

BETTER LAWN - - - HARVESTS

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QUARTERLY HIGHLIGHTS

The following index pretty well summarizes Institute activities during the quarter. Members are referred to the appropriate pages for further details. The first calendar quarter is usually a full one, by virtue of issuance of the seasonal press kit, a major Institute activity; and the readying of many magazine stories for the important spring season. We feel that 1970 has begun with auspicious acceptance of Institute activities.

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HERCULES, INC. JOINS INSTITUTE

President Carnes acknowledged by letter of March 24, 1970 to Hercules, Inc., Wilmington, Delaware, enthusiastic approval by the Board of Trustees of Hercules' application for membership in the Institute. Hercules will be of great assistance, not alone for its support but for its contacts and great know-how in the public relations field. Communications between Wilmington and the Marysville office have been established through Miss Doris Watson, Assistant Manager, Technical Promotion, and president Carnes hopes to have personal conversations with Hercules representatives in the near future. Hercules is a recognized leader in the production of ureaform fertilizers, as well as being basic in a number of pesticides useful for lawn and garden. The complementary nature of quality lawn seed and quality maintenance products is apparent; the Trustees look forward to extension of Institute activities in cooperation with Hercules to reach a wider audience even more effectively.

PRESS KIT MAILED

The Institute's customary press kit was mailed to the select list of editors and columnists on February 10. Although these mailings are no longer followed through a clipping service, response filtering into the Institute indicates that this press kit was well received. We were especially encouraged by the use of the story offering Institute literature upon receipt of a self-addressed, stamped envelope. This indicates that the kits are used, and the stories are read through. Since the seasonal press kit mailings are a major activity of the Institute, it is good to be able to report that the spring issue went off without hitch.

MEMBER ACTIVITY

Although often tied to proprietary products, literature issued by Institute members has a wholesome effect in creating "excitement" in the quality turfgrass field. It was possible to further these interests during the quarter, through Dr. Schery's activities on private assignments that resulted in several national releases in the best interest of quality grass seed.

STORY IN SEED WORLD

The February 13 issue of Seed World carried the story "To Seed or Sod?", with Institute by-line. Some of the advice tendered: "So be certain you are getting perennial, long-lived, attractive species. The Kentucky bluegrasses, fine fescues, and bentgrasses fill this bill, and they spread to make a dense turf." Some of the fine-leaved perennial ryegrasses are also permanent, ---".

ILLUSTRATIONS FURNISHED

Upon request of Charles V. Mathis, doing a Sunday supplement for the Atlantic City, New Jersey, Press, the Institute furnished illustrations to dress up a lawn story. This supplement, "South Jersey Living", has a readership of over a half million.

BETTER HOMES AND GARDENS STORY

The April Better Homes and Gardens, with a circulation of over 7 million, carried the Institute by-line story "How to Turn Grass Into a Lawn". Three Institute photographs were included on this full page. This magazine, largely staff written, seldom uses by-line items. A few samples from the story:

"The major lawn species are those that have been around for a long time. The Kentucky bluegrasses, fine fescues, and bentgrasses -- are still mainstays in the North; ---" "Varying levels of care -- of Kentucky bluegrass -- the most prominent lawn species north of a Washington, D.C. -- Atlanta -- St. Louis -- Los Angeles line." "The group requiring a high level of care includes Merion, Fylking, Pennstar, Sodco, Warren's Sod Selections; grasses of low-level care are Kentucky, Delta, Arboretum, Kenblue, Park, ---". "For areas getting little care, the fine or red fescues are ideal. They endure shade, drought, poor soil and dry habitat. Varieties such as Chewings and Illahee have long served in top seed blends. Pennlawn was especially bred for disease resistance." "Bentgrasses, -- require top maintenance -- although workhorse varieties such as Highland endure reasonable neglect."

ABOUT ARTIFICIAL TURF

We were interested to note this news item in the Jan., 1970 Weeds Trees and Turf. "Artificial turf has been considered for the new sports stadium in Kansas City. William Latta, of Princeton Turf, has said that his firm could provide sod twice a year for just the interest that would be paid on the money borrowed to install the artificial grass."

TURF RESEARCH AND IRRIGATION ANNUAL PLANNED

Communication from Eric Madisen, Editor, Park Maintenance, indicates that again this July Park Maintenance magazine will sponsor its Annual Turf Research and Irrigation Annual. The Institute is asked to report upon its opinions and findings during the year, submitted as an abbreviated summary with supporting documentation in the form of reprints.

REPRINTS FROM BELTSVILLE

Dr. Felix Juska, of the USDA, Beltsville, kindly sent the Institute recent reprints on "Pre-emergence Herbicide Effect on the Growth of Newport Kentucky Bluegrass (*Poa pratensis* L) Seedlings", and "Growth Response of Merion Kentucky Bluegrass to Fertilizer and Lime Treatments". These have been co-authored with Hovin and Hanson. This research has been reviewed in Harvests elsewhere, and the authors conclude that care should be taken with persistent use of pre-emergence herbicides lest the concentration build up to toxic levels that affects rhizomes, root and even foliage production.

REPRINTS MAILED

Reprints representing 1969 stories were mailed to each new "individual" member in January. This gives the new category of Oregon supporters a bit of background on one of the major Lawn Institute activities.

ON THE PUBLICATIONS FRONT

During the quarter the following magazine stories have appeared, been reprinted, or are in press:

- "Landscape Turf", Landscape Industry
- "Lawn Care Starts This Month", Home Garden
- "Kentucky Bluegrass: Turfgrass Par Excellence", Weeds Trees & Turf
- "Lawn Care Now Pays Green Dividends", Home Garden
- "Fine Fescue, Lawn Extraordinary", Weeds Trees & Turf
- "The New Look in Lawns", Landscape Industry
- "Lawns", Encyclopedia Americana
- "Spring Outdoors", Home Handyman - ?
- "Spotless Summer Lawns", Home Garden
- "Establishing a Lawn", Southern Gardens - ?
- "Spring Handbook on Lawns", Horticulture
- "Penncross, Pick of the Pros", Golf Superintendent
- "Grass Seed Blends", Nutro Turf & Garden Guide
- "How to Turn Grass into a Lawn", Better Homes & Gardens ✓

Several short items have appeared in several trade magazines, which were not reprinted, but still keeps "The Lawn Institute" in the public eye.

