

is no other substance more deadly to insects than gas lime; however a heavy application of it, unless composted with earth or other matters is very injurious to all vegetation.

A thorough bare fallowing is a most effectual means of exterminating them. By this only you starve them out. When there is no vegetation they can obtain no food, and there is an end of them; but no half fallowing will do. The plough and cultivator must prevent the growth of weeds on grass; and this will free the land from two hosts of the farmers' enemies—weeds and wireworms. Lime on the fallow will have a very beneficial effect. It will render available for plant food the different elements in the fallowed soil, of which a great part had lain inactive.

Best Food for Milch Cows.

In summer and autumn the farmer can, with a little labor, provide for his milch cows an abundant supply of food; corn, clover, peas, oats and rye will give all the variety that can be needed for our dairy stock in addition to our ordinary pasture. But we must have recourse to other sources of supply in winter. They can live, it is true, on good, well-saved hay without other food, but this is not enough. For a cow giving milk, as much as for fattening animals, something more is required. When we take from her rich pasture a cow giving milk, and confine her in the house to feed wholly on dry hay, the quantity of her milk must decrease, and with it any profit that might be made from her feed. But the farmer is not without resources of food that may be procured on his farm. In winter as well as summer he can have all the variety of forage he can need at the mere cost of the tillage and care. There is always a profit to be expected from the feeding on the farm a large proportion of its products. The manure itself pays well for the labor.

TURNIPS.—The estimation in which this root is held for the feeding of stock is shown by the great area devoted to its culture by the best scientific and practical agriculturists. In England the turnip crop embraces annually not less than two millions of acres; and in Scotland half a million. Without the turnip the winter store of cattle food would be very scanty. Though turnips contain a large percentage of water, they are a very valuable addition to winter food for stock, and we have had animals fattened in good condition for the English market with no other food than turnips in addition to hay. There is an objection to turnips as food for cows giving milk—they give an unpleasant flavor to the milk. To prevent this turnips are by some fed to cows immediately after being milked. By others a pinch of saltpetre is put in the milk. Both remedies we have known to be successful.

MANGEL WURZEL.—This root is preferred to the turnip for feeding milch cows. It yields with greater certainty a much heavier produce. In the reports of the Department of Agriculture we have returns of some crops of one thousand bushels per acre and upwards. It does not communicate any unpleasant flavor to the milk; this of itself it greatly in its favor. It keeps good till late in the season, even till our fall rye is sufficiently grown to cut for soiling. Late in the season it is better for feeding than early in winter, when it is often found to be too relaxing. Excessive feeding with any roots is liable to produce too great laxity, but when fed sparingly in addition to dry fodder, it is no more laxative than the health of the animals requires.

CARROTS.—There is no food more prized by English farmers for milch cows than the carrot. So far from giving an unpleasant flavor to the milk, it is thought by many to improve it, and that it improves the color of the butter of cows fed on it is

well known. The Belgian or white carrot is generally grown for cattle food, as it yields much heavier crops than any of the red varieties. It is admitted that as far as yield is concerned, the Belgian stands at the head of the carrots, but it is doubtful if its greater yield is not more than compensated for by the superior qualities of the other varieties. Roots grown to a large size are almost always of inferior quality, and in the comparison of large Belgian carrots with the smaller long orange or other carrots, the nutritive properties of the large Belgian fall much below those of the others.

BEETS.—The sugar beet has very valuable properties for feeding, and is now becoming better appreciated. The proportion of saccharine it contains must make it very profitable for winter feeding as an addition to dry fodder. The chief feeding value of mangel is derived from its sugar, and the beet that is so rich in sugar may be expected to possess still greater value.

A ROOT PULPER.—We will merely add a description of a simple root pulper, an implement very desirable in root feeding to cattle. It consists of a cylinder of hard wood 18 or 20 inches in diameter, turned quite round and smooth, and of whatever length that may be desired. This is mounted upon gudgeons and armed with steel teeth made of half-inch square steel. The teeth are ground to a chisel point and screwed into the cylinder with the bevel of the points upwards and projecting half an inch. This toothed cylinder is fitted into a box of hard-wood plank, and the box is to be supported upon a stout frame, which should be firmly bolted to the barn floor. The front of the box is brought snugly up to the teeth of the cylinder. The roots are shovelled into the box at the top, and are rapidly reduced to a fine pulp by the action of the sharp chisel points. The pulp is thrown out at the bottom of the box, where it is received upon an apron of plank, and from that it falls upon the floor or into baskets placed to receive it. A driving pulley is affixed to one of the gudgeons, so that it may be worked by a belt from a horse power. It is too heavy a machine to be worked by the hand, although a small machine might be constructed upon the same plan if thought profitable to do so.

