

TIMELY TURF TOPICS

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JAPANESE BEETLE CONTROL: During this month the adult Japanese, oriental and Asiatic garden beetles are becoming increasingly active, particularly between the hours of 10 a.m. and 3 p.m. Plants on which these adult beetles most commonly feed were listed in T.T.T., June, 1940. Should you find them in considerable numbers on or near your turf, it would be wise to take immediate steps to protect your grass from subsequent grub injury by applying arsenate of lead. Remember that a few scattered beetles do not offer any threat to turf. Expensive protection need only be provided when the beetles appear in large numbers.

Usually one application of arsenate of lead at the rate of 5 pounds to 1,000 square feet is sufficient to control the grubs. On heavy, clay soils, however, rates of 10 or even 20 pounds to 1,000 square feet may be required.

The arsenate may be sprayed on or applied dry mixed with sifted sand, soil, or organic fertilizer in order to insure a uniform distribution. The turf should then be watered in order to wash the poison into the soil. In general, arsenate of lead should not be mixed with inorganic fertilizers, and lime should be avoided because it may decrease the effectiveness of the arsenate.

When handling arsenate of lead, the workmen should remember that it is a poison for man and animals as well as grubs, and should carefully observe all precautions.

SUMMER FUNGICIDE RATES: Fungicides are more injurious to grass during hot, humid days than in weather more favorable to the growth of grass. Unfortunately, high temperature and humidity encourage the growth and activity of the fungus causing brownpatch and necessitate frequent applications of fungicides to preserve the turf. In the hot summer months, therefore, it is necessary to reduce the rate at which the more concentrated fungicides are applied $\frac{1}{3}$ or even $\frac{1}{6}$ of the usually recommended rate. Frequent applications at this reduced rate will cause less injury to turf and tend to give better control of the disease than less frequent applications at the higher rate.

KILLING VEGETATION IN WALKS: On walks or drives it is not always easy to keep out the grass and weeds. Heavy applications of sodium arsenite made in the forenoon of a hot, sultry day should kill most of the vegetation in such spots. It would be advisable to apply it in a spray at the rate of $\frac{1}{2}$ to 1 pound to 1,000 square feet, using barely enough water to wet the foliage thoroughly. Some plants may survive, but a second treatment at the same rate applied after considerable new growth has been made should complete the destruction.

SPIKING TURF: Turf, particularly low cut bent turf, is likely to suffer during hot, dry periods from a drying out of the soil in certain spots. In order to get the water down to the roots on such spots, it is frequently wise to spike the turf either with a spike roller or a fork and follow this with hand watering rather than with automatic sprinkling. Following such treatments, the soil should be sampled down to a depth of several inches to make sure that the water has penetrated. Getting the soil wet to this depth will help materially in the recovery of the grass from the injury caused by the dying out of the soil.

HEIGHT OF CUT: When Kentucky bluegrass is permitted to grow reasonably high it will generally produce a turf superior to that which is clipped close. On fairways, the usual practice is to permit the grass to grow as high as the players will tolerate which is usually not much higher than 1 inch. On bluegrass lawns, where the height of the grass does not interfere with the purpose for which the turf was planted, it is advisable to cut the grass at $1\frac{1}{2}$ or 2 inches during the hot summer months. It should be maintained at this height rather than be permitted to grow tall and then cut back to this height. Such practice will tend to keep the turf in a vigorous condition and at the same time produce enough shade to discourage the crabgrass and weeds which germinate at that time.

INSECT PESTS: It has been reliably estimated by a prominent entomologist that if one would know all the insects in the world he would have to learn the names of 10,000 species each year for 60 years. A large percentage of these species do not occur in sufficient numbers in any one place in the world to cause them to be considered as pests. Many others occur in ravaging hordes. In this country, some of these latter are native to our land and others, such as the Japanese beetle, the Mexican bean beetle, and the gypsy moth have immigrated from various parts of the world.

Turf, like all other crops, is subject to its share of these pests. It is comforting, however, to realize that although many species of insects may be present in turf during part if not all of their life cycle, only a limited number of kinds are likely to injure grass. Not every bug one sees in turf spells disaster. As a matter of fact, it is frequently the ones which are not seen, either because they are active at night or work underneath the surface of the soil, that are the ones which should cause concern.

WEED SEED IN COMPOST: Every application of topdressing on turf may mean the planting of a new crop of weed seed on that turf. Experiments reported in January, 1939 issue of **TURF CULTURE** have shown that the weed seed in compost piles can be killed by the use of chloropicrin. However, if care is taken at this time of year when weeds are producing seed profusely, that the weeds growing on or near the compost pile or soil bed are not permitted to go to seed, the number of weed seed present in topdressing material will not be so great.

