



Month by Month With the Trees

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Editor's note: Almost every greenkeeper has trees to take care of and loses a certain number every year. That's why we have enlisted the aid of Mr. Scherer, a nationally noted tree doctor, to tell us what happens to the trees through all seasons of the year. It's a precious work, saving trees, and we believe the greenkeepers of America will appreciate Mr. Scherer's contribution to our worthy cause.

SOME forty-five years ago, the thrifty grape growers in the neighborhood of Bordeaux, France conceived the idea of sprinkling copper sulphate, quite commonly known as blue vitriol, on their grapes. This practice was begun to prevent vandals from stealing the grapes along the roadway. Only the vines immediately bordering the roads were so treated.

When harvest time came the growers found that the copper sulphate had not only prevented people from stealing the grapes, but had prevented the dread "mildew" from doing its accustomed damage. When they had accidentally found that the copper sulphate had this marked effect on the ravages of the mildew, they started treating their whole vineyards with the copper preparation, and thus was born the practice of spraying now used for the prevention of insect pests and fungous diseases.

Ordinarily, shade trees require two sprays each year in order to assure reasonable freedom from insect pests and fungous diseases. One of these sprays is applied before the leaves appear in the spring and is commonly known as the dormant spray. The second spray is applied as soon as the leaves are full grown and is normally known as the leaf spray.

Early Spraying Controls Scale Insects

The dormant spray is usually an oil preparation of some kind, although orchardists very often use lime sulphur for controlling certain pests. The dormant spray is particularly effective against scale insects. Oftentimes it controls the red spider, because the eggs of this pest are destroyed. Some aphid or plant lice eggs are destroyed at the same time, but not enough of them to insure against depredations of these insects

later in the season. Frequently, certain fungous diseases are controlled but in the case of shade trees these are quite often unimportant and little effort is expended to secure this result. With the orchardist, the problems are different and many times the control of a fungus has to be definitely considered when a dormant spray is applied.

The scale insects, which are controlled by the dormant spray, are very pernicious and destructive of both shade and orchard trees. They collect in large numbers on the tender portions of the tree, such as the young twigs and the new bark on the older branches and trunks. Here they settle themselves, insert their bills into the succulent tissues and start extracting the very life giving juices from the plant. As soon as this habit or mode of living has been established, they secrete a protective covering for themselves. This covering is made of a kind of wax and is so constructed that the scale insects living beneath the wax shields are pretty thoroughly protected from outside influences. It is impossible to hit them with the ordinary contact spray such as nicotine, which is used to kill unprotected sucking insects like mealy bugs and plant lice. Arsenate of lead, which is used to poison leaf eaters, is ineffective against the scale insects because they suck their food and cannot be poisoned. It is, therefore, necessary to use some material such as a miscible oil, which will first destroy the covering and then kill the insect. One of the best known oil sprays, which will accomplish this purpose, is known on the market as "Scalecide." Another one is an oil manufactured by the Sun Oil Company and is known as "Sunoco." Lime sulphur will to a certain extent accomplish the same results, but under certain conditions it is inadvisable to use it because, if it comes in contact with lead paint on surrounding buildings, the paint is badly spotted and the buildings have to be repainted.

Because the oils and lime sulphur have to be used at rather strong concentration to kill the scale, they must be applied when the tender portions of the tree, such as

the leaves and young growing twigs, are protected, and it is this necessity which requires spraying for scale insects during the dormant season. The Scalecide and other oils are usually diluted about one gallon of the commercial oil to fifteen gallons of water, and then sprayed thoroughly over the trees. The lime sulphur is ordinarily diluted one gallon of the commercial product with eight to ten gallons of water, and then applied as is the oil.

The killing of the eggs of red spider and some of the plant lice eggs is just a favorable coincidence, because almost invariably the dormant spray is applied primarily for the control of scale and little else.

Attacks on Trees in Full Leaf

When the leaves have reached their full size, it is necessary to protect them from the leaf-eating and leaf-sucking insects and occasionally from leaf-destroying fungi. The leaf-sucking insects are, of course, the so-called plant lice or aphids. They can be killed by hitting them with tobacco spray. The leaf-chewing insects include such pests as the canker worm or, as it is sometimes called, the measuring worm; the tussock moth caterpillar; elm leaf beetle; and various others which are similar to these in their habits. Since these various pests chew and eat portions of the leaf, it is possible to poison them by covering the leaf surfaces with arsenate of lead. After this is done, it is impossible for the insect to eat any portion of the leaf without getting into its system some of the poison and then, of course, the insect dies and its days of destruction are at an end. In the case of fungous diseases, it is necessary to cover the

leaf with some protective coating which will prevent the disease from getting started. Ordinarily, copper sulphate together with lime, or sulphur in some form, is used. The sulphur or copper remains on the surface of the leaf and then, when there is sufficient moisture in the form of dew or rain for the fungous spores to start growing, a little of the copper or sulphur is dissolved in the water and as the fungous spore germinates it is killed by this solution. Consequently, the fungus cannot get into the leaf to cause the diseased condition.

