

QUESTIONS

ASKED OF B. R. LEACH, AND HIS

ANSWERS

Dusting-on Lead Arsenate

Sir:

We plan to combat worms and chickweed this season with arsenate of lead. With better than 100,000 sq. ft. of green area, I figure I'll buy half a ton of it, providing I can get the appropriation past my chairman. Half a ton may seem like small potatoes to you, but to us up here it looks like we were buying all the arsenate in the world.

Is it practical to apply this with a duster of the type used for cabbages and such by truck gardeners? I want to use a duster because it looks like a quicker method than mixing with sand and spreading by hand. Am I right in believing the green, after application, should be poled lightly but not watered in? I understand you have at times experienced burning.

C. W. P. (Mass.)

Reply

Any brand of lead arsenate will have a tendency to burn the grass blades if applied without some sort of filler when the blades of grass are moist. That is why I have always advised mixing the lead arsenate with moist soil or sand, inasmuch as the arsenate clings to the particles of the soil and filters down through the grass blades, even if the latter are moist. For fairway treatment, using a lime spreader, the best system consists in mixing the arsenate with milorganite and spreading on a quiet day when the grass is dry.

If you plan to apply lead arsenate with a duster, would suggest that you try one green first and see how it goes. Would select a day when the turf was dry and the air correct. You are correct in believing that the green should be poled after application, which works the lead down to the soil proper. If the soil particles at the surface are at all moist, the lead arsenate sticks to them and you can then water as much as you wish.

B. R. Leach.

How Much Filler?

Sir:

As vogue seems to demand, I am gradu-

ally changing our putting greens from mixed grasses to bents, using the stolon method. Two greens were relaid in 1928. I stripped the old sod as thin as possible, and then loosened up the under-soil, scratching in five pounds of arsenate to 1,000 sq. ft. each green. This was done the first week in September and our catch was wonderful.

This spring, early, I want to go all around our greens, for twenty feet or more, and give the ground a good dose of arsenate. Where the fairways impinge on the greens I thought to use bone meal flour and mix, as you suggest, one pound of arsenate to five of the bone meal, and put it on at the rate of five pounds arsenate to the 1,000 sq. ft.; then I thought to cover the mounds and rough with the arsenate mixed with the box sand as a filler, and right here I am stuck, as I do not know how much filler to use with the pound of arsenate. Can you tell me?

For our first top dressing, along the first of April or last of March, I will give all the greens a yard of our compost, which is made up of a third 3-year-old cow manure, a third good soil and a third washed sharp bunker sand, mixing with this 25 lbs. of ammonium sulphate, and here I ask again, can we not at the same time use 30 lbs. of the arsenate to each green, mixing thoroughly the compost, ammonium sulphate and arsenate before applying, and then washing the whole mass in with the hose spray? So far, we are free of Japanese beetle grub infestation, and are after the worms mostly.

L. L. M. (New Jersey)

Reply

The amount of sand to mix with 5 lbs. of lead arsenate for application to 1,000 sq. ft. of turf depends on the ability of the operator as regards broadcasting the mixture. As a general rule it is safe to begin by mixing 5 lbs. of the arsenate with a bushel of moist sand. Oftimes an experienced broadcaster can apply this quantity of arsenate to 1,000 square feet of turf by mixing with only half a bushel of sand.

Your plan of applying the lead arsenate to the greens as an ingredient of the topdressing in April is o. k. and many clubs are following this system. You could, if you so desired, apply the lead arsenate to the greens by mixing with sand and broadcasting the mixture as per above.

B. R. Leach.

Dear Mr. Leach:

We have soft grass greens (blue grass and red top) and have been using the following as compost: 50 per cent peat and 50 per cent woods dirt with 5 lbs. of sulphate of ammonia to the 1,000 sq. ft. and occasionally a liberal supply of milorganite. Our greens are not what they should be, especially the latter part of the season. We have a great deal of trouble with weeds and crab grass. Do they come from the use of the "raw" peat and wood dirt? The compost is mixed just as we need it. The greens are top dressed every ten days or two weeks and well watered.

E. L. (Indiana)

Reply

Red top is a comparatively short-lived grass and disappears from the average golf green a year or two after seeding. Blue grass (Kentucky) prefers rich soil above all else and seems to do best when the soil is neutral, neither acid or alkaline. Would suggest as a future policy that you swing over to seeded or stolon-bent greens as they are much easier to handle and maintain and the turf is more desirable for putting-green purposes.

The topdressing mixture you are using at present is not a desirable one. It is too heavy in inert organic matter. Peat and woods dirt both contain very little available plant food. As a source of organic matter a small percentage in the topdressing mixture is permissible but never more than 10 per cent at the most. Would suggest a topdressing mixture: friable loam, 85%; well rotted, screened manure, 15%. If you cannot obtain friable, medium loam soil in your locality and have to depend on clay or silt would suggest the following mixture: clay or silt, 20%; sand, 70%; well rotted manure, 10%.

In order to correct the sour condition of the green caused by the persistent application of peat, woods dirt and ammonium sulphate would apply 10 pounds of ground limestone (not hydrated lime) per 1,000 sq. ft. of turf after each topdressing during the coming year.

For fertilizer would discontinue the application of ammonium sulphate during

the coming season and instead apply synthetic urea, milorganite, pulverized poultry manure or any other good organic nitrogen fertilizer. Follow directions supplied by the manufacturers of these individual products. Would go very light on the application of any of these quick-acting fertilizers during the warmer portion of the growing season.

Your weed problem is due in a large measure to the fact that the turf is thin due to improper soil conditions with the result that the crab grass and rank growing weeds are able to obtain a ready foothold. Correct the soil conditions, thicken up the turf and your weed problem will again become normal. Arsenate of lead will aid greatly in weed control but would not apply this chemical to your greens until you have them entirely back into shape.

B. R. Leach.

Arsenate Will Not Kill Ruf

In reply to a recent communication regarding fear of the latent toxicity of lead arsenate in soil, would make the following suggestions:

Commercial lead arsenate is an acid salt, its formula being $PbHAsO_4$. When it is acted on by certain salts in the soil such as soluble phosphates and carbonates, you get a mixture of phosphoric acid, carbonic acid, sodium, potassium or other forms of soluble arsenic and tribasic arsenate, namely $Pb_3(AsO_4)_2$. Now this last named compound is just about as inert a commodity as we have; in fact, you can feed it to insects and animals with very little ill effects. Consequently, it has no effect on soil one way or the other. I have grown various crops in soil treated with 5,000 pounds of tribasic arsenate of lead and grown them normally.

The soluble arsenates resulting from the above reaction do not remain as such but react with the salts of iron, magnesium and other metals in soil, forming ferrous or ferric, magnesium, or other arsenates, many of which are as inert as tribasic lead arsenate and consequently do not affect either the soil or the plants.

Such a chemical cycle continues until finally all the lead arsenate applied to a given piece of soil is converted into these inert forms of arsenic.

B. R. Leach.

Chickweed Eradication

Sir: In GOLFDOM last year you discussed the eradication of chickweed by the use of arsenate of lead. Last fall, I