FEATURED IN THIS ISSUE:
Turf School History
Pesticide Insurance
Fungicide Trials

SPRING 1981
CONFERENCE ISSUE

BETTER TURF THROUGH RESEARCH AND EDUCATION
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Dedication

This issue is dedicated to the memory of Henry J.
Homan, Jr., first President of the Turf Club of the Stock-
bridge School, University of Massachusetts, and initiating
force behind publication of the Turf Clippings. Mr. Homan
was born in 1931, graduated from the Stockbridge School
in 1957, and died in 1980.
Fifty Years of Turf Management Education at the University of Massachusetts

By Ruth S. Zak

The teaching of Turf Management at the University of Massachusetts (then the Massachusetts Agricultural College) was begun in 1927 under the direction of Lawrence S. Dickinson and was a dual program: the Winter School (12 weeks) and the Stockbridge School of Agriculture (2 years). These were the first such programs in the United States. By the time turf management was added to the Winter School curriculum, the school had been in operation for 27 years, having opened its doors to students in 1900. The program for turf managers was called “the winter school for greenkeepers and golf course foremen.” Applicants were “required to be members of a greens committee, greenkeepers, or must have had at least one year’s experience on a golf course.” No entrance exams were required, but it was “expected that the student will have a reasonable education in the English language.” Enrollment was limited to 10 students but within a few years rose to 15 and then 20. Preference was given to Massachusetts residents. Courses were offered in motors, water systems, soils and fertilizers, equipment, managerial problems, grasses and grass seed, drainage, fundamentals of landscape arrangement, and cost keeping and analysis. The applicant was allowed to register for one or more courses and a certificate was awarded to those who completed the full program of courses. These ran from 3 to 6 weeks in length and started and ended at different times during the 12-week period.

In the 1930 Winter School catalog, mention is made of an “annual exhibit for greenkeepers to be held on the last Saturday and Sunday of the term. The entire exhibit was arranged by the students and had become “one of the outstanding golf exhibits of the winter”, affording an opportunity for the students to meet a large number of greenkeepers, green chairmen, and others prominent in golf course maintenance. Visitors came from as great a distance as 1000 miles, “showing the keen interest in this type of service rendered by the college.” This was the beginning of the turf conferences as we know them. Exhibits included such things as miniature 9-hole golf course set-ups and debates with students serving as judge, jury, and lawyers, arguing the merits of various grasses and their management.

In 1938, an advanced school for greenkeepers was added to the Winter School curriculum. Only those who had previously attended the regular winter school were allowed to attend the advanced school. Two different 5-week curricula were offered, one following the other, during the then 10-week course. It is not known for how many years this advanced school was held.

For the last 20 years or more, the Winter School for Turf Managers has run for 8 weeks and in recent years, enrollment has been 40-45 students each year from the 80-100 applicants to the school. As testimony to the popularity of the Winter School and students’ perceived difficulty in being accepted into the program, one 1968 applicant sent in a 35-page resume which included his service record, his high school grades, and every other thing he could think of. (Incidentally, he was accepted.)

In the Spring of 1922, a horticulture major could take a course at the Stockbridge School of Agriculture on lawn construction and maintenance, lawn mowing, and weed eradication. This was one of seven horticulture courses intended to “train men for positions as superintendents or foremen in parks or on private estates...” This lawn course was the precursor of a “turf option” of four horticulture courses instituted in 1927 with somewhat the same emphasis as those in the Winter School. Courses were given 5 credits.

Nineteen hundred and twenty-seven was also the year that Stockbridge School tuition for Massachusetts residents was charged for the first time — $60. In 1929, the curriculum was expanded to include turf diseases and pest control, and course credit was changed from 5 to 3.

The Stockbridge School turf program was in a constant state of flux. It was decided in 1933 that students who had attained an average of 75 or higher during the first semester of their second year might enter the Winter School for Greenkeepers, which program then included landscape appreciation and a course in botany. After the 1935-36 school year, the Stockbridge School turf program was discontinued because of low enrollment. It was suggested at the time that “students desiring special training in greenkeeping register for the first semester in the horticulture major, followed by a period of summer experience in practical greenkeeping, making them eligible for the Winter School for Greenkeepers the following January.” In 1947, after World War II, the fine turf option was again offered in the Stockbridge School, with the first class of 8 students graduating in 1948. Enrollment has risen fairly steadily each year since that time. In recent years, the major has been restricted to 60 students, 20 percent of whom transfer into the 4-year degree program.

Over the years, much emphasis has been placed on the placement training phase of the 2-year Stockbridge School turf program. It was felt (and still is) that the practical aspect of turf management as learned from golf course superintendents and other turf managers was of tremendous importance for students in their future careers. The ability to get along with people, to make decisions for the benefit of the golf course, its membership, and the community, to be a leader of men — all were deemed of utmost importance. Additionally, it was felt that disease identification,
fertilizer application, herbicide, fungicide, insecticide use, problem identification and resolution were all practical items not fully learned in a classroom. Important also has been the money earned during summer placement which enabled students to finish their education. In the Stockbridge School yearbook of 1951, Placement Officer Emory E. Grayson reported that summer placement salaries for turf students were second highest among the 10 major disciplines; in 1953, turf placement students earned the most money.

