

BETTER LAWN - - HARVESTS

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QUARTERLY RESUME

During the quarter the following printed materials were prepared, in press, or reprinted.

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GOLF COURSE MANAGEMENT	NEW GRASS CULTIVARS (WHAT'S SHAPING UP)
HORTICULTURE	TONIC TREATMENT FOR WEARY LAWNS
LANDSCAPE CONTRACTOR	LAWN ECOLOGY
LANDSCAPE CONTRACTOR	TALENT FOR TURF
PLANTS ALIVE	LAWN MOWING MACHINES
PROCEEDINGS OF THIRD INTERNATIONAL CONFERENCE	EVOLUTION OF IMPROVED LAWNGRASSES IN AMERICA: A REVIEW OF MAJOR EVENTS LEADING TO THE KENTUCKY BLUEGRASS CULTIVAR REVOLUTION
RASEN	LAWN SERVICE IN THE USA
SEED WORLD	HAS TURFGRASS DEVELOPMENT PLATEAUED
REGULAR & SOUTHERN PRESS KITS SUPPLEMENT, PFLAUM ASSOC.	LAWNS, GARDENS & POOLS
WEEDS, TREES & TURF	CULTIVAR PERFORMANCE IN SOD BLENDS AND MIXTURES

EXECUTIVE COMMITTEE MEETS

On January 31 the Executive Committee (Allmon, Carnes, Jacklin, Russell and Schery attending) met in Marysville, Ohio, at the courtesy room of the Citizens Federal Savings and Loan. Failure of income to keep pace with inflation recently was the topic of primary attention, and led to plans for membership solicitation and improved cash flow measures. Also, Mr. Allmon was to visit with Mr. Stiffler concerning possible help for the Institute in the Southeast, and it was decided to continue the southeastern mailings initiated last year. The committee approved printing of a generalized lawnglass fold-out that would serve for all parts of the country, patterned after Dr. Schery's contribution to the American Association of Nurserymen's "Ground Covers for North America" handbook. This would be ready for autumn mailing.

Several minor rewordings of the by-laws were approved, for purposes of clarification (page 4, paragraph B) now reads "Approval of membership. To become a member of the corporation it shall require approval of two-thirds of the Board of Directors present or represented in any legally constituted meeting." (Page 7, article V, Number 2) reads "Qualifications. Any person elected or appointed as a director shall be a member of the corporation, or an employee of a firm member or an employee of the partnership member, or an employee of the corporate member, or a member of a commission or associate member - - -."

PRESS KIT ISSUED

In early February the "regular" Lawn Institute press kit in the familiar "green grass" folder went to its select list of recipients in the northern two-thirds of the country. In addition to the covering letter, nineteen pages of articles of varying length were included. The tripartite series of reprints from the American Nurserymen was included as informational back-up. Preliminary indications are that this issuance was very well received.

In an effort to save on costs, this year a bulk mailing permit was obtained and the mailing pre-sorted in Columbus by our agent there. It appears that some added production costs resulting are more than compensated for in postage savings; no difference was noticed in promptness of the mailing. A number of requests have been received for photographs, offered (upon request) in the covering letter.

SUPPLEMENT PUBLISHED

The 1979 "Lawns, Gardens & Pools" copy text, in newspaper format, was mailed in mid-February. Members will recall that the Institute cooperates in sponsorship of this with the American Association of Nurserymen, The Fertilizer Institute, The National Swimming Pool Institute, and on a partial basis The American Wood Preservers Institute and National Bark Producers Association. Preparation is by the Pflaum Company of Reston, Virginia, from text and photographs supplied (for our share) by the Institute Marysville office. Of the Institute's oversupply of materials, eighteen stories and five photographs were used. The initial reaction has been favorable, and several people have felt this year's issue to be an improvement over the previous. This is an economical means (because of shared expenses) for servicing smaller newspapers and publications that are unable to maintain a garden writer or special editorial effort relating to lawns and gardens.