EARTHWORMS: In general, arsenate of lead is perhaps the most effective chemical used in the control of earthworms. The amount needed varies with the soil and the species of worm. Light, sandy soils usually require less arsenic than do the heavy, clay soils, but for ordinary purposes 5 pounds of arsenate of lead to 1,000 square feet is usually recommended. Two or three weeks should be allowed for the arsenate to control the worms. If at the end of this time, the control is not satisfactory, the treatment can be repeated until enough poison has been built up in the soil to give control. We feel it is wiser economy to try the lighter dosage and be prepared to add more until control is effected than to go to the expense of applying the heavy treatment immediately.

WATER SHORTAGE: Excessive rainfall in recent weeks has produced a lush growth of grass in many districts. After periods of heavy rainfall or excessive watering grass is apt to suffer unduly in a sudden drought. Careful watering at such times may greatly reduce the damage. When turf receives too much water, the roots of the grass will be close to the surface of the soil and therefore unable in times of drought to reach the water present in the soil at lower depths. A gradual reduction in the amount of water applied will give the grass a chance to send its roots down further into the soil and thus enable it to resist better the injury which will result when watering is stopped entirely. Raising the mowers will provide for additional shading of the ground and will prevent excessive evaporation from the surface of the soil.

MERCURY VS COPPER FUNGICIDES: Copper preparations, such as Bordeaux mixture, were used almost entirely for treatment of turf diseases prior to the recognition of the value of mercury in their control. Since then the mercury fungicides have largely taken their place. Now that the price of fungicides containing high percentages of mercury has increased so rapidly (See T.T.T., May, 1940), the question of the wisdom of returning to the use of the copper preparations is frequently raised.

Even at the present high prices, the odds are still in favor of mercury. Although Bordeaux mixture is considerably cheaper when compared on the pound-for-pound basis, it should be remembered that in fungicidal activity a single ounce of corrosive sublimate is equivalent for turf use to at least a full pound of Bordeaux mixture and that, therefore, the copper preparation is in reality the more expensive. Moreover, it is easily washed off; it controls only brownpatch whereas the mercury preparations control snowmold and dollarspot as well as brownpatch; and there has been evidence in many cases of injury to the turf due to the toxic copper accumulation which is known to have occurred on some soils. A dependable preventive of such copper accumulation must be produced before the copper preparations can be safely recommended.

SUMMER FERTILIZING: Bent turf should not be forced too vigorously with fertilizer during July and August, particularly in the southern part of its range, since over-fertilized turf presents many maintenance difficulties during hot weather. Even though the turf may look slightly yellow and starved, it is wise to withhold fertilizer entirely, or at best apply it sparingly, during these two months. If the grass has been kept undernourished previously, however, and has suffered unusual damage from disease attacks, a slight application of sulfate of ammonia or a high-nitrogen complete fertilizer may hasten recovery materially.

CHINCH BUGS: The chinch bugs are sucking insects which feed on the sap flowing in the tissues of plants. The hairy chinch bug is the one which is particularly injurious to turf grasses. In the Northern states it seems to prefer the bent grasses, particularly certain strains of velvet bent and creeping bent. In the South it attacks both St. Augustine grass and Bermuda grass but seems to prefer the former. Injury is not so common in closely cut turf as in sod which is not so immaculately kept.

When the chinch bugs occur in turf, the injury they produce may at times be confused with either brownpatch or scald. The grass shrivels and becomes brown in numerous small spots which gradually enlarge into large circular areas. An examination of the edge of these areas, however, will usually disclose the bugs feeding on the grass just above the soil.

Climatic conditions are a big factor in the prevalence of the bugs. They hide during cloudy weather but are usually active, and therefore easily detected on hot, sunny days. Heavy rains may prevent the females from laying their full quota of eggs, may cover eggs with mud and prevent their hatching, or may actually destroy large numbers of young bugs. There is also a fungus which attacks these bugs in warm, damp weather. Unfortunately, however, the hairy type is much more resistant to this fungus than is the common field chinch bug.

Since these are sucking rather than chewing insects, stomach poisons such as arsenate of lead are useless and dependence must be placed in the contact poisons. Various sprays and dusts of nicotine, derris, rotenone, and pyrethrum are somewhat effective if properly applied. None, however, effect complete eradication and the rapid reproduction of the bugs soon results in severe infestations. Therefore, treatments must be repeated.

THE ANNUAL TURF MEETING SPONSORED JOINTLY BY THE U.S.G.A. GREEN SECTION AND THE GREEN-KEEPING SUPERINTENDENTS ASSOCIATION WILL BE HELD AT THE ARLINGTON TURF GARDEN ON MONDAY AND TUESDAY, SEPTEMBER 16 AND 17.