

Jap Beetle Killer Now Sold Under U. S. Patent

By EDGAR J. CLISSOLD

The most effective control agency yet discovered for the Japanese beetle is the milky disease of the grubs. This is the opinion of the U. S. Department of Agriculture, and many of us are familiar with the fine work they have been doing, in cooperation with State agencies, in establishing milky disease colonies throughout the Japanese beetle infested area.

The Secretary of Agriculture has decided to grant a license to permit commercial production and packaging of milky disease spore dust, and we now can buy this material easily.

The method of using milky disease in dust form for the control of Japanese beetles was perfected by entomologists of the United States Department of Agriculture and the invention is protected by U. S. Letters Patent No. 2,258,319 issued to the Secretary of Agriculture. Since the fall of 1939 through 1942 the Department of Agriculture in cooperation with State agencies treated 33,503 acres with milky disease spore dust, representing 45,373 colony plots throughout the beetle-infested area.

The grubs of the Japanese beetle hatch from eggs laid in the soil by the adult beetle. The grubs live in the soil for about ten months and feed on the grass roots in turf areas. These grubs pupate and emerge from the soil as adult beetles sometime in June. Consequently, the spring of the year is a good time in which to treat your turf with milky disease spore dust, and both prevent the grubs from destroying your turf and developing into adult beetles. Summer and fall treatments are also recommended. One treatment is normally sufficient—it will be effective for years, and it may never be necessary to treat your soil again. And the permanence of this control is an important factor to remember when estimating the cost of treating your land.

Milky disease is established by simply dropping one level teaspoonful of milky disease spore dust on top of the turf in Japanese beetle grub infested areas at five-foot intervals in rows five feet apart.

One pound of spore dust will treat 4,000 square feet of ground, and 10 or 11 pounds will treat one acre. A hand corn planter of the rotary type may be used for this work as it may be adjusted to deliver accurately two grams (approximately a level teaspoonful) of material at each spot.

Milky disease is caused by a tiny organism which has been named *Bacillus popilliae*. When a grub is infected with this disease the bacteria multiplies rapidly in its body, and death comes rapidly. The blood of the diseased grub takes on a milky color and consistency, giving the grub a milky white appearance. It may be difficult, however, for the average person to distinguish the marks of the disease from the fat accumulation that is present in mature grubs.

When an infected beetle grub dies it liberates three to nine billion more of the living spores of milky disease in the soil and thus establishes another fatal focus of the disease to infect succeeding generations of grubs for many years to come.

The milky disease organisms are remarkably resistant to dryness or excess moisture, and they are not harmed by high or low temperatures. Even bacteria that has passed through the digestive tracts of birds and small animals that have eaten diseased grubs remain alive, and are reintroduced into the soil. Fortunately, milky disease is harmless to plants, human beings, and domestic animals.

It has not been found possible to obtain sporulation on artificial media of the organisms which cause milky disease. The spores of the disease are obtained from the blood of diseased Japanese beetle grubs. Films of the dried blood are put on glass microscope slides for stock cultures. Tests have shown these spores to be still fit for use four years after storage. The spores in this dried blood are used to inoculate healthy grubs. An exact inoculating dosage must be injected into each grub by means of a hypodermic syringe.

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JAPIDEMIC

MILKY DISEASE SPORE DUST

**Kills the Grub
of Japanese Beetles
in the soil!**



CONSIDER THESE POINTS—

- 1 Offers permanent control. One treatment being normally all your turf will ever require. Consider the future savings in money and labor.
- 2 Easy to apply—little labor involved.
- 3 Nature's own method—milky disease spreads rapidly in the soil. (It is harmless to humans, animals and plants.)
- 4 One pound of JAPIDEMIC treats 4,000 sq. ft. 10 to 11 lbs. treats one acre. At a cost of \$5.00 per lb. it is most inexpensive when you consider it is a permanent control.

JAPIDEMIC is produced in accordance with the method covered by U. S. Letters Patent No. 2,258,319, and under license granted by the Secretary of Agriculture.

ORDER YOUR SUPPLY NOW

We are happy to be of service in bringing Japidemic to your attention, but may we also serve you by reminding you that you should order your grass seed, fertilizer and other supplies as promptly as possible. Delay benefits no one—it may seriously inconvenience you. Let us quote prices on your requirements today.

PETER HENDERSON & CO.
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The injected grubs then undergo a period of incubation. They are kept in boxes filled with soil and a small quantity of grass seed. As the grass seed germinates the sprouts supply food for the grubs.

After the period of incubation, the grubs are carefully screened from the soil, and then washed to remove all soil particles. They are then crushed by being put through a meat chopper.

A standardized grub suspension is then prepared and added to the carrier (Calcium carbonate, precipitated, U. S. P.) to produce a mixture that contains one billion spores per gram of dry material. After thorough drying this concentrate is mixed with a dry carrier (talcum powder). The final mixture contains 100 million spores per gram, and it is ready for use by greenkeepers.

Indiana Short Course at Purdue, Feb. 28-29

SIXTH annual short course for greenkeepers will be held in room 355, Purdue Memorial Bldg., West Lafayette, Ind., Feb. 28 and 29. A registration fee of \$2.50 will include Monday evening dinner.

Indiana Greenkeepers' Assn. and Purdue's Dept. of Agricultural Extension cooperate in putting on the program which will be conducted on the round-table discussions basis. Among program features will be Dr. George D. Scarseth on soils and fertilizers, Prof. G. O. Mott on grasses and fairways, Prof. Glen Lehker on insect pests, Prof. O. C. Lee on weeds, and O. J. Noer, Fred Grau and other nationally known course maintenance authorities.

SOS for Yank Clubs.—Henry Cowen, v. p., Crawford, MacGregor, Canby Co., got this letter from a service man in England:

"How can I have some golf clubs sent over?"

"I am in England and it is some distance to London from where I am stationed, so it is pretty hard to get hold of some good golf clubs.

"I am on a golf team over here. We just picked up a regimental team last week and won the Red Cross Sectional Golf Tournament. Out of four prizes awarded we took three of them. If we had been lucky enough to have had about five MacGregor clubs each we would have done even better.

"I want to buy a few of your clubs such as a No. 2 wood and a few irons. No. 3-5-7, and a putter.

"If you can send me these five clubs

Golfdom