

Grain for Feeding Stock.

The high and increasing price of oats draws much attention to substitutes for that food, which cannot be equalled for horses. Bearing in mind that the nutritive qualities of plants vary more in respect of climate than of season, it is not surprising to witness different results from the same description of aliment. Barley raised in southern climates. In the East, in Spain and in Arabia, horses fed on barley acquire more vigor and power of endurance, while in temperate climates it is fattening and refreshing in its effects. To excite fowls to lay or to hatch, oats and light wheat are given; to fatten them, barley. Whenever the French invaded Spain, their cavalry was decimated by inflammatory diseases, produced by feeding the horses on barley. On the other hand, Arabian horses, when imported into France, can only be kept in good condition by being fed, not on barley, but on oats. Barley is a tonic in warm climates, but enervating in temperate ones. Maize is but an auxiliary, it can never become a substitute; it has not sufficient force-producing power. M. Adenot experimented with feeds of equal rations, of nine pounds each, of maize and oats, on 48 of his wagon horses, extending over a period of two months. The animals lost one-fifth of their draft-power—which they recovered, however, when their full oat ration was restored. The economy in the way of oats disappeared by loss of strength. One-eighth of maize with oats turned out well, but then the maize must be American, not French. How nearly soever related maize and oats may be chemically, in physiological effects they are widely different. Thayer & Dombasle recommend buckwheat for farm horses, as being capable of replacing in part oats. Their opinion is questioned; but buckwheat differs in richness according as it may have been saved, when matured, or otherwise. M. Audenot has found a mixture of 13 pounds of oats with 6 of rye very successful; his experience extended over fifteen years, the stables containing not less than 350 draught horses; the mixture was not equal in producing vigor to oats alone, but was not the less a capital feed when grain was scarce. In former times wheat was given to stallions during the season of serving, and to mares when suckling, but wheat fattened rather than imparted strength or produced muscle.

In the production and reparation of muscular force, beans rank with oats, exciting the appetite, and excellent for horses that digest badly their full feed of grain. Field peas are favored by some for fast horses; improving their wind, while forming a change of food. Oats being unrivalled, many farmers object to either bruise or break them. Containing less farinaceous matter, they nourish less, in the sense of fattening less; this quality Messrs. Magne & Baillet attribute to an aromatic principle in the skin, analogous to vanilla, and to which the stimulating action of the grain is to be traced. Now, mountain oats, small and light, are more exciting than others, because they contain less farinaceous, and more of stimulating matters, and hence why many breeders keep stocks of mountain and lowland oats, giving feeds of each alternately, never mixing, for where the ingredients of rations differ in volume, much that is small escapes unmastered or incompletely mixed with saliva.—*From French Correspondence of American Farmer.*

Roots for Butter Cows.

A "Subscriber" to the *New England Farmer* asks, "Which is the best root to raise for cows, when butter is the principal object?"

Now, if the writer is farming upon land similar to much of the sandy soil of Bristol and Barnstable counties, in Massachusetts, he would probably do well with carrots, while if his farm is a heavy clay, like much of the soil in Vermont, he might do better with mangolds or sugar beets. One variety of root might be better than any other if the cost of raising were equal in all cases. We would never grow turnips for feeding to butter cows if carrots or beets could be obtained at the same cost.

There are, probably, few questions upon which farmers differ more widely than the turnip question. Let one ask, in a gathering of farmers, if turnips injure the quality of milk or butter, and he will get answers as diverse as the colors of the rainbow. Some will assert that turnips may be and have been fed in large quantities to milk cows, without producing any injurious effects whatever; while others will cite cases where a single turnip leaf has spoiled the milk of a cow for

a day; and Mr. John C. Dillon, farm superintendent at the Massachusetts Agricultural College, goes even farther than that. He tells of an instance where a sensitive person was able to detect a very disagreeable turnip taste in the milk three whole weeks before the cows had eaten any turnips. This was a case where turnips were being fed to other cattle in the barn, and the person who discovered so much turnip taste in the milk had seen the teams drawing turnips to the stables, and supposed they were being fed to the milk cows.

On the other hand, we know of a gentleman, Mr. White, of Putnam, Conn., who feeds turnips to his cows very freely, and who has never heard any complaint from his customers about turnip flavor in either milk or butter. He tells of one of his city friends who had been very much troubled by the turnip taste in a tub of butter bought from a farmer who raised turnips for his stock. The city friend sent to Mr. White for a package of fall butter to be laid down for winter use, and remarked, when sending the order, that he did not like the butter he bought last year, because the cows ate turnips, and he sent to him because he heard he made fine butter which gave good satisfaction to numerous acquaintances of his in the city. Mr. White wrote him that he would make a tub of butter and send it in, and if it did not suit he might return it, and he would pay expenses.

The butter was made and sent, the cows eating turnips as usual, only that the quantity was doubled while gathering the cream for this lot of butter, "for," said Mr. White, "I meant to give this turnip question a severe test." The butter was received, examined, and pronounced excellent; and the buyer sent Mr. White the price for his butter, and added in a note, "That butter suited me. No turnips fed to the cows that made that butter."

These are the two strongest cases upon the question of turnip flavor we have ever known. In one case, the lady who saw turnips being carried to the barn, tasted turnips in the milk three weeks before any were fed; and in the other case, a person who was very sensitive to this turnip flavor, used up and pronounced excellent a whole tub of butter made from cows which were fed all the turnips they could well manage.

