

We present Two Fungicides for BROWN PATCH Control



Both Nu-Green and Semesan are now sold by Bayer-Semesan Co., Inc., which corporation is successor to Seed Disinfectants Divisions of E. I. du Pont de Nemours & Co., Inc., of Wilmington, Del., and The Bayer Company, Inc., of New York, N. Y.



Greenkeepers who in the past have used Nu-Green or Semesan for preventing and controlling the ravages of destructive Brown Patch already know the effectiveness of these two fungicides. Both contain soluble organic mercury compounds which instantly kill the Brown Patch fungi and restore the diseased area to a healthy condition in the shortest time possible. Neither causes injury to the finest turf when properly applied.

Du Bay Nu-Green contains even a larger portion of the disinfectant ingredient than Bayer Nu-Green, which it succeeds. In addition to its disinfecting properties, Nu-Green also has the added advantage of quickly restoring the disease-weakened grasses to normal strength and healthy green color.

Du Bay Semesan, as the successor of du Pont Semesan and Bayer Uspulun, is a straight organic mercury fungicide which is intended for the primary purpose of prevention and control of Brown Patch. It is frequently preferred by greenkeepers for use on greens which are being regularly and

heavily fertilized with soluble forms of nitrogen.

Large and small Brown Patch can do untold damage to your costly greens. Although large Brown Patch is most severe during the rainy or foggy seasons of the summer, small Brown Patch often develops much earlier in the season.

One pound of Semesan or Nu-Green mixed with 50 gallons of water is sufficient to treat 1000 square feet of turf by the sprinkler method and from 1500 to 3000 square feet when applied with a power sprayer, using 250 to 300 pounds pressure, depending upon whether a heavy or light application is needed. Full directions for using with every package.

See your seedsman or golf supply house now for your season's requirements at the attractive new prices listed below.

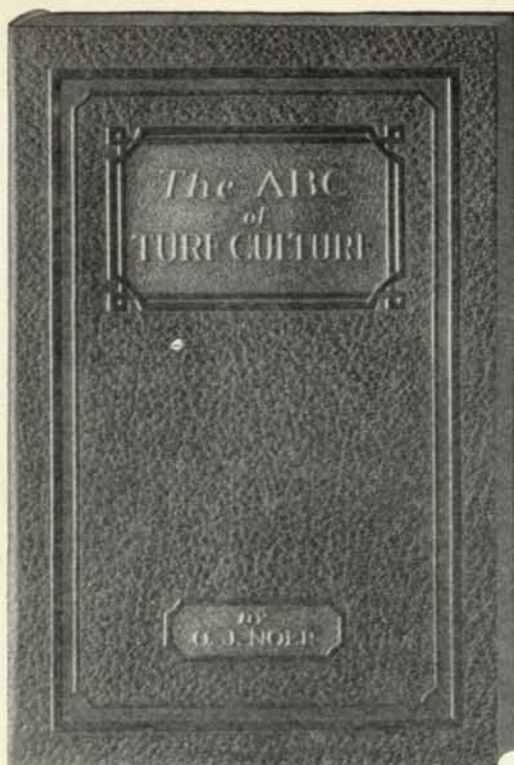
NU-GREEN	SEMESAN
25 lb. . . \$37.50	25 lb. . . \$56.25
100 lb. . . 145.00	100 lb. . . 220.00
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Growth

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The Functions of Organic Mat-
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Soil Composition and How
Plant Food Becomes Avail-
able

The Nature of Soil Acidity
and Effect of Fertilizer Ma-
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Often Overcomes Acidic
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be handled in this fashion. The recent year's growth, or even older, will respond quite well. Shoots or twigs cut into lengths of about 6" to 8" are the usual thing but these are cut just below the bud at the base or larger end of the shoot and at the reverse end or top the cut is made just above the bud or it may be a branch. Following this the cut twigs or shoots, usually called cuttings by propagators, may be set out of doors in trenches and placed well down from half to three-fourths their length and the soil well firmed around them.

In very cold spots in clay sections if the work be done quite late in the winter these cuttings may be tied in bundles, covered with soil or sand or leaves and placed in a cool cellar or shed or in a sheltered place outside. Cuttings must not be allowed to become dry. In Spring the bundles must be untied and the cuttings planted singly out-of-doors in rows as already described. During Summer frequent cultivation is wise to aid rooting conditions in the soil and to control weeds.

Regaining Our Lost "Eden"

A return to natural conditions will open the way for easy greenkeeping

By JAS. A. SMITH

Read at the 3rd annual National Greenkeepers' Conference at Buffalo

OUR greatest error in the maintenance of golf soils is the failure to properly house and provide for, the nitrifying soil bacteria which are at least responsible for 90% of the success of our turf. When they have been provided for we will of necessity have perfect soil conditions and, through their activity, healthier and better turf.