One amusing story related by Mr. Grayson concerned written communications he received from two students sent to a New York golf course for placement training in 1938. Some of the exchange went this way:

**Question:** “Do you feel that the work and experience will be satisfactory to you?”

**Answer:** “Too much so. The course is under water and the grass is floating. I got eight blisters the first day and more coming. This place would make a perfect site for a brick factory.”

**Question:** “Does your employer appear to be satisfied? If not, what do you think is the trouble?”

**Answer:** “He uses profanity with great skill and is always cursing the place. He’s got F.O. — Foot Odor from working in this darn swamp. Come up here and see the place. I have been in some tough places, but boy, oh boy, this is the best yet. . . . We are still looking for the caterpillar tractor we took out of the shop. It is still under the mud somewhere.”

The above report was signed, “This is the truth, the whole truth, so help me God!”

The employer at the end of the season, wrote of one of the placement trainees, “Too cocky. Others people by telling them what a genius he is. Booze, women, and late hours render him tired during the day. Very clumsy.”

(Mr. Grayson also filed a report on an animal husbandry major who lived in the farm manager’s house while on placement training. He apparently enjoyed the arrangement, because before the summer was over, he ran away with the farm manager’s wife in the manager’s car! — naturally, not something a turf major would do.)

Mr. Lawrence S. Dickinson founded the turf programs at the University of Massachusetts. He was a man with vision, a teacher and advisor during his tenure to thousands of students in the field of turf. He was recognized as a national authority on turf and lectured throughout the country on golf turf management. On his 25th anniversary, he was honored by the GCSAA with a certificate of commendation and a very substantial amount of money. In 1932, he assisted in the founding of the Northeastern GCSA. Four years after he retired in 1958, he received the USGA Green Section Award for distinguished service to golf through his research with turfgrass. Mr. Dickinson died in 1965.

A number of well-known educators have been part of the University of Massachusetts turf program: Dr. Eliot C. Roberts, presently a faculty member and former head of the Plant and Soil Science Department at the University of Massachusetts.
Rhode Island; Dr. Donald Waddington, now at Pennsylvania State University; and Dr. Robert N. Carrow, presently at Kansas State University. Prof. John M. Zak has been a backbone of the turf management teaching program for many years. Two years ago, Dr. Kirk Hurto joined the teaching and research staff. The well-known golf course architect, Mr. Geoffrey Cornish, taught 2-year turf students for a short period in the Fifties. Prof. Zak, Dr. Hurto, and Mr. Cornish all teach in the Winter School for Turf Managers.

In 1957, Dr. Joseph Troll joined the faculty as an Instructor in turf. His service to the turf program includes: teaching and advising (a) 2-year Stockbridge School turf majors, (b) 4-year University turf option majors in the Department of Plant and Soil Sciences, (c) graduate students, and (d) students in the 8-week Winter School for Turf Managers which he also administers. In addition, he administers the entire Annual Massachusetts Fine Turfgrass Conference and Industrial Show, which in 1980 had over 1500 people in attendance and 155 booths. Dr. Troll serves as Secretary-Treasurer of the Mass. Turf and Lawn Grass Council and carries on a great deal of turf-related extension. The 9-acre turf plots in South Deerfield were initiated by Drs. Troll and Carrow; maintenance and management of these plots is at present being conducted by Drs. Troll and Hurto.

In summary, the turf management teaching program at the University of Massachusetts has grown from its initial small beginnings in the late Twenties for Winter School and Stockbridge School students to include 4-year bachelor degree recipients, and master's degree and Ph.D. recipients. During his tenure, Dr. Troll has seen certification of 775 Winter School students and graduation of 756 Stockbridge School turf majors, and has seen approximately 230 4-year, plus 25 graduate students receive their respective degrees in the field of turf management. Enrollment in the various programs has varied over the years, but since the late Fifties, applications to the Stockbridge School turf program and the Winter School for Turf Managers have increased to the point that it has been necessary to refuse admittance to some applicants solely because facilities cannot accommodate them. Under Dr. Troll's direction, plant pathology has again been included in the curriculum, and courses in report writing, business law, and public relations have been added.

This year marks the 50th Turf Conference, which event was started so many years ago as an adjunct to the Winter School program. Over the years, the speaking program has been varied and has drawn as participants outstanding men in the field of turf, from universities, industry, and from golf courses all over the United States and Canada, and even the British Isles.

The Industrial Show part of the Conference is supported by industry, which in turn supports the various trials being conducted on the research plots. Graduate students are supported also by funds from the Industrial Show and from the research program. The response received over the years from commercial firms and from the excellent program participants has been very gratifying. Worthy of special mention has been the superb attendance record of golf course managers, some of whom are former students, located extensively throughout the United States and Canada. We thank you all and invite you to join us again on March 3-5 when we celebrate No. 50!
When the best met
to decide the winner,
there was no deciding about
what kind of turf they were to play on.