SUNBELT MAILING

Late in February a first class mailing was made to garden writers, newspapers and editors in the southeastern United States. To establish continuity, recipients were reminded of the "winterseeding" (with perennial ryegrasses) spoken about last autumn, and for which new literature will be available this coming year. Included for spring usage were "Why Fertilize the Lawn?", and shorter treatments about weed seed, bluegrass in the Southwest, lawn mowing, liming, UF lawn fertilizer, measures for the shaded lawn, and the Lawn Institute Seal of Approval. Two back-up reprints were included, "The Alternative To Lawns" (indicating that lawns are really a most efficient ground cover) and "Slow-Release Fertilizers for Lawns" (in which the effectiveness of ureaform is reviewed).

PUBLIC APPEARANCE SET

Dr. Schery has agreed to review lawns and their making for home owners of the Dayton, Ohio, area this coming autumn. Invitation is from the Cox Arboretum, where a similar program was supplied last year. Cathy Wright, educational supervisor, writes, "Our last program with you was so successful that the Cox Arboretum Associates would like to ask you to do another - - - the same topic of understanding lawn ecology and lawn tending - - - we will be looking forward to having you back!".

MOWING DISCUSSED FOR PLANTS ALIVE

A story tentatively entitled "Lawn Mowing Machines" was supplied to Plants Alive magazine in January. Editor Clements wished to emphasize riding mowers; but advantages and disadvantages of various mowers, and features in their design, are covered. Suggested as a boxed inset is the Institute's press kit story on the history of mowing, which single out in particular the vast improvement that development of new turf-type perennial ryegrasses has made (the VRB selections are listed by name).

STORY IN THE LANDSCAPE CONTRACTOR

The Landscape Contractor, official publication of the Illinois Landscape Contractors Association, carried the Institute story "Lawn Ecology" reprinted in its entirety, in the December-January issue. Jim Wenzel, editor, writes, "Thank you for the material - -. As you can see - - - we were able to put it to good use." Editor Wenzel feels that landscapers " - - - need to know as much as possible about the seed and sod aspect of landscaping", and has asked for a separate article on the subject.

WTT STORY

"Cultivar Performance in Blends and Mixtures" was the title the editors chose for the Institute story in the February issue of Weeds, Trees and Turf. Editor Bruce Shank was most complimentary of this contribution, which headed the feature articles for the month. The story provides background on performance of cultivars in blends and mixtures, and notes the experiences of authorities around the country. The item closes with a table listing Variety Review Board stalwarts that might be useful for sod, including fine fescues and perennial ryegrasses as well as basic Kentucky bluegrasses.

FOR HORTICULTURE MAGAZINE

The story "Tonic Treatments for Weary Lawns" was prepared for future use by Horticulture magazine during the quarter. The treatment deals with repair of lawns, for which "top-flight grass seed, efficient lawn products and labor-saving tools are had in abundance these days - - -." Blends and mixtures of modern grasses are advocated, and a table of representative cultivars (VRB selections) is given.

STORY FOR SEED WORLD

Glenn Wiklund asked if the Institute could develop a customized treatment something on the order of stories that have appeared in other magazines, for the April issue of Seed World. He will, of course, have available the numerous shorter treatments in the press kit. Additionally we have furnished him with the title, "Has Turfgrass Development Plateaued?", which deals with the fine progress made in turfgrass breeding, and examines future prospects. A tabular listing of Variety Review Board selections is included.

STORY FOR RASEN SHAPING UP

Correspondence has continued with Peter Boeker, editor of Rasen (Hortus Verlag GMBH), which expects to carry in English the title "Lawn Service in the USA" furnished by the Institute. A few colored slides were sent this quarter to accompany the text, and we anticipate publication in the near future.

GOLF COURSE MANAGEMENT STORY READIED

"New Grass Cultivars (What's Shaping Up)" is title for an article scheduled to appear shortly in Golf Course Management Magazine. Text on this was revised mid-February, for the new editor of the magazine, John Shilling. The story depicts background that provides the basis for the turfgrass revolution being experienced at present. Favored breeding procedures are reviewed, and the Lawn Institute's Variety Review Board cultivars are described by thumbnail sketches.

CROPS & SOILS STORY

"Fertilization Necessary in Proper Lawn Care" was reprinted this quarter from Vol. 29, No. 6 of Crops & Soils Magazine. It cites bluegrass response to light fertilization (Ohio and Connecticut results), in which certain cultivars and common types fare better than others. Copies were mailed to all members.

