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## ANT PROBLEM IS BAFFLING

By JOHN MONTIETH, JR.  
USGA Green Section

NO SYSTEMATIC study has been made of the control of ants on golf courses. The Green Section however, has made numerous tests with various ant remedies and has received many suggestions from outside sources. No method has yet been devised for ant control that is entirely efficient and practical for all golf course purposes. One important difficulty is that there are numerous species of ants which are troublesome in turf and these species vary in their feeding habits.

Most of the ants on golf courses build nests in the ground in the immediate vicinity where they are feeding. Each colony has one or more queens which lay eggs in large numbers in the nests. These eggs hatch into larvae which are fed with food brought in by the workers of the colony. In this manner the ant colony resembles a swarm of bees. Any treatment that merely kills the worker ants provides only a temporary checking of the insect. If poison can be applied into the ant nests to kill the queen and the young the entire colony is destroyed. New colonies may however move in from nearby and establish new nests.

The following suggestions are presented for trial. If one is not suitable for certain conditions it is well to try others.

### Killing Scattered Individual Colonies

Various methods have been used to kill ant colonies quickly. In the vicinity of buildings, walks or driveways they may be destroyed by drenching the nests with boiling water or injecting small quantities of kerosene or coal oil. These treatments however are likely to destroy grass and therefore can not be used on turf.

A similar method, in which the killing agent is a volatile liquid (carbon bisulphide) has been used frequently on putting greens. In using carbon bisulphide the hole in the ant hill is enlarged with a sharp instrument and two or three drops of carbon bisulphide are injected into the hole by means of a spring-bottom oil can. The hole is then at once closed by plugging with earth. As great care must be exercised in the use of carbon bisulphide as in

the use of gasoline, as it is equally as explosive.

One important objection to this method however is that unless used with great caution the carbon bisulphide is likely to injure the turf.

Extracts of pyrethrum have recently been substituted for carbon bisulphide. The method is essentially the same as the carbon bisulphide method. The ordinary commercial extract of pyrethrum is diluted 1 part to 100 in water, placed in an oil can, and used in practically the same manner as the carbon bisulphide. In tests at Arlington this treatment completely destroyed ant colonies without any injury to turf. Pyrethrum extract is a common insecticide sold under various trade names.

Where colonies form large ant nests two or three ounces or more of either carbon bisulphide or pyrethrum extract is required. In such cases the treatment has been found to be more effective if the ant hill is covered with a wet blanket or heavy cloth for a time to retain the fumes of the chemical.

The above method however is impractical where the ant colonies are numerous because of the excessive labor involved. In such cases it is best to use a less laborious treatment to get rid of most of the ants and to depend on the above for the final clean-up.

#### Poisoned Baits Must Not Be Too Strong

Ants can be controlled with poisons. In using poisoned baits it must be remembered that the right kind of bait must be used to attract the particular species that is present. Some species of ants prefer sweet substances whereas others prefer fatty materials. If strong poisons are used the ants that eat them are immediately killed and the other ants will avoid that particular substance. Therefore the principle of using ant baits is to use the poison sufficiently diluted so that before the worker ants feel any ill effects from the poison they will have been able to carry large quantities of it back into the nests where it may be fed to the reproductive forms and the young and thereby destroy the entire colony. Ants frequently appear suspicious of poisoned baits and will avoid them. It is therefore well to change to different combinations when any particular poisoned bait no longer appears effective.

Various ant poisons are available on

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the market under trade names. In many of these proprietary mixtures the basic poison is thallium sulphate. This chemical is extremely toxic to grass and in general should be avoided on golf courses until more information is available as to its possibilities for harm. In tests at the Arlington turf garden extremely small quantities of thallium sulphate sterilized soil so effectively that grass would not grow upon it for at least a year. Concentration of this poison by the ants in their nests may lead to serious turf injuries. Thallium sulphate baits however can be used with safety around the clubhouse or other buildings of golf courses.

Some ant poisons contain borax, which also is likely to cause injury to turf and therefore should be avoided in excess on putting greens.

Several simple baits which have been found to be effective are listed below. The sirup bait may be used most effectively by dipping pieces of sponge, absorbent cotton or cloth into the sirup and then placing them in containers such as metal salve boxes or heavily paraffined pasteboard containers. Small openings are made in the

containers so that the ants may have easy access to the sirup. The containers may be placed on the green in the evening and lifted in the morning.

The following poisoned sirups have been found effective:

Formula A: Dissolve 4 oz. of sugar in 1 qt. of hot water. Then add  $\frac{1}{2}$  oz. of tartar emetic.

Formula B: Dissolve 1 lb. of sugar in 1 qt. of hot water. Add 125 grains of sodium arsenate, boil and strain.

Formula C:\* Add 9 lbs. granulated sugar, 6 grams of tartaric acid (crystallized) and 8.4 grams of benzoate of soda to  $4\frac{1}{2}$  qts. of water. Boil the mixture slowly for 30 minutes, then allow to cool. Dissolve 15 grams of sodium arsenite (C.P.) in  $\frac{1}{2}$  pt. of hot water and allow it to cool. Add this poison solution to the sirup and stir well. Then add  $1\frac{1}{4}$  lbs. of strained honey and mix thoroughly.

\*Recommended only for the control of the Argentine ant, which occurs only in some of the Southern States and in certain parts of California.

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Another method for using the poisons listed above is to mix the sugar and chemicals dry with an equal volume of bran or cornmeal. Add enough weak honey solution (honey in water) to make a crumbly mixture which can be scattered about the green.

Another dry mixture that is usually effective is:

Mix 1 oz. Paris green with 1 lb. brown sugar. Sprinkle the crumbs very lightly around the ant hills.

The poisons may also be mixed with lard to make a paste-like bait which attracts the species that feed on fatty materials. It must be remembered to keep the poison sufficiently diluted so that it may be carried to the nests.

#### Repelling with Water Sometimes Works

A method that has some times been used effectively is that of driving ants from greens by leaving sprinklers running all night for several nights in succession. The ants dislike this excess water and will leave the greens. Because of the danger of complications due to excess water on heavier soils this method can only be recommended for greens with excellent drainage and sandy topsoil.

Tobacco dust and other repellants have proved to be effective under certain conditions. However, like the watering method, these remedies are only partially effective since they merely cause the ants to move out to new territory from which they migrate back onto the greens as soon as conditions are again favorable.

#### Warning

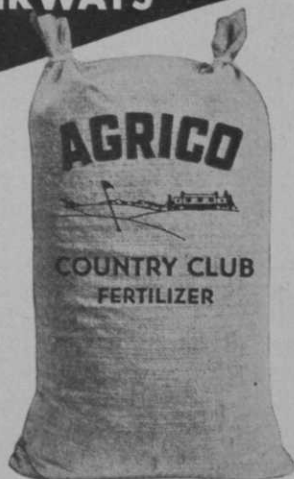
The poisons listed above (except pyrethrum extract) are extremely poisonous to human beings and animals. Extreme care should therefore be exercised in their preparation, use and storage. The sirups especially should never be left where they may be reached by small children.

**McGregor Breaks Ankle**—John McGregor, superintendent of Chicago GC, and a former president of the NAGA, was a casualty of the Washington convention. Rushing with Mrs. McGregor to board bus for the greenkeepers' visit to the Arlington gardens McGregor tripped on a stairway and wound up with a broken ankle.

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