A Three-In-One Control

Fortunately, it is not necessary to apply each one of these various leaf spray materials by itself. All of them can be combined into one spray. For instance, an owner desiring to control in his leaf spray three pests,—aphids, canker worms and some leaf disease such as the blotch of horse-chestnut trees which is so common. Instead of having to make three separate sprays; one to apply the nicotine, one to apply the arsenate of lead, and one to apply the sulphur mixture, he combines all of these materials into one spray. He can use a one hundred gallon tank and put into this tank one pint of nicotine sulphate, which is known on the market as Black Leaf "40"; four pounds of powdered arsenate of lead; and two and one half gallons of liquid lime sulphur together with enough water to fill the tank. This makes up a combination spray which will kill the aphids, poison the canker worms, and prevent the horse-chestnut leaf blotch fungus from getting a start.

Since many of the insect pests and fungous diseases



Large tank truck in use applying dormant spray before trees are in leaf. This equipment makes quick work of spraying trees on golf courses, public parks and large estates

start their work at the same time that leaves reach full size, it is possible by this spraying program to prevent them getting a start and, by so doing, have the trees reasonably free from insect and fungous pests during the remainder of the growing season. However, in certain cases, this one spraying is not sufficient to protect over a long period of time and unless subsequent sprays are given, considerable damage may be done and the benefit of the original spraying lost.

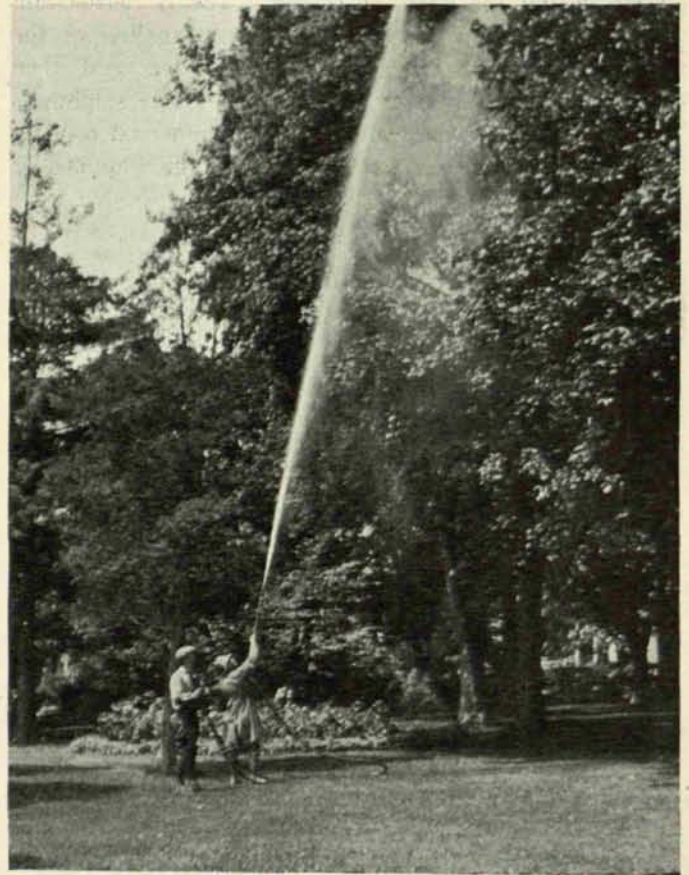
Not always is it necessary to include a fungicide, such as copper and lime or sulphur, in a spray mixture. Some trees are seldom attacked by fungous diseases and, when this is true, one need make no preparation for preventing them. Under such conditions, the arsenate of lead and the Black Leaf "40" may be applied to control the insects alone.

Have Fungous Diseases Diagnosed

At the same time, some trees have fungous diseases which start at other times than those indicated in the preceding paragraphs, and under such conditions it is necessary to apply special sprays for preventing these fungous diseases. Since a lot of time, money and energy can be wasted in spraying improperly, it is always best under unusual circumstances to get the advice of someone versed in spraying so that the expenditures may be made most effectively.

Spraying must be done thoroughly in order to secure the results desired. I know of few operations which can be more dismal failures than spraying which is done either ignorantly or carelessly. It is always well to seek reliable advice and then follow that advice in spraying

problems. By so doing the freedom of the trees from insect and fungous pests can be reasonably assured.



A special spray nozzle in action reaching to the top of high trees. Applying the three-in-one mixture described on preceding page for control of blight, aphids and canker worms

Vegetative vs. Seeded Greens

By MACK BURKE

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ANY discussion of this topic involves in an argumentative way a consideration of bent grass versus the other fine turf grasses suitable for putting greens.

Comparing Turf Characteristics

The characteristics of bent are, briefly: aggressive, rapid, spreading growth under anything like favorable conditions, which in itself removes one of the greatest detriments to a good putting surface, namely weeds; giving playable sward at a reasonably early date after planting, which constantly improves with no further planting; development of fine turf in one season, which makes an even fine mat of fine putting quality, homogeneous texture and color. In addition, bent is dependable and self-healing.

In the case of Redtop, fescue, and other grasses which are usually planted in seeded greens, constant weeding, occasional re-seeding, and expert attention will make of them very suitable putting greens.

The characteristics of the resultant turfs would seem to favor bent, if characteristics are to be considered alone. If other items are to have our consideration, we are immediately involved in the progress between the planting period and the time the turf is matured. To investigate these items, let us scan the processes separately.

Preparations for Planting

The preparation of the soil can, and should be, practically the same, with the exception that bent stolons can be planted when the soil is in a wet condition; whereas the sowing of grass seed is better accomplished when the seed is raked into dry, powdered soil, since seed is more evenly covered under dry conditions and the germination is more uniform.

Getting Bent Ready for the Mower

After the soil is prepared, bent stolons should be cut into pieces something over an inch in length and lightly