PUBLICITY COSTS

The Institute, through its own press mailings and participation in the "joint Supplement" spends modest sums yearly to reach the gardening press. It is difficult to tally results exactly, but we do know that many column-inches of space are obtained, sometimes with as many as a dozen or more items used in a single issue of one major newspaper. It is interesting, then, to compare what the cost would be were this sort of thing to be handled as a "total package" by professional publicists.

By way of example, new rates announced for 1979 by Metro Associated Services (New York), run \$35 per column inch for the first 10 inches, \$31.50 for each additional column inch. Our contribution to the Supplement amounts to something like 160 column inches, and our own press kit must run nearly double that. Of course we may not be sending to as many outlets (but ours are highly select), and therefore our costs would not be so high; but nonetheless it gives pause for reflection that at these rates our coverage for the spring season alone would be "worth" tens of thousands of dollars.

PHOTO'S REQUESTED

In early January colored slides were requested on two occasions from Germany, once by Dr. Boeker, Editor of Rasen, for use with the Institute's review of the Lawn Service Industry in America for that publication; and again by Chris Eisele of J. C. Nungesser, for Dr. Skirde of the University of Giessen, who needed illustrations of modern seed growing and processing as they are undertaken in our Northwest.

HERCULES PROGRESS CONTINUES

Hercules domestic activities (in the lawn products field) are now merged with Boots (of England). As a part of the reorganization, Doris Watson, long helpful to the Institute and enthusiastic about its program, indicates that she has been reassigned to other areas of activity within the company. Mr. Allmon, however, continues on the Institute Board, and as a member of the Executive Committee. The Boots Association brings additional product interest beyond ureaform (Nitroform), which was the chief concern for Hercules' participation.

COLUMNIST FRIEND HEARD FROM

We are grateful to Doc Abraham, "Green Thumb" columnist and radio-television broadcaster. Upon receiving the spring press kit, "Doc" dropped us a note to the effect, "Just a note to tell you we like your latest batch of releases. We like the short items, along with the other lengthier ones. You always do a great job." "Doc" was mentioned in one of the PK items.

MEMBERSHIP LETTER READIED

President Jacklin has signed and made ready a two-page letter "explaining" the Institute and its activities, primarily for usage in solicitation of new members. Any member wishing to nominate another firm which would qualify for membership might request from the Marysville office a copy of Mr. Jacklin's resume; it's a lot handier than trying to explain in detail what the Institute does.

INTERNATIONAL TURFGRASS PROCEEDINGS

The Proceedings of the Third International Turfgrass Conference is reported by Dr. Beard to be in production. Dr. Schery had served as an associate editor in its compilation. The Institute's paper, "Evolution of Improved Lawngrasses in America: A Review of Major Events Leading to the Kentucky Bluegrass Cultivar Revolution" will appear in the Proceedings as an observational note. Beard hopes for galley proofs during April and May.

ILLUSTRATIONS REQUESTED

The editors of Horticulture Magazine have asked for photographs as a base for illustrations for "Tonic Treatments for Weary Lawns". A color photo may be used for dress up, but the magazine according to recent editorial policy has had an artist make drawings from relevant photographs to illustrate particular points.

ENCOURAGING RECOGNITION

We have a letter from Keith O'Connor, the Transcript-Telegram, Holyoke, Massachusetts, wanting to be certain of receiving the spring press kit. He knew of the Institute because of an autumn press kit that had crossed his desk last year. He writes, "As I plan ahead for my 'Spring Home Improvement' special section - - - I would very much appreciate receiving [A spring press kit]". Instances such as this prove that the press kits are very much worth the effort.

SCHOOLS REQUEST LITERATURE

An unusually large number of requests for lawn information, for classroom use, have been received this quarter, - a great usage for our reprints. Typical is the request received in early January, from E. Bennett, San Ramon Valley Unified School District, Danville, California, who writes, "It would be greatly appreciated if you could send me a reprint characterizing lawngrass varieties, or any other aides that you think would be helpful for my horticulture class."

