

# BETTER LAWN - - HARVESTS

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## OFFICERS AND APPOINTMENTS FOR 1979-80 FISCAL YEAR

At the annual meeting of the Lawn Institute, held at Washington D. C., June 26 these officers and board members were elected or re-elected, and committee appointments made by President Jacklin.

Elected to office were:

President - Doyle Jacklin, Vaughan-Jacklin  
Vice President - Chase Cornelius, Northrup, King and Company  
Secretary/Treasurer - Robert Russell, J. & L. Adikes

Newly elected to the Board of Trustees for the fiscal year, by vote of the membership, were the following:

Dick Bailey - Merion Bluegrass Association  
Bob Buker - FFR Cooperative  
Hal Dickey - North American Plant Breeders  
James Jenks, Jr. - Jenks-White Seed Company  
Don Mader - Highland Bentgrass Commission  
Bob Wetsel - Wetsel Seed Company

Institute by-laws also called for appointment to the Board of Trustees by the Executive Committee. Proposed by the Nominating Committee and elected at the Board meeting, additionally to the officers, were:

Jim Carnes - International Seeds, Inc.  
Gabe Eros - OSECO, Inc.  
Jay Glatt - Turf-Seeds, Inc.  
Ben Klugman - Twin City Seed Co.  
Peter Loft - Loft's Pedigreed Seed Co.  
Ed Mangelsdorf - Mangelsdorf Seed Co.  
Bob Peterson - E. F. Burlingham & Sons  
Norm Rothwell - Rothwell Seeds, Inc.  
John Sutherland - Stanford Seed Co.  
E. R. Townsend - Whitney-Dickinson Seed Co.  
Kent Wiley - Pickseed West, Inc.  
John Zajac - Garfield Williamson Seed Co.

PRESIDENTIAL REVIEW TO ANNUAL MEETING

I have decided to preface my comments with the somewhat used yet always appreciated phrase - - - Let's Get With It And Let's Keep With It!

Your Treasurer just reported a net gain of \$5,200 over last year's closing balance. At the same time, Director Schery has summarized his activities for the last 12 months and, believe me, time limitations simply do not allow an adequate review of all the Institute activities and results of those activities. I don't think I have ever seen as many Institute articles picked up by magazine editors as has occurred during this last year. It was eye opening and gratifying to see not only the dependence but the respect these magazines have for the Institute's program and Director Schery's expertise. Bob, you continue to do an outstanding job and on behalf of the membership, the Trustees, and the Executive Committee, I thank you!

Continuing on, we all seem to recognize that our primary area of interest and educational effort is still in the cool season area north of mid-central America, continuing into Canada. At the same time we all continue to salivate at the potential for future educational efforts in the Southeast and Southwest which, as you already know, resulted in an accelerated effort this last year. Since the Institute is obviously financially stable, since our expert Director is performing extremely well, and since we recognize the Institute's goals, let's now get with it and let's keep with it!

We need more new ideas from you, the membership, on how to best get our educational message across. They can't be "pie in the sky ideas" since we don't have unlimited dollars to spend. They must be good, solid ideas, workable, reasonable from a cost standpoint, and unique. Seriously, we need them, send them to me, to Director Schery, or to any member of the Executive Committee, or the Trustees.

Additionally, as we've always said, turfgrass varieties are only one ingredient of several that are required for good lawns. Fertilizers, herbicides, insecticides, fungicides, and management techniques or services are the other necessary ingredients. The Institute needs a broader base of support from other members representing these areas. We have a Product Review Board - will you now help the Board in making approaches to other potential product members in either the product category or the general membership category? We need them. Help us get them!

In summary, we are there, the public is ours, we have the educational vehicle, now let's get with it and let's keep with it!

Doyle Jacklin, President

ANNUAL REPORT OF THE LAWN INSTITUTE VARIETY REVIEW BOARD

From July 1978- to June 1979, application for admittance to the Lawn Institute list of approved varieties were received for Ensylva creeping red fescue, Prominent creeping bentgrass, and Majestic or LP20 perennial ryegrass.