We are considerate of our workmen and know the necessity of seeing that they are properly housed, well fed, have an abundance of fresh air, and that their surroundings are constantly healthful. Our soil bacteria upon which we are entirely dependent, we universally neglect.

Soil bacteria must have decayed organic matter in which to live. It provides the darkness necessary and it is the ideal medium in which they can best live. It easily holds the moisture which they require. By the physical action of good, healthy, organic matter we gain soil porosity and allow these bacteria an abundance of air.

We must admit the necessity of having these active bacteria in great numbers before the turf we again get back to the more natural feedings, our troubles will pass away.

How Mellow Soil is Produced

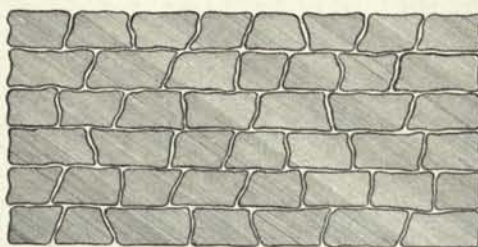


Plate No. 1—Shows Particles of a Firm Earth.



Plate No. 2—Shows Separation of the Earth Particle after a Thorough Mixing with a Fine Granular Humus.



Plate No. 3—Shows Earth with Humus Particles Dry and Contracted.

IN PLATE 1 the earth particles, when wet, make a poor form of concrete. The particles do not permit the easy passage of air and water. They cannot be the home for nitrifying bacteria, because of the lack of water and air and the organic home in which they must live.

Plates 2 and 3 show how all mellow, fertile soils are produced.

Wherever sufficient humus is present in the soil, its expansion when wet and its contraction when dry creates mellowness. This mellowness is permanent at all times, provided sufficient humus has been present in the soil at time of construction.

may get feedings as well as the conditions, as outlined above, under which they can live and multiply. Good physical conditions only allow this cycle.

Humus, whatever its origin may be, is and always will be the source of perfect soil conditions. Soil is only approximately perfect as you have made the necessary physical changes in it. We have tried to believe that manures, because scarce, were not so necessary as one had formerly believed them to be. Gradually we have departed from natural soil conditions, replacing manures largely with either chemical feedings or, at best, with manure substitutes, for which are claimed heavy fertilizing values, immediately available.

Getting Back to Natural Feedings

THE old home where the bacteria were given a chance for an honest day's work for the feedings they required, has been replaced by predigested, forced feedings. The moment we left the old order of things, trouble began. When

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If we have a sufficient amount of humus in our soils a proper bacterial home is created and physical conditions become normal for the following reasons:

(1) It eliminates the necessity for heavy unnatural chemical feedings.

(2) Such nitrate feedings as will be required, will be slowly available, which is necessary if the health and vitality of our soil bacteria is to be considered.

(3) We get the porosity necessary for aeration, and moisture for their use is quickly available.

(4) Through the processes of the life and death of our bacteria and, with a slight further decay in the humus, sufficient phosphorus and potash are made available to give our turf a balanced ration.

For these reasons largely, more attention must be given the matter of the quantity of humus requisite for our soil bacteria. When they have been cared for we will have, through the physical changes created, better moisture retention against evaporation, greater depth of

Start Compost Beds Now—New Method Produces Top Dressing in Six Months at Cost of \$1 a Ton

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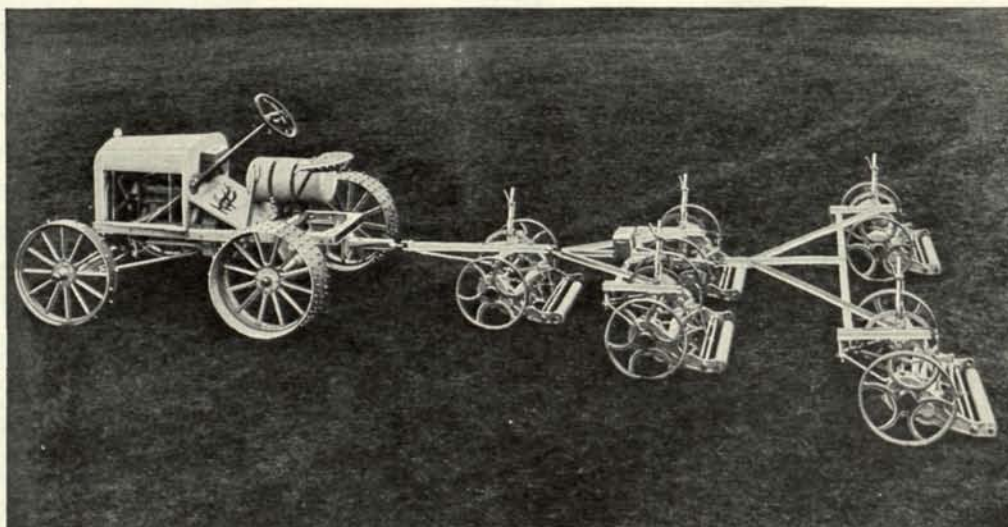
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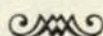


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porosity and more soft surfaced green. Also with mellowness and easy passage of water, less time will be necessary for sprinkling.