THE WINNER WAS ALREADY CHosen.

It was... Adelphi
KENTUCKY BLUEGRASS
(U.S. Plant Patent No. 3150)

FOR INFORMATION, CONTACT:

J & L ADIKES, Inc. • VAUGHAN-JACKLIN CORP.
Jamaica, New York 11423 Bound Brook, N.J. 08805
COMMENTARY: A Case for Conditional Optimism

By Dr. Daniel Hillel
Plant and Soil Science Dept., University of Massachusetts

For over a decade now, we have been battered again and again by a seemingly endless succession of inescapable problems and crises which has shattered our former complacency and our faith in an orderly civilized world and in the attainment of a full life for all the world’s people. Among the problems which threaten to overwhelm the international order are the population explosion, the pollution and degradation of our environment, famine, civil strife and terror, proliferation of nuclear weapons, youth disaffection, energy shortages, inflation, the apparent failure of democratic leadership and of international institutions. . . . Long indeed is the list of our woes!

Is there hope for mankind?

Only two decades ago, we all would have answered with a ringing affirmation of mankind’s positive destiny. After all, faith in the essential goodness of man and the efficacy of progress had been a fundamental tenet of our culture for many generations. Yes, there are problems, we would have readily acknowledged, but we can solve them all in time through education, research, technology, legal and social reform, planning, organized institutional action, and the eventual attainment of international goodwill and understanding.

For centuries, it seems, ever since the onset of the industrial revolution, the concept of progress had been the guiding principle of Western civilization. By the very nature of human history, we thought, every generation must somehow improve upon the preceding one. Almost by definition, history is a journey of progress, in the course of which mankind rises higher, qualitatively as well as quantitatively.

Now, suddenly, we are not so sure. A host of crises negates our hopes. We are plunged into a malaise, an anxiety, an uneasiness. It seems that our journey has taken us to some fateful boundary, beyond which lies uncharted and dangerous ground, a hostile terra incognita. Few of us can muster the optimism to look on today’s crisis as a temporary setback, a momentary pause in our headlong voyage, merely a waystation in which we might gather new energy in our continuing quest to attain ever greater heights and view wider horizons.

The pessimists who seem to dominate the intellectual community predict the decline of our civilization, and, as was the fate of Rome, expect us to be plunged into another dark age. Before our very eyes, they have transformed the prevailing perception of history from a bright promise to an unavoidable disaster. “We’ve seen the best of the game,” said novelist C.P. Snow, while historian Arnold Toynbee predicted that the developed countries will soon find themselves in a state of permanent siege, in which even the material conditions of life will become increasingly austere.

In the face of this profoundly pessimistic perception of reality, the first victim is likely to be the moral and spiritual equilibrium of our society. In times of stress and adversity, some relatively prosperous individuals or nations, feeling threatened, may be tempted to seek advantage by setting themselves apart and aloof from the remainder of mankind. There are plenty of smug and self-righteous ways by which to rationalize such an attitude. I have recently heard a presumably serious academician, speaking before a large audience in a major university, make the startling statement: “If those people,” obviously referring to those developing countries, “insist on producing endless masses of human protein, we ought to simply leave them to wallow in their own misery.” I note regretfully that this cruel statement was greeted with applause.

Can rich first class passengers (to use a currently popular metaphor), on a train rushing toward doomsday, with more and more third class passengers clambering aboard and hanging on the doors, go on eating and drinking while oblivious to those knocking on their windows? And, even if the first class passengers could close their shutters and survive physically, what about their moral survival?

Foremost among mankind’s present woes is the population-food crisis. Population seems to be growing uncontrollably, especially in the under-developed nations of South Asia, South America, and Africa. We are told by statisticians that within a century these nations could attain a population of 30 billion or more, unless famine or war or (at best) stringent family regulation reduce these numbers. Meanwhile, food seems to be running short. There are re-
ports that fish catches are declining. Western man continues to feed grain to cattle while people in drought-stricken areas of the underdeveloped world clamour for a bit of that grain for their children.

Increasingly, the answers searched for become regional rather than local, global rather than national. And there are no easy answers. Beware of those who will tell you that science and technology will soon solve it all. And beware of those who tell you that there is no solution and that some nations are already doomed. Both views are simplistic at best. At worst, they are cop-outs, ruses used to cover up an otherwise inexcusable tendency to evade the real problems of the day.

Especially dangerous are those who find it fashionable to spread despair and thus dull us into a state of resignation and inactivity. They say that the green revolution, which only five years ago seemed to be such a success, has failed. They say the world has no more arable land to bring into production. They say the climate is changing for the worse. And they say pollution is an inevitable consequence of population growth and is spreading inexorably. Moreover, they say that food production will necessarily decline, as increasing scarcity of energy will drive the cost of fertilizers, pesticides, tillage and pumped water out of the reach of many marginal farmers. The problem seems so overwhelming that we instinctively recoil from its very enormity.