FOLD-OUT BROCHURE BEING READIED

An Institute publication entitled Lawns Across America is currently in production, based upon nationwide review of lawngrass species done for the "Ground Covers for North America" booklet (American Association of Nurserymen). Maps and a four-color dress-up photo heighten appearance, with printing on both sides of a large sheet folded into eight panels so as to fit a standard envelope. This should serve well for answering inquiries from people puzzled about what grass to plant in what climatic zone, and should lend authority to press mailings as an informational back-up. Members may find the fold-out useful for their own purposes, and sample copies will be mailed as soon as the first production run is completed.

TECHNICAL SECTION
NORTHWEST TURFGRASS CONFERENCE PROCEEDINGS

We were delighted to receive from Roy Goss the published Proceedings of the 32nd Northwest Turfgrass Conference, held at Richland, Washington, in late September 1978. It is probably something of a record to have had this 150-page book completed so quickly (and so attractively) by the Northwest Turfgrass Association by the end of the year. A number of the presentations will be of interest to members.

Paul Rieke, of Michigan, was a visiting speaker who reviewed very nicely soil amendments, and nutrient trace elements. For acidifying soil, he would suggest sulphur in increments of no more than 10 lbs/1,000 square feet at a time, totaling perhaps 20 lbs. annually. He finds no value to gypsum except where a high-sodium problem exists.

Roberts, Puyallup, Washington, studying "aerification", noted that contrary to the usual assumption water infiltration of a silty soil was impaired following cultivation. He states, "aerification under sod can and does destroy the soil structure in the zone of cultivation, thus temporarily counterbalancing the physical benefits derived from a vigorous rooting system and earthworm activity. This questions the desirability of annual or monthly aerification on well-structured soils - - -".

R. D. Comes, U.S.D.A., thoroughly reviews, all aspects of aquatic weed control, listing the cons as well as the pros. Taylor, Canada, provides a nice summary of the Third International Turfgrass Conference and Tour. Several other papers relate to golf course management.

Of greater direct interest are several of the research reports. Taylor (Agassiz, B.C. Canada), has investigated wear of turfgrass species, and reports, "After two winters of simulated wear on a replicated study of cultivar and mixtures of turfgrasses for sportsfields, perennial ryegrass and Kentucky bluegrass have shown outstanding survival." Other species fared less well, and surprisingly fescues, bentgrasses and Canada bluegrass were among those species that were nearly complete failures. Manhattan was the most wearable of the ryegrasses; Sydsport and Merion the most wearable of the bluegrasses. Taylor likes mixtures, stating "In general, mixtures of the better species were superior to single grasses in pure stands." In recovery from divoting, Penncross and Highland were superior to Emerald (and others), while "Merion was inferior to Fylking, Sydsport, and Nugget in mixtures with bentgrass, but superior to Nugget and Fylking in pure stands or mixtures with Manhattan.). There was no benefit from topdressing. Yet a sand topdressing with fertilization helps decrease problems from heavy fertilization (puffiness).

The more vigorous the bentgrass, the less the Poa annua invasion. Endothal was a bit hard on bentgrass in autumn applications, but didn't bother Kentucky bluegrass and gave good reduction of Poa annua (so did linuron). Both herbicides wiped out Poa trivialis. Fylking and Birka were among the most susceptible bluegrass cultivars; Baron and Sydsport among the most resistant, to these herbicides.

Fine fescues, especially Highlight, were very competitive against Kentucky bluegrass, although Nugget bluegrass seemed to hold its own better than other cultivars. Increased fertility and lowered mowing gave greater bluegrass density, and more thatch.

Slow-release nitrogen studies were reported for Idaho (Moscow). It was concluded that products containing a fair percentage of water-soluble nutrient as well as WIN were preferable, although treatments were reported for a single year and did not give chance for build up of soil reserves as is commonplace with Nitroform.

- Continued

NORTHWEST TURFGRASS CONFERENCE PROCEEDINGS - Continued

Turfgrasses were evaluated both for southern and northern Idaho. Both Kentucky bluegrasses and perennial ryegrasses did very well, and are favored over bentgrasses and fescues. Institute bluegrasses ranking among the better cultivars were Adelphi, Baron, Bonnieblue, Glade, Majestic, Nugget and Sydsport.

Considerable research on Poa annua was reported, utilizing a combination of endothal (to kill the Poa annua), bensulide (to prevent its re-invasion), and fertilization-overseeding (to re-establish thriving turf). Endothal is still not labeled for this usage, and in any event it is something for the golf course rather than the home lawn (too involved).