Articles reprinted for the past year were sent to some of our newer members to familiarize them with one of the publicity services offered by the Lawn Institute.

HERCULES VISITED

Dr. Schery, representing the Institute, had the pleasure of being the guest of Hercules, Inc., in Wilmington, Delaware during this quarter. Hercules has some of the most modern and effective research and development facilities in the country, especially related to ureaform fertilizers and various pesticides. We are most grateful to Miss Doris Watson and the Hercules executives for the invitation to visit with them on their home grounds.

ACTION BY FERTILIZER INSTITUTE

The Fertilizer Institute has decided to take an active role in promoting the usefulness of fertilizer and pesticides. A defensive or a passive posture seems inappropriate in view of the over-reaction current on the anti-pollution front. Efforts will be made to demonstrate how useful plantings are in abatement of both air and noise pollution. The Lawn Institute has followed this approach in its stories and press kits for several years. It may prove possible in coming months to tie-in with the press releases and stories being sponsored by the Fertilizer Institute. Certainly good seed, fine turf, and adequate plant growth have a great deal to offer as people become increasingly aware of the environment.

IOWA TURF CONFERENCE

The Institute was represented by Dr. Schery as a speaker at the 36th Annual Turfgrass Conference of the Iowa Golf Course Superintendents Association, held March 9 - 11 at Cedar Rapids. A number of Golf Course people were represented, as well as Dr. Hodges of Iowa State University, Dr. Watson of Toro and Ed Cott of Iowa State University. Charles Calhoun, consulting turfgrass specialist in Iowa, was a behind-the-scene organizer and participant.

Topics receiving coverage included irrigation system design, seed-bed preparation, fertilizer usage, turf maintenance (panel discussion), operating efficiency (panel discussion), machinery maintenance, disease control, winter turf injury, identification of turf pests, tree maintenance, and by Dr. Schery "New Seed Varieties".

The Institute presentation pointed out how difficult it is to say which grass variety is "best", without specifying its maintenance, when you look at it, what the personal preference is, and so on. But it is certain that many new fine turfgrass varieties are coming along rapidly, and there is much good seed from which to choose. Any of the varieties, properly tended, can be among the "best". The trends are towards varieties suited to high maintenance, special landscaping purpose and under proprietary sponsorship. Slides of a number of current varieties were shown, and the Institute reprints "Turfgrass, America's 'Growingest' Crop", "Lest Hunger Haunt Your Lawn", and "Kentucky Bluegrass; Turfgrass Par Excellence" handed out. Questions were invited from the floor or by correspondence.

NATIONAL CLIP SHEET

A 12 page clip sheet for newspapers was mailed nationally in early February, from the advertising agency in Washington, D.C. engaged for its production. The Institute supplied 7 stories and a photo having to do with lawnseed and lawns, upon invitation of the participating American Seed Trade Association. The ASTA was also responsible for several stories having to do with ornamental flowers. The front and back covers were devoted entirely to the National Lawn & Garden Week and its logo, leaving 10 pages for promotional text.

The release was expanded this year, to include interests not formerly involved. Perhaps most conspicuous was the swimming pool group, which easily dominates in illustrations. Landscaping and roses were other features. The lawn titles included: With Little Care Grass Seed Will Become Gorgeous Lawn, Fescues Unfamiliar, Check For Quality, Cutting Speeds Lawn Renewal, Buy Lawn Seed From Experts, Lawn Seed Big Bargain, and Seed Bentgrasses in Moist Regions. The Check For Quality item mentioned the Lawn Institute's Seal of Approval and qualifications for which it is granted.

COOPERATION WITH COLUMNIST

The New Year was launched with continuing cooperation with George Abraham, whose syndicated Green Thumb column appears in hundreds of eastern newspapers. George continues to consult with the Institute for answering lawn queries in his column. In February the problem was fairy ring on bluegrass lawns.

NEWS-SENTINEL LAWN AND GARDEN SUPPLEMENT

We are grateful to editor Rugh for sending us a copy of the March 20 Lawn & Garden Supplement, of the Ft. Wayne, Indiana, News-Sentinel. This is a 16 page insert, which made generous use of the Institute materials.

The lead story was "New Grass Seed Breed Fine Lawns". It opens with the statement, "Exciting experiences are in store for people seeding new lawns. Years of turfgrass breeding and testing are now bearing fruit in new Kentucky bluegrasses, fine fescues, bentgrasses and perennial ryegrasses ---". Numerous varieties are named, and, "The Fine fescues, worthy companions for Kentucky bluegrass in blends, --- you will be hearing more of Cascade, Highlight, Golfrood and Wintergreen; of course the proven stalwarts such as Chewings, Illahee, Pennlawn and Rainier ---".

Other lawn items include "Winter Damaged Lawns Need New Spark of Life" ("First order of business is to reseed bare spots and bolster thin turf. ---"), "Care Brings Healthy Lawns", "Seeding Lawn Made Easy if Simple Rules Followed", and "Quackgrass Meets Equal in Bluegrass".

IN GOOD HOUSEKEEPING MAGAZINE

The Institute is pleased to have had a hand in the design of a spring gardening article done by Margaret Perry for Good Housekeeping magazine. This will appear in the May issue. The Lawn Institute is cited. Editor of Good Housekeeping were kind enough to submit manuscript to the Institute for approval, which gave chance to correct a few inaccuracies in the original manuscript. It was also possible to direct maintenance to specific grasses by name.

MANUSCRIPT TO ENCYCLOPEDIA AMERICANA

Encyclopedia Americana has come to the Institute for a write-up on lawns by Dr. Schery. Nearly 4,000 words are being devoted to the subject in the next revision of the Americana, and we are delighted to have been instrumental in helping accord lawns and lawn seed its rightful place as an increasingly recognized topic of national interest. A tabular summary provided Americana follows essentially the outline done for Better Crops With Plant Food, in "Turfgrass, America's 'Growingest' Crop".

GROWING WITH AMERICA FESTIVAL

The Institute, through Dr. Schery, received the following invitation from Clifford Hardin, Secretary of Agriculture: "We hope you can help us celebrate the second annual National Lawn and Garden Week --. The event will take place on the patio of the department's administration building. --- On exhibit during the festival will be new plants -- and new ways to plant -- developed by the department and state research facilities. -- There will be an informal reception in the patio following the brief opening ceremony. Mrs. Hardin and I hope to hear that you will be able to be with us on March 19."