The most prestigious and influential of the doomcriers have based their projections on the computer model contrived by the high-sounding "Club of Rome." The assumptions upon which this model was based are exceedingly questionable and in fact pre-determine the results. Notwithstanding the fact that various scholars have refuted this model (in the process, demolishing it in excruciating detail), it seems to have gained currency in numerous publications, in the mass media, and even in the schools. Its dismal and forlorn conclusions have almost become part of conventional wisdom, quoted and re-quoted again and again.

More and more, we see and hear reference to Reverend Thomas Malthus, who, in his Essay on Population published in 1798 first advanced the thesis that population growth will inevitably outstrip food supply. Since Malthus has been dead, and quite wrong, for over a century and a half, it is rather amazing that his view of man's fate should gain such popularity and become the truistic mainstay of current opinion.

There is, however, an alternative proposition, which draws quite a different picture of the future, and yet is at least as plausible. It is that the earth can support a population considerably greater than today's. Population growth is in any case slowing down (prosperity being the most universal and proven contraceptive). The current shortages are not the inevitable result of any fundamental scarcity of resources, merely of poor management. We've only scratched the surface of the earth's resources, which are potentially enormous. Pollution is not irreversible, and is in fact controllable once it is recognized and the will is mustered to do the job. And while we cannot expect the rich nations to give up their wealth or the poor nations to wrest it away by force, we can expect a greater measure of cooperation and concerted international action to increase food production and alleviate hunger.

The history of mankind has always been a race between the acquisition of new knowledge and the threat of disaster. The form of the disaster looming over mankind has changed repeatedly, like a many-headed dragon. Once it was pestilence, then famine, then environmental degradation, and once again famine and new outbreaks of disease. Mankind's problems can never be solved once and for all. We must continue to search and re-search to acquire the knowledge and then take the necessary action to solve the problems which arise anew or exacerbate from time to time. By recognizing and solving the problems early enough we can head off the threat of disaster. This belief was a commonly held article of faith during the first half of this century, but is seldom heard today in respectable forums. I submit that their is much to be said for it even now.

One of the real reasons for today's shortages of food is the failure of the world community, including the producing and consuming nations alike, to prepare for the eventuality of occasional crop failure resulting from drought or other vagaries of nature. The world has neglected the wisdom of Joseph the Provider, who had the foresight to store the surplus production of good years so as to tide the economy of ancient Egypt over the bad years, thus moderating the sort of sharp fluctuations which we have witnessed in our own generation.

I would not be so confident about the potentialities for solving the world's food problem if I had not witnessed and taken part in the development of agriculture in the
State of Israel. In the year 1946, a UN commission was appointed to deliberate over the fate of the country, and in the course of its inquiries it received “expert” testimony purporting to prove that the country’s productive potential had already been reached and that there was no more arable land nor water to permit any substantial increase in production (and hence in population). When Israel was established two years later, its population was about three-quarters of a million, and it was barely able to produce half its food requirements. Now, one generation later, the population of Israel is almost five times as great, and its agriculture is now producing, either directly or indirectly (i.e. by exporting and earning), the entire food requirements of this vastly greater population. In other words, agricultural production in this one country has been multiplied tenfold within less than 30 years. This is indeed a remarkable achievement.

To be sure, it was not an easy task. It would not have been easy even if the country did not have to contend simultaneously with a multitude of other problems with competing demands upon its manpower and other resources. Nor were the physical conditions particularly favourable. Perched between sea and desert, the country is subject to shifting climatic patterns with a high incidence of drought. Moreover, the land had been ravaged by erosion for centuries as the once-terraced hillsides had been overgrazed. (It has been estimated that a mantle of soil one yard deep has been washed into the sea by the resulting accelerated erosion). In fact, only about 25 percent of the country’s approximately two million hectares are in any way arable, the remaining soils being either too shallow, too steep, too stony, too saline, or too parched to permit cultivation. Yet the job was done and that is sufficient proof that it can be done elsewhere, though perhaps not in the same manner or to the same degree.

But how was it done? The answer may seem deceptively simple: through trial and error and at times it seemed there were more errors than trials, search and re-search in a persistent, and still continuing, quest for better ways. Methods had to be devised to cultivate each soil type specifically, including loose sands and ill-drained clays, and to determine which crops and cropping sequences are optimal. After exploring every possible source of water, the country was able to utilize more than 90 percent of its renewable water supplies, including streams, springs, underground aquifers, and lakes. One of the first laws passed by the new state was a comprehensive water law, strictly regulating the pumping of water from each well so as to prevent the progressive lowering of the water table along the coast and the resulting hazard of seawater intrusion.