Law, Pullman, Washington, reported on turfgrass research there; he likes the "turf-type" perennial ryegrasses, and low-growing bluegrasses such as Nugget, Glade, and Bonnieblue. He notes that "mixtures of bluegrass - - - with creeping red fescue greatly reduced the amount of Helminthosporium damage."

At Puyallup, Washington, a new, as yet unidentified Basidiomycete is attacking bentgrasses, causing sunken patches (disappearance of thatch). Growth retardants have worked on bentgrass (up to 45% growth reduction with Embark). One coded growth regulator has given promise of Poa annua control. A Rogers seeder was quite effective in re-establishing Highland bentgrass after endothal-bensulide treatments. Other research at Puyallup is discussed, but is not far enough along for definite conclusions. Use of sulphur (at fairly high rates) continues as a promising means for reducing Poa annua in one series of tests. Milorganite failed to give typical nitrogen simulation unless micronutrients were also applied (leading to speculation that there is an imbalance perhaps involving manganese).

RASEN REPORTS

The fourth and final issue of Rasen, the German turfgrass publication edited by Peter Boeker, was received in February. All reports were in German, but with the usual English summaries. Several deal with cultivar performance.

Mehnert reports on plant populations in the Munich Olympic grounds, over a period of three years. As time went by Merion was increasingly attacked by rust. Crested dogstail failed completely, as did dwarf timothy if receiving much wear. Creeping bentgrass and Poa trivialis withstood wear poorly. Perennial ryegrass served better than most of these species. Of course Poa annua tends to dominate many populations.

Von Boberfeld provides an interesting series of tables comparing an initial seeding mixture to the eventual plant stand. The abbreviation in German and the outlining of test conditions are not given in English, but it is evident that perennial ryegrass fares well no matter its prevalence in the seeding mixture. Von Boberfeld notes that crested dogstail seems to carry with it velvetgrass, and therefore should not be planted; and that perennial ryegrass repressed Poa annua. He feels that perennial ryegrass is just as demanding of soil conditions as is bluegrass, but that differing cultivars vary in their aggressiveness (he advocates perennial ryegrass blends).

THATCH-INDUCING HERBICIDE WORSENS SOIL

Research by Jansen and Turgeon, Illinois, reported in the Jan.-Feb. 1977 Agronomy Journal, tell of marked deterioration of the physical properties of the soil where turf had been treated with calcium arsenate (a thatch-inducing herbicide). One of the material events was inhibition of earthworms.

NEW JOURNAL

In January the Institute received an invitation from Dr. W. Skirde of Giessen, Germany, co-editor of the new Zeitschrift fur Vegetationstechnik to subscribe and contribute to this new journal.

It would appear that it will be competitive with Dr. Boeker's "Rasen". A sample copy of the journal (Heft 2 1978, Oktober-Dezember) has most articles in German with English summaries, but a few in English with German summaries.

The first two papers deal with local soil compoundings. Then Kock describes thatch development under alpine conditions. Using alkaline fertilizer, less thatch accumulated but more weeds grew; bluegrass and timothy were favored over fescue and bentgrass. Grass and root development was generally inverse to thatch build-up. Alkaline fertilizers provided slightly more rapid greening in spring, acid fertilizers slightly better color season-long.

A paper by Schmidt covered essentially the same subject but at the "lowland" habitat of Giessen. Here bluegrass and fescue were encouraged by acid fertilizer at the expense of colonial bentgrass, although weather was a complicating factor. As in the highlands, acid fertilizer caused about twice as much thatch as alkaline fertilizer; much better thatch decomposition and earthworm activity, and better rooting occurred under the more alkaline conditions.

In other papers slow-release nitrogen from sulphur-coated urea gave favorable results, and the value of fertilization in general was well proven (nitrogen influence temporary, phosphorus influence long-lasting). Fine fescue profited especially from fertilization, being supplanted by sheeps fescue if not fertilized; Colonial bentgrass and bluegrass were also much favored by fertilization.

Schubert investigated growth of grasses on soils having differing degrees of compaction. As would be expected, rooting depths and height of foliage were less on a compacted soil. Low-growing species were less inhibited by compacted soil than were tall-growing ones. Fine fescue, Kentucky bluegrass and perennial ryegrass provided a suitable combination for good anchorage, low height, and good soil-binding capacity.