HEAVY QUARTER FOR CORRESPONDENCE

Early spring always sees an influx of consumer inquiries. These have been amplified this year by a number of letters resulting from Dr. Schery serving as "answer man" for lawn problems in Turf & Garden Guide. Doc Abraham has also been a frequent correspondent, with letters he receives relative to his syndicated "Green Thumb" column. A miscellaneous assortment of letters also comes from people picking up the Institute's name in stories, releases and through the press kit. At the suggestion of Oliger Seed, correspondence was initiated with Irma Bartell, garden columnist for the Cleveland Plain Dealer, who was responsible for a lead article in a Sunday supplement in the Cleveland area. The story did not make clear that quality lawn seed produced in the West is equally as satisfactory as that grown in the Midwest. We hope Miss Bartell will issue clarification. Foreign correspondence has been somewhat heavier than usual, probably as a result of Institute involvement in the First International Turfgrass Conference last year, and the increasing ties members have with European markets.

GOLF COURSE STORY SCHEDULED

In spite of the mail tie-up, the Institute office has been in touch with the Golf Superintendent magazine (editor Thomas O'Harra), in trying to ready the story "Penncross, Pick of the Pros" for the April issue. The magazine had misplaced photos submitted with the original manuscript. There was a last minute rush by editor O'Harra in trying to get edited copy to the Institute for review, an early March mailing apparently having been lost in the mail.

ROADSIDE PRESENTATION

Dr. Schery has been invited to discuss "The Essentials For Roadside Vegetation" at the 29th Short Course of Roadside Development this coming autumn. Efforts are being made to accumulate specific data related to different areas, and if members have any special information on fertility needs and grasses for their area, such information would be appreciated by the Marysville office.

JOHN DEERE CONFERENCE

The John Deere tractor company for a number of years furnished mowing equipment on loan to the Institute during the summer season, in exchange for observations by Dr. Schery upon performance. Starting almost with no equipment suited to the home gardening field, John Deere now has an extensive line of garden tractors, riding mowers, and walk-behind equipment well suited to home and industrial grounds care. Dr. Schery was pleased to have an invitation to discuss lawns and lawngrasses before the national gathering of John Deere representatives at the home office, in Horicon, Wisconsin. Appropriate literature was distributed to all attending, and it was felt that key representatives quite familiar with equipment but only newly involved with turf matters were effectively contacted on this occasion. This is an excellent way to advance the cause of quality turf.

BOOK REVISION COMPLETED

The Plants For Man book of Dr. Schery, has been revised and sent for final editing. Included is a section about lawn seed and the turf-grass market, including an Institute picture or two.

STORY IN HORTICULTURE

The Institute story, "Spring Handbook on Lawns", appeared in the March issue of Horticulture magazine. Spring practices are discussed for the northeast, southeast, mid-states, southwest, and northwest. For the northeast, for example, the text reads, "This is ideal cool-season turfgrass country, given over to the Kentucky bluegrasses (most lawns), the fine fescues (shade, droughty and infertile soils), and the bent-grasses (specialty turfs in moist climates of the Great Lakes)." Mentioned also was the possibility of upgrading old turfs with "newer varieties such as Fylking or Pennstar, Pennlawn or Highlight." Kenblue and Arboretum bluegrasses are suggested for mid-states habitat, and "Newport Kentucky bluegrass which persists poorly in the East is suitable in much of California, and perennial ryegrasses perform well in the bay area." In spite of some changes by the editor, this story should be helpful in whetting spring interest of gardeners in lawns.

GENEROUS MENTION BY COLUMNIST

As members are well aware, the Institute is in frequent correspondence with George Abraham, whose syndicated Green Thumb column appears widely in newspapers. George routes many of the lawn questions from readers to the Institute for answer and discussion. Mention of the Institute in a column of early March was unexpectedly extravagant. We were mentioned as no less than the world's leading lawn specialists.

PRESS KIT MILEAGE

First indication of extensive use of one of the press kit stories, offering reprints (on grass varieties) if a self-addressed, stamped envelope were sent to the Institute came from Colorado. A flurry of letters indicated that our contacts in Colorado placed this story prominently. For one, it was carried in the Denver Post of Feb. 27. Subsequently similar flurries of letters were received from northern Kentucky (use of story by Louisville Courier), southwestern Missouri (used by Springfield News & Leader), Salt Lake City, Utah, and elsewhere. Once more this gambit has proved an excellent, inexpensive way to keep in touch with the consumer. That newspapers are willing to print the offer without deletion indicates the high regard in which the Institute is held as an authoritative source of information.

EXTENSION CHANGE AT COLORADO

Charles Drage, State extension agent for Colorado, has retired, and is being replaced (for turf) by Dr. William G. Macksam former Institute advisor and contact at South Dakota, now at Colorado State University. Bill writes "This will be like old times ---". We welcome the chance to continue supplying Institute press kits for the extension service and urban county agents in Colorado

PRESS COVERAGE

Agnew's blast at the press calls attention to other investigations, such as that conducted by Scientific Research (McGraw-Hill) reported in *Better Crops With Plant Food*. A Purdue group analyzed 34 daily newspapers intensively for 3 months, and in essence found science to be undercovered, especially in proportion to dollars obligated (measured by National Science Foundation Federal Research expenditures). There was a bias in favor of medicine, but against engineering, chemistry, and so on. So much technical information is available that the newspapers are not equipped to handle it, and make balanced judgment about what is significant. And most of this is not distillable into a lead of "25 words or less", demanded by many editors. The conclusion of the researchers was that scientists cannot continue to justify public support on faith, but must actively participate in educating the public. A "new" kind of specialist, a scientist-journalist, is called for. Reading this resume, one feels that the Lawn Institute has been ahead of its time in "reaching the interested layman with thoughtful, critical and well-balanced information, for it is this layman who is ultimately the prime shaper of our society."

LANDSCAPE SEMINAR

Dr. Schery appeared as guest speaker before the 9th Annual Winter Seminar of the Illinois Landscape Contractors Association, in Chicago. This afforded opportunity to mention trends within the fine lawnseed industry, and to offer suggestions concerning the landscaping value of various cultivars. The title assigned Dr. Schery was "The Esthetics of Lawns in Landscaping". In addition to the presentation, there was opportunity to offer reprints to registrants. The two titles distributed were "Turfgrass Today" from *Grounds Maintenance*, and "Landscape Turf" from *Landscape Industry*. The Institute is indebted to the Borden Chemical Company for contacts and sponsorship of this appearance.

