

No one fretted about Rachel Carson.

Not a single speaker alluded to "the current furor over pesticides which is raging in our nation's capital."

In fact, for the 120 spray company executives who converged at the Robert Meyer Motor Hotel in Orlando, Oct. 31-Nov. 2, for the Fourth Annual Horticultural Spraymen's Association of Florida Convention, it was no time to be glum nor to look backward.

This was a meeting of professional businessmen, and they meant business from the very start.

Diverse as the program was,



Panel of pros is always a highlight of HSAF conventions. Here, Charles Butterworth of Chase and Co. explains a fertilization technique while Ralph White of Ousley Sod Co. (left) and Dr. T. E. Freeman of the Florida Agricultural Experiment Station, listen closely.

Antipesticide Atmosphere Won't Stop Progress For Florida Spraymen, HSAF '63 Convention Implies

it seemed so logically organized that it gathered momentum with each succeeding address, finally culminating Saturday in a full-fledged equipment demonstration which gave solid bedrock substance to the three days of theory which conference speakers had presented.

A high note of practicality coupled with profound technical competence was sounded on the first day by entomologist Frank Wilson of the Florida State Board of Health in Jacksonville. Always popular with applicator groups, Wilson had some clear-cut observations to make on the

Popular entomologist Frank Wilson (left) chatted with spraymen Bob Short (center) and Hugh Sherouse, outside the meeting rooms.



business side of the spray business in the Sunshine State.

Admonishing his audience to remember that spraymen's business structure consists of the interlocking facets of sales, management, and technical know-how, Wilson implied it is far too easy to overemphasize the technical at the expense of sales and management.

This was a welcome observation for the group which had already tacitly agreed to stop making such a fuss over anti-pesticide sentiment and to get on with the problems at hand, namely, more efficient and profitable business management.

Wilson did not confine himself to business observations, however, as he went on to spell out some practical tips for spraymen to use on the job.

For example, the entomologist cautioned that to use less than the recommended amount of water in a spray preparation may result in a partial dose of pesticide and increased deposits on leaves. This is because inadequate water prevents chemical from being carried down into zones where chemicals are most effective.

Wilson also told the assembly to watch out for incorrect pressure and rate of spray. Sometimes the output at the pump varies greatly from the output at the nozzle. Why?

One reason is friction loss, in which fluid passing from the

pump through hose (which may be rough inside, crooked, bent, or otherwise hampering) loses some of the force which initially propelled it, in much the same way a droplet of water, rolling down an inclined surface, loses momentum and eventually halts.

To avoid this hazard, Wilson suggested the group calibrate its spray rigs, and alluded to material he published in *Weeds and Turf* for January, 1963 (page W-12).

Quartet of Common Turf Enemies Studied in Detail by 4 Experts

Nematodes, lawn insects, diseases and weeds constitute a formidable opposition for any professional turf management operator. But the fund of use-information which HSAF speakers offered should do much to arm Florida spraymen for ever-increasing success in the combat to preserve fine turf.

First in the series of addresses on these common turf ills was presented by Dr. A. A. DiEdwardo, who is Assistant Nematologist at the Florida Agricultural Experiment Station, University of Florida, Gainesville.

DiEdwardo, whose face is familiar to the spraymen of the state, had interesting information about some new compounds for defeating the nematode.

In a series of three tests with several materials, Dr. DiEdwardo was able to establish that at least three compounds look

promising for control of nematodes in turf.

"Based on nematode counts, and visual appearance of the grass in each of the three tests, the following materials gave excellent results within six weeks: Bayer 25141 (at 80 and 160 lbs./acre); Diazinon A-1619 (15 gal./acre); and DBCP (86.5 lbs./acre)."

Dr. DiEdwardo went on to explain that these are experimental materials and are not immediately available. But they're effective tools which applicators can look forward to using soon.

Insects A to Z

Second in the line-up of thorns in turfmen's sides are the lawn insects, which were discussed at length by Dr. James E. Brogdon, Extension Entomologist at the Experiment Station in Gainesville.