With water so precious, a painstaking effort had to be invested into increasing water use efficiency in irrigation. The age-old practice of flooding over the land or impounding water in furrows was quickly abandoned in favor of more highly controlled methods of application such as sprinkling. Ultimately, an ingeniously simple method was devised, called trickle irrigation, by which water is provided to crops (including large trees) drop-by-drop, in the manner of spoon-feeding babies, at a precisely measured rate to answer the climatically-imposed demand and to prevent salinization while maintaining a nearly optimal condition of soil moisture continuously. Fertilization techniques had to be tested for each crop and soil, including the technique of injecting the nutrients into the water supply. Improved strains of animal and plants were imported whenever suitable, or bred locally. Methods of weed and pest control specific to the country’s conditions were developed, with due attention to the hazard of environmental damage. Other innovations related to climate control (e.g. the use of plastic covers and greenhouse culture) as well as to harvesting and storing produce. Nothing, in fact, could be overlooked.

In the course of its agricultural development, Israel was aided greatly by the extraordinary diligence and ambition of its new farmers — men and women who had no background in farming and hence, unbound by traditional methods, were ever willing to try new ways. In many cases, these self-educated farmers, particularly on the collective (Continued on page 18)
“Better Turf Through Research and Education”

Fiftieth Annual Turf Conference and Fifth Industrial Show

March 3, 4, and 5, 1981  Civic Center  Springfield, Massachusetts

(I-91, Exit 6 from South Columbus Avenue Exit from North)

Sponsored by  Department of Plant and Soil Sciences, University of Massachusetts/Amherst
Massachusetts Turf and Lawn Grass Council
Golf Course Superintendents Association of New England

PLEASE BRING THIS PROGRAM WITH YOU

REGISTRATION
Lobby-Plaza Entrance

8:30 AM- 4:00 PM  Tuesday, March 3
8:00 AM- 4:00 PM  Wednesday, March 4

TUESDAY, MARCH 3, 1981
—Morning—

9:00 AM-12:45 PM  Industrial Show Open
Exhibition Hall
Snack Bar Available

—Afternoon—

GENERAL SESSION
Banquet Room
Chairman: Dr. Joseph Troll
University of Massachusetts

1:00- 1:15  Welcome
Dean William D. Tunis
University of Massachusetts

1:15- 2:15  Environmentalists, Pesticides
and Incredible Nonsense
Mr. Walter Weber, Registered
Professional Entomologist
Indianapolis, IN

2:15- 3:00  Hyperodes and Other Turfgrass
Insects
Dr. Patricia Vittum
Waltham Experiment Station
Waltham, MA

3:00- 3:15  Break

3:15- 3:45  Turf Management For Golf
Mr. Alexander Radko
National Director
USGA Green Section
Far Hills, NJ

3:45- 4:30  Soil Testings: Interpreting the
Results
Dr. William Dest
University of Connecticut
Storrs, CT

4:30- 6:30  Industrial Show Open
Exhibition Hall

6:30- 7:30  50th Conference Cocktail Party
Lounge, Civic Center

WEDNESDAY, MARCH 4, 1981

GOLF COURSE SESSION
Banquet Room
—Morning—

Chairman: Dr. Kirk A. Hurto
University of Massachusetts

9:00- 9:45  Does Good Management Apply to
Clubs?
Dr. George Odiorne
University of Massachusetts

9:45-10:30  Management of High Traffic Areas
Dr. Robert N. Carrow
Kansas State University
Manhattan, KS

10:30-11:00  Unusual Turfgrass Situations
Dr. John C. Harper II
Pennsylvania State University
University Park, PA
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<th>Time</th>
<th>Event</th>
<th>Speaker/Location</th>
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<tr>
<td>10:30</td>
<td>Fertilization Practices for Seed and Sod Establishment</td>
<td>Dr. Robert C. Shearman, University of Nebraska, Lincoln, NB</td>
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<td>11:00</td>
<td>Industrial Show Open Exhibition Hall</td>
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<td>—Afternoon—</td>
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<td>2:00</td>
<td>Turfgrass Diseases</td>
<td>Dr. Noel Jackson, University of Rhode Island, Kingston, RI</td>
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<td>2:45</td>
<td>Maintenance of a Regulation Par-3</td>
<td>Mr. John O'Connell, Blue Rock Golf Course, So. Yarmouth, MA</td>
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<td>3:15</td>
<td>Maintenance at Myrtle Beach</td>
<td>Mr. Fred Meda, Myrtle Beach, SC</td>
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<td>3:45</td>
<td>Developing an Irrigation Program</td>
<td>Dr. Robert N. Carrow, Kansas State University, Manhattan, KS</td>
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<td>4:30</td>
<td>Industrial Show Open Exhibition Hall</td>
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<td>—Evening—</td>
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<td>8:00</td>
<td>Banquet and Winter School Ceremony</td>
<td>Dr. John Denison, M.C., University of Massachusetts</td>
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<td>9:00</td>
<td>Growth Regulators</td>
<td>Mr. John Jagschitz, University of Rhode Island, Kingston, RI</td>
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<td>9:45</td>
<td>Propagation and Development of Trees</td>
<td>Mr. Harold Crane, Princeton Nurseries, Princeton, NJ</td>
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WEDNESDAY, MARCH 4, 1981
ALTERNATE SESSION
College Room

—Morning—

Chairman: Mr. Charles Mruk
Boots Hercules Agrochemicals Corp.

