



Agricultural Department.

ROOT CROPS.

Unfortunately, the American average farmer knows very little of the great value of root crops as food for both man and beast.

Those who have learned to grow them with the greatest economy of land and labor have long since become satisfied of the great profit in their use, and appreciate the benefit they confer on all animals that consume them.

In some parts of the United States, for a quarter of a century, root crops have occupied a very respectable place in farming, and indicate an increasing appreciation of their value. If the keeping and feeding of live stock upon the most economical and successful plan be the object of the farmer, then the importance of root culture is apparent.

The mangels are prominent among different kinds of roots grown for stock. There are several varieties, as the Norwegian giant, long red, yellow globe, and new kinds recently introduced. The mangel is found to yield more tons per acre, and when fed to cows, to cause a greater flow of milk than any of the roots commonly grown as field crops. Well prepared sandy loam is the best land for this crop. The best pulverized and manured lands alone will produce a large reliable crop. Sow in drills twenty-two inches apart, and work well so as to keep down weeds and grass until about the middle of July, when the plants will protect themselves. October is the time to harvest the roots. The yield of mangolds in England is marvelous—seventy-five tons per acre is not an unfrequent, and in New England and New York over fifty tons per acre have been raised.

The carrot crop is also well worth the considerations of farmers, as perhaps, no root is better adapted for a portion of the food for horses, mules, cattle, and hogs. It gives best flavor to milk and butter, and greatly promotes the flow of rich, creamy milk during the winter season.

Turnips, and particularly the rutabagas, stands pre-eminent as stock food; perhaps no other vegetable can be so cheaply produced as the rutabaga turnip, or takes up such little room on the farm. It is sown from the middle to the last of June, after all other crops are planted, and will grow between the rows of corn, and will flourish on lighter soil and with less manure than mangold. Frosts will not damage them, and even if they are not housed until Christmas they will still do for use. The common Dutch or English turnip, also, like the rutabaga, makes excellent food for both man and beast.

Stock fed largely on roots will be more healthy, more easily fattened, and more cheaply fed, and produce more and better milk than if fed exclusively on hay and grain. In England and Europe no farmer ever thinks of keeping stock without root-food, and no farmer ranks his root-crop of less importance that he does his grain crop. Beets, while good for stock food, have become so very popular as a sorghum or sugar-producing vegetable, that throughout Europe it is never fed to stock until the juices are extracted, and nothing but the pulp is left. In the United States "beet sugar" is almost unknown, but the time will come before many years, when the great supply of sugar from home consumption will be made from the beet-roots that will be grown in all parts of our vast domain.

We cannot to highly recommend our patrons and farmers to experiment more liberally in raising roots for stock food, and by making them one of the rotation crops to add to the richness of their lands, instead of wearing them out each year by the clean cultivation of hoed crops. Now is the time to make the necessary preparations for such crops as above alluded to.—*National Grange.*

COAL ASHES IN THE GARDEN.

It has been long known that coal ashes have the effect of mellowing the soil, particularly clay. A rigid clay may thus be greatly improved in its texture. It has been held that the fertilizing properties of coal ashes are small—repeated analyses have shown this. Yet used as they have been here in the gardens, without other manure, the effect has been such as to lead irresistibly to the conclusion that they develop in some way a considerable amount of fertility. All cannot be accounted for by the mechanical improvement, as in cases where this is not lacking, the effect is still present, and apparently undiminished, if not sometimes increased—in this case acting seemingly as wood ashes do, requiring other (organic) fertility to aid, if full results would be obtained.

I was surprised, early in the season, on seeing unusually thrifty tomatoes and beans, to learn that the only manure used was coal ashes, scattered in the garden to get them out of the way. This was practised for several years and no manure other than this had been used. I was shown another garden to-day which was treated exactly in the same way, the only dressing being coal ashes. Here the growth seemed all that it could be. I was shown a potato grown here that weighed one pound eleven ounces and a half. It was the Early Vermont, a variety not noted, I believe for its large specimens. But they were large, averaging from half a pound to a pound; no small ones among them, and many exceeding a pound. They were planted fifteen inches apart in the rows, a small potato dropped in each hill. The owner of this garden lays the success to the coal ashes, and says there can hardly be any mistake about it. This is the opinion of others also. My own experience is confirmatory. But the effect I find is not immediate. It is more tardy than with wood ashes, whose potash and soda act promptly.

I would advise by all means that coal ashes, instead of being thrown away, be used in our gardens, removing the coarser parts; also on potato ground, always mixing well with the soil, and as early as the ground will admit and to be repeated yearly, giving thus time for effect upon the soil. I find the best success where the ashes have been applied for several years. The second year is sure to tell, even when thrown upon the ground and left to lie there undisturbed, as I have abundant evidence. But the place for full action is in the soil.

