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"The leaves should be taken from the bud-sticks as soon as cut from the tree, as the branch withers very quickly with the leaves on. Cut away the leaves a little beyond the point of the bud with a sharp knife, placing the bud-sticks in damp moss or a damp cloth as soon as prepared. Buds should be cut with a very thin portion of wood, and my practice is to leave this in, except in cases of very small stocks.

"In cutting a bud begin below, bringing the knife out above the bud; this gives it a good point and shape. In making the cut upon the stock for the insertion of the bud, the horizontal cut should be first made with the blade held at an angle of 45 degrees, the edge towards the ground. This forms a lip, under which the point is thrust, obviating the necessity of raising the bark with the handle of the knife. Stocks that will not work in this way, without the use of the handle to raise the bark, will not pay the budding. The northwest side of the stock is the best for the insertion of the bud.

"Careful tying is necessary, and the bandage should be drawn close to the eye, above and below, drawing as tight as a good bass bark tie will warrant."

This is the inner bark of the *Tilia Americana*, commonly called linden, and is procured by stripping the bark from the trees. It is then cut into convenient lengths for handling, and is placed under water for a few days. The inner portion will then separate easily, when it should be dried and laid away for future use. When wanted for budding, it is cut into pieces of about ten or twelve inches in length, and these are then subdivided into narrow strips of about an eighth of an inch in width. Where the bark cannot be readily obtained, cotton or woollen twine are used, and form a very good substitute.

THE BORER.—A careful study of the habits of this pest to the orchard, will establish the following facts, which, if promptly and vigorously acted upon, can hardly fail to secure exemption, to a great extent, from this attack. It seldom attacks strong, healthy trees, but prefers those that, from being recently transplanted, or from neglect, have become weak or stunted. Where trees are trained with tall, naked trunks, exposed to the scorching rays of the sun, the bark becomes thickened and comparatively inert, and especially so when the trees lean so as to receive the direct rays of the sun during the hottest part of the day. This furnishes an inviting field for the operation of the borer, producing what are commonly called "sun scalds," but a close examination will invariably show to be the work of this insect.

After a careful study of all the remedies proposed, as also the habits of the enemy, we would recommend the following as the most effectual: Mix soap and water to the consistency of paint, and into this throw any refuse tobacco that can be procured; let it soak for a few days, or steep for an hour or two over a fire, and when cool, apply with a brush to the trunk and large limbs of the tree; and repeat the same as often as it may be washed off by drenching rains, till about the first of July. After which, for that year there is no danger. Keep an eye constantly on the watch for the intruder, and when his pathway can be discovered, kill by running a wire after him and plugging up his hole with soap.

A wide, low-spreading top that will completely shade the entire trunk, is almost a sure preventative, and if the ground can be kept quite wet for two feet around the tree during most of May and June, it is nearly as effective.

MANURING ORCHARDS.—In efforts to keep orchards in bearing, mistakes are often made in the place for applying the manure. It should not be in contact with the trunk, unless for the purpose of a mulch, and to be removed early in the spring. The terminal roots of an apple tree fifteen years old, in good soil, are from twelve to sixteen feet from the trunk, and still farther in older trees. These fine, hair-like roots take from the soil all, or nearly all, the nutriment for the fruit. Consequently the manure should be applied where they are—for a tree fifteen years old, twelve to sixteen feet from the trunk; for one of twenty to twenty-five years growth, eighteen to twenty-three feet; and for a very large, full grown tree,

still farther. But in all cases we would commence the dressing as much as three to six feet from the trunk, thickening it outward, and then tapering off, so as to make the dressing about where we suppose the finest roots end, but much reduced both inside and outside of that ring. If the object were to smother the tree in grass and weeds, we would pile the manure against the trunk, for the rains would wash it outward and would surely produce growths of some kind, but not of apples. Why do we see everywhere so many orchards with trees looking somewhat thrifty bearing abundant leaves, but no fruit? It is not because the soil is exhausted; the soil, in many cases, if plowed up and cultivated, would give forty bushels of corn, and then, if seeded down, two tons of hay to the acre. Extreme poverty of soil is not always the cause of failure. They fail to bear, because the growth and former fruiting of the orchard have exhausted the peculiar substances required for the apple tree and its fruit. The tree gets enough of its peculiar food to keep it thriving moderately, but nothing to spare for making fruit; and so the tree lives as long as it can, by appropriating all the food it can get to sustain its own life, but yields no more fruit till the lost ingredients are restored.