Through depth, to which the moisture has penetrated, a better contact with the capillary moisture is had and deeper rootage is gained from which we have a much more healthy growth and a greater freedom from fungi.

How Mellow Soil is Produced

EARTH particles as are frequently found in greens construction, are shown compacted in plate No. 1. On drying they adhere and do not permit the passage of the moisture and air necessary for the bacteria. The deficiency in humus in such an earth would naturally limit the bacteria which might live therein.

Since rootage can only exist to the depth to which air and moisture may pass, such a soil would have necessarily a limited rootage and its permanence would be entirely dependent upon the humus produced by rootage decay at a shallow depth.

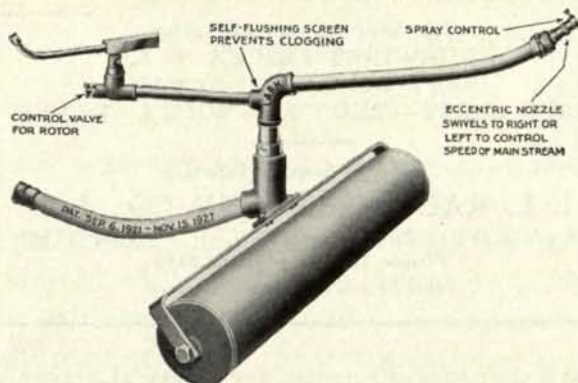
Such conditions existing upon a green are clearly indicated by the ease with which a knife blade may be inserted in the soil. These impoverished conditions, with shallow rootage, are the cause of 95 % of the unsatisfactory development and maintenance of turf upon our greens. The absence of a home for soil bacteria, which would create the proper and necessary physical conditions, are responsible for this type of turf development.

Plates Nos. 2 and 3, show how mellow fertile soils are produced.

A wide survey of golf courses in various parts of the country indicates that the most satisfactory greens have been constructed on

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soils that formerly were "cow" lots or garden areas. These have both been abundantly supplied with organic matter, at one time, to create the necessary home for soil bacteria. The conditions created in this old fashioned manner are shown in plates, 2 and 3. Soil particles have been separated by the accumulated humus, creating a permanent mellowness, when dry, and a moisture retention with porosity for the perfect home of soil bacteria.

It is the return to these natural conditions that will regain for us our lost "Eden" of easy greenkeeping and forgiveness for our sins.

The laboratory shows that we have probably been mistaken as to the acidity existing in undrained organic matter. It does, however, show that a well drained, healthy humus has an acidity due to the action of the nitrifying bacteria in their efforts to feed plant life. For this reason a humus which does not show a nitrous or nitric acidity has not been a home for nitrifying soil bacteria and should not be considered a proper humus for use in conditioning soils, until thoroughly aerated. Recent research has proved this to be a fact, contrary

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to the old belief that improperly drained organic matter, or humus, contained organic acidity.

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to be a soft wood humus, its physical action in the soil will be limited to but a few years, whereas a hard wood humus will retain its original structure for a much greater length of time.

Finally, the sole purpose of the addition of humus to our soils must be made with the health and increased count of our necessary nitrifying bacteria in mind. Without these in abundance, in a proper environment, fine turf production is impossible.

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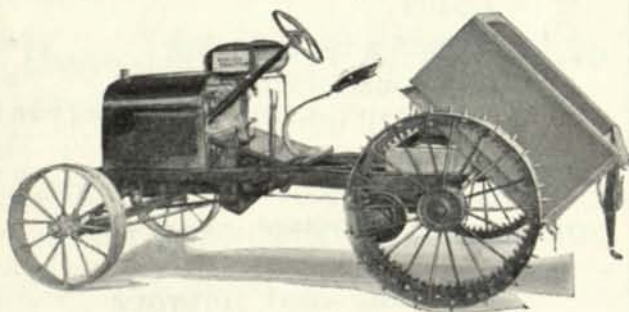
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Among Canadian Greenkeepers

A review of the activities of golf course work in Canada

By J. H. EVANS,
Golf Editor—The Toronto Globe

SIX years ago, greenkeepers of Toronto and Hamilton were brought together in the Western Golf and Country Club by its secretary, C. H. L. Knuth, to discuss problems of mutual interest and questions arising from the culture of grass and the treatment of soil. Mr. Knuth and the group of greenkeepers who attended the meeting were dependent on the bulletins of the United States Golf association, and on advice to be secured from the United States Department of Agriculture and Canadian colleges for assistance in solving the problems with which they were confronted.