Conference attendees will receive credit toward recertification for pesticide application in Massachusetts.

THURSDAY, MARCH 5, 1981
GOLF COURSE SESSION
Banquet Room

Chairman: Prof. John M. Zak
University of Massachusetts

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<tr>
<td>10:00</td>
<td>Water Priorities</td>
<td>Mr. Sherwood A. Moore, Winged Foot Golf Club, Mamaroneck, NY</td>
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<td>10:30</td>
<td>Turfgrass Research at Beltsville</td>
<td>Dr. Jack Murray, Field Crops Laboratory, Beltsville, MD</td>
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<td>11:00</td>
<td>Efficient Management Through the Systems Approach</td>
<td>Dr. Robert C. Shearman, University of Nebraska, Lincoln, NB</td>
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<tr>
<td>11:45</td>
<td>Greens Maintenance — Your Coffee or Coffin</td>
<td>Dr. A. J. Powell, University of Kentucky, Lexington, KY</td>
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PLEASE PATRONIZE OUR EXHIBITORS
Dollar Spot Fungicide Trials — 1980

By Dr. Joseph Troll
University of Massachusetts

The efficacy of several fungicides per se and in combination with other fungicides was compared to that of standard chemicals for the control of dollar spot, Sclerotinia homeocarpa. Chemicals were applied at several rates and intervals to determine their significant effects on the control of the disease.

The test site was a 75 ft. by 35 ft. area of Penncross creeping bentgrass established on a silt loam at the University of Massachusetts South Deerfield Station. The turfgrass area was mowed three times weekly at 0.25 inch. Two and one-half lbs. of nitrogen per 1000 sq. ft. were applied during the season.

The area was divided into 105 randomized 5 ft. by 5 ft. plots. There were 34 chemically treated plots, each replicated three times, plus three randomized control plots. All treatments were initiated on June 1, 1980. Split applications of treatments 1 through 6 were made in Spring and in the Fall. Treatment 7 was applied twice in the Spring. Treatments 9 and 10 were applied on a 7-day basis. All other chemicals were sprayed biweekly (Table 1). The fungicides were applied with a 1-litter CO₂ powdered sprayer. Results are shown in Table 1.

Mycelium occurred on the grass in the test site, but little or no infection was noted during July and August. Because of the lack of disease, spraying was discontinued after the July 31 application until infection was noted on August 28. Infection or lack of infection appeared to be related to precipitation patterns. The soil in the test area, silt loam, has a high water-holding capacity; turf growing in the site did not require supplemental irrigation. After the occurrence in August of a few small showers, infection was noted. However, the average percent disease in the three control plots was no more than 1.9.

All standard fungicides recommended for the control of dollar spot seemed to give excellent control of the disease. Nine treatments appeared to have prevented dollar spot infection. Results related to the first seven treatments showed that Chipco 26019, applied at the high rate in the Spring and again in the Fall, and Chipco plus LSR, applied twice in the Spring, appeared to give good control of the disease.

The nitrogen from urea (treatment 8) seemed to enhance the disease, which is contrary to the fact that low nitrogen enhances dollar spot infection. It appeared that the 2.5 lbs. of maintenance nitrogen applied to the site during the season plus the nitrogen from urea was excessive and could be considered a predisposal factor.

Flowable Daconil, applied at the 3- and 6-ounce rates on a biweekly basis, resulted in slightly better control than when applied weekly at the 3-ounce rate. Comparing the Daconil treatments 29 through 34, plots which received WD 90 at the 6.67-ounce rate were not infected. Daconil 75W, applied at the 2-ounce rate, gave slightly better control than treatment 31 applied at the 3-ounce rate. Daconil formulations applied at the high rates were not phytotoxic.

No infection occurred in the plots which received Acti-dione TGF at the 0.68 rate. Less disease was noted in plots to which either Bayleton (treatment 25) or Daconil 75W (treatment 22) was applied than was apparent on turf to which either TGF plus Daconil or TGF plus Bayleton was applied.

Following both the July 10 and 16 applications, discoloration of the turf was noted in all replications that received Acti-dione TGF per se or in combination with another fungicide. High temperatures and no precipitation during the trial period aggravated the above condition.

*KENTUCKY BLUEGRASS BLENDS
*BLUEGRASS/FESCUE BLENDS
*PENNCCRROSS BENTGRASS
*WARREN'S A-34
*LOW MAINTENANCE BLENDS
*BIMG ROLL SOD SYSTEM
*SOD HANDLER DELIVERY
*NO PALLET DELIVERY

FARMS
Slocum, R.I. Suffield, Conn. Litchfield, N.H.
Table 1. Treatment numbers, treatments, rates of application, mycelium, and average percent of dollar spot disease - 1980.

