may not always be expected, but it shows what can be done. The land received no special treatment for the rape crop, but was in good condition. In 1893, we grew rape under somewhat similar conditions, and received 27.2 tons green rape per acre. In an experiment conducted in 1891, in which rape was grown after winter wheat, it was found that one acre of the rape increased the live weight of the lambs 179 pounds. The animals receive no other food, but, of course, were given salt.

The principal method which has been adopted in growing rape at the Experimental Farm has been after a crop of rye which had been taken from the land in June. In three years' experience in growing rape after rye, we find that on the average, one acre of rape will pasture from ten to

(1) This would be probably equal to about \$45.00 an acre!—Ed.

sixteen lambs from two to two and one half months, and each lamb will increase at the rate of about 8 pounds per month.

In an experiment which was carried on in 1891, in feeding lambs upon rape alone, rape and meal, and rape and pasture, it was found that the increase in the live weight per lamb was 117 pounds per month on rape alone, 120 pounds per month on rape with meal and 14.1 pounds per month on rape and pasture. These results favor the use of a pasture for the lambs to run into from the rape field. It also tends to show that half a pound of oats per lamb per day, when on rape, is not necessary (1) The nutritive ratio of green rape, as given by Wolfe, is 1:2.9, while that of red clover in full bloom is only 1:5.2. But as rape contains more water than clover, the same authority estimated clover as being worth 15 per cent. more than rape, pound for pound, for feeding purposes. On the other hand we have found that rape will produce from two to three times more in weight from a given area than a single cutting of clover.—F. Ad.

C. A. ZAVITZ, B. Vt.

## THE CULTIVATION OF OATS.

A LECTURE

BY

Arthur R. Jenner East.

The principal grain cultivated in the Province of Quebec is oats. I say cultivated, though, in truth, very little cultivation is given to this crop. Anything less likely to produce a full yield of this cereal than the customary method of treating it, would be difficult to find. The land is ploughed, generally in autumn, an uncertain quantity of seed is scattered over the surface, a couple of strokes of a worn out harrow, always in the same direction, (2) completes the job, and at harvest the result is, as might be expected, in proportion to the trouble and time expended in the spring. If oats are worth growing, and nothing has ever been found to equal them as horse-food, they are worth taking pains about, and I think a few thoughts on the subject will not be thrown away on the readers of this Journal.

We cannot hope to grow such oats here as we see in Scotland. There, the climate is as well suited to them as it is unsuited to the growth of wheat, and consequently they are the main crop of the country. I have seen them, at the Mark Lane market in London, weighing 47 lbs. a bushel, with a bright, silvery skin, and so full of meal, that they almost appeared to be bursting out of their envelope. (3) In fact, I saw one sample, sent from the Lothians to be sold for seed, that the corn-factors declared was "doctored" or sulphured, so beautiful was their appearance. Now, these same oats, sown in the south-east of England, on our best land, soon retrograded, and the second year from their importation only weighed, the usual weight with us, 38 lbs. a bushel! It was not an unusually hot year, but the climatic influence had thus affected them. The Scotch, then, have reason on their side, and the south of England farmers too, for we sow very

(1) But it will always pay, though pease pay better.—Ed.

(2) That is, seldom across the ridges.

(3) I once saw a statement in the *Country G* that oats in Scotland often weighed from 50 lbs. to 55 lbs. per bushel. This is of course ridiculously untrue, and I wonder it escaped the editor's eye. A. R. J. F.

few oats, particularly on the lighter soils; rarely more than sufficient for our own horses.

Compare the growth of wheat in England and in Scotland. The figures I quote will probably surprise many of my readers, who do not seem to comprehend that nothing can be more contrary to their true interests than to grow crops for which their land is not suited, when they can exchange their own natural production for imported produce. Now, the counties of Norfolk and Suffolk grow hardly any oats, the farmers buy Russian oats, but, in revenge, those two counties grow 267,000 more acres of wheat and barley than does the whole of Scotland, and, a few years ago, the single county of Norfolk produced 1,290,373 more bushels of wheat than all the land north of the Tweed.

But, in spite of all this, natural causes, originating in the soil and climate, are, or can be, modified in their results by cultivation, and hence we may manage, if we think it advisable, to render the cultivation of oats in this province a matter of greater certainty and success than it has hitherto been.

