

TIMELY TURF TOPICS

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DOLLARSPOT CONTROL: Dollarspot frequently becomes prevalent in May, so it is wise to be on the alert for it in your bent turf now. Early attacks are frequently mild and may be ignored, but it is well to apply control treatments before serious injury develops, as it may take several weeks for grass to recover from serious attacks. When bent turf is protected by a generous dose of mercury in May the succeeding attacks of dollarspot and brownpatch are less likely to cause serious damage before additional treatments can be applied. The most economical and lasting of the mercury fungicides used to control dollarspot is calomel. The May treatment with calomel should be at the rate of 3 ounces to 1,000 square feet.

AVOID EXCESSIVE WATERING: Excessive watering during May and early June, just like excessive rainfall earlier in the spring, encourages the development of a lush top growth and a shallow root system, both of which may invite disaster during the hot, sultry summer months which follow. Much serious damage to turf during the summer months can be attributed directly or indirectly to excessive watering.

WHITE GRUBS: In May and June the adult beetle (May beetle or June Bug) of the common white grub is active and laying eggs for the next brood of white grubs. These well-known beetles spend the nights in trees, where they feed on the young foliage. They seem to prefer the white or burr oak foliage but are also found in such trees as hickory, poplar, elm, willow, locust, ash, walnut, or even pines. The females fly down to the turf, particularly in the early morning hours just before daylight, and immediately burrow into the soil and deposit their eggs. They do not fly far from the trees which they inhabit. Consequently, the heaviest grub infestation appears in the immediate vicinity of trees which have been heavily infested with beetles.

In most species, the beetle spends two winters in the ground in the grub stage and one as a dormant beetle. After the third winter it emerges as an active flying beetle and lays the eggs from which the young grubs soon hatch. The life cycle of these species, therefore, covers 3 years. It has been found that the white grubs appear in large broods in certain sections of the country every third year as a result of a large brood of beetles the preceding year. Brood A appeared in 1936 as a result of a heavy infestation of beetles in the spring of 1935. Brood C appeared in more limited areas in 1935 from beetles which appeared in 1934. According to predictions, the beetles are scheduled to appear this spring for the 1941 infestation of Brood C of the white grubs. Maps showing the districts of greatest abundance of Broods A and C have been published in the April, 1939 issue of *TURF CULTURE*.

At this season of the year it is well to watch for the beetles at night or in the very early morning. Wherever they are observed in large numbers, grub injury within the next few months and particularly next year can be anticipated. Important turf in such infested areas may be treated with arsenate of lead at the rate of from 5 to 10 pounds to 1,000 square feet during the summer to poison the young grubs before they do serious damage to the turf.

RAINFALL AFFECTS TURF MAINTENANCE: In regions having excessive rainfall during the spring months, turf is apt to be shallow-rooted and therefore more likely to be severely injured by hot, dry weather in early summer. Also, grass with a shallow root system will not recover so rapidly from fungus attacks as will turf with a deeper root system. Therefore, after excessive spring rainfall, attacks of fungus diseases should be controlled as promptly as possible.

This year during the months of February, March and April the average rainfall exceeded the normal for those months in 35 states. In some sections the excess was particularly large as, for instance, in the New England and Middle Atlantic states, where April rainfall ranged approximately between 35 and 70 per cent above normal. It is interesting to note that on the opposite side of the country the three Pacific Coast states also experienced excessive spring rainfall, that in February having been from 85 to 100 percent above normal.

LEAFSPOT ON BLUEGRASS: In certain regions receiving excessive rainfall last month, conditions have been particularly favorable for the development of the fungus which causes the leafspot disease on Kentucky bluegrass. In such regions it is not uncommon to find large brown areas appearing on otherwise good stands of Kentucky bluegrass. Although many of the leaves in such areas have been entirely killed, close examination of some of the more recently infected blades will reveal typical leaf spots. Unfortunately there is as yet no cure for this disease although cultural practices will help to speed up the recovery of the grass. It is well to keep the grass on such infected areas of turf cut as high as possible and well fertilized until it has recovered. So far, the chief hope in preventing the occurrence of this disease is the selection and propagation of resistant strains such as some of those which we have selected and are propagating at present at the Arlington Turf Garden. No seed of such selections is as yet available.