Dahlsson, writing in English, gave his impression of turfgrass research in the U.S.A., as a result of a tour through this country. Liesecke studied the effects of management on shrub plantings, in which mulching was especially advantageous and saving of labor. Several literature reviews are given, mostly by Skirde, in German, involving chiefly English and United States publications.

ABERRANCY IN BLUEGRASS

Hoven et al report in the Sept.-Oct. 1976 Crop Science on the testing of Kentucky bluegrass apomixis in various environments. Because apomixis results from variable embryonic "abnormalities", perhaps environmental conditions during seed production influence the degree of sexuality vs. apomixis. In this research clones of bluegrass of southern, central and northern origins were tested for aberrancy in many locations (East-West-North-South). Frequency of aberrant plants was greater in southerly locations than in northerly ones, and may be related to the considerably greater time span of anthesis in the South compared to the North. Photoperiod (shorter southward) may have been influential as well as temperature. Growing conditions, not origin of the clone, was of consequence.

2,4-D IN RUNOFF

Research in southern Georgia, on sandy Coastal Plain soils, by White et al (Journal of Environmental Quality, Vol. 5, No. 4, 1976), suggests little need for concern from damage by 2,4-D runoff after weed treatment of lawns. On cultivated, sandy soils, some loss of 2,4-D in runoff (up to 25 micrograms per liter) did occur if simulated rain was heavy immediately after application. But normally it would not exceed 8 micrograms per liter, and 2,4-D concentration at the surface of the soil decreases 95% within a week; and after a month it is all but undetectable. Even though 2,4-D is not appreciably fixed by soil, concentrations remained at the surface and were negligible in subsurface water. The authors state "the overall results from these watershed studies under natural and simulated rainfall conditions, indicate that there is little movement of 2,4-D in either surface or subsurface flow." Apparently the 2,4-D is rapidly degraded.

HERBICIDES IN THE SOUTHEAST

Johnson, Georgia reports in the November 1978 Weed Science on herbicides for control of annual grasses in the Southeast. In these tests benefin, profluralin, prosulfalin and napropamide were tested, mostly at the rate of 2.2 kg/ha. So long as the rates were kept no higher than this (benefin an exception, at 3.3 kg/ha in the first application) there was no injury to bermudagrass or Kentucky bluegrass in these tests. Other reports have shown some damage to Kentucky bluegrass from profluralin and prosulfalin. At least two applications, in March and May, were best, controlling both early and late crabgrass and goosegrass. Nearly 100% control was obtained with prosulfalin, and near 90% with March-May or March-May-July treatments with all of the herbicides.

WEED CONTROL IN BERMUDAGRASS

Johnson and Ware, Georgia, report upon use of glyphosate to control weeds in bermudagrass, in the November Weed Science. Glyphosate at light rates (0.3 kg/ha) controlled 90% of the weeds in dormant and semi-dormant bermudagrass, including annual bluegrass. There was no injury to the bermudagrass from this light a rate, and recovery was complete within 6 weeks. However, heavier rates (0.6 - 2.2 kg/ha) were too severe to be acceptable for turf unless the bermudagrass is completely dormant.

GROWING PURE BLUEGRASS SEED

Lee, Oregon, details in the November Weed Science, methods for controlling volunteer Kentucky bluegrass in seed fields where select cultivars are to be produced. Herbicides such as diuron, atrazine and combinations with terbacil eliminate volunteer bluegrass, but the desired cultivar could be planted without adverse effects in carbon bands; neither crop establishment nor seed yield was affected.

RYEGRASS COMPETITIVENESS

Carrow and Troll, in the Jan.-Feb. 1977 Agronomy Journal, note behavior of Manhattan and Pennfine perennial ryegrasses in mixed stands with Merion bluegrass and Penncross bentgrass. At about 3/4 inches mowing height or higher, the ryegrasses were quite persistent in mixtures with Merion, but were only temporary in combination with Penncross creeping bentgrass. Manhattan and Pennfine ryegrasses were more competitive than was NK-200 (and several other cultivars).