Dr. Brogdon explained that his paper was "Lawn Insects A to Z—Except C," the "C" in this case standing for the chinch bug, which received an entire address of its own from Florida expert Dr. Stratton Kerr.

Caterpillars remain a problem for spraymen, Dr. Brogdon said, especially the sod webworm and the fall armyworm. Best control, he revealed, is achieved with Sevin or toxaphene. Sevin is applied at 1½ lbs. of 80% sprayable per 100 gallons of water for 10,000 sq. ft.

Toxaphene is applied at 3 lbs. of 40% wettable powder or 1½ pints of 60-65% emulsifiable concentrate per 100 gallons of water for 10,000 sq. ft.

Continuing his bevy of helpful advice, Dr. Brogdon suggested that rhodesgrass and Bermudagrass scales could be reduced so that grass does not show injury by applying a series of two or three sprays containing a mixture of malathion and summer oil emulsion. Also, Cygon Dimethoate from American Cyanamid might be helpful, since this compound is a systemic.

Mole crickets are also troublesome in the peninsular state. Aldrin, chlordane, and heptachlor are commonly used with good results, Dr. Brogdon went on. "Kepone is a newer material which has given good control of mole crickets at 4-5 lbs. active ingredient per acre. This is 1¼ lbs. of 50% Kepone wettable powder per 100 gallons of water, applied to 5,000 sq. ft."



From lab and field, experts like Dr. Evert Burt (left), a weed control researcher, and Henry Swanson, Orange County Agent, assembled a fine program for HSAF members.

For billbugs, the scientist recommended VC-13, the insecticide-nematocide from Virginia-Carolina Chemical Corp. Triithion has also proved effective.

What Ails The Turf?

A close look at turf diseases, and the methods of control, was offered by Dr. T. E. Freeman, who is associate plant pathologist at the Florida Agricultural Experiment Station in Gainesville.

The turf authority said there are 100 diseases which affect grasses in Florida. Worst times for outbreaks are the mild, humid periods when it rains frequently.

Foremost in the fungus-incited afflictions which weaken stands of turfgrasses in Florida is brown patch, Dr. Freeman said. This is caused by a fungus known as *Rhizoctonia*. For control, use preparations which contain thiram, PCNB, organic mercury, Cyclohexamide, etc.

Fighting Lawn Weeds

A basic lesson in weed control was presented by Dr. E. O. Burt, assistant turf technologist at the Plantation Field Laboratory in Ft. Lauderdale.

He said one of the best ways to have weed-free turf is to fumigate the soil before planting. This can be accomplished with methyl bromide or DMTT, available commercially in such products as Mylone and Mico-Fume.

Dr. Burt has done some experimental work with a variety of preemergence and postemergence herbicides, and found time to detail some of his discoveries for the rapt gathering.

Among the compounds found effective on undesirable grasses

found in warm-season turfgrasses, were Bandane, Betasan, Dacthal, and Zytron. Against broadleaved weeds in turf, Dr. Burt found Treflan (trifluralin) effective.

For postemergence control of annual grasses in Bermuda and zoysia, DSMA has been found valuable.

"Atrazine does a good job of controlling established broadleaved weeds when used as a postemergence herbicide," Dr. Burt advised, "but control of creeping beggarweed is not successful even with this common herbicide."

Among the nonselective herbicides for control of all vegetation, Dr. Burt singled out for comment both cacodylic acid and Diquat, the compound from California Chemical Co.

Cacodylic acid has no residual and is useful when one wishes to knock down all growth in order to reseed the next day.

Diquat is also nonselective, with no residual, but it, as opposed to cacodylic acid, is translocated, which means roots are killed and therefore sometimes a greater degree of kill is achieved.

"This Diquat is going to be a real good tool for us, I think," Dr. Burt concluded.

The Famous Chinch Bug

Study and discussion of the Florida lawn chinch bug was accorded an entire session separate from the time spent on examination of lawn insects in general.

From the Florida Agricultural Experiment Station came entomologist Dr. Stratton Kerr, a well-known man among Florida spraymen, who has devoted

Leader of the spraymen's group in 1964 is Ted Kaplan, new HSAF president.



years to chinch bug investigations.