The applications for Ensylva and Prominent were approved by the Variety Review Board and we recommend to the Lawn Institute Board of Directors that they be added to the approved list.

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ANNUAL REPORT OF THE LAWN INSTITUTE VARIETY REVIEW BOARD - Continued

The application for Majestic (LP20) is still pending. Additional turf information plus clarification of the naming of the variety is needed before the application can be acted on.

Last year the addition of Fiesta and Blazer perennial ryegrasses were "conditionally" accepted pending additional data based on their application for Plant Variety Protection. Since this information is now available it is recommended to the Board of Directors that the addition of Fiesta and Blazer to the approved list be made permanent.

The current list of approved varieties now includes the following varieties:

<u>Kentucky Bluegrass</u>	<u>Perennial Ryegrass</u>	<u>Fine Fescue</u>	<u>Specialty Varieties</u>
Adelphi	Blazer*	Banner	Emerald Creeping bent
Arboretum	Citation	Ensylva	Highlight Colonial bent
Baron	Derby	Highlight	Prominent Creeping bent*
Birka	Diplomat	Koket	Sabre <u>Poa trivialis</u>
Bonnieblue	Fiesta*	Ruby	
Enmundi	Manhattan		
Fylking	NK200		
Glade	Omega		
Majestic	Pennfine		
Merion	Regal		
Nugget	Yorktown II		
Plush			
Ram I			
Sydsport			
Touchdown			

\* Subject to the approval of the Board of Directors.

- G. W. Pepin, Chairman

The tentative listing for Blazer, Fiesta, Ensylva and Prominent were voted to full acceptance by the Board at the June 26 annual meeting.

SUMMARY OF THE ANNUAL MEETING

The meeting was called to order by President Jacklin at 1:10 P.M., June 26, 1979, in the Conference Theatre of the Hyatt Regency Hotel, Washington D. C. President Jacklin asked attendees to identify themselves and introduce guests.

Secretary/Treasurer Russell was called upon for the minutes and financial report. He asked that the minutes, as published in Vol. 25, No. 2 of Harvests, be accepted (so voted). Mr. Russell noted that financial conditions had improved, and that the closing balances for the fiscal year were ahead of those of the previous year. He circulated a sheet of "Comparative Statements of Receipts and Expenditures", entertaining questions about the items. Proprietary payments were significantly greater than in the previous fiscal year. With dispersements less, a positive balance thus resulted. The statement, marked as item (A), is on file with the records of the meeting. Mr. Russell read the minutes of the Executive Committee Meeting, held in Marysville in January, for the information of the membership.

President Jacklin called upon Director Schery for his annual report (presented elsewhere in this issue), and the report of the Variety Review Board (presented

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SUMMARY OF THE ANNUAL MEETING - Continued

by Mr. Carnes for Dr. Pepin, who was delayed in reaching the meeting; also given in full elsewhere in this issue).

Mr. Jacklin reviewed decisions concerning the "Seal of Approval". Traditionally the Seal was allowable on any lawnseed mixture containing the appropriate percentage of perennial, fine-textured grass varieties; action by the Board has changed the criteria, such that in the future components of the seed mixture must be entirely of cultivars on the Variety Review Board approved list. However, a grace period of two years beginning from this annual meeting is to be allowed for termination of the old system, allowing utilization of boxes that may bear the Seal even though they are not 100% Variety Review Board acceptances. Mr. Jacklin appointed a committee of Kent Wiley, Chairman, and John Sutherland, to review the "Seal of Approval" critically.

Bob Peterson, chairman of the Research Grant Committee, reported that no grants had been proposed for the year, although an interesting proposal from the University of Maryland had been considered, and might merit attention in the future.

President Jacklin then gave his summary of the year, presented in full elsewhere in this issue.

Secretary Russell reported changes that had been made in the holding of cash balances, involving chiefly transfer of accounts from California Savings and Loan to Marysville financial institutions. The Board voted its approval.