It is claimed by some that turnips may be fed, during certain portions of the day, with perfect impunity, while, at other times, a single leaf may seriously injure the flavor of the milk.

Our own experience has seemed to indicate that turnips, when first fed to cows, may injure the milk, but after feeding them for a few days, this tendency to flavor the milk grows less and less till no unfavorable effect can be detected, except by persons with extremely vivid imaginations.

There are two reasons why we raise no turnips for our own milk cows. First, because the land we cultivate is not adapted to their growth; and second, because we are not willing to run the risk of making even one mess of poor butter from cows fed upon these roots.

Carrots are in better repute than turnips among both butter makers and butter consumers, but we know of men who have tried them repeatedly for producing first-class butter and with repeated failures. Carrots have a very strong flavor, and one which, to many persons, is exceedingly disagreeable, and the milk and butter produced from cows fed largely upon carrots are, undoubtedly, often affected by them to a very perceptible degree. We have no reason, however, to doubt that they may be fed in such a manner that no injury will follow after the first few days. But carrots cannot be grown profitably except upon rather light and easily worked land.

In certain portions of Eastern Massachusetts and in Rhode Island along the sea coast, where the land is too sandy for grass, these roots are often grown in immense quantities, and at a relatively small cost. If "Subscriber" is farming on such land, he may raise carrots with advantage, and by a judicious system of feeding may use them with little danger of bad results.

Mangolds and sugar beets have never—so far as we know—been charged with injuring the quality of the milk or butter from cows to which they are fed. They are sweet and nutritious, and easily raised on a heavy clay or good loamy soil, if well manured and kept free from weeds by frequent cultivation. They are also late keepers, and may be fed all through the winter months and in spring till the grass starts in the pastures.

Old Pastures, or New?

There are two opinions about pastures. One is that it is more profitable to feed only newly-seeded land, using it not more than two years before plowing it up for a re-seeding; and the other to let it remain for many years, allowing the surface to become fully occupied by native grasses, these being supposed to be best adapted to develop its power of production.

If we consider this question according to the general practice of farming communities in this country, we cannot hesitate to decide that the greatest profit will follow the first-named method, for there is no disputing the proposition that timothy, red-top, orchard grass and red clover, newly sown on a well-prepared and well-manured soil, will produce much more forage of a highly nutritious kind than will a close turf of blue-grass, white clover, etc., which has for many years had full possession of the ground, and has had no artificial stimulation. The difference in amount will be much more than enough to repay the cost of breaking up, manuring and seeding.

It is not now a question whether the cows will do better on one kind of pasture than on the other, only which will produce the largest money profit. If a single cow were allowed to roam over ten acres of short old pasture, picking up her whole living in white clover and the tender sprouts of blue grass, there is no denying that she would give more milk, more butter and more cheese than she would if feeding, however abundantly, on the coarser grasses of an artificial pasture. But our purpose in farming is not to get the largest possible yield from our cows, but to get the largest possible yield from our land. The cows are only implements for converting the products of the field into the saleable products of the dairy.

An average first-class cow coming in in May will make 200 lbs. of butter in the season on good natural pasture, but she will require at least three acres of land for her exclusive use. At 30c. a lb., the season's produce will be \$60—or \$20 an acre. On a good artificial pasture she may only give 180 lbs., worth \$54, but she will be fully supported by the produce of a single acre. Supposing that a third of the produce is consumed by the interest on the extra number of cows, and by the cost of keeping up the pastures—which is surely a very liberal allowance—we shall have \$36 instead of \$20 as the return per acre. In addition to this, we shall make ourselves much more independent of variations of the seasons, for a well-worked rich meadow is far less injured by excessive drouth than any natural pasture on the same soil could be. This of itself will often equal the drawbacks allowed for extra cost.

To put the proposition in another form, we may expect, from the foregoing calculation, as large a cash profit from ten acres of natural pasture, and there would be far less risk of loss from unusual drouth.

It is not proposed, of course, that rough or waste lands should be used for artificial pastures (they would not repay the cost), only that such fields as are susceptible of probable subjection should not be left in a barren state.

How nearly natural pastures may be made equal to artificial ones by the use of the harrow and liberal top dressings is a proposition not considered above. The cost would generally be less than that of re-seeding, and the result equally good. In any case, no pasture—old or new—should ever be overstocked.—*Am. Agriculturist.*

Meat and Manure.

Let it be remembered that the manufacture of beef is only profitable when it is coupled with the production of manure. Both scientific and practical men are agreed on this point, and hence the preservation and perfect making of dung is a matter of great importance. All good buildings should be contrived so that the manure from the various animals accommodated may be well mixed. We have in our thoughts a set of farm buildings, designed with much display of scientific knowledge in many respects; but alas! the architect had overlooked this cardinal point, and to this day the horse, pig and cow dung are all thrown into separate heaps, there to suffer from dry-rot; or, at best, to result in a badly mixed and inferior quality of dung. Stables and byres should open into courts, over which the litter from the horses and cows should be regularly spread every day. By this means alone will a good result be obtained.

The respective merits of boxes, byres, and fold-yards for fattening cattle, in a great measure de-

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