Milky Spore Disease—DOES it prevent lawn grubs?

Q. OK, you have convinced me to wait until the fall to plant new grass seed. But how about the grass I have now? Is it too late to put down Milky Spore? When is the best time to assure it will 'take' in the soil for the long term? Thanks,
---Jaan in Yardley PA

Our lawn was so infested with grubs that we dug the whole thing up and are having new sod put in. Is there something I should put in the soil to kill any remaining grubs before the sod is laid? Thank you,
---Joan in Ottawa, Ontario; CANADA

Mike: I have neighbors who are going to apply milky spore on their lawn to kill grubs; they say applying it three times a year will rid my yard of grubs after three years. But I couldn't find it for sale at the Gardens Alive website, so I'm thinking it might not be that good. What IS the story with this stuff?
----Tony in McLean, Virginia

A. Tony: I don't work for Gardens Alive; they simply host my Question of the Week. But I did ask the folks at GA—who seem to carry just about every other natural pest control—why they don't carry milky spore. They explained that they had heard great things about its ability to control the grubs of Japanese beetles in turf grass, but had also heard about recent tests indicating it may only work in the lab. A little checking around revealed that there's quite a bit of disagreement about this stuff in the research world.

So I called THE authority on Japanese beetles and their grubs, Dr. Michael Klein, Adjunct Professor of Entomology at Ohio State University and former Lead Scientist for what was known for many years as the USDA "Japanese beetle lab" and is now called the "Horticultural Insects Unit". Dr. Klein explained that when Japanese beetles entered the county (on a shipment of plants to Riverton, New Jersey sometime prior to their discovery in 1916) they were rare in their native country, and considered good luck because of their beautiful green and gold 'finery'.

Their famed natural enemy was discovered—also in New Jersey—in the 1930s. Although many of us call this stuff "Milky Spore", Dr. Klein explains that that's actually a brand name; the correct generic term, he says is "milky disease". Anyway, it appears that this naturally occurring soil organism was already in the Jersey dirt, rather than coming over with the beetles. (Until very recently, nobody had even found it in Japanese soils.)

The name isn't the only thing we've been getting wrong, says Dr. Klein; a lot of misinformation has been whispering down the lane here…

Misconception #1: "Milky spore (disease) ONLY works on JAPANESE beetle grubs.
Dr. Klein explains that although it does work best against Japanese beetle babies, some strains have been shown to infect other white grubs—which is good, because other beetle grubs are learning how much fun it is to live in turf.

Misconception #2: "The disease just has to be in the soil to work."
Dr. Klein explains that very specific conditions must exist for the disease to do its job: To become infected, a grub has to be actively feeding in warm soil and ingest some spores. Just being in the same dirt as the disease doesn't harm grubs, and if the soil is cooler than 65 degrees, the spores just pass right thru without harm.

Although the distinctive crescent shaped grubs we find in lawns and gardens already look pretty milky, grubs that are infected with the disease look even milkier, he explains. If you want to be sure, clip off a leg; the fluid will run clear from a healthy grub and milky white from an infected one. Sounds like you're checking to see if a turkey is done.

Anyway, although the number of variables involved makes it somewhere between hugely difficult and totally impossible to prove conclusively, Dr. Klein feels that milky disease DOES work naturally in many areas, and should be able to be introduced successfully in areas that meet the necessary requirements of soil temperature and grubs.

And at least one piece of information people have been dispensing about milky disease IS correct—it lasts as long as its reputation. Researchers have found the disease—which affects no other creatures besides grubs—still active in soils that were treated decades ago.

The more grubs in the soil when you apply it the better, as infected grubs breed more of the disease. The best time to infect large numbers is in early Fall, when the grubs are in nice warm dirt, chewing grass roots madly to put on fat for the wintertime. So applying a concentrated form of the disease (isolated from actual grubs and available in bags and shaker cans at most garden centers) anytime over the summer would seem best. Just don't use any other grub-killers, warns Dr. Klein, or the milky disease spores won't have anything to infect.

Repeated applications shouldn't be necessary if there are a good number of grubs in the soil to become infected. Three times total seems excessive, much less three times a year. As you've always heard, it takes several years to build up enough disease spores in your soil to make a noticeable difference—around three in the Philly-DC area; five up in New England and Canada.

