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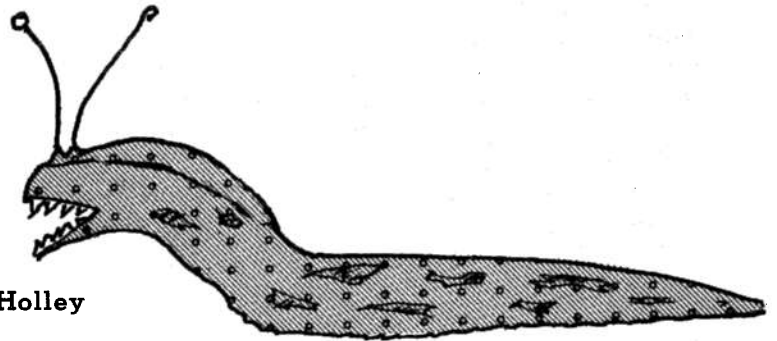
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CONTROL OF SLUGS IN THE GREENHOUSE

by W. D. Holley



While not a serious problem in all greenhouses, slugs cause varying amounts of damage wherever plants are grown in moist situations. Where greenhouses are located in low areas that are damp a part of the year or where they are surrounded by irrigated lawns, slugs often migrate to the inside during summer and fall. The eggs of slugs may be brought in with unsteamed mulching materials. Slug eggs are especially abundant in grass clippings. Because of their nocturnal feeding habits and because they remain hidden in daytime, many growers do not realize the damage done by these pests.

The injury to greenhouse plants may be of two types. By feeding on the foliage, stems and flowers they leave distinct signs not only of the chewed areas but their slimy trails which glisten in the sun. Slugs may eat rounded holes in the stems just below the nodes on tender growths of carnation. They may also eat rounded holes in the tops of the leaves, or in cases where there are large populations, they may eat portions of the opening flowers. On orchids and many crops they prefer the lush texture of

the flowers. Slugs are usually in good supply in rose houses but may do relatively little damage to the rose plants, especially if organic mulches are applied regularly. Just set a few petunia plants under the rose plants for one night and an indication of the slug population will manifest itself.

A secondary injury to plants by slugs may be a spread of certain diseases. Most observant growers note a relationship between slugs and carnation rust. Whether slugs prefer rusty plants and actually use rust spores for food, or whether through their nightly migrations the slugs disseminate the spores in their slimy trails has not been studied in detail. The slime trail probably remains moist long enough for rust spores to germinate and invade the leaf. Other diseases could be and probably are spread by slugs. Any organism requiring moisture and/or wounds for entry may be in this category.

In addition to two spray chemicals, several other measures are helpful in controlling slugs. One of the most effective measures in control-

ling or reducing slug populations is the planning of soil steaming so that benches and the ground beneath are steamed in rapid sequence. When an entire house or section is steamed in a short period, almost all slugs and eggs are destroyed. The use of a cover that goes to the ground effectively kills slugs and other animal pests and weed seeds as well. When only occasional benches are steamed, there is always adequate seed for new populations of slugs left under the unsteamed benches.

Until recently, the only effective poison against slugs was metaldehyde. This has been available in baits, dusts and sprays. When used as a bait it serves only to reduce the population. Baiting is a spotty control at best since it reaches only a part of the slugs. The period of effectiveness of baits is limited as slugs do not relish these after they become soggy.

Fresh (no more than 2-3 months old) metaldehyde dusts are very effective on slugs and safe to apply to plants. Thorough coverage of the lower parts of tall plants or complete coverage of bedding plants such as petunia, zinnia, and the like kills almost the entire population of all but the egg stage. A repeat treatment in 6 weeks should pretty well eliminate the young which hatch from the eggs left after the first treatment. Under average conditions slug eggs hatch in 30 days. The young slugs grow for 90 days or more before they reach the egg-laying stage.

Metaldehyde sprays are also very effective in the control of slugs although the cost of the spray material and the cost of application may exceed considerably the costs of dusting. Spray materials may be stored more or less indefinitely when kept closed while dusts should be used soon after they are mixed. Spray coverage of the lower two feet of foliage is sufficient for good control of slugs. The surface of benches and the ground beneath benches should also be covered with spray material or dust.