CENTIPEDEGRASS COLD TOLERANCE

Johnston and Dickens, Alabama, report in the Jan.-Feb. 1977 Agronomy Journal on the cold tolerance of various strains of centipede grass subjected to various degrees of hardening off. Some, but not a great deal of difference, was noted between selections.

CONCERNING BLUEGRASS SEED DORMANCY

Phaneendranath and Funk, Rutgers, report on the effects of growth hormones on germination of fresh bluegrass seed, in the Nov.- Dec. Crop Science. As is well known, fresh bluegrass seed generally germinates poorly. In these tests various growth stimulants were impregnated into the seed in acetone. Gibberellic acid (alone or in combination) generally increased the speed and/or total germination. At below-normal temperatures no treatments helped, but at above-normal ones gibberellic acid (alone or in combination) was helpful.

NITROGEN FIXING INOCULATIONS AFFECT BERMUDAGRASS

Experiments by Baltensperger et al, reported in the Nov. - Dec. 1978 Crop Science, show that topgrowth of bermudagrass is mildly stimulated by inoculation with the nitrogen-fixing bacteria Azospirillum and Azobacter. Under low fertility conditions topgrowth was increased 17%, but there was no meaningful stimulation to crown or root growth. Nor was there any relationship to genotype (i.e. cultivar inoculated).

BLUEGRASS DROUGHT TOLERANCE

Dernoeden and Butler, Colorado, report in the December HortScience on "Drought Resistance of Kentucky Bluegrass Cultivars". Their findings are based on withholding watering in the Colorado climate, and relating off-color to soil moisture percentage. Common-type bluegrasses, including Arboretum, were superior in drought tolerance to most elite cultivars. Merion also displayed good drought tolerance. Baron and Sydsport were moderately drought resistant, Nugget, Adelphi and Fylking less tolerant. All selections were somewhat more tolerant if mowed tall (as compared to low mowing), and could endure drought much better late in the season than when first greening up in spring.

PHENOXY HERBICIDE REVIEW

Two "long-hair" reviews of herbicides, centering especially upon the phenoxy group (2,4-D), are subject for discussion in the February BioScience. The toxicity of dioxins in 2,4,5-T is the main point of contention, pro-herbicide opinion considering the slight amounts introduced under up-to-date production techniques as being inconsequential, the anti-herbicide opinion being that it is not safe to introduce any substance so toxic into the environment no matter how trivial the amount. Basic information and an in-depth review is provided for those wishing to develop supporting data concerning modern herbicides and their evolution.

BERMUDAGRASS BIOMASS

Dr. Howard Kittmer, University of New Mexico, currently revising his book, Lawn Problems of the Southwest, sent a copy of a reprint from Ecology, Vol. 54, No. 1. The abstract reads as follows. Conclusions would pertain to almost any turfgrass. "Clipping Bermuda grass every few days in its first year of growth to keep it at 6 different heights resulted in a variation of weights for both roots and tops in the harvested plants. The higher the grass was permitted to grow the greater the weight of both roots and tops but the root/shoot ratio remained constant at about 40% roots to tops. The dry weights of tops in unclipped plots was about 2.35 times and the roots 2.0 times those in plots maintained at 12 mm."

LATEST GRAS-TIPS FROM WEIBULL

Weibull's excellent turfgrass publication was received from Landskrona in late March (December 1978 issue). As is customary, English summaries are given for articles written in Swedish. A new insert was begun, initiated by the Union or Nordic Agricultural Scientists, intended to describe and picture serious pathogens of turfgrass. Equally extensive treatment is given in both Swedish and English, and the color illustrations are of top quality. In this issue net blotch, Drechslera dictyoides; powdery mildew, Erysiphe graminis; and leaf blotch, Rhynchosporium orthosporum are covered.

The opening article, by Dahlsson, is about a seven year study of athletic fields; it shows them to have been so generously fertilized that frequently neither potassium nor phosphorus is further needed. Considerable savings can be made if fertilization is confined to nitrogen alone, and no deterioration of turf quality was apparent when this was done.

Peder Weibull discussed performance of Weibull cultivars in New Zealand. Averaging three years, 'Polar' fine fescue ranked first, followed closely by 'Dawson', with other cultivars appreciably lower. 'Sydspport' ranked first among the bluegrasses, with 'Parade' and 'Birka' intermediate. 'Highland' was the top ranking bentgrass in a three year average.