<table>
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<tr>
<th>Fungicide</th>
<th>Rate</th>
<th>6/1</th>
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<th>7/16</th>
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*Fungicides applied on weekly basis on 6/1, 6/18, 6/24, 7/2, 7/11, 7/16, 7/25, 7/31, 8/28, 9/2, 9/16. All others except 1 through 7 were applied biweekly.

See text for application dates.

†Mycelium, but no infection.
Tree News

PRUNING — Recent research by Dr. Alex Shigo has shown that pruning branches flush with the trunk may cause serious internal defects in the tree.

As trees get older and branches begin to decline and die, a branch collar forms where the branch meets the trunk (see diagram). This collar provides a protective chemical barrier zone which compartmentalizes or walls off the decay spreading inward from dying or dead branch.

If this collar is removed, the protective barrier zone is broken, and a second, more severe wound is created. This will open the way for further decay into the trunk, and the end result may be a weak tree that is a hazard to the homeowner and/or the community.

Pruning, when necessary, should be started early in the life of the tree. When pruning young trees, pruning cuts may be flush with the trunk and little or no injury will result because the branch collars are so small. When pruning older trees, great care should be taken not to prune off the branch collars.

For further details, refer to:
1) Dr. Alex Shigo, et al. (1979) Internal Defects Associated with Pruned and Non-Pruned Branch Stubs in Black Walnut. USDA Forest Service Research Paper NE-440
2) Dr. Alex Shigo, (1979) Tree Decay, An Expanded Concept. USDA Forest Service Agricultural Information Bulletin Number 419
3) Dr. Alex Shigo and Harold G. Marx (1977) Compartmentalization of Decay in Trees. USDA Forest Service Agricultural Information Bulletin Number 405

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TOOLS - Ames and Rugg Rakes
SPREADERS - Cyclone and Gandy
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Dighton, Mass.
GARY MOULTON 899-0369
Waltham, Mass.
DON REYNOLDS 376-8017
Millis, Mass.
JIM SULLIVAN 524-5248
Boston, Mass.
Dear Applicator:

This form is comprised of two (2) sections; Part (1): Standards of Financial Responsibility and Part (2): Attestation by the insurance broker of adequate coverage. As a condition of commercial certification or licensing it is necessary that your insurance broker fill out Part (2).

Return this form along with your application and fee to: Pesticide Board Department of Food and Agriculture, 100 Cambridge St., 21st Floor, Boston, MA 02202.

Part (1)

10.14 Financial Responsibility

As a condition of commercial application, a certified or licensed applicator shall be required, except as provided in (10) below, by the Department to submit with his application an attestation by the insurance broker providing the coverage that he or the company for which he works has in force an insurance policy which meets or exceeds the standards set forth below. This attestation shall be on a form provided by the department.

(1) Certified Commercial Applicator

The following minimum comprehensive general liability insurance coverage (ground application):

1. Bodily Injury Liability — $50,000 $100,000 each occurrence aggregate
2. Property Damage Liability — $50,000
   (including completed operations)

(2) Licensed Applicator

The following minimum comprehensive general liability insurance coverage (ground application):

1. Bodily Injury Liability — $25,000 $50,000 each occurrence aggregate
2. Property Damage Liability — $25,000
   (including completed operations)

(3) Certified Commercial Applicators or Licensed Applicators who apply pesticides aerially.

The following minimum comprehensive general liability insurance coverage:

1. Bodily Liability — $100,000 $300,000 each occurrence aggregate
2. Property Damage Liability — $100,000
   (including completed operations)

(4) Insurance policies offered to satisfy the requirements of (1) and (2) above shall include an endorsement which modifies any pollution exclusion provisions written into said policies in such a manner as to provide coverage of legally carried out purposeful use of pesticides. Insurance policies offered to satisfy the requirements of (3) above shall include an endorsement which provides coverage for chemical drift occurring during legally carried out purposeful use of pesticides.

(5) Insurance policies offered to satisfy the requirements of (1), (2) and (3) above may be written with combined bodily injury and property damage limits so long as these combined limits equal or exceed the sum of required individual limits.
(6) Certified Commercial applicators who apply pesticides to premises owned or otherwise controlled by their employers are required to meet only the bodily injury requirements of subsections (1) or (3) in such cases as the public is invited to or allowed free access to said premises.

(7) Certified Commercial applicators who apply pesticides to premises owned or otherwise controlled by their employer are not required to meet the requirements of subsections (1) or (3) in such cases as the public is not invited to or not allowed free access to said premises.

(8) Financial responsibility required by subsections (1) to (3), shall not be required of persons whose pesticide applicator activities are part of their duties as governmental employees, when they are working in their governmental capacity.

(9) An insurer shall endeavor to notify the Department when an insured applicator’s insurance is altered, revoked or amended.

(10) In such cases as the department finds that the applicant is employed by a business entity with assets in excess of $5,000,000 and which maintains in Massachusetts a representative on which legal processes can be served, the preceding requirements may be imposed so long as the applicant states in writing that he will exercise the certification only in the performance of duties for said business entity and in writing gives the name and address of the representative on which legal process can be served.