The Illinois Landscape Contractors Association is a sizeable group, centering upon the Chicago region. James Berry serves as the executive in charge of the association. He is also editor of the association's magazine, which should offer opportunity for providing the landscape contractors with current information concerning lawngrasses and lawns. An Institute press kit was sent to Mr. Berry, for use in subsequent issues of the magazine. An excellent yearbook and directory is issued by the association, a copy of which has been provided for the Institute files.

IN SEED WORLD

Seeding Spring Lawns, appeared as the "Bulletin Board Suggestion" in the February 27 issue of *Seed World*. Authorship and Institute identification is given. The item begins, "With the array of lawn aids available today, spring seedings can be as successful as those made in autumn. Not, hot weather is not ideal for favorite lawn species used from the border states northward, the Kentucky bluegrasses, fine fescues, and bentgrasses such as Highland. -- The old maxim to seed Kentucky bluegrass -- fine fescue and bentgrass lawns on the 'last snow of the year' has much to recommend it."

LANDSCAPE STORY

Upon request of R. W. Morey, publisher, Dr. Schery prepared a story for Landscape Industry magazine, for use in the April issue. Thrust of the item was that landscaping has progressed until today the lawn is regarded as an intricate portion of the design, utilizing many varieties of grass for their special attributes. There is still great value to traditional lawngrasses, exemplified today by Kenblue, Arboretum, Park and such like. And there is increasing interest in specialized grasses such as Fylking, Pennstar, Sodco and so on for low-mowed turf, and in a great many new bluegrasses for intensively managed lawns. Fine fescues and bentgrasses play their part as well, often in mixtures. It is incumbent upon a landscape architect to realize this new importance of turfgrasses for design, and to work them into his plan in an intelligent fashion, so as to assure their survival and satisfaction of the client.

"FERTILEGRAM" ON LAWNS

The American Potash Institute's late February Fertilegram was "Tips For Successful Lawns". This seasonal reminder is mailed widely throughout the United States, and is especially meant as information for editors. The issue on lawns embraced 15 questions (with answers), covering 6 pages. The emphasis was, of course, on fertilization, but question 6 discussed "What is the best grass species to use?", with sketches of major species.

MAGAZINE STORY

Upon invitation of editor Pierson, an Institute story entitled "Establishing a Lawn" was prepared for Southern Gardens Magazine, Columbia. This is the Institute's first contribution to this popular periodical of the Mid-Atlantic states. Floral Magazine formerly edited in South Carolina, has ceased publication, but we are indebted to former editor Charles J. Hudson for recommendation to Southern Gardens.

The name, Southern Gardens, is not entirely indicative of climatic coverage. Many readers live in the Appalachian foothills, and readership extends into a number of the northern states. If anything the region is climatically more "northern" than "southern". As the story states, "Ideally Kentucky bluegrasses, fine fescues and bentgrasses would be seeded in autumn. Early spring is next best bet. These posh fine-turf species of northern climates are used also in favored sites of the upper South, at higher elevations so far south as middle Alabama, and as winter-grass in the deep South. --- ".]

REQUEST FOR PHOTOS

Free lance writer Ruth Marie Peters, writing an article on lawn and garden recreation for Home Garden magazine, came to the Institute for help. It is good to be a friend of writers and editors, but unfortunately the Institute has not had the funds to build up a massive supply of photographs which could be used very effectively in such joint promotions.

STORY FOR HOME GARDEN

The story, Spotless Summer Lawns, was prepared for Home Garden magazine in March, for expected publication during summer. It is concerned chiefly with techniques for maintaining an attractive lawn at a time of year when pests are abundant! Of course pesticide usage is receiving close scrutiny these days, and the story tries to set the users mind at ease concerning the lack of hazard involved with home garden pesticides, in spite of much anti-pollution publicity.

Advice is given to, "Mow bluegrass and fescue tall" -- Highland bent and bermuda low ---, "Best control is prevention, (aside from planting disease-resistant grasses) ---", and "A heavily fertilized lawn in Atlanta was maintained far south of what is generally considered good bluegrass climate by regular application [of fungicides] ----".

CHICAGO DAILY NEWS

Richard DeLano, columnist for the Chicago Daily News, telephoned the Institute in mid-March seeking information and illustrations for a Sunday supplement he was preparing, to appear April 19. He was particularly interested in photos showing "fine-textured" grasses as opposed to "coarse-kinds", and the disadvantage of tall fescue in turf as opposed to fine fescue. Requested illustrations were forwarded, and various informational reprints.

GARDENING COLUMN PREPARED

The Home Handyman's Magazine, of which Russell Gurney is the editor, has invited the Institute through Dr. Schery, to prepare the column of Gardening Potpourri for this bi-monthly magazine with a readership of over 100,000. The first appearance of this new feature is scheduled for the June issue. Readership is international. By-line credit is promised, and issues of particular interest to the members will be reprinted.

LAWN STORIES FOR PRIVATE DISTRIBUTION

One of the more effective ways the Institute can be of service to the industry is in preparation of turfgrass writeups by private arrangement between Dr. Schery and Institute supporters. These do not carry author identification, but are equally as helpful in providing a telling story as would be Institute writeups. Such private releases have the power of a national sales force and a commercial advertising budget behind them, to see that they reach appropriate hands. The Institute has always depended upon its members and "captive" groups for effective distribution of reprinted stories.

GRASS CREDIT

We were pleased to see in the Jan., 1970 The Golf Superintendent, a review by J. R. Watson of Toro, in which he eulogizes new turfgrasses for the golf course, viz. "improved grasses -- low cut Kentucky blue-grasses like Fylking, Prato, Windsor, Pennstar and Merion will find their way into tees and fairways." So likewise with Holfior Colonial bentgrass ---".

NORTHEASTERN WEED CONTROL CONFERENCE

The Proceedings for the Northeastern Weed Control Conference held in January, appeared as Volume 23. An extensive series of research reports is summarized, totaling 424 pages. Relatively few reports are on lawns and turfgrasses, but the Proceedings as a whole reflects current research interests and shows "where the action is" in this era of concern about pollution and toxic chemicals.