The report of the Nominating Committee (Carnes, Chairman, Bailey and Townsend) was presented, with election and appointments as reported in the lead item of this issue.

President Jacklin closed the general meeting, and convened the Board. Election of officers and appointments, as reported, were completed, with no nominations offered from the floor. Committee appointments by the newly elected President were as follows:

THE EXECUTIVE COMMITTEE - The three officers plus Messrs. Carnes, Peterson and Rothwell

VARIETY REVIEW BOARD - Dr. Pepin, chmn., with Messrs. Bailey, Kaerwer and Loft

RESEARCH GRANT COMMITTEE - Mr. Peterson, chmn., Messrs. Glatly and Hurley

PRODUCT REVIEW BOARD - Mr. Hal Dickey, chmn., with assistance from members of his choice.

The new cultivar recommendations from the Variety Review Board (Blazer, Ensylva, Fiesta, Prominent) were approved.

A tentative budget for the new fiscal year was presented by Director Schery, totalling approximately \$19,000 for operations of the staff offices in Marysville. Director Schery also recommended continued participation in the joint "Supplement" with other associations, for which assent was voted in an amount not to exceed \$2,250. When further information is secured about a proposed radio series, the Executive Committee will decide on whether to participate.

The meeting was then opened to general discussion and other business. The next annual meeting will again be with ASTA, at San Diego, in June of 1980, with the Executive Committee meeting on an interim basis, probably at the Western in Kansas City this autumn. With no more business to be brought before the Board, the meeting was adjourned at 2:52, with thanks by the President to all who had attended.

ANNUAL REPORT TO BOARD OF TRUSTEES FISCAL YEAR 1978-79

The Institute program has been pretty well shaped by experience through the years; we know what has been cost-effective and what not, and we continue to mount what seems to be a well-grounded effort. A limited budget based upon the same volume percentages as in the past does not allow much leeway for keeping up with inflationary increments, so that "cutting the fat" out of operations is not one of our major problems. Rather the year has been one of adjusting to changing circumstances and economic realities. Where we have felt it worthwhile to increase expenditures, or of necessity had to, these have been compensated for with reductions elsewhere. The staff office operating summary is given in Table I., and treasurer Russell has given a more elaborate reading on the budget as a whole. Our figures indicate that we have lived within our income this year, thanks chiefly to improvement of proprietary receipts over their depressed levels of a year ago.

TABLE I. EXPENDITURES, MARYSVILLE OFFICE 1978-79  
(Exclusive of salaries and fringe benefits handled by Treasurer)  
[in 1,000's]

	Budgeted	Spent 78-79	Spent 77-78
1. Press Mailings and Associated Expenses	8.2	8.6	6.3
a. Press Kits			
b. Supplement			
c. Reprints			
d. Office Supplies			
2. Travel	2.0	.9	2.1
3. Rent & Utilities	2.6	2.6	2.4
4. Dues, Subscriptions, Postage	1.4	1.3	1.1
5. Hourly help	1.0	.4	1.1
6. Hospitalization & Other Contributions	.8	.7	2.1
7. Miscellaneous, including capitalizations	2.5	.9	.9
Total	18.5	15.4	16.0

Perusal of expenditures reveals that costs are up significantly on postage and printed materials, while travel, capital expenditures and large donations (field burning, turf association), have been compensatorily reduced. This may not bode well for the long-term, but so far as the fiscal year is concerned it has been rewarding in the sense that the increased cost reflects more reprinting and distribution volume, the Institute's raison de'etre. We seldom reprinted more releases, or had them appear in more significant publications, than in recent months. This pace can't keep up, of course, and time will tell how much we have borrowed from the future.

Innovations during the year included a well-organized new member campaign, under the personal aegis of members of the Executive Committee. President Jacklin's "Dear Prospective Member" letter, printed in modest quantity, is almost of itself a resume of the Institute and its activities (and we use it as such when there is call of "explain" what the Institute is and does).