As to how these can best be returned to the soil, lack of space forbids us now to enlarge; but we will say here, that for large trees, bearing less and less every year, the following compost could hardly fail to pay well. Two cart loads of fresh virgin soil, on which no fruit trees had ever grown; two bushels of lime, two of wood ashes, and one of common salt, for each tree; less of the same for smaller trees. If apple tree wood is ever burned as fuel or otherwise, its ash may well be preserved and applied to the orchard, as it of course abounds in the material required. Instead of the fresh virgin soil above mentioned, peat, black vegetable mold of any kind, and decayed leaves, grass, or weeds, may be used. A mixture of all or any part of these, is good. We think barn manure is not the right thing. If green, it may prove injurious; if well rotted it is worth more for other purposes. Soap suds, refuse lime, after whitewashing or plastering, and the lime from old buildings torn down, are all good, especially the suds. Throw it up among the lower limbs and let it trickle down the trunk. The youngest trees may be treated in this way with advantage, whenever any roughness of the bark appears, provided the suds be not over strong. As it usually comes from the laundry it is safe. —*Observer.*

Stock and Dairy

ESSENTIALS IN THE IMPROVEMENT OF STOCK.

At a recent farmers' discussion in Scotland, the following points were taken up, as the leading essentials in securing the improvement of stock:—"1, pure blood; 2, high strain of blood; 3, a sound constitution, free of hereditary disease; 4, substance, symmetry and quality; 5, a docile temper." One of the speakers gave the following good advice—since, as he said, it is most important for any farmer that he should proceed as rapidly, and at as little outlay as possible:—

"As it is the general recognized maxim that the exterior form partakes more of the conformation of the sire than of the dam, and as one sire will, to some extent, improve the whole of each year's stock, while a female gives but one superior beast, I would say procure superior males at whatever cost; and should they be too expensive for the size of the farm, let two or three farmers join in the purchase and keep of one animal."

CLOVER FOR HOGS.

An Ohio hog raiser advocates the system of pasturing on clover in the summer. He presents, as the advantage of the plan, the statement that an acre of ground in

clover will pasture five hogs four months, and that it will take the corn from half an acre to feed them the same time. The cultivation of the corn he counts equal to the rest of the other half acre. He further claims that hogs pastured on clover are in far better condition than if fed on corn, as they are better framed, healthier, and eat better, and also states that the land is enriched by the clover pasturing.

CROSS BREEDING.

The celebrated naturalist, Charles Darwin, makes the following remarks on the effort to produce distinct races by cross-breeding:—

The possibility of making distinct races by crossing has been greatly exaggerated. There can be no doubt that a race may be modified by occasional crosses, if aided by the careful selection of those individual mongrels which present the desired character; but that a race could be obtained nearly intermediate between two extremely different races or species, I can hardly believe. Sir J. Sebright expressly experimented for this object—and failed. The offspring of the first cross between two pure breeds is tolerably, and sometimes (as I have found with pigeons) extremely uniform, and everything seems simple enough; but when these mongrels are crossed with one another for several generations, hardly two of them will be alike; and then the extreme difficulty, or rather hopelessness, of the task becomes apparent. Certainly a breed intermediate between the two very distinct breeds could not be got without extreme care and long continued selection; nor can I find a single case on record of a permanent race having been thus formed.

When two distinct races are crossed, it is notorious that the tendency in the offspring to revert to one or both parent forms is strong, and endures for many generations. I have myself had the clearest evidence of this in crossed pigeons, and with various plants. Mr. Sydney states, that in a litter of Essex pigs, two young ones appeared which were the image of the Berkshire boar that had been used twenty-two years before, in giving size and constitution to the breed. I observed in the farmyard of Betley Hall, some fowls showing a strong likeness to the Malay breed, and was told by Mr. Tollett, that he had, 40 years before, crossed his birds with Malays; and that though he had at first attempted to get rid of this strain, he had subsequently given up the attempt in despair, as the Malay character would re-appear.

MILK, BUTTER AND CHEESE—COMPARATIVE PROFITS.

The following extract on the subject of the comparative profits of butter and cheese is taken from a paper read before the Farmers' Club, of Coldwater, by A. J. Aldrich:—

I propose now to say a word with regard to the profits of cheese as compared with butter.

In speaking of this particular topic, I have only one comparison to make, that is, with the average price of cheese and butter as received by farmers generally. The care of stock and of milk, so far as cooling and cleanliness are concerned, is the same whether we make cheese or butter. But there are many other things in making butter which take extra time and labor in doing them that can be dispensed with in making cheese. There is no setting of milk, there is no skimming, there is no care of the cream, and no working of the butter. After it leaves the milk can is the care of it at an end, so far as the farmer and his wife are concerned. Indeed the expense of making butter is double that of making cheese. The price for manufacturing cheese at our factories is 2½ cents per pound; while the price for making butter is 5 cents per pound.