Of general interest is the finding, becoming more and more frequent, that synergism between herbicides is fairly frequent. Many times a combination of two products will do a better job than the full rate applied separately. In extreme cases (as with atrazine) the quantity for effectiveness may be reduced from 3 or 4 lbs. to 3 or 4 oz. when the product is used with additives. Results are not so spectacular with the familiar lawn herbicides, but even here the addition of oils and emulsifiers offers possibilities for increased effectiveness at lower rate of chemical.

Chemical growth regulators form a field of high interest. These products seem to be effective by altering growth through the blockage or enhancement of naturally occurring hormones. Other chemicals cause physical disruption of plant parts, rather than the more subtle regulation of growth as through auxins. There seems to be no antagonism between chemicals operating both these ways, and they can be used simultaneously. Much more needs to be learned about ideal timing and frequency of growth-regulation: cultivar, light, temperature, atmosphere, nutrition, age, pruning, metabolic state, moisture stress, etc. all influence response.

One of the most impressive papers appearing in the Proceedings is a review by W. R. Mullison of Dow on "The Significance of Herbicides to Non-Target Organisms". This is a thorough literature review considering specific herbicides, and the current state of knowledge concerning their spray drift and volatility; disappearance in soils; degradation; effect on water, fish and plankton; and ecological relationships. It is the sort of summary very handy for those who must answer questions on how toxic existing herbicides might be to the environment, under varying circumstances. The documentation indicates rather clearly that "commercial herbicides as normally used are low in toxicity to man and higher animals", and that most of them are rather soon disintegrated by soil microorganisms or decomposed by light. Drift from careless application or improper droplet size is apparently the greatest cause for complaint. There seems little evidence of concentration of herbicides in the natural food chain, as is indicated for DDT. A chart indicating the persistence of various herbicides in the soil is presented as Table I. It is encouraging that few have a longevity of more than a few months. An extensive bibliography of 123 titles is included for those who want to zero in on special problems. This is a good paper to have handy for those who must justify the use of weed killers.

Many other papers having an agricultural slant may have implications for lawn management as well. For example, a number of chemicals are being uncovered which seem to do a pretty good job in controlling quackgrass (the data presented is concerned with quackgrass in agricultural fields rather than lawns). Papers having to do specifically with lawns relate mainly to pre-emergence chemicals such as are used for crabgrass preventers.

(Continued on next page)

NORTHEASTERN WEED CONTROL CONFERENCE (Continued)

Rutgers researchers studying pre-emergence crabgrass control in Merion Kentucky bluegrass turf felt that a new experimental chemical called RP 17623 shows promise as a crabgrass preventer, and also for reduction of some broadleaf weeds. At 4 lbs. a.i./A it was more effective than familiar bensulide, DCPA or siduron used at a 12 lb. rate.

In other studies at Rhode Island, the same chemical at the same rate gave rather poor crabgrass control; but it did not injure the turf, and so might be considered for use at higher rates of application, at which it might be more effective. The Rhode Island people were satisfied that the present commercial products such as bensulide, DCPA, siduron and terbutol continued to do a good job. DCPA caused some slight damage to fine fescue, giving an advantage to bluegrass in mixed plantings. Rhode Island also found excellent continuing control with follow-up applications at half-rate the second year, with almost all of the products. Of especial interest was that siduron, or DSMA in combination with almost any pre-emergence product, gave effective crabgrass control used either as a pre-emergent or early post-emergent. Even when crabgrass was in the 3-5 leaf stage a combination of DSMA plus siduron produced excellent control.

Juska and Hovin investigated the effect of pre-emergence herbicides on Newport Kentucky bluegrass. To a greater or lesser extent herbicide treatments affected the weight of clippings, crowns, roots, rhizomes and total plant weight. Calcium arsenate reduced clippings significantly, but other pre-emergence herbicides had no significant effect (and in the case of siduron and DCPA even seemed to increase clipping weight slightly). All treatments increased the crown weight somewhat, bensulide, DCPA, terbutol significantly reduced root weight, although DCPA increased root weight slightly. Rhizome production was significantly reduced by benefin, bensulide and DCPA.

Jagschitz, of Rhode Island, investigated chemical control of *Poa annua* in turf. Bensulide and the arsenates applied for several years gave good control of annual bluegrass in bentgrass maintained like a golf green. All other treatments produced some control, but there was over 80 percent reduction with bensulide and the arsenates. Jagschitz seemed also to have success in reducing annual bluegrass seed production through the use of ethrel, MH or MF-415 + 416. With the latter approach much more information must be found as to appropriate rate, time of application, and ecological influence on annual bluegrass succession.

New Jersey researchers studied the usefulness of surfactants in combination with turfgrass herbicides. No great differences in degree of control were noted, but certain combinations did appear to increase the efficiency of the herbicides. Continuing studies along these lines are planned for the future.

Elsewhere in the Proceedings will be found papers on weed control for nursery stocks, fruit trees, Christmas trees, ground covers, field crops, vegetables, highway berms, forest land, brush control, forages, etc. Findings in many of these areas have implications for turfgrass, and a number of the titles represent research of a fundamental nature determining how herbicides perform. This is an impressive conference, and climatically represents the sort of conditions most likely to occur in the main marketing area for fine turf.

TURF DISEASE LEAFLETS

One of the handiest references for lawn diseases is the "Plant Disease Control Notes" issued by the Extension Division, Virginia Polytechnic Institute. Dr. Houston B. Couch is the author of most, and is responsible for furnishing the Institute suitable reprints as well as the new "Guide for the Chemical Control of Grass Diseases and Turfgrass Weeds" of January, 1970.

The "Notes" are mostly a page printed on both sides, although on more extensive discussions may be 3 or 4 pages. The sheets are punched and suitable for a 3 ring notebook binder. The new set of revised publications begins with "Control Series 57", of January, 1969 and runs through number 134, September, 1969.

Number 57 deals with fairy ring. Replacement of infested soil, or fumigation of the soil, is suggested -- both operations of some technical difficulty and certainly apt to scar the lawn badly. Number 58 is concerned with red leafspot on bentgrass, for which several fungicides are suggested. Number 59 discusses stripe smut, and recognizes no good control. Number 60 is concerned with melting-out of Kentucky bluegrass, and suggests resistant varieties, but also reasonable control from persistent fungicide spraying from April through June.