Also, a first after many years of no in-house publications, was the printing of the fold-out "Lawns Across America", designed to fit a standard envelope and mail for single-stamp. The three-part American Nurseryman series, "A Guide For Lawns",

ANNUAL REPORT TO BOARD OF TRUSTEES FISCAL YEAR 1978-79 - Continued

organized as a quick but comprehensive reference for garden center personnel, has served well as our standard answer to inquiries requesting general information about lawns and cultivars.

Promotional mailings to southern recipients began in earnest this fiscal year, with promising initial response. This was, however, more advantageous to gradual-release fertilizer than to lawnseed, and the Executive Committee will want to address itself to the question of what our follow through should be in 1980.

Most of you attending today have been members of the Institute for many years, and are thoroughly familiar with its program. In general you are acquainted with your officers personally. Certainly we inundate you with mailings, including press issuances that go to editors as well as our internal newsletter, Harvests. Harvests brings you to date on Institute activities and reviews current research as it is reported in the technical literature. We feel this is good in-house PR, not overly costly since an additional run for the membership adds little more than the postage that is necessary to mail it. Of course Harvests is duplicated at bare-bones cost by Mrs. Scheiderer on our own mimeograph machine. Let's briefly review the year's activities as has been customary in annual reports.

PRESS MAILINGS

Three avenues for putting information before editors, garden writers, and horticulturists are taken. First, we produce our own seasonal press kits (spring and autumn), mailed in the now widely-recognized "Green Grass" file folders and envelope with Lawn Institute logo. These go to a select and thoroughly winnowed mailing list totalling in the neighborhood of a thousand addresses. This mailing list is kept updated by Mrs. Scheiderer through whatever channels of information become available, with return-postage guarantee being one effective means for weeding out dead names. It is expensive, but less costly than sending "wasted" mailings. Unit costs for the press kit probably come close to two dollars, even with bulk mailing being used, and could be lowered appreciably only by diluting the quality of our list by bulking with routine addresses.

Recipients are chiefly experienced garden writers who have come to know us and use our materials through the years, and who are talented enough to compose their own columns (therefore these releases are produced as double-spaced editorial copy rather than composed in tight, unchangeable, ready-to-use newspaper column form). Of course all of the stories are reworked until we feel they are well enough expressed to be used verbatim, and we encourage our recipients to feel free to do so if they wish, without credit. On the other hand we recognize that most of these people are professionals in the gardening world, and prefer to put the stamp of their own personality on what they write.

Second, we have cooperated in recent years in the production of the "Supplement" a joint venture with American Association of Nurserymen, The Fertilizer Institute, The National Swimming Pool Institute, and this last spring, the American Wood Preservers Institute and the National Bark Producers Association on half share. This is a spring-only release, more voluminous than our own kits sent to a less highly selected mailing list of over 3,000 addresses. It is printed in newspaper-column format for ready use by smaller newspapers, weeklies and house organs which do not enjoy the luxury of a garden editor. This is a more costly procedure in toto, the production of recent years being handled by William Pflaum Associates, of Reston, Virginia.

We don't have Pflaum's breakdown of expenses, but unit costs must run in the neighborhood of three dollars per address mailed. However, cost to us is significantly decreased because of the sharing with the other associations, to one fourth or less this amount. I don't feel that this dilutes our effectiveness to any significant degree, since the other associations have generally furnished sound copy and illustrations of good quality that complement what we have to say about lawns. As a matter of fact it may draw additional attention to our items to have people scan these pages for information about trees and shrubs, fertilizers, swimming pools, mulches, and other facets of gardening. Also, participation in the "Supplement" provides us opportunity to offer illustrations inexpensively, taken from the Institute photographic pool that we maintain in Marysville.

