

and send them to England at a profit with such an advantage on the side of the British farmer? See Mr. Vasey's letter in last month Journal.

*Food's influence on the quality of butter.*—Several interesting points were elucidated last year at the Maine experiment-station, on the effect of different foods on the quality and texture of the butter produced therefrom. Maine dairy-men protest that no butter is so good as that made from the milk of cows fed on bran and corn-meal. Five of the station cows were fed, for three periods, on the following foods:

- Period 1. Cotton-seed-meal, corn-meal and wheat-bran.
- " 2. Pease-meal and barley-meal.
- " 3. Linseed-meal, corn meal and wheat-bran.

The composition of the milk varied very little throughout the trial, though the relation of the quantity of fats to the other solids did vary somewhat, but apparently without reference to the food, and the following practical deductions may be made from the experiment:

- 1. Quite radical changes may be made in the kind of grain-ration fed, without affecting the quality of the milk.
- 2. The tendency of butter to melt in hot weather may be influenced by the kind of food, and the degree of hardness may also be thereby affected.
- 3. A mixture of cotton-seed-meal or linseed meal with corn-meal and wheat bran, especially the cotton-seed-meal mixture, produced butter less easily melted, and of a more solid appearance, than did the pease and barley.

Comparisons were made, at the same station, and a summary of the average results given, with fodder-crops of 9 different kinds, of which southern corn and swedes proved the most profitable. But as only 14 tons of the swedes were grown on an acre, I do not think the experiment proves much. Theoretically, the Hungarian grass came next in order, which is rather surprising, as practically, it is but poor stuff at any period of its growth. I have used it as pasture, as cut for green-meat, and as hay out when just coming into bloom, and "there is nothing in it".

Sweet corn yielded.....	1,870 lbs. of digestible dry matter per acre.
Flint " ".....	2,208 " " " " " "
Hungarian grass yielded.	2,967 " " " " " "
Swedes " ".....	2,978 " " " " " "
Southern corn " ".....	3,850 " " " " " "

A fair crop of 20 tons of swedes would, proportionally, have yielded 4,254 lbs. of dry digestible matter, and the succeeding crops of grain and grass would, as far as my experience goes, have been much better than after corn. The harvested crop of Hungarian grass seems to have been large—18,40 tons an acre of green stuff—at least 2½ tons of hay, and these contained more than a third more dry matter than the 14 tons of swedes, but a great part of it must have been indigestible fibre. According to the calculation of the experimenters, two tons of timothy hay would contain 2,065 lbs. of dry digestible matter.

*Notes from the Station reports of the U. S.*—The amount of protein transformed, but not the storage of nitrogen in the body, is regulated by the amount of the protein in the food. The formation of fat in the body of neat cattle probably takes place irrespective of the presence or absence of fat in the food. The exact influence of protein on the formation of fat "remains to be determined," but the addition of non-nitrogenous ingredients to the food, without changing the protein, may cause an increased formation of lean meat. These materials may, under some conditions, produce as good results as the addition of a like amount of protein to the food. Which *Laws* showed long ago (1853) in the *Journal of the R. A. Society of England*, in his article on "Pig-feeding."

Feeding a Holstein cow weighing 1,200 lbs. costs only \$11 a year more than feeding a Jersey weighing 900 lbs; or, in other words, the expense of feeding the heavier animal is only 18% more than the cost of feeding the lesser animal, whereas the Holstein exceeds the Jersey by 33% in weight; that is, a small cow requires a larger maintenance-ration in proportion to her weight than a large cow.

So difficult to settle the relative yields of cows of different breeds! For instance:

Holstein, No 1. cost of food per pound of butter..	22.63 cts.
" " No 2. " " " "	31.44 " "
Jersey, No 1. " " " "	15.96 " "
" " No 2. " " " "	23.08 " "

See report of Maine station, 1890.

The best Jersey gave 987 lbs of solids in her milk during the year, the best Holstein 1135 lbs.

*Wheat depth of sowing.*—The yields diminished with increased depth of sowing—depths, 1 inch, 3 inches, 5 inches. My experience is just the reverse, but, of course a great deal depends upon whether the wheat is sown in spring or in autumn, on a clover-lay or after summer-fallow, potatoes, &c.

*Calf-feeding.*—Whole milk made the best gain, but those on skim-milk and crushed flaxseed did wonderfully well, and only cost, cash, 5 cents a day, whereas those on whole milk cost 7.8 cents. A little pease-meal so added would have helped the calves. One pound and a-half per calf a day of crushed flaxseed seems to me to be an enormous ration. (1)

A sow and 7 pigs ate 2,032 lbs. of meal-corn, barley, linseed meal, bran—during 153 days, and increased in live weight 627 lbs. Took about 4 lbs. of meal to make 1 lb. of pork.

*Plaster for top-dressing wheat* showed "no effect." I cannot see how it should. Harrowing wheat, when the plants were 8 to 10 inches high, was, in this case, "a decided disadvantage to the crop." So I should think. Fancy harrowing wheat at that stage of growth! We always harrow it in England, but immediately after the winter is over—in early March—and before any spring growth has begun. Then, the tillering sets to work, the harrows having broken the crust of the soil, and after horse hosing and heavy rolling with smooth-roller and clod-crusher, we get our large crops of wheat.

*Timothy-grass* grows very rapidly till the blossom appears. The weight of grass per acre increases until the time of blossoming; it then decreases, the loss being water. It yields the largest amount of digestible protein when cut at the beginning of bloom.

At the *New York station*, in a test of cows of various breeds, for the first 6 months of lactation, several highly interesting results were arrived at; some of which my readers who are balancing in their selection of *butter-cows* may like to ponder over.

	Guernsey Jerseys.	
Pounds of fat in 100 pounds of milk.....	5.07	5.61
" " of milk required to make 1 lb. butter.	18.40	17.50
" " of butter produced per day.....	0.90	0.91
Time taken to churn in minutes.....	30	51

Not much choice between the two breeds, though the Guernseys being the larger animals would eat rather more perhaps than the Jerseys; but that would be amply compensated by the beef-value of the Guernsey when dry. Observe the very moderate yield of butter: only 6½ lbs. a week for the first 6 months after calving. I have had many a *dairy-shorthorn* that gave 3 lbs. a week, regularly, for the same time. There is no statement of the food given.

*Corn*, according to the Maryland station report, pays well for a dressing of nitrate of soda. Thus, the yield per acre of

(1) Must mean an ounce and a-half.