Number 61 discusses slime molds, and number 74 Helminthosporium on fescues. The ubiquitous Helminthosporium leafspot that attacks bluegrasses, bentgrasses, fescues and ryegrasses, is given attention in number 112. Powdery mildew is reviewed in number 113, Pythium blight in 114, Fusarium patch in 115, Fusarium blight in number 131, Sclerotinia dollarspot in number 132, Rhizoctonia brown patch in number 133, and Rusts in number 134.

WASHINGTON TURF VALUE

A survey reported by Roy Goss on "The Value of Turf in the State of Washington", appeared in the February Western Landscaping News. Home lawns make up 61 percent of the fine turf, amounting to over 96,000 acres. Average size of a lawn is 4,770 sq. ft. The cost of establishment of a new lawn came to nearly \$7,000 per acre. Only half the lawns are fertilized. Nearly \$100 per acre is spent annually for maintenance products. Equipment expenses per acre were about \$140, and total maintenance about \$300 (this does not include unpaid family labor). Statewide, expenses for lawn maintenance exclusive of labor run to nearly 60 million dollars, and about 100 million dollars would be the value of unpaid labor figured at hourly rates. Cost of sod is about 8 cents per sq. ft., and soilbed preparation nearly 5 cents. Compared to the foregoing home lawn expenses, labor costs run more than equipment and product for utility turf. There are over 150 golf courses, representing the second most important use of turf (after home lawn) in both value and area. Bluegrass is predominant in eastern Washington, bentgrass in western. Additional figures are given for school lawns and cemeteries. Goss' report was presented at the 23rd Annual Northwest Turfgrass Conference.

ANTAGONISM OF RYEGRASS TO OTHER SPECIES

Annual ryegrass has long been observed to inhibit growth of other grasses, due to its aggressive usurpation of space and moisture, and possibly because of toxic secretions. McKell, Duncan and Muller, California, provide well documented evidence on "Competitive Relationships of Annual Ryegrass" in the summer, 1969 issue of Ecology (issued January, 1970). Carefully measured interplantings of annual ryegrass with Kentucky bluegrass and several other species, studied in the field and in the greenhouse, showed ryegrass always to have a detrimental effect upon the growth of the other species. It showed no advantage as a nurse crop, and, in fact, exhibited self-interference. The report is a rather conclusive condemnation of the inclusion of annual ryegrass in any seeding mixture. Rye was especially antagonistic to bluegrass, and among other species only wild oats seemed more competitive with ryegrass than ryegrass with it. The repressive influence of ryegrass was felt not only when the competing plants were in close proximity, but when the grasses were planted in rows spaced several inches apart. Even ryegrass litter removed from one plot and applied to another markedly upset the botanical composition of new growth.

LAWN IN ATLANTA

The Institute has been instrumental in helping Alan Waller establish a luxury bluegrass lawn in Atlanta, Georgia, a little south of the best adapted range for the species. Waller spared no pains in preparing the soilbed, planting the seed and nurturing the grass. He has had the advice of Dr. Homer Wells of the Tifton Experiment Station, in his efforts. Mr. Waller telephoned the Institute March 7 and gave a lengthy report on the progress with his lawn. Because a lot of sawdust had been mixed in with the soil, there was a nitrogen deficit in plantings made autumn a year ago; heavy nitrogen applications were needed to stimulate spring growth. This brought the lawn into summer in a vulnerable state, but repeated applications of fungicides (Benlate once per month, or Demosan every two weeks) prevented loss of more than about 10 percent of the grass. The lawn had been planted to 5 parts Merion Kentucky bluegrass, 8 parts Fylking Kentucky bluegrass. Both Benlate and Demosan are systemic, and Demosan is especially effective against Pythium, which often attacks young seedlings.

INSECT EPIDEMIC ASSOCIATED WITH PLANT STRESS

Perhaps one of the reasons sod webworm and other insect damage is so prevalent in drier areas and summers which sustain drought, can be partly explained by research conducted in Australia on insect outbreaks associated with weather-induced stress on trees. The research is reported by T. C. R. White, in Vol. 50, No. 5, of Ecology. Physiological stress on various trees, induced by water deficit, resulted in severe outbreaks of psyllid attack. It is theorized that the stress caused the tree to produce highly nitrogenous vegetation (a well-known response to drought), which was favorable to the reproduction and survival of the insects feeding on this vegetation. If this generalization is valid, as the author seems to think, it may help explain certain serious outbreaks of sod webworm, chinchbug, and other insect epidemics of lawns.

FARM SEED PROCEEDINGS

The Proceedings of the 1969 Annual Farm Seed Conference has been received from ASTA. Included are several presentations of interest to grass seed people, although the major concern is farming rather than fine turf. Three short papers deal with sure-to-come variety protection.

Perhaps of chief interest, A. A. Hansen offers technical discussions on plant breeding that touch directly upon genetic processes involving fine turfgrasses. You may want to get the latest bird's eye view on genetic diversity, breeding methods (selection, inbreeding, hybrid varieties, apomixis, hybridization, polyploidy, mutation, etc.), multiplication of varieties, forage management, public and private research, and future trends, from this recognized leader of government programs. Although Hansen refers to the specific grasses in many of his discussions, these are too involved for summarization and the Proceedings should be consulted for details.

GERMINATION OF WEEDY SPECIES

Palmblad, Utah, reported upon "Populational Variations in Germination of Weedy Species", in vol. 50, no. 4 of Ecology. He discovered that 22 out of 174 weed populations produced seed that was significantly variable from the average so far as its germination is concerned. In some cases there is visual distinction tied to the ability of the seed to germinate. The author speculates that there is advantage to a weed plant in production of more than one "class" of seed with certain germination characteristics, such that there would be reserves of seed which had not germinated in case another population class were wiped out. There has been very little study of differential seed germination from a single plant, since in commercial production all seed is bulked and an average germination taken. This study indicates that more than might be suspected different plants of the same species often produce "classes" of seed having differing germination characteristics.

WINTERSEEDING

The January issue of the Golf Superintendent carries a lengthy discussion by Meyers and Horn, Florida, on "Transition From Overseeded to Permanent Warm Season Grasses". Grass cultivars are seldom specifically referred to, but rather the discussion centers upon fundamentals of grass physiology that affect decline of the northern grasses and revival of the southern ones in spring. The authors cite laboratory research showing the ideal air and soil temperatures for good bluegrass growth (the soil about 12° less than for the air), certainly well below the optimum for bermudagrass. The relationship of watering, fertilization and mowing upon desirable, gradual transition are discussed. To prolong the transition (i.e. prevent sudden disappearance) it is suggested that wintergrass not be generously fertilized, and that it be mowed as tall as possible rather than scalped.

