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POMOLOGY:

A TREATISE ON THE CULTURE OF

FRUIT AND FRUIT TREES.

GIVING

EXPLANATIONS HOW TO APPLY CERTAIN CHEMICALS AND MINERALS
TO FRUIT TREES TO INSURE THEIR HEALTH AND
PERFECT BEARING QUALITIES.

FOUNDED ON

FIFTEEN YEARS OF OBSERVATION AND EXPERIMENTS.

BY DANIEL NARRIGAN.

COLUMBUS:
OHIO STATE JOURNAL BOOK AND JOB OFFICE.
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PAR 1865.

Entered according to Act of Congress, in the year of our Lord one thousand eight hundred and sixty-five,

BY DANIEL NARRIGAN,

in the Clerk's Office of the District Court of the United States for the Southern District of Ohio,

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POMOLOGY.

THE EARLY DECAY AND NON-PRODUCTIVENESS OF FRUIT TREES OF THE PRESENT DAY.

Thirty-five and forty years ago such a thing as a failure in a fruit crop was scarcely known west of the Alleghanies; and even throughout the older settled and longer cultivated States of Pennsylvania, Maryland, Delaware and New Jersey, an over-abundant crop of fruit often caused as much speculation, if not vexation, to know "what to do with it," as the entire failure of later years has caused in not giving any to do with. Many have been the reasons assigned for this great change, but late frosts in spring generally had to take the blame, while in reality the exhausted soil was the delinquent. By exhausted soil, we do not mean soil impoverished in toto, but only in mineral substances, which are necessary not only for the health of the tree, but *must* exist to produce sound and well ripened fruit.

It is a well established fact, that if we have a hot, burning spell the latter end of a summer, so that after-vegetation can not extract the mineral properties brought to the surface through the intense heat, we will have a good grain year the following season, and also see more prospects for a fruit crop than ordinary years. While most of the products of the earth, used as the food of man, must undergo a chemical change by cooking or some other course of fermentation before they become wholesome or palatable, fruit of all kinds comes ripe from the parent stock, ready for food, with a rich flavor, high aroma, and all the properties attainable by the most perfect chemical combination. To produce these results, much more is necessary in the soil than what would be adequate to yield a heavy crop of grain or grass. Trees are but plants of a large variety, and plants want substance to live and produce seed to propagate their kind. What to feed fruit trees with, so as to make them what nature has designed them to be, has been, for fifteen years, the study of the writer of this treatise, and by investigation, close observation and practical experiments, he has succeeded in discovering a mode of treatment by which

fruit trees can not only be kept healthy, but be made perfect and constant in their bearing qualities.

PLANTING TREES.

It would be a good thing if every tree could be planted in, or raised from, the seed, as they would be firmer to resist high winds, and naturally more productive, since they strike deeper root than a transplanted tree, draw more of mineral substances from below the surface of the soil, and are generally more valuable. As trees, however, are generally raised in nurseries till large enough to transplant, some knowledge is necessary to transplant them properly. The soil should be reasonably loose, at least for some distance around the tree, which should by no means be planted too deep, so as to deprive the top or surface roots of the warmth of the sun and the action of the atmosphere. One inch of soil over the upper roots is sufficient.

PRUNING.

Prune or trim your trees in June or July, as then the wounds heal over in a very short time. Never raise the tops of your trees too high. Prune low, and shelter the trunk from the scorching rays of the summer's sun and the cutting winds of the winter. Don't count on raising any other crops on an orchard, especially after the trees become of any size and begin to send their roots about in quest of food. By no means injure any roots by plowing or cultivating, as every root cut, no matter how small, is so much loss to the tree. Always have an eye to the future handling of a tree while trimming, and make it convenient for climbing, having limbs at proper distances to rest the feet and hands upon while gathering fruit or working in it. Some varieties only produce fruit in the more shaded parts of the tree, such, for instance, as the Rhode Island Greening apple. For this reason a young tree should be watched, when first beginning to bear, and note taken of its peculiarity, so as to either trim it with a dense or open top, as the nature of its fruit might require. Tough grass sward should not be allowed to form around the trunk of a tree, but be carefully removed to the distance of several feet, without injuring the roots. Above all, feed your trees, as it is unreasonable to suppose that a fruit tree should produce year after year without exhausting the soil. The fact that ground produces eighty bushels of corn to an acre is no reason why it should produce heavy crops of apples, pears, peaches, plums, cherries, or

any thing that comes under the name of fruit, because fruit requires different ingredients, or else in heavier proportions, than corn for its development. The following is my application in the shape of a chemical fertilizer. The soda and saltpetre are dissolved in twelve gallons of water, after which the sulphuric acid is poured in the solution, first, however, pouring the acid in two gallons of water; last of all, the solution of iron is poured in. This solution can be used in liquid form, or better, be mixed with any common earth, and put in a dry place, and used as occasion requires. Sprinkle the solution over about ten bushels of earth, mixing and shoveling well the while, when it can be used as occasion requires. This is above price on young trees, too small to apply chemicals in the trunk of the tree by boring. For all kinds of small plants it is of great value, as it keeps mildew and insects away, besides feeds them wonderfully. Use it on rosebushes, strawberries, raspberries, gooseberries, &c. :

7 lbs. sal soda; 3 lbs. saltpetre; 1 lb. sulphuric acid; 1 lb. muriate tincture of iron.