I should have stated that in the second garden mentioned where the ashes were omitted, as was the case with a small space, there was a uniform lack in the growth both in the size of the vines and the tubers. About a quarter of the soil of this garden was composed of ashes. In places where the proportion of ashes was greatest the largest tubers were raised. There is no doubt of the general benefit of coal ashes in a garden, and their decided effect upon the tomato and potato family. They doubtless effect more or less favorably all plants, in the improved texture of the soil, which most of our old cultivated fields need. Add to this their known manurial properties which science has pointed out, little though they be, and there is no reason why coal ashes should not be used on our land, to say nothing of what may seem an occult influence when they are put in union with the fertility of the soil, resulting thus, as appears to me, in an increased growth. I have faith in the discarded coal ashes, and I am using them to advantage.—*Country Gentleman.*

THE VEGETABLE GARDEN.

The success of the garden depends largely upon the quality of the seeds used. Many other conditions, however, are necessary, as well as some degree of knowledge and skill, without which even the best seeds must fail to give the desired results.

The most favorable soil for a garden is a light, rather dry loam, with sufficient admixture of vegetable matter. But situation and nearness to the house are often of more importance in the choice of location than the constitution of the soil. A heavy, wet, clay soil is not suitable for a vegetable garden; yet, if no other ground is available, underground drains, deep working, and a covering of sand and muck or peat will transform even such an unpromising soil into a fair garden. A slight sloping surface, other conditions being equal, is more favorable than a dead level, as it admits of better drainage, and if inclined toward south or southeast all the better. A deep soil is very desirable; but care must be taken not to deepen it too much at a time. Not more than one inch of subsoil which has not been plowed or spaded up before, should be brought to the surface in a season. Whenever possible all the ground intended for garden purposes should be plowed or spaded before winter.

Much disappointment is caused by sowing too early, before the soil is warm and dry enough. Even if the seeds germinate in such cases, little is gained and much risked, as the plants cannot make a vigorous growth before their proper season. And seeds sown later will often give better results than earlier sowings.

Another frequent cause of failure is the too deep covering of the seeds. As a rule, the smaller the seeds the lighter they should be covered. The smallest seeds—such as celery, sweet marjoram, thyme, and other herbs—require hardly any covering at all; and when the ground is fine and not too dry, sowing on the surface and gently pressing down with a board is sufficient. Medium-sized seeds should be covered one-half to one inch; and the largest—such as peas, beans, and corn—two to three inches, and deeper in dry weather.

Most seeds, to give the best results, should be sown thinly, except such kinds as have feeble sprouts—as parsnips, carrots, and beets. These, if sown too thin and the surface becomes baked, cannot break through the crust;

while many sprouts together can, and it is but little trouble to thin out the superfluous plants. Cucumbers, melons, squashes, and all plants subject to the ravages of insects should also be sown thickly; and afterward, when the leaves are hard enough to defy the attacks of their enemies, thinned out properly.

Beginners often err in making the rows or drills too close to each other. The taller the plants the more space should be given them; but even the smallest herbs should not be planted so close as to prevent the free use of the hoe or weeder between the rows.

Thorough cultivation and loosening of the soil are among the principal conditions of success in the garden. A good hoeing in dry weather is often better than watering. When the later is resorted to, it must be done thoroughly, and not so as to moisten the surface only. This superficial sprinkling does, generally, more harm than good. It causes the plants to form rootlets near the surface, instead of below. These surface roots are dried and parched by the rays of the sun as soon as the moisture becomes evaporated, and leaves the plants without nourishment.

For the raising of early vegetables a hot-bed is indispensable, and some of the most delicious products of the garden cannot be grown successfully without being started under glass.

As far as the limited space of these pages permits, we trust to have succeeded in giving beginners, in the outlines, at least, the most important principles of growing vegetables, so that, with care and attention and by following the special directions given under their proper heads, good seeds cannot but give satisfactory results.—*Brannard's Seed Catalogue for 1878.*

EVERGREENS.

The *Detroit Tribune*, in a plea for Evergreens" says An evergreen tree must have roots, they are not worth trying to save if they have not good roots; and when ordering from any nursery this should be impressed on the mind of the nurseryman. Then it is indispensable to success that the roots, be kept moist from the very instant they are taken out of the ground till they are planted. They must not get dry for a moment nor be exposed to sun and wind. If these rules are attended to, not one in a hundred will be lost. A rainy day is the best time to move evergreens from the forest; and when taken from a nursery the roots must be instantly immersed in a puddle of clay and water, which may be soaked slow when transplanted.

After evergreens are planted the ground must be kept wet and cool by mulching with chip-dirt or some such substance. The best time to transplant evergreens is just after the buds have begun to swell, and are ready to burst the leaves and until the trees have made an inch or so of new growth. This period varies from the first of May to the middle, and on into June. Large trees are successfully removed in winter with a frozen ball of earth attached. We moved one a mile in March last, that is ten feet high. It will surely live. A large hole was dug and it was set in just as it stood before removal. A plenty of mellow soil was filled in all round for the young roots to strike into as soon as they begin to grow.

Evergreens always produce a fine effect planted in groups. The hemlock is especially suited to this kind of treatment. However, the taste and the situation of each person will readily direct how to plant. While there are rules and laws which a professional gardener would observe in planting trees anywhere, yet the main thing is to get the trees planted somehow. Plant to break the cold winds and plant where the eye can often see these noble objects. Use common sense and judgment and follow our suggestions about keeping the roots damp.