FERTILIZER AND MERION BLUEGRASS

Juska, Hanson and Hovin report in the Jan.-Feb., 1970 Agronomy Journal on Gross Response of Merion Kentucky Bluegrass to Fertilizer and Lime Treatments. About a dozen different fertilizers were tried, ranging from completely soluble sorts such as ammonium nitrate to sewage sludge and ureaform. As is well recognized, the slow-release fertilizers provided less growth stimulation than did the soluble nitrogens, but of course this may or may not improve lawn performance. The carrier used for the fertility nutrients apparently had little influence. pH did not affect fertilizers differentially, but a low pH gave less underground growth with the Merion bluegrass than did the higher pH.

PICLORAM AND GRASS SEED PRODUCTION

W. O. Lee, Oregon, reports upon the effects of picloram in the production seed fields, in the Jan., 1970 Weed Science. In western Oregon seed production and seed quality of most turf species was not bothered by picloram (especially Highland, Penncross and Seaside bentgrasses; perennial and annual ryegrasses; and tall fescue). Certain rates were troublesome to Astoria bentgrass; bluegrass was not bothered by autumn treatments, but by some March applications. Seed production of fine fescue was usually reduced by picloram, and seed germination was significantly lowered from a 2 lbs./A rate used in March.

"DETHATCHED" PRAIRIE

Studies by L. C. Hulbert, Kansas, reported in vol. 50, no. 5, Ecology, were made on undisturbed prairie but have implications for lawn turf as well. In the research, litter (analogous to the thatch which accumulates a lawn) was removed by several different means including burning. No matter what method was used, the response was much alike for all "denuded" grass. But there was a striking difference between the denuded areas and the controls that remained with litter. Denudation increased tiller number as much as 2.7 times, speeded up growth earlier in the season, and nearly doubled total yield of vegetation. It is fair to assume that this sort of response would also be stimulated in a lawn provided as severe de-thatching, resulting in increased juvenile growth response.

GRASS GROWTH INFLUENCED BY COMPACTION

University of Georgia researchers report in the Sept., 1969 Journal of the American Society for Horticultural Science, on tests involving Tifgreen bermudagrass subjected to varying degrees of compaction when grown in several soil mixtures. As would be expected, in general, root growth and clipping weight declined as compaction pressure was increased. Mixing pine bark into the soil, or spreading it on the surface as a layer a few inches thick (to absorb compaction) was effective in reducing influence of compaction, and improving winter survival (spring recovery) of the bermudagrass.

HERBICIDE EFFECT ON FESCUE, BLUEGRASS, BENTGRASS

British Columbia researchers report in the Jan., 1970 Weed Science on the effect of 2,4-D and ioxynil on seedlings of fine turf species. Park bluegrass was injured by both the 1 and 3 lbs./A applications of 2,4-D, but Chewings fescue and Highland bentgrass were little bothered. There was negligible injury from ioxynil, which in most instances gave better weed control in seedling grass than 2,4-D. But even where there was set-back from 2,4-D, the eventual stand of grass was little affected.

FUNGICIDE RESISTANCE

The development of resistance in insects to insecticides is generally recognized but evidence for the build-up of resistance by diseases to fungicides has been less clear. Now researchers at the Geneva experiment station, New York, document convincingly the build-up of resistance by an apple scab fungus, in orchards where the fungicide dodine has been used from 5 to 10 years. One would suppose that the same principle applies to turf diseases, and that effective control from a single fungicide is not assured over a prolonged period of time.

ANNUAL BLUEGRASS CONTROL

Virginia researchers report in the Nov.-Dec., 1969 Agronomy Journal on the control of annual bluegrass in overseeded bermudagrass golf greens. Several pre-emergence "crabgrass" preventers were effective, as was competition of seeded wintergrass. Annual ryegrass was more competitive than was fine fescue in restraining *Poa annua*. Winterseeding was not interfered with by modest rates of herbicide made a month earlier. Spring transition was better where annual bluegrass was restrained, either chemically or by overseeding, or by a combination of both.

COPPER COUNTERACTS 2,4-D

A study by California researchers reported in the Nov.-Dec., 1969 Crop Science indicates that toxicity of 2,4-D is greatly modified by applications of copper sulfate and copper chelate. Copper is more effective than iron, and only one-tenth as much is needed. The inhibiting effect of 2,4-D was reduced about half by sprays containing a minute quantity of copper sulfate. Perhaps this technique would be useful with weed killer misapplications in the garden?

MICHIGAN RECOMMENDATION

Discussing the increased incidence of *Fusarium* blight in Michigan, Dr. David Martin of Michigan State University advises reseeding Penn-lawn fine fescue into damaged areas in August. He states, "Red fescue is not susceptible to the disease and will provide long term prevention -- a mixture of fescue and bluegrass will give a nice looking lawn that is much more disease-resistant."

INDIGENOUS BLUEGRASS BEST

Studies by University of Kentucky researchers reported in the Nov.-Dec., 1969 Crop Science, indicate that Kentucky-grown "native" bluegrass (viz. Kenblue) resisted sod webworm injury appreciably better than cultivars from Denmark and Holland. They were unable to isolate any substance accounting for this resistance. It is interesting that in the same issue Georgia researchers found greatly varying tolerance to spittlebug among bermudagrass clones.

BERMUDAGRASS RELATIONSHIPS

Harlan and DeWet, Illinois, report in the Nov.-Dec., 1969 Crop Science on their investigation of bermudagrass taxonomy. They recognize the species Cynodon dactylon as an extremely variable and cosmopolitan "weed". Of the 6 varieties accepted, only one (C. dactylon dactylon) is widespread, the others being confined narrowly to South Africa, Madagascar and Afghanistan.