It was really the influence of the United States Golf association in stimulating a national consciousness, that was responsible for the organization of this Ontario Greenkeepers' association—the only active organization of its kind in Canada. To the same influence may be traced a change within a decade of greenkeeping and golf course development, from a "father and son" proposition to a calling requiring a high degree of practical knowledge combined with much theory obtained from the Federal and Provincial governments of Canada and the colleges of the Dominion.

Sanson Was First President

THE outcome of the meeting at the Weston Golf and Country Club was the organization of an association with William J. Sanson, of the Toronto Golf club, as its first president and Herbert Hawkins, of the Lakeview Golf and Country club, as its secretary. The organization was followed by a larger interest in technical problems of course maintenance

and with it the establishment of a Green section by the Royal Canadian Golf association. The Green section functioned with a salaried secretary for two seasons, and since then through the medium of bulletins appearing in a monthly magazine. However, the Greenkeepers' association carries on with its monthly meetings, winter and summer. It enters 1929 with Sanson and Hawkins as its directing spirits, a greater prestige and with the confidence of club committees in general.

Activities of the association for the present season which opened three weeks earlier than usual in Canada, include monthly gatherings on different courses of Toronto, Hamilton and other centers. Members of the staff of the Ontario Agricultural College and of the Federal Department of Agriculture will deliver addresses. The association organized an exhibition of golf course equipment last year at the Rosedale Golf club at a considerable expense, but is hesitating before it offers the same feature for club officials and committees because it be-

lieves that the cost might well be borne by those who will profit—the manufacturers of course equipment, seed merchants and supply houses.

The exhibition at the Rosedale Golf club reflects the growth and the influence of the greenkeepers' association. It was started as the result of continual requests from members of green committees to Secretary Hawkins for advice regarding the best equipment for courses. In many instances, the requests for advice came from small clubs of the Province

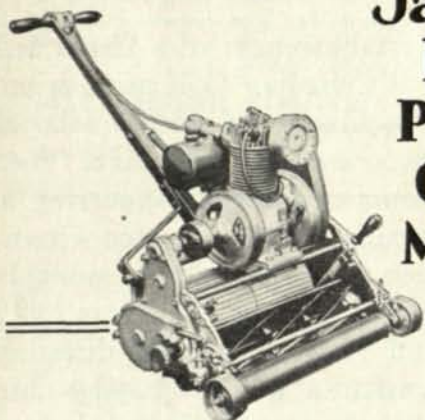


C. H. L. KNUTH
who played a large part in forming the Ontario Greenkeepers' association six years ago. Mr. Knuth received the freedom of the City of London in recognition of war services

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where economy and excellent values for the money spent is essential. The association decided to adopt an unbiased attitude and gave the manufacturer at its expense the opportunity to demonstrate the merits of his equipment.

Golf—A Post War Sport

GOLF in Toronto is a post war sport. Prior to the war there were three clubs with strong memberships and four smaller organizations which had secured the best tracts of land for their courses. After the close of hostilities, Canada's disbanding army brought back keen interest in golf from the British Isles. Since 1918 more than a dozen clubs were formed in Toronto. A number of these clubs were forced to go north of the city and to build their courses on the clay soil which in other portions of the suburbs provided the material for the finest brick in the Dominion. No city on the continent has the same amount and the same available supply of brick.

This rapid development of golf after the war provided the greenkeeper with the problem of growing grass on a clay soil—a heart breaking task in midsummer drought. The greenkeeper's knowledge was largely British and practical to a limited extent because conditions in England and Scotland made a close study of the culture of grass unnecessary. The clay course was probably a factor in hastening the formation of a greenkeepers' association. It must be said that the greenkeeper met the problems before him in an admirable manner, but only by blending the practical with the scientific advice first obtained from the United States and then in Canada.

Piper Introduces Creeping Bent

IT IS of interest to note that creeping bent grass for use on the golf course was brought into Canada seven years ago by the late Dr. Piper, of Washington, D. C., who provided Mr. Sanson with a sod for a nursery at the Toronto Golf club. The club has sufficient now to meet any condition which might arise. The Weston club secured another sod from the same source with the same result, while other clubs have commenced the culture of creeping bent with local assistance.

President Sanson, Secretary Hawkins and their associates have taken up their duties in