Don't worry about existing grubs in the Spring. Any nibbling they may do after rising to the surface in preparation for their final

metamorphosis into the flying defoliators we know so well is pretty inconsequential, AND the Northern grasses that house the vast majority of beetle grubs (at least so far) are growing at a rapid pace in the Spring. The real damage is done to these cool-season turfs in the Fall, when the grass (which thrives in cool weather but can barely tolerate a really hot and dry July and August) is weak from summer heat stress and the grubs are truly voracious.

If you want to eliminate grubs now in the hope of reducing adult beetle damage this summer, two of Dr. Klein's favorite non-chemical treatments are beneficial **nematodes** and the legendary Spikes of Death. We'll detail those options and talk about the different adult forms and the damage they cause in Part Two of this Special Report next week.

You Bet Your Garden Question of the Week ©2006 Mike McGrath

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MILKY SPORE - FAQ

• How fast does the Spore work and how long does it last?

Milky Spore begins working as soon as it is applied as long as grubs are feeding. Once grubs are infected they will multiply the Spore by several billion times and spread it further. In warm climates good control can occur in one to three years. In colder areas like New England, three to five years. Once established in a lawn, Milky Spore has been known to last 15 to 20 years.

• Will freezing ruin the spore? What about heavy rain?

No, Milky Spore is not affected by freezing or other adverse environmental conditions. Heavy rain may wash away newly applied Spore dust necessitating re-treatment.

• Will fertilizer or chemical pesticides such as Diazinon affect the Spore?

No, Milky Spore is not affected by fertilizers, pesticides, herbicides or other lawn chemicals. They may all be applied at the same time.

• Can I use it in the vegetable garden?

Yes, Milky Spore is harmless to food crops. It is not a chemical pesticide. It may be used in gardens, around pools and wells.

• Should we keep our pets off the lawn?

Milky Spore does not affect pets, beneficial insects, fish, bees, birds, other animals, plants, or man. It is not a poison.

• Can I mix the Spore with water and spray it?

No, the Spore dust must remain concentrated and applied in spots. Do not apply it with fertilizer spreaders or grass seed spreaders.

• Can I cut my grass after applying the Spore?

No, do not mow your grass until the Spore dust has been watered into the soil by rainfall or sprinkling by water hose for 15 minutes or longer.

• What if I treat my yard and my neighbor doesn't?

Your lawn will be protected even if you are surrounded by untreated property. Eventually, the Spore will creep next door into adjacent areas by natural movement.

• Won't beetles fly in from my neighbor's yard?

An adult beetle feeds only during it's first two weeks. By the time they fly in from adjacent areas, any grubs laid will be affected by the Spore.

• What about Moles?

Eliminating grubs with Milky Spore often cause Moles and skunks to feed elsewhere. Unfortunately, they may head for your neighbor's untreated yard instead. Milky Spore does not affect moles, it simply eliminates their food source.

• Can I have too many grubs?

If you are rapidly losing your lawn due to too many grubs, more than 10 per square foot, you may be wise to use an insecticide along with Milky Spore.

• How do I know if I have beetle grubs?

Grubs feed on the roots of your grass which can become brown and die. Simply lift the dead grass and look for white larvae curled into the shape of a "C" about the size of a penny. Active grubs can completely destroy a lawn. Use Milky Spore for safe, long-lasting control.

• Do beetle larvae feed more aggressively in Fall?

Yes, grubs in fall are in the first instar stage and are feeding for growth to store body fat for winter. In the spring, grubs reach 3rd instar prior to molting and do not require as much food.

• Are grubs infected by Milky Spore in spring when rising to the surface following hibernation?

Grubs become infected by swallowing a spore. They do not become infected by rubbing up against spores or passing through them. Since grubs feed less in Spring, the incidence of infection is not as great as in fall.

• What are the application rates for Milky Spore?

Milky Spore powder must be applied in teaspoon amounts every four feet in rows four feet apart creating a grid pattern.

• Can I wait to water in the Spore?

We suggest that you water in the spore as soon as it is done being applied. Direct sunlight (UV rays) can damage the spore and be a cause for re-treatment.

• What is the shelf life of Milky Spore?

Milky Spore has unlimited shelf life as long as it is stored in a cool dry place.

- **What if I get Milky Spore in my eyes? What if I breathe it in?**

No cause for concern. Milky Spore is not a chemical pesticide. The only thing that Milky Spore affects is Japanese Beetle Grubs.