Third, we have within the last two years undertaken a specialized first-class mailing to editors, garden writers and other professionals in the South, both spring and autumn. This, also, is a select list from which dead names are culled and live prospects added continuously. We restrict this mailing to something less than 500 addresses, and have developed materials for it that are mostly different from our northern mailings (we stress winter overseeding with perennial ryegrass, for example). For obvious reasons we haven't as much of a story to tell in the South as we have in the North where most of the seeded grasses are used, but judging from the inquiries and correspondence engendered there is widespread pick-up from these mailings.

Having undertaken the special southern mailing only for the last two years, the Institute is not as well known to its recipients as is the case with northern garden authorities. But I sense even more of a yearning for sound lawn information in the South than in the North, and believe there is appreciative audience there for honest informational materials. We lack product applicability to justify an expensive southern production, and first hand experience with warm-season grasses that would enable us to speak intimately of them. Currently the mailing is confined to light-weight informational materials not exceeding two ounces. Plans considered by the Executive Committee, to engage assistance having a southern address would seem to offer especial promise in development of a meaningful southern program.

That the press distributions enjoy usage is attested to by our running across items in the few papers we happen to sample, and by requests that Pflaum receives for photographs. Especially indicative are the mailings received in Marysville in response to the press offerings of literature upon receipt of a stamped envelope. We are not always certain just what offer is being referred to since we also make similar offers of free literature in "catalogs" and "horticultural trade publications". But it is apparent that editors are utilizing the offers. Clippings and requests come in from many sections of the country, - surprisingly a large number from Florida (a locale for which we have relatively little pertinent literature).

#### MAGAZINE STORIES AND OTHER PUBLICATIONS

During the course of the fiscal year about twenty articles have been prepared or have been published, appearing in prominent trade, horticultural and technical magazines. A sampling appears as Table II. Most of these are reprinted for supplementary distribution giving impact beyond the original readership. In particular, reprints are used for answering inquiry (mail requests), for inclusion with general correspondence, as give-aways at presentations and public gatherings, and for availability to members who wish to utilize them either in-house or in their merchandising efforts. Although the cost of reprints keeps going up in line with increased cost of paper, this is

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ANNUAL REPORT TO BOARD OF TRUSTEES FISCAL YEAR 1978-79 - Continued

still a relatively economical way for the Institute to present itself publicly, what with inexpensive, modern photocopy techniques. There is no way to measure the impact that reprints may have, but utilizing them to bolster the Institute's public image is about the only economical road open to us.

A "plus" with reprints is that having appeared in a respected magazine, editorial recognition is signified. Thus the reprints carry an aura of authority that self-published items would not. With everyone being snowed under a barrage of mailings these days, no doubt a lot of the reprints are not read. But the very fact that they have been sent, and in continuous progression through the years, builds at least a subconscious acknowledgement of the Institute. I can't help but think it is highly advantageous to have back-up reprints in the press kits, for example, sent twice yearly to the most influential gardening writers and horticulturists in the world.

While most Institute stories are written to be popularly understandable, and are devoid of statistical analysis and similar formalities the research journals require, we nonetheless make use of them in the national literature exchange organized through the American Society of Agronomy. This year fourteen reprints were sent to sixty-six recipients at universities and research centers throughout the world, from most of whom we receive occasional reprints in exchange describing research with which that particular individual is involved.