Prior to listing his latest recommendations for control of the lawn chinch bugs, Dr. Kerr made several observations on the biology and behavior of the persistent pest.

Apparently high moisture content in lawns helps hold back chinch bug development, and of course rain helps decrease the chinch bug population. Also, there is usually not as much chinch bug damage in shaded areas as in sunny ones.

Among the newer insecticides, some as yet in the experimental stages, Dr. Kerr is particularly impressed with Bayer 39007, a carbamate from Chemagro Corporation which gives "excellent long-term control of the chinch bug" and which cleans up other pest species as well.

"This should be quite a contribution to our arsenal," Dr. Kerr said.

Another promising material is Dow's Zytron, a crabgrass killer which now looks good for chinch bugs as well. Dr. Kerr used it at 10 lbs. active per acre with good results. Dow plans to register it for use at 7 to 10 lbs. active per acre.

Renovate for More Profits

"One of the biggest problems in turf maintenance is removal of thatch," according to William E. Colburn, superintendent of the Bay Hill Golf Course in Windermere, Fla.

"Lawn renovation could be a profitable sideline for horticultural spraymen," the golf man

Update on turf diseases control came from Dr. T. E. Freeman from the Fla. Ag. Experiment Station.



continued. Machines such as aerators and verticutters, which are too expensive for the homeowner to buy and maintain, and usually too complicated for the amateur to rent and employ on the weekend, can be purchased and pressed into profitable service by professional lawn maintenance companies.

Renovation of any kind should be accomplished in the late spring or summer, Colburn pointed out. The process is best used when temperatures are not apt to drop to the low 60's or high 50's, because then it takes the grass too long to recover from mechanical renovation procedures.

A good application of fertilizer and frequent watering should follow verticutting, Colburn elaborated. In fact, a complete renovation should consist of verticutting, scalping, aerating, removing debris, and fertilizing.

"This is more beneficial than just verticutting, because by aerating, one improves the ability of the grass to absorb water and nutrients by allowing oxygen to enter the soil."

Two Views on Fertilization

Since most HSAF members include custom fertilization among their lawn services, two addresses on turf nutrition struck a responsive chord among the assembled operators.

First was a basic summary of turf fertilization principles which was presented by Dr. G. C. Horn, a turf technologist from the Florida Experiment Station in Gainesville.

Dr. Horn reminded his audience that an increase in inorganic nitrogen seems to be accompanied by an increase in chinch bug activity, which bore out a statement made earlier in the program to the effect that fertilization can have profound effects on insect activity.

It is difficult for even the highly trained eye to tell at a glance what element is missing in turfgrass diets, and therefore recommend the proper corrective treatment.

Absence of such elements as nitrogen, potassium, and magnesium produce symptoms which may resemble each other. Chlorosis, the yellowing of leaves brought on by a lack of iron, is one such symptom.

"We do know," Dr. Horn posed, "that when we increase the



Insects A to Z—except C (chinch bugs) was Dr. James Brogdon's slide-illustrated address.

increment of potassium on centipede grass, we increase the increment of chlorosis." This is something to watch out for.

"Geigy's 330 Chelate seems very effective in combatting chlorotic conditions," Dr. Horn summarized. He also recommends operators use the Cyclone-type spreader to apply fertilizers in granular form.

Near the end of each year's convention, planners of HSAF meetings summon to the roster all speakers who have appeared, and then subject the forum to a bombardment of questions from fact-hungry delegates.

This is called the "panel of pros" and has always been extremely popular. The '63 convention was no exception.

—Bill Reimer, who's with Woodbury Chemical Co. in Miami, asked Dr. Burt to compare the triazines to 2,4-D for weed control in St. Augustine grass.

—Dr. Burt replied that the triazines are not as hazardous as 2,4-D, although injury could result. "Grass should be in good shape before any herbicide is used," the weed authority warned.

—A delegate wanted to know what's good to control the Bermudagrass mite. He was told to use Diazinon, Ethion, or Trithion at the same rate which is recommended for chinch bugs.