MERCURY FUNGICIDES

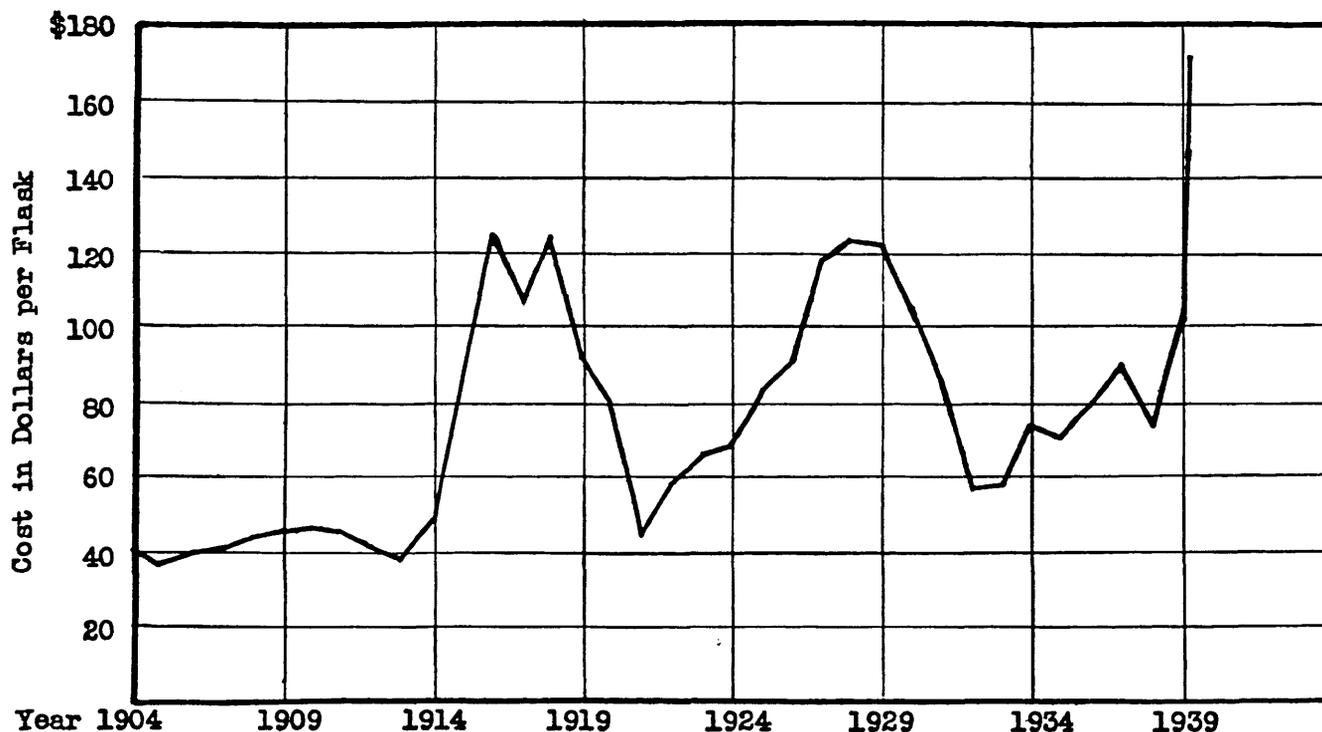
The recent rapid rise in price of calomel and corrosive sublimate has raised the question of the advisability of substituting other mercury products for them as turf fungicides. The experimental work of the Green Section showed many years ago that the value of the various mercury fungicides in turf disease control was largely dependent on their mercury contents. The percentage of mercury contained in several fungicides in common use is given below:

<u>Mercury Compound</u>	<u>Approximate Percentage of Mercury</u>
Oxide of Mercury	92
Calomel	85
Corrosive Sublimate	74
Fungol	33
Curex	20
Special Semesan	18
Semesan	17
Nu-Green	11

Mercury has always been the most expensive ingredient in this group of fungicides and those which contain the most mercury have naturally shown the greatest rise in price during the last year due to the steadily mounting price of mercury, or quicksilver as it is known in the trade. On the pound-for-pound basis, calomel and corrosive sublimate may compare unfavorably in price with the commercial preparations containing relatively small amounts of mercury. Since their fungicidal value in turf maintenance, however, is determined by their mercury content, they should be compared on the basis of cost per unit of mercury applied. Compared on this basis, it will be found that in most cases the inorganic salts such as calomel and corrosive sublimate represent the best buy.

The accompanying chart shows fluctuations in the price of mercury which have occurred during the last 35 years. The figures represented have been taken from New York quotations of the cost per flask of 76 pounds. The peaks in 1916 and 1918 reflect the increased demand for mercury due to its war use chiefly in the manufacture of detonators for explosives, together with the difficulty in importing our normal amounts of mercury from Europe. The peak in the years 1926-1929 reflect the world-wide increase in consumption of quicksilver during the period of economic expansion prior to the depression in the fall of 1929. During that time new uses were found for it, particularly in the electrical field.

The principal quicksilver sources in the world are the Almaden mine in Spain and the mines in Tuscany and Idria which are both in the hands of Italy. The reserves in the United States are not great and would be exhaustible in measurably short periods if continued production were pressed. Although the ores in this country contain at best only 6 pounds of mercury to the ton, they are present in sufficient quantities so that 25,000 to 35,000 flasks (our yearly consumption) could be produced at a cost of \$90 to \$100 a flask, but any additional amount could be produced only at a higher price. It has been reliably estimated that 70% of our annual requirement could be furnished profitably from Arkansas resources alone at \$125.00 a flask, and these deposits are not ordinarily worked.



Therefore, it is only following peaks in prices that the American mines are reopened and new ones started. At present, domestic mines are producing larger quantities than were anticipated by authorities, and the price has eased. Figures for 1939 and 1940 show a sudden rise from an average price of \$84.41 in August, 1939, to \$140.00 in September and \$183.00 at one time in March, 1940. The average price in April, 1940, however, was \$173.54 as compared with the average March figure of \$180.92.

It would not be wise, therefore, for clubs to set aside reserves of mercury fungicides at this time. Clubs that want to reduce the cost of turf disease control may well consider reducing the rates of application of calomel and corrosive sublimate which will accomplish wiser economy than shifting to lower grade mercury preparations. Also, some economy can be effected by treating the grass only as the presence of disease necessitates treatment rather than using preventive treatments as a regular practice.