TABLE II - SAMPLING OF TITLES THAT APPEARED  
(OR ARE IN PRESS) DURING THE FISCAL YEAR

LAWNS ACROSS AMERICA	in house, adapted from Ground Covers for North America
PART III, A GUIDE FOR LAWNS	American Nurseryman Series
TIPS FOR AUTUMN LAWN CARE	American Horticulturist
LAWN HANDBOOK REVISION	Brooklyn Botanic Garden
HOW TO HANDLE YOUR LAWN IN SUMMER	Flower and Garden
THE CULTIVAR REVOLUTION	Golf Course Management
WINTER OVERSEEDING - IMPROVING ON NATURE	Golf Course Management
TONIC TREATMENT FOR WEARY LAWNS	Horticulture
SCIENCE & THE LAWN	Horticulture
TALENT FOR TURF	Landscape Contractor
LAWNS: A CONCEPT PROVEN	Lawn Care Industry
RECARPETING URBAN AMERICA	Lawn Care Industry
THE NEW DIMENSION TO LAWN SERVICE	Lawn Care Industry
LATE SEASON WEEDING	Proceedings of Ohio Turfgrass Conference
LAWN GRASS FOR FALL PLANTING	Plants Alive
THE MOWER STORY	Plants Alive
LAWN SERVICE IN USA	Rasen
EVOLUTION OF IMPROVED LAWN GRASS IN AMERICA	Proceedings of Third International Turfgrass Conference
HAS TURFGRASS DEVELOPMENT PLATEAUED?	Seed World
SOUTHERN GOLF COURSE WINTERSEEDING	Southern Golf (Hurley)
CULTIVAR PERFORMANCE IN SOD BLENDS & MIXTURES	Weeds, Trees and Turf

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OTHER ACTIVITIES

The Institute maintains liaison with turfgrass scientists, mostly employed by agronomy or horticultural departments in landgrant universities. Technical papers presented at the annual meeting of the American Society of Agronomy are the focus of this scientific interest (see "Science and The Lawn"), and I try to sit in on most of the sessions as well as participate in the "turfgrass tour" organized for these meetings. There have been no international conferences during this fiscal year, but carry-over from the previous one includes continuation of activity as an associate editor, and follow-through on contacts developed in Europe (See "Lawn Service in the USA" published in the German publication, Rasen).

To a limited extent presentations are made to interested groups nearby; for example, I have a seminar scheduled at the Cox Arboretum, Dayton, Ohio in just a few weeks.

Past publications are a good foundation to build upon. "Lawn Keeping" is particularly useful as something to recommend where a more complete review is desired than proves possible with reprints and correspondence. Attempt is made to keep up the photographic library, illustrations being needed for various stories and as part of the record. Where of benefit to our program, photos are offered on loan, such as to authors of books. A modest technical library of journals and books is also maintained, although this is becoming increasingly burdensome in terms of space, time and expense. Demonstration plantings of cultivars continues. These afford a basis for first-hand experience when discussing "varieties" and lend authenticity to the Institute. Unfortunately, for two years the irrigation system has not functioned, and we experienced summer loss of certain grasses, especially bentgrasses. Just this month Toro has kindly renewed the controls, and we hope we are over the hump on winter loss due to valve system freezing.

As has been noted, contact is maintained with technical personnel through mailings, and extension personnel in several states through distribution of press kits (twenty five of them to urban locations in Massachusetts, for example). A moderate but constant flow of correspondence is handled by the staff office, and telephone counseling is given when people call for information. The "Seal of Approval" is available to qualifying cultivars having received Variety Review Board acceptance, and the Variety Review Board continues to function admirably under the leadership of Dr. Gerald Pepin.

General administrative matters are handled at the Marysville office, although we are very much indebted to Treasurer Robert Russell and his chief accountant Walter Parker for outlining the necessary procedures, particularly worrisome because of all of the confusing tax filing these days. As has been noted, an on-going summary of Institute activities is reported to members quarterly in the newsletter Harvests. Seed samples of Variety Review Board cultivars are maintained at staff office, for use in grounds plantings, and for distribution when we have inquiries (just a few weeks ago, for example, twenty-five cultivars were sent to Dr. Everhart at Iowa Lakes Community College for his research planting).

We continue to enjoy professional respect, and are called upon by various national encyclopedias and associations. The American Seed Trade Association has been most helpful, and we certainly appreciate cost-sharing for the "Supplement" by the Lawn and Turfgrass Division.

President Jacklin and other members of the Executive Committee have given ungrudgingly of their time in furtherance of Institute affairs. Doyle Jacklin has

ANNUAL REPORT TO BOARD OF TRUSTEES FISCAL YEAR 1978-79 - Continued

contacted many parties nationally in behalf of our Institute, and organized the new membership campaign now underway. The Executive Committee has met in Marysville, at its own expense. Special gratitude is due Secretary Russell, who oversees legalities and co-signs checks on a continuing basis, without complaint or remuneration.