The question now is, how much milk will it take to make one pound of cheese, as compared with the quantity to make one pound of butter? Of course it will vary with different seasons, and even with different days. The amount of milk used in making one pound of cheese varies from 9 to 11 lbs.; to make one pound of butter, from 25 to 30 lbs. of milk. The result will prove that we can make from 2½ to 3 lbs. of cheese where we can make one pound of butter.

During all the past year, butter has varied from ten to twenty-two cents per lb. During the months of July and August, it will take from 30 lbs. and upward of milk for one pound of butter. Indeed, I imagine that not many farmers will make a pound of butter from less than 32 to 40 pounds of milk during the sum-

mer. I do not make this statement rashly, but on the authority of Hon. Zadock Pratt, who began the business in 1857. He made butter, and for eight months it averaged over 39 lbs. of milk for one pound of butter. He was supplied with all the conveniences necessary to good butter making. If it took that amount with all his facilities, what would it take with the ordinary facilities of the average farmer? I think I would be perfectly safe in saying that the average farmer will not come up to the average of Mr. Pratt in that respect. If that is the case, the milk that will make one pound of butter will make nearly or quite four pounds of cheese. But for the sake of placing the matter in as favorable light as possible for the average farmer, I will take three pounds of cheese to one pound of butter, with the proportion and the average price of butter at 16c., and that of cheese at 12c., we shall have 37c. for cheese where we should receive 16c. for butter. In one case 30 pounds of milk brings 16c., in the other it brings 37c.; difference in favor of cheese of 21c. If we discount the price of cheese-making, we have 11 cents in favor of cheese. But we will take cheese at the lowest price and butter at the lowest price, and see where the balance rests. We said that nine cents was the lowest price for cheese. Three pounds of cheese would yield 27c., and one pound of butter 16c., or 11c. in favor of cheese. Deducting the price of manufacture, we have 11c. for butter and 18c. for cheese, or 8c. in favor of cheese. I am sure no one could ask for a better comparison than this, and the experience of dairymen will bear me out in these deductions.

TO KEEP HAMS IN SUMMER.

Some bag them and whitewash the bags, which is troublesome and somewhat expensive; some cover them with dry wood ashes and pack them in barrels and cover them thoroughly with pine shavings; but the best plan of all, and certainly the least expensive with all who have a smoke-house, and every farmer should have a good one, is to keep the hams hung up in the smoke-house, which should be kept perfectly dark at all times. Hams so kept two years old, were among the best we ever tasted. Uniform darkness is a complete protection against the attacks of insects. —*W. Rural.*

ASHES AS A CATTLE FEED.

One of our substantial subscribers, in a recent conversation, gave his experience in training neat stock affected with the habit of eating wood, chewing bones, &c. His cattle were one spring affected this way; they became thin in flesh, refused to eat hay, and presented a sickly appearance. He had no impression that their food lacked the constituents for making bone, but his neighbours used bone meal without noticing any good results whatever. At last, he put about four bushels of leached ashes in his barnyard, and threw out to them about a shovelful each day. They all ate as if with evident relish. After turning them out to pasture, he put one peck of dry ashes per week on the ground in the pasture. They ate all up, and gnawed off the grass where it had been lying. The cattle began to improve, gaining flesh and looking better than they had done for several years. He says this morbid appearance was unnoticed years ago, from the fact that the ground was new and ashy from the burning of the woods and land clearings. Latterly he gives one quart of ashes mixed with the same quantity of salt to twelve head of cattle, about once a week. —*Live Stock Journal.*

CARE OF HOGS.

A practical breeder gives the following advice, which, in the main, we think sound, for those whose herds are not too large, and who are engaged in mixed husbandry: To handle hogs to the best advantage, a pasture is needed of green grasses—clover, blue grass and timothy—and it is best if there is no running water or stock ponds in the lot. Hogs do better where there are no branches or stock ponds to wallow in. In place thereof, have good well water pumped for them. Having troughs made, and nail strips across eight inches apart, to keep the hogs from lying down in the water, and let these hogs be put on floors, to keep them from digging up wallowing holes. If any feed be given, it should be soaked in swill barrels for 12 hours before feeding—no longer—and fed to them as drink. —*Colonial Farmer.*