AUTOMATIC WATER SUPPLY

Bulletin No. 40 of Midwest Turf News and Research (Purdue University) explains the new Purr-wick rootzone system for turfs (the letters PURR derived from -- Plastic Under Reservoir Rootzone). This is an intricate scheme for creating a perched watertable by means of plastic spread a few inches under the surface, the water level regulated by drains at various levels, the grass planted into compacted sand that overlies the system. The system would seem to be too exacting technically to be widely usable, but those interested in experimenting might write Dr. Daniel for a copy of report No. 40, dated January, 1970

HYBRID WHEATGRASSES

Dewey, Utah, reviews the genetics of crested wheatgrass in the Nov.-Dec., 1969 issue of Crop Science. A heterogeneous assortment of polyploids is involved, with Fairway crested wheatgrass being a highly uniform diploid, but other strains of Agropyron cristatum being tetraploid as is A. desertorum, part of a far larger and morphologically variable group. Because one basic genome is contained through pentaploids and hexaploids, the author suggests crested wheatgrasses be regarded as a single species with taxonomic separation at a sub-specific level.

THE ROLE OF APOMIXIS

Texas researchers report in the Nov.-Dec., 1969 Crop Science on apomixis in buffelgrass and related species. With Kentucky bluegrass so highly apomictic, maybe some of the conclusions can be extrapolated. Buffelgrass hybrids varied greatly (as do those of Kentucky bluegrass), and with subsequent selfing of apomictic forms fertility was 3 times that of the sexual hybrids. The superior fertility of the obligate apomicts indicates "dynamic evolutionary-potential of apomixis" according to the authors.

ON FERTILIZER POLLUTION

With the furor about supposed water pollution from agricultural fertilizers, it is interesting to read the report by Peltier and Welch of Alabama, in the January, 1970 Weed Science. They examined the factors affecting the growth of plants in a reservoir, and concluded that neither nitrogen nor phosphorus was related to plant growth. Rather light penetrating the water was critical, which in turn was controlled by rainfall, water level, and so on.

WETTING AGENTS ON GRASS

University of California researchers in the Nov.-Dec., 1969 Agronomy Journal, report on "Effects of Nonionic Surfactants on Monocots". Among the species tested for response to wetting agents were common ryegrass, creeping bentgrass, Kentucky bluegrass, tall fescue and bermudagrass. Although wetting agents may help achieve penetration of liquids into the soil, and thereby aid grass growth, they proved toxic to a greater or lesser degree to root growth.

COMPOSITION OF PLANT LITTER

The natural disappearance of plant residues has great importance in nature for the recycling of nutrients, in lawn tending by the build-up of thatch, and in seed growing because of its relationship to field burning. A report by Kowal, in vol. 50, no. 4 of Ecology, investigated the influence of leaching upon decomposition. It has been found that leaching with water, even if it contains antiseptic, encourages decomposition, presumably because certain polyphenols that repress microbial activity are washed out. Kowal found this to be true even with pine needles.'

GRASS ENERGY RESERVES

A. G. Matches, of Missouri, reports upon the energy reserve in tall fescue as influenced by cutting height, in the Nov.-Dec., 1969 Agronomy Journal. The energy reserve was measured by regrowth in a dark chamber. It was found that low cutting height depleted reserves, and that therefore the culm bases must constitute a storage region for food energy.

MORE ON QUACKGRASS TOXICITY

Minnesota researchers report in the Jan., 1970 Weed Science on the influence quackgrass has upon succeeding crops. Growth of oats, corn and soybeans were all depressed following quackgrass infestation of the field. Nitrogen application did not correct the adverse affect on yield, indicating that the quackgrass had a direct and persistent toxic affect upon the soil. This adds to the already impressive documentation concerning the "antibiotic" affect of quackgrass.

TURFGRASS EVAPOTRANSPIRATION

Nevada researchers report in the Nov.-Dec., 1969 Agronomy Journal on irrigation tests made near Reno. Total water requirement is on the order generally hypothesized, -- seldom as much as a quarter inch per day. Best appearance of lawngrass required twice weekly irrigation on a sandy soil during hot weather, but once per week was ample on loam soil.

INSTITUTE GROUNDS

Demonstration plantings at the Institute came through early winter in excellent shape. The turf had been protected by light snow from December through most of February, and was unusually green and luxuriant when snow cover disappeared late in February. Thereafter alternate freezing and warm spells scorched foliage and caused some heaving. There was a good bit of snowmold on bentgrass through winter, but the bluegrasses and fine fescues seem in excellent shape. The perennial ryegrasses have not been attractive through winter, a usual situation in this environment. Plantings well-fertilized in autumn are more attractive in spring than those not fertilized. No particular advantage was seen from the use of sulphur-coated urea as compared to straight urea, either in fertility impact or its longevity. The many selections of Kentucky bluegrass now available make for a number of different shades and textures as spring quickens, but the difference between the cultivars of fine fescue is not nearly so appreciable.

SELECTIVE GRASS CONTROL

Kerb is the name given a new selective herbicide offered experimentally by Rohm and Hass, suggested especially for controlling *Poa annua* and other annual grasses in southern turf. Various broadleaf weeds are controlled as well. It has been used to eliminate bluegrass from bermudagrass. Up to 2 lbs. of active ingredient per acre are suggested, the chemical being effective through root absorption.

SOD ROOTING

A study in Minnesota by Foote is reported in the Nov.-Dec., 1969 *Agronomy Journal*, on the influence fertilizer has on the rooting of sod after its placement. Fertilizer mixed into the soil had little effect, but that over the sod was effective. The author recommends half the fertilizer be placed under and the other half over the sod. The grass tested was Kentucky bluegrass.

"WHAT THEY ARE SAYING --"

" -- Thank you very much for the Lawn Institute's spring stories. We hope that some of this material can be worked into PARK MAINTENANCE items and certainly we appreciate having it on hand as source material for our coming July Turf Annual."

Erik Madisen, Jr. Editor
Park Maintenance Magazine.

" -- Thank you again for your cooperation --- I hope you are as pleased as we are with the use of your material in the supplement.

Robert Falasca
ASTA

"Enclosed is a copy of our special 'Lawn & Garden' supplement. Thank you for the material you sent us in preparation for this feature. I hope you will continue to send us new features for our weekly Garden Page. Again, thank you, and I will remain -- Sincerely,"

Gene Rugh
The News-Sentinel, Ft. Wayne, Ind.

"We are preparing copy for the 1971 editions of the ORTHO Lawn and Garden Book. It will have a circulation of more than 2,000,000 copies. Will you please send us two copies of pamphlets, booklets and one-sheets you publish to guide the homeowner ---"

Walter Doty, Editor
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