We of the office staff in Marysville are most grateful for all of this support, and that of the membership at large. Mrs. Scheiderer joins me in thanking everyone for the pleasant, friendly relationships enjoyed within the Better Lawn and Turf Institute.

AMERICAN HORTICULTURIST TO CARRY INSTITUTE STORY

"Autumn, Season for Lawn Groundwork" is the working title given a story due to appear in the August issue of the American Horticulturist, (journal of the American Horticultural Society). Editor Powell asked for a generalized summary pertinent to the autumn season, as broadly based as space limitations would allow.

The story opens with a contrast between the "cool-season", and "warm-season" types of grass, noting that autumn is especially important for the former. Autumn is optimal for seeding new lawns, or for renovating old. Varieties listed in the insert (the Institute's Variety Review Board listing grouped and categorized) are suggested. Soil preparation and techniques for planting are covered.

A second maintenance measure fundamental to this season is fertilization. The trend towards autumn feeding is discussed. A final section entitled "Also Pertinent For Autumn" winds up the story, reviewing weed controls appropriate to the season, thatch removal, grub prevention, and a few other points that are less a special concern in autumn.

GRASS SEED STORY

Dr. Jerry Pepin, International Seeds, chairman of the Lawn Institute's Variety Review Board is responsible for a story entitled "Grass Seed - How to Buy, Store, Interpret the Label" in the April issue of Park Maintenance magazine. Dr. Pepin opens with confidence-building statements on the ease of buying, storing and using grass seed. He then examines labeling requirements, using ryegrass as an example (for which a fluorescence tested is advocated but not required by law). The page is a handy reminder of the details epitomized in a lawnseed label.

GOLF COURSE MANAGEMENT STORY APPEARS

The April issue of Golf Course Management carried the Institute story, "The Cultivar Revolution". Unfortunately, the new editor, John Schilling, "reorganized" and abridged the manuscript sent him; although there were no changes of wording, some of the implications became incorrect when not in appropriate sequence. A fairly extensive list of VRB cultivars, with descriptions of each, was left out entirely. To keep members informed, an inexpensive reprinting (without photographs) was scheduled and mailed, but we don't anticipate widespread use for the edited version of this title.

### FLOWER AND GARDEN STORY APPEARS

We are very pleased with the Institute story, "How To Handle Your Lawn In Summer", which was published in the June issue of Flower and Garden Magazine. The printing of the illustrations was not too good, but Rachel Snyder always turns out first class editorial workmanship. The article will make a handy informational reprint for a time of year when the Institute has relatively few things to offer.

### THIRD IN SERIES FOR LAWN CARE INDUSTRY

A story entitled, "The New Dimension To Lawn Service" was prepared for Lawn Care Industry, as the third story in a series promised. The story opens with discussion of how the advent of new cultivars has had broad implications for the lawn service industry, particularly in degree and timing of fertilization. A brief historical background and breeding approaches leading to the VRB cultivars are next covered, and the story winds up with the Lawn Institute's Variety Review Board listing (with brief sketches of the individual cultivars).

### "RECARPETING URBAN AMERICA" APPEARS

The story so titled appears in the May issue of Lawn Care Industry. Reprints have been distributed, and will be used in press kits and other informational releases. The story details the evolution of the modern turfgrass industry, based upon proven species long prominent for their adaptability. Nature has "selected" a number of topflight modern cultivars, and plant breeders have seized upon promising bloodlines to create still others. The polycross "turf-type" perennial ryegrasses breakthrough is stressed.

### INSTITUTE STORY APPEARS

"Lawns: A Concept Proven" was published in the April issue of Lawn Care Industry. The story has been reprinted, and distributed as a possible informational item where the "philosophy" about lawns is questioned.

The item opens analyzing the disturbed habitat that the modern environment is, and the ecological consequences. It points out that lawn planting and tending is not a chaotic development, but a logically evolved sequence of steps for managing the environment efficiently in the context of the times.