The following preparation is for large trees, old enough to bear. It is applied by boring from one to half a dozen holes in the trunk of a tree, according to size. Bore a little downward, to prevent the powder from working out. The holes are plugged up with common soap, which, as it dissolves, helps to spread the chemicals through the tree. This will not fail to produce, not only a crop of fruit for a certainty, but make the fruit perfect and free of worms, as it destroys the larva or egg of the curculio (the cause of worms in fruit), which is deposited when the fruit is young and tender, and even in the blossoms, as supposed by many. No sooner is the larva deposited, than it begins to feed on the fruit, if ever so little at first; and as the sap is charged with ingredients detrimental to insect life, the larva dies and the fruit grows on to perfection. How long this will last in trees is not yet ascertained, but it has shown itself in unimpaired vigor in the third year, the longest time it has been on experiment. It will effectually kill all borers *in* as well as worms *on* trees, and has revived many, supposed to be gone beyond recovery. Peach trees require more in proportion to size than apple or pear trees; nor will it last so long in the former, owing to their stronger absorbents and the bitter nature of their leaves and fruit kernel; and for the same reason a peach tree is shorter lived than pear or apple, and yet, if attended to, easier kept up. There are instances of peach trees bearing for over sixty years, retaining their full health and

vitality, never showing signs of disease or faultiness of fruit. Such a tree could be seen in 1859, ten miles southwest of Havre de Grace, on or a little to the left of the road leading to Baltimore. It stood in the center of a knoll of rocks, highly charged with mineral substances and phosphorescent matter. This is an isolated case, but it teaches a lesson. In all ordinary cases, where a peach orchard once dies out, it is useless to attempt to raise the same fruit again. Though other crops and even other fruit trees might prosper, the peach will never do again, unless the soil is resupplied with those ingredients extracted by their growth. It is really surprising what results will follow the judicious application of chemicals to fruit trees, more immediately the peach :

$\frac{1}{2}$ lb. oxide (or precipitate carbonate) of iron ; $\frac{1}{2}$ lb. flours of sulphur ; $\frac{1}{2}$ lb. bicarbonate of soda ; $\frac{1}{2}$ lb. nitrate of potassa ; $\frac{1}{4}$ lb. carbonate of ammonia ; 3 oz. gum camphor.

Have all the above ingredients pulverized, and keep them in a bottle, tightly corked up, to keep from evaporating. Use three-fourth, or, in large trees, one-half inch auger ; bore from two and a half to five inches deep, as the size of the tree indicates. Any tree two inches or more in diameter can be bored ; under that size the root application ought to be used. A peach tree three inches through wants at least three holes bored, pretty well across, and in a double triangle, so as to have the stuff work on all sides. An apple or pear tree, of the same size, about two holes, three-eighth inch auger. By bending a small piece of tin or leather, you can form a kind of funnel or canal, in which you pour powder and work it in the hole by means of a little stick, used as a rammer. Plum trees want full as strong an application as peach ; cherry about the same, if in bottom land, which is the poorest of all soil for fruit trees of any kind, unless artificially supplied with minerals. One hole bored pretty well across is sufficient for a tree two inches in diameter.

The "fertilizer," or "root application," is an excellent thing for grapes, preventing the rot and producing heavy crops. It can be applied in solution, or after being mixed with earth, as any common manure. Where quick work is required, use it in liquid form ; otherwise, where a slower application is desirable, combined as above described. To see what wonderful effects it will have on trees, take one that looks sickly, and is apparently about dying. Remove the earth with care for several feet from the trunk, till you nearly touch the roots ; then fill about one inch deep of the fertilizer in the uncovered place, replacing the previously removed soil by spreading it

over the fertilizer, to keep the rays of the sun from striking directly on it. Should there be too much earth, replace only part of it, as roots dare not be covered too deep, the top roots not over two inches. Half a dozen trees treated in this manner, and the chemicals applied by boring, as elsewhere explained, will bring more fruit regularly, and of a sounder quality, than half a dozen acres will, if left to themselves.

HOW TO MAKE GOOD GRAFTING WAX.

Take four parts of resin, two parts of beeswax, and one part of tallow; melt all together till quite hot, then pour in cold water; grease your hands well and work the wax as it congeals, by pressing and pulling, till it assumes a whitish look. This will keep for years. Previous to using, put it in warm water, or expose it to the sun, to soften. Always grease your hands, as it will stick otherwise so you can't work.

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on it. Should there be too much wax, replace only part of it as
wax here not be covered too deep, the top roots not over two
inches. If a dozen trees treated in this manner, and the choic-
est applied by boring, as elsewhere explained, will bring more than
regularly, and of a smaller quality, than half a dozen more will, if
left to themselves.

How to make good grafting wax.

Take four parts of resin, two parts of beeswax, and one part of
tallow; melt all together till quite hot, then pour in cold water;
grasp your hands well and work the wax as it cools, by pressing
and pulling, till it assumes a whitish look. This will keep for
years. Exposed to rain, put it in warm water, or expose it to the
sun to soften. Always grease your hands, as it will stick otherwise
on you and your work.



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