English Farmers.

Farmers as a class are said to find great pleasure in complaining. Whether there is always cause for their complaining or not we do not say. They have their cares as much as any class. There are betimes expectations disappointed and labors unrewarded, but farming has its pleasures and its profits. There is certainly no other life so free from entire failures as that of the farmer.

In Britain there have for some time been great complaints of heavy losses sustained in farming. There agriculture is, as a whole, better than that of any other country. Their agricultural implements are better and more varied. They purchase more cattle food and more manure, and they expend more money in wages. From agricultural reports we learn that this season has been there very unfavorable to farmers, and our own correspondents fully bear out these reports. There has been a bad, late harvest. The yield of the grain crops has been light, and the grain having been badly saved, it is of inferior quality; and they complain that, notwithstanding the bad crops, the prices are low. A letter from our own correspondent in another column speaks the feeling of many English farmers. With a bad harvest and unremunerative prices, he also complains that stock feeding is unprofitable.

We cannot altogether agree with his view of the present state and future prospects of English farmers. He has to compete in his own markets, it is

true, with importers from every continent, who all have access free of duty to British markets; yet we do not think the price of breadstuffs lower than he can grow them with profit. He, it is true, has to pay a rent—a high rent in many instances—but he has the advantage of a home market, while his competitors have to bear the expenses of freight, commission, etc. A circumstance still more powerful in his favor is the greater productive power of his farm. The yield of grain, for instance, in Britain is not less than forty per cent. higher than that in America. A better system of tillage may very much reduce this difference in a short time.

Store cattle, our correspondent says, sell at 14 pence per pound live weight (say 8½ pence dead weight), and when fattened are sold to the butcher for 9 pence per pound. The English farmer has learned that the manure made by cattle when fattening amply remunerates him for the labor of feeding. His profit, looking at it in this light, is the little difference of one cent per pound on the weight of the animal, added to the profit realized on selling the increased weight acquired from feeding at 9 pence per pound, and the food consumed in fattening having been grown mostly, if not wholly, on his own farm.

The real complaint of the English farmer may be summed up in a few words. The farmers of other countries that are rent free are admitted to British markets free of duty to compete with him who pays a high rent, and for the expenses of the administration of the country so admitting others free to his markets, bears heavy taxes.

The Agricultural Press.

The great benefits conferred on agriculturists by agricultural papers is fairly stated in an article under the heading above given in *Moore's Rural New Yorker*. Thousands of our readers will, we have no doubt, fully endorse the indisputable fact that the information in this way obtained is beneficial not only to the readers of agricultural works, but often to many others who profit by their example. From the article referred to we take the following extract:

But little over three-quarters of a century has elapsed since, in the year 1800, the *Farmer's Magazine*, the progenitor of the multitudinous family of agricultural periodicals of to-day, entered on its useful career in the city of Edinburgh. In the succeeding half century the actual productive power of Great Britain, in the article of wheat alone, increased to the extent of supporting an additional population of seven millions. Down to our time this development has continued, though perhaps, at a slower pace, owing to the limits which commerce has set to the profitable cultivation of the soil of any particular district by bringing into competition with its crops the cheaper productions of other regions. In nearly every other department of agriculture there has been a like advance, and in some, especially in root culture, even a more rapid improvement has been made.

This marvelous development of the agricultural resources of the country has been mainly brought about by two causes, both of which have been equally beneficial here—discoveries in agricultural science as well as of better methods of tillage, cropping, and breeding, coupled with a speedy and widespread dissemination of these discoveries among those who could utilize them. To the first of these causes of advancement, the agricultural press, here and abroad, has contributed not a little by diligently recording suggestive facts and significant results of various practical experiments as well as by affording to investigators the stimulating encouragement inseparable from a hearty recognition of the beneficent purposes of their researches and the consciousness that their discoveries would be at once brought faithfully to the notice of those who would thankfully profit by them.

By no other means has this been so promptly and efficiently accomplished as through agricultural periodicals. For one farmer who has become acquainted with valuable discoveries in agricultural science or practice by poring over the works in which they are technically described, a hundred have been benefited by them through a more lucid