The best soils for oats are the alluvial tracts which form the lower parts of valleys, such as are called "intervales" in the Eastern Townships. The richer class of granite soils are also well fitted for this crop. As a general rule, it may be stated, that whenever a soil has been formed by the alluvium of rocks or strata not characterised by the presence of too great an amount of aluminous or clayey matter, there we have a soil, which if drained and in proper condition, will produce excellent crops of the best varieties of oats. The finest crop I ever saw was grown on this sort of soil. On the "marge of the salt flood," near Brighton, on land as flat as a pancake and formed from the detritus of the chalk-hills of the South Downs, my friend, William Rigdon, grew 148 bushels of White Tartar oats to the acre: the piece was 11 acres in extent! I once grew 108 bushels per acre but it was on an old garden, so that don't count. Mr. Clare Sewell Read, in his report of the "Recent improvement in Norfolk farming" (1858), mentions a 46 acre field belonging to Mr. Hudson, of Castle Acre, which in 1856 yielded the great return of 120 bushels an acre! (1) The treatment of this piece of land is worth attention: previous crop, wheat; soon after harvest, the little couch-grass in the stubble was forked out; during the winter, turnip tops, &c., were thrown on the land for the ewes, which were removed at night and folded elsewhere, and in February the field was regularly folded over with 2000 sheep, eating on every acre five tons of mangels, and  $\frac{1}{2}$  lb. of linseed cake each per day. The ground was then ploughed, and 2 cwt. of guano (it would take 3 cwt. of the present strength) an acre sown on the poorest portion of the field, white Tartar oats were drilled in March, and afterwards top-dressed with 1 cwt. of nitrate of soda and 2 cwt. of common salt. The result was one of the most level and glorious crops of grain ever seen in Norfolk. The following year, the field produced the best crop of swedes in the county, and the barley which followed was, when Mr. Read wrote, showing signs of over-luxuriance. This is the perfection of farming; to grow such an excellent and profitable crop, and yet keep the land free from weeds and increasing in fertility.

(1) Mr. Wrightson, of the Dawnton Coll. of Ag., mentions a crop of the same number of bushels in this week's Ag. Gazette.

On the clay soils along the St. Lawrence, from Montreal downward towards the sea, the cultivation of oats seems to be very precarious, and the yield greatly depends on the character of the seed time. When the ground has been properly mellowed by the frost, the sowing season dry, and the summer, particularly during the month of July and the beginning of August, not too hot, fair crops of oats can be grown, on these soils. I do not say fair crops are generally grown, because it would not be true, for the general cultivation of these soils is about as bad as can be. Narrow ridges may be necessary for the surface drainage, the growing of root- and green crops may be a difficult undertaking, but nothing can excuse the infamous ploughing, the negligent harrowing, and the total absence of the roller, so constantly observable all through these districts.

Oats are found to succeed best on clay land after a crop of clover and other grasses, and the stronger the grasses are, the better is the grain-crop. The roots of the grasses, no doubt, tend greatly to open up the soil, and to render it more friable and less apt to consolidate around the tender rootlets of the oat-plant. But wherever potatoes have been grown on such heavy land, and the ploughing and general "fitting" of the piece properly carried out, I should prefer sowing barley, unless previous experience has proved the soil to be unsuited to the growth of that plant. Grass-seeds, too, take better, as a general rule, with barley than with any of the other cereals; the reason why I could never understand. Certain clays in England bear first-rate malting barley, but these have a chalk subsoil, and in some queer way the *Chevalier* barley succeeds there, and the great malting firms of Essex, Cambridgeshire, and Hertfordshire, prefer their growth to any other; whereas, grown on our Kentish clays, the barley is entirely unfit for the brewer's purpose. As for grinding-barley, for pig-food, the cheapness of Indian corn does away with any necessity for sowing it; unless expense is no object; for no pork is to be compared with a four months old pig of good breed—Berkshire or Yorkshire—fed on nothing but barley-meal and skim-milk from the day of weaning. And, parenthetically, as to weaning pigs, we have a rather crafty plan of management: supposing a sow has nine pigs, we wean three at six weeks old, which three are kept moderately till they are put up to fatten, on barley-meal at first and then finished off on pease for about three weeks, for *bacon-hogs*. The next three are kept on the sow for another week or two, and are intended for pickled pork. The remainder are not weaned till they are nine weeks old, and are put on barley-meal, whey, or skim-milk, and soon go to London weighing from 50 lbs. to 60 lbs. each. A perfectly grown pig, about 50 lbs. in weight, and neither too fat nor too lean, always fetches the very highest price in that market; a very difficult market it is to suit, but when suited, the most profitable one to deal with in the world.

But to return. There are several kinds of moory soils on which oats refuse to grow, especially those lying on a subsoil of mixed clay, sand, and oxide of iron, hardened together by infiltration from above, and known, here, as *hard-pan*. Both wheat and barley can be grown with tolerable success on such soils, but the cultivation of oats is a thankless, unprofitable task. Liming would, doubtless, be highly useful on such land, and