Entomologists Look To Resin and Blue-Stain to Control Bark Beetles

Three new methods of bark beetle biological control are being investigated at the Agricultural Experiment Station in Gainesville, Florida, the magazine, *Research Report,* discloses in its July 1964 number.

Researchers into these new control concepts are Dr. R. C. Wilkinson, assistant entomologist, and W. C. Yearian, research assistant.

Although benzene hexachloride applied to forest pines will stifle attacks by bark beetles (Genus *Ips*), the chemical is toxic to other forest life and all infected trees cannot be treated at one time. *Ips* bark beetles cause losses of over 300,000 cords of pine each year.

By studying the biology and habits of these tiny beetles, Wilkinson and Yearian have uncovered several features which could lead to more effective control of these pests.

Highly resinous trees which exude sticky pitch may repulse or entrap males which fly to pines and try to bore nuptial chambers beneath bark. If trees can be selected and propagated for their resinous qualities, they may be rendered "beetle resistant," the researchers feel.

Male beetles secrete a powerful attractant which lures many females to the nuptial galleries. In this way bark beetle epidemics cause many tree losses in a short time. By analysis of the male's lure, the scientists feel they may find a way to lure female bark beetles *away* from valuable timber.

Dr. Wilkinson and Assistant Yearian think they may have a lead, which, if true, will induce sterility in *Ips* females.

When the entomologists reared beetles under clean laboratory conditions, they found that females' ovaries did not develop properly when blue-stain fungus organisms were absent.

The blue-stain fungus also contributes to forest pine losses because the beetles introduce the fungus under the bark with their bodies. Then the organism becomes pathogenic and plugs the tree's water-conducting cells, which contributes to death.

With increased investigation, Wilkinson and Yearian hope to find out if absence of the blue-stain organism definitely does inhibit fertility. If it does, then beetles may be indirectly, biologically controlled by eliminating the blue-stain organisms with a fungicide.

Unmown Bahiagrass Kept at Desirable Level with MH

Maleic hydrazide (MH) has shown to be an effective bahiagrass growth inhibitor in experiments, at the Gainesville, Florida, Agricultural Experiment Station, conducted by Dr. O. Charles Reulke, assistant agronomist with the University there. His work is described in the July 1964 issue of *Research Report.*

According to Dr. Ruelke, "in the very near future, satisfactory grass cover can be maintained without frequent mowing to get rid of unsightly seedheads."

Bahiagrass is used in yards, parks, roadsides, and airports in Florida. Constant mowing is necessary to keep seedheads from forming.

Tests with maleic hydrazide at 0, 2, 4, and 8 lbs. per acre of active ingredient on unmowed plots of Pensacola bahiagrass showed first season control after light fertilization is better, and produces no damage when the 2 or 4 lb. per acre rate is used.

"At 2 and 4 lbs. per acre after the first season application, plots remained shorter and darker than unmowed, untreated plots. Eight lbs. definitely injured grass; browning and purplish regrowth occurred," Dr. Ruelke discloses.

Dr. Ruelke says that all plots received a light nitrogen application just before MH was applied.

In September of the first year grass height was measured and seedheads were counted. Results were as follows:

Rate	Ave. Ht.	Seedheads per sq. ft.
No. MH	10″	9
2 lbs./a	9″	2.7
4 lbs./a	7″	0.7
8 lbs.	6″	almost 0

By the following spring all the plots looked the same. Plots were sprayed again with MH at the same rates as the year before This treatment gave an 80% reduction in seedheads with 2 lbs. per acre; 95% reduction with 4 lbs. per acre; and 99% reduction with 8 lbs. per acre.

One month after spraying, the grass plants were measured with the following results:

Rate	Height
No. MH	13.7″
2 lbs./a	11.3″
4 lbs./a	9.4″
8 lbs./a	6.4″

Seventy percent of the grass plants were damaged the second season with the 8-lb.-per-acre rate.

All the plots were then mowed to test their response. Regrowth of leaves and development of seedheads were much less restricted after treated topgrowth was mowed off. This showed either that mowing decreases effectiveness or that lack of good growth prevented the growth regulator from passing throughout all of the plant parts.

Dr. Ruelke feels that adequate soil fertility and ample soil moisture are both necessary to foster grass growth at MH application time. Growth improves the absorption and translocation of MH to prevent further growth and seedhead formation.

Dr. Ruelke is continuing his research into chemical grass growth regulation in order to refine techniques and devise predictable successful methods.

Ansul Builds "Ansar" Plant

Construction of a new plant for production of Ansar, new selective post-emergence herbicide, has been announced by The Ansul Co., Marinette, Wis.

According to Robert C. Hood, president, the plant will begin production in February. Annual capacity will be 20,000,000 pounds. Ansar 170 effectively controls johnsongrass and other weeds, the company says.