Part (2)

Name of Pesticide Applicator —

Company —

Address —

I _____________________________ as an authorized representative of ____________________________

generally attest that the person named above or company for which he works has in force an insurance policy which meets or exceeds the standards as set forth in Chapter 10.14.

Signature of Authorized Representative —

Date —

Regulatory Authority — M.G.L. c. 132B, s. 5, 6A, 10.

For Further Information Contact:
Lew Wells, Pesticide Sect. (617-727-7712)
Dept. Food & Agriculture
100 Cambridge Street
Boston, Massachusetts 02202

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farms, conducted their own research and forged ahead of the scientists in finding new and better ways.

Israel's achievement can be duplicated, and even surpassed. A case in point is the agriculture of the Arab sector of Palestine, which, taking advantage of the Israeli experience, advanced even faster to close what seemed like a gap of centuries within a single decade. Other countries have made equally remarkable progress. An outstanding example is Japan, which, although located in the very northern fringe of the rice growing belt, and would therefore be considered a priori to be marginal, actually produces an average rice yield five times greater than that of Bangladesh where conditions of soil and climate are nearly optimal for rice. Bangladesh itself, once it solves its internal problems and organizes for action, can undoubtedly surpass the Japanese achievement. I have had some pertinent experience among the poorest, and vice versa.

The crucial problem of increasing food production lies not in the Malthusian realm (namely, the existence of an inherent limitation on the rate of production increase), nor in the neo-Malthusian realm (limited resources), but in the human realm. Here, again, it is not in the population growth per se (though excessive population growth can certainly exacerbate the problem — that much is obvious), but, ultimately, in the ability of each nation to muster its collective will and mobilize its resources to carry out an effective program of agricultural and general economic development, as well as in the ability of the entire family of nations to cooperate in this common goal. We come finally to the most important question: is the international community ready to stop squandering the most precious of all resources — human effort — in the futile and vainglorious pursuit of military power, and begin applying to education, population control, agricultural and economic development that which is now wasted on the means of war? (It seems totally incredible that the total global annual investment in agricultural research and development amounts to less than one percent of the total spent on armament). As an agricultural and environmental scientist, I am convinced that we have the essential knowledge and capability to fructify barren lands and feed all of humanity even allowing for the inevitable portion of expectable population growth. Yet not enough is done at present, and not enough will be done until a new spirit of collaboration and cooperation among the richest and the poorest, and vice versa.

When the problems loom too formidable to solve in our own lifetime, I am reminded of the ancient adage: "It is not for you alone to complete the task, but neither are you free to evade it."
Exams

Exams are given once each month in each of 3 locations: Amherst, Worcester, and Waltham. Exams are also given once every two months at Stockbridge, Wareham, and Danvers. Core exams, applicator license exams, and dealer license exams are given in the morning (10:00 AM) and all private and commercial specialties are given in the afternoon (1:00 PM). Exams given in the morning session are all closed-book. You may not use your study manual during the exam. Exams given in the afternoon (the specialties) are all open-book. You may use your study manual during these exams. All exams are multiple choice, machine graded exams and are timed. All exams involve answering questions from actual pesticide labels.

To take any pesticide exam you must fill out a pre-registration form and send it to the Dept. of Food & Agriculture in Boston with a $5.00 fee for each exam. The check must be made out to the Commonwealth of Massachusetts and the application must reach Boston one week before the exam you intend to take.

Certification and Licensing Examination Dates

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Danvers — (Essex Agricultural & Technical Institute, Route 62, Hathorne) Waltham — (Suburban Experiment Station, 240 Beaver Street) Wareham — (Cranberry Experiment Station, Glen Charlie Road) Worcester — (Worcester County Extension Service, 36 Harvard Street) Amherst — (Farley 4-H Clubhouse, UMass) Stockbridge — Berkshire Garden Center, Routes 102 and 183) Exams Given at 10:00 A.M. — Core & Dealer 1:00 P.M. — Specialties

* Dates Subject To Change At Worcester and Stockbridge

Applicator Insurance — Certification Renewal

Liability insurance is required for licensed applicators and commercially certified applicators. Certifications to use restricted pesticides must be renewed yearly with payment of the annual fee and resubmission of a proof of insurance card. Every 5 years you must either repeat your exams or have them waived by the state. The state will waive your exams if you have attended enough workshops over your 5 year period to accumulate 3 educational credits for each category or subcategory in which you are certified. Private applicators should contact their extension commodity leaders about programs in their areas.
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The Massachusetts Turf and Lawn Grass Council is a non-profit corporation. Its officers derive no benefits except the satisfaction of keeping Massachusetts and its neighbors first in turf. It was founded on the principle of “Better Turf Through Research and Education.” We must support our University to accomplish this, and we can with a large and strong Turf Council.

Membership is not restricted to Massachusetts residents or turf professionals alone, all are welcome to take part. Write today.

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attn.: Dr. Joseph Troll
RFD #2, Hadley, Mass. 01035
413—549-5295

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