—Is a fungicide more effective if applied alone rather than mixed with another chemical? Not necessarily, said Dr. Freeman, unless, of course, the two aren't compatible.

—Give us some tips on the use of sulfur. "When you use it, be

WATERMILFOIL

(*Myriophyllum* spp.)



Watermilfoil is the common name for about 20 species of the aquatic plant genus *Myriophyllum*, which means "many leaves." Most common species of watermilfoil are native to the United States and are not generally pests. Worst are those which have been imported from South America, parrotfeather, *M. brasiliense*, and Asia, eurasian watermilfoil, *M. spicatum*.

Leaves of various watermilfoils range from finely divided feathery leaves along most of a plant stem to scalelike leaves (bracts) near the top. Leaves may be arranged circularly in whorls about the stem or may be placed alternately on the stem, depending upon the species. Bases of leaf parts generally encircle the stem.

All major leaf parts resemble feathers enough so that it can be said that this characteristic can be used to identify a watermilfoil. For exact species identification, flowers and seeds found in the axils (junction of leaf and stem) of the scalelike leaves are needed.

Flowers are small and inconspicuous. During flowering, tips of watermilfoil stems extend above the water surface. Stem tips may take on a reddish or pinkish cast; in other species stem tips are typically greenish.

Stems of watermilfoil usually remain under water. Roots extend from the stems to mud where they attach weakly. After watermilfoil matures, wave action may break the root connections and the submerged plants may pile up on the windward side of a lake.

Imported watermilfoils are serious pests on both east and west coasts; local infestations of other species occur across the nation.

Sodium arsenite introduced into water at 4 parts per million will kill watermilfoil and other weed species. This chemical should be handled with great care.

Spraying with 2,4-D is usually unsuccessful because the stem does not transport the chemical downward to any extent. Granular applications of 2,4-D at higher concentrations have been successful provided that the granules can penetrate the dense submerged growth. In this way, 2,4-D is absorbed by roots and carried throughout the plants.

Endothall and silvex have also been useful in watermilfoil control.

Prepared in cooperation with Crops Research Division, Agricultural Research Service, United States Department of Agriculture, Beltsville, Maryland. Drawing courtesy of the Regents of the University of Wisconsin, from N. C. Fassett, A Manual of Aquatic Plants, 1960, the University of Wisconsin Press.

sure you water it in well," said Ralph White. Furthermore, he mused, when you aren't sure of the effects of the chemical you're using, start to apply it at a very low rate, then work up until you get desired effects. "After all, once you put it on, you can't take it off," the turf grower said pointedly.

The crossfire of questions and answers was a lively conclusion to the 1963 convention of the Horticultural Spraymen's Association of Florida, which has vowed to make even more dramatic progress in the coming year, both in service to its members and in more help for the public.

To carry out this momentous task, delegates selected as their new president Ted Kaplan, who runs King Spray Service in Miami. The three regional vice presidents who'll assist are: (southern region) Hugh Sherouse of Hugh's Power Spraying, Pompano Beach; (central region) D. E. VanVolkenburg of Lawns, Inc. in St. Petersburg; and (northern region) William King, King Landscaping, Orlando.

NWCC Moves to Hotel Astor For 1964's Varied Program

Breaking with the traditional meeting place, the Northeastern Weed Control Conference will convene next year at the Hotel Astor in New York City for its 18th annual session.

In a diverse program Jan. 8-10, delegates will hear technical papers on herbicide-soil interactions, surfactants, pesticide uses, highway weed control, and, as usual, the new chemical report.

General program categories include Agronomic Crops, Horticultural Crops, Turf, Aquatics, Conservation and Forestry, Utilities, and Public Health.

Nearly 700 weed controllers from field, laboratory, and industry are expected to attend. A \$6 registration fee includes admission to all sessions and a copy of the proceedings.

For details, write Dr. John A. Meade, Secretary-Treasurer, Northeastern Weed Control Conference, Dept. of Agronomy, University of Maryland, College Park.