Other treatments include Dahlsson's continuation of a review of American turfgrass research, begun in a previous issue; Nilsson's observation that a Gaeumannomyces fungus of cereals may be having some influence on turfgrasses, and Dahlsson's short piece on utilizing wildflowers in seeding mixtures. Reviews are given of two German research reports, but without English summaries.

TURF INSECTS WELL COVERED

The March issue of Lawn Care Industry carries a thorough discussion of turf insects and their control, authored by Dr. Niemczyk of Ohio. The article carries numerous colored photographs showing pests, as well as generally lucid descriptions of their habits and means for control. Often turfgrass insect literature is fragmentary and incomplete, without good means of identification (photographs). The Niemczyk piece is an exception, and is well worth keeping on file even though not all of the discussion is generally applicable.

MORE ON HERBICIDES

The March issue of Weeds, Trees and Turf reviewed weed control work at several universities. Results with Turgeon at Illinois showed herbicide treatments often to encourage thatch build-up (probably mainly due to discouragement of earthworms and microorganisms). There was less injury from herbicide application to thatch-free turf than to that containing thatch, but a lot more crabgrass ended up in thatch-free turf than that with 2-3 cm. of thatch.

Bingham, Virginia, had good luck in goosegrass control if pre-emergence herbicides were applied late (just before goosegrass germination). Most were especially effective if used in split applications, although oxadiazon was 100% effective applied as a single application or split, for all three years of the test. Bensulide was detrimental to bermudagrass recovery (filling in as a ground cover after treatment).

STIMULATION OF SEED SPROUTING WITH HYDROCARBON GASES

Research by Taylorson, USDA, Weed Science, January, indicates that seed of familiar grass weeds (crabgrass, goosegrass, barnyardgrass, annual bluegrass, foxtail, etc.) is not stimulated by ethylene, but that germination of many broadleaf weeds is (purslane, sorrel, docks, pigweed, etc.).

THATCH IN BERMUDAGRASS

Johnson, Georgia, reporting in the January Weed Science, notes that some herbicide treatments reduce thatch in bermudagrass, but not so much as does the usual "vertical mowing" practiced about three times annually. Unfortunately "vertical mowing" increases chance of weed seed sprouting, particularly of winter weeds, and requires coordinated herbicide treatments.

CARRY-OVER CRABGRASS CONTROL

Johnson, Georgia, reports in the Jan.-Feb. Agronomy Journal, that only one crabgrass herbicide, bensulide, controlled a large measure of crabgrass the following summer after an autumn application. All others lacked carry-over potency, and had to be applied spring as well as autumn.

THATCH CAN INFLUENCE HERBICIDES IN RENOVATION

A study by Hurto and Turgeon, reported in the Jan.-Feb. Agronomy Journal, notes that paraquat absorbed on thatch can have residual activity which interferes with sprouting of new seed. This was not the case with glyphosate. Clippings containing paraquat placed on a soil surface inhibited emergence of ryegrass and bluegrass in greenhouse studies.

GRASSES OVERWINTER WELL

A late March assessment of the turfgrass plantings on the Institute grounds show no serious winter loss. The winter in Ohio was long and consistently cold, but without the record lows and winter storms of the previous two winters. With a lighter snow pack, the perennial ryegrasses fared rather well. Under heavier snow they become matted down, not being as resilient in winter as are bluegrasses.

Manhattan continues to be an outstanding winter variety, in spring looking almost as attractive as do the bluegrasses. Especially good-looking early, have been Majestic and Touchdown bluegrasses, with others not far behind. Fine fescues planted alone look well in spring but deteriorate in summer.

PRE-EMERGENCE CONTROL OF ANNUAL GRASSES

Dr. Kirk Hurto discusses control of annual turfgrass weeds in the spring Turf Bulletin of the Massachusetts Turf and Lawn Grass Council. Hurto lists these products as currently labeled for annual grass control in turf. The trade name is given in parenthesis.

benefin (Balan)
bensulide (Betasan)
DCPA (Dacthal)
oxadiazon (Ronstar)
prosulfalin (Sward)
siduron (Tupersan)