PETUNIAS FOR WINDOW GARDENS.—A Connecticut lady finds that the Petunia makes a charming window and lawn plant. Writing to *Vicks' Floral Guide*, she says: "Last spring, when making out our list of seeds, we sent for a paper of *Petunia hybrida* (choicest mixed, from show flowers), little thinking what a rich treat was in store for us. We sowed them in a pot in the house, and transplanted them to the garden early in the season; and the result was a bed of the finest and largest Petunias I ever saw. They were a constant source of delight to us and the wonder and admiration of all our friends. In September we took cuttings from them, and when they were well rooted put them in three inch pots, in good soil, where they have bloomed all winter as freely as in the summer. I think they do not require much soil, as the roots are very small and fibrous, and the advantage of the small pots is that they will stand on the window-sill of any ordinary country house, thus bringing them near the glass and keeping the earth warm. Some of them we have trained to the window-sash, and a few of them in this way will fill an entire window. If there are any who have not tried the single Petunia for winter blooming, I hope they may be induced

to give them a trial, and I am confident their efforts will be repaid by these lively and free bloomers."

"WHAT TO PLANT"—is often a puzzling question even to the experienced planter. He has tried many things that for some mysterious reason have failed to reward his pains that he looks cautiously at the burdened pages of the seedsmen and is unmoved by their glowing comments, while the novice is bewildered by the innumerable varieties of everything. But there is a way out of the wilderness. In all the catalogues will be found a few sorts of each vegetable printed in larger type than the rest. These are long-tried standard kinds which it is perfectly safe to plant. Let the beginner make his selections from these and he will not go astray. Not because the old planter has been fooled with new varieties ought he to pass them by entirely. There is always a chance of getting something better, and those who first tried the French Breakfast radish, the Little Gem pea, the Trophy tomato or the Minnesota sweet corn, were never sorry. Try a few at a time, and do not expect too much of them, and we venture to say that seldom a season will pass without adding something to your list of tried and true favorites.—*Christian Union.*

HOW VINES GROW.—An interesting essay respecting vines and climbing plants was recently read by Dr. J. T. Stewart, before the Peoria (Ill.) Scientific Association. He has observed that the morning-glory makes about two circles in climbing per day, the twining portion often sweeping a circle of two feet or more diameter during the process. He finds a total inability on the part of vines to twine around large objects; as, for instance, where one had started by curling around the naked root of a tree, it proved quite unable to clasp the tree itself, though tied fast around it. The tree was only 1½ inches diameter. Vines of some species can twine around larger objects, but their limit in this respect is soon reached. They all prefer supports of small diameter. While a vine is growing it makes the semi-circle toward the light twice as fast as away from it, and also makes its circles in search of support more rapidly in the day-time than by night.

BELLS FOR SHEEP.—The cheapest and best insurance against dogs killing sheep are bells—plenty of bells. The sheep-dog is a great coward when in pursuit of mischief, and he wants to do it quietly—wants no noise, no alarm. Bells bought at wholesale do not cost much. Buy a side of bridle leather at the currier's, for collars, and put a bell on every sheep, if your flock is small. The price of one sheep will buy a gross of bells and leather enough and buckles to strap them. Put this gross of bells on a flock of sheep, and they will frighten every dog out of the field. Flockmasters are slow to adopt a simple and cheap remedy like this, but will go to the Legislature, hire lobby influence, and spend large sums of money to little purpose. Members of the Legislature are fond of dogs themselves, and do not want them taxed. They own no sheep, and care but little about their protection.—*Southern Farmer.*

MAKE THE HORSES WORK.—Horses were designed as beasts of burden, to relieve mankind from fatiguing drudgery. It does not hurt them to work hard, if they are treated kindly. It is not the hard drawing and ponderous loads that wear out horses and make them poor, balky and worthless; but it is the hard driving, the worry by rough and inhuman drivers, that uses up more horse flesh, fat and muscle than all the labor a team performs. Consider the ponderous loads that many teams are required to cart every day, and several times a day, and yet they appear to grow fatter and stronger every year. They are treated kindly. On the other hand, other horses, that do not perform half the labor, soon grow poor, and give out, and the next we hear of them they die with the harness on. Hard work does not kill them; but the worrying, fretting and abuse did the job.—*New York Times.*

WOOD ASHES with the bits of charcoal in them, and coal ashes too, are excellent for the fattening of pigs. Pigs cannot stuff themselves, week after week, without their stomachs getting out of order, and the bits of charcoal check acidity and regulate them, and help to improve their appetites. We think our pigs cannot get along without the little bits of ashes in one corner of the pen to root over and pick the charcoal out of. It is their dispensary.

WHITE HELLEBORE (a powder to be obtained at the druggist's) is infallible, for destroying all manner of insects without injuring the plants in the least. It can be put in water and applied through a garden syringe, hose or watering-pot; or put in two or three thicknesses of gauze, the edges of which tie to a long stick, and shake the hellebore under and over the plants when they are wet. Care should be taken not to inhale it, or to get it on the hands, as it causes irritation of the skin.