Measures practiced for keeping a lawn are discussed briefly, and the special grasses needed for a lawn-environment cited. One paragraph is given over in its entirety to the listing of the Institute's Variety Review Board cultivars by name. "Each has been selected for beauty, disease tolerance and survival under the imposed conditions of a lawn environment"!

### GOLF ADVISORIES ISSUED

We were pleased to receive from Drs. Sturgeon, Huffine and Pinkston, Oklahoma, two "loose leaf" booklets of fifty two and sixty two pages, Turf Maintenance Calendar For Bermudagrass Fairways, Tees and Clubhouse Grounds and Other Areas, and Maintenance Calendar for Bentgrass Putting Greens, both issued through the Cooperative Extension Service of Oklahoma State University. The information is organized as what-to-do suggestions month-by-month, with extensive tables (color coded) outlining procedures for insect control, weed control, disease prevention, where to send samples for test, selection of spray equipment and other details. Little or nothing is said about selection of grass cultivars, however, indicating which ones the authors feel are most appropriate for the Oklahoma climate.

#### FOLD-OUT READIED

A fold-out folder "Lawns Across America" was printed in late April, sample copies mailed to the membership. A four-color cover brightens the piece, while a generalized map depicts various lawn-making regions. The back cover is the USDA's standard "Plant Hardiness Zone Map" widely used in horticulture, and the interior pages describe which species of lawngrass best apply to the various zones. Brief discussion is given of the species' general habit, habitat preferences, mowing height, care, source and "remarks". The folder is partly adapted from materials prepared by Dr. Schery for the American Association of Nurserymen's Ground Covers for North America, a booklet now being offered by the AAN for \$1.50. Utilizing photographic reduction techniques with a minimum of type-setting, the folder was economically made to fit a standard envelope for mailing with a single stamp.

#### INSTITUTE STORY IN GERMAN PUBLICATION

The March issue of Rasen, Dr. Boeker's international turfgrass journal out of Bonn, Germany, carried the Institute's story (in English) "Lawn Service in the USA". Editor Boeker felt that it would profit an international audience to hear something of the lawn service business in the United States, a business limited in Europe.

The article begins with a historical review of the spreading of fertilizers in liquid form, for which efficient equipment has only become available in recent decades. The modern lawn environment, in which the spreading of liquid products dominates, is placed in context, and the modern lawngrass cultivars cited (Lawn Institute Variety Review Board acceptances are named and characterized by thumb-nail sketches). Conscientious and appropriate service is stressed. Accomplishments practical for lawn service are compared with labor-intensive operations that are usually too costly. The new technical expertise that lawn service is bringing affords as yet untapped opportunity.

#### "TALENT FOR TURF" APPEARS

The Landscape Contractor magazine carried the Institute story, "Talent for Turf", in its March issue, - an opportunity to reach a segment of the outdoor maintenance industry that concerns itself only in a limited way with lawns and turfgrasses. Thus the basic qualities and needs of lawngrasses are summarized succinctly, new cultivars, fertilization, irrigation, and pest control being chief concerns. Institute Variety Review Board acceptances are cited by name, under "bluegrasses", "perennial ryegrasses", "fine fescues", and "special purpose species" categories. The reprint serves well as a brief, lightweight hand-out.

#### LAWNSEED REVIEWED IN SEED WORLD

April issue of Seed World carried the Institute story, "Has Turfgrass Development Plateaued?". Noting the accomplishments of the industry in offering new cultivars, the story also examines opportunities that still lie ahead. Among them will be breeding for economy, insect pest resistance, compatibility, special soil conditions, hardiness, and so on. The Lawn Institute's Variety Review Board cultivar acceptances is offered as a "cross sectional panorama of what the lawnseed industry is 'all about' these days". Reprints of this story afford a simple one-page (two sides) stuffer describing these new cultivars.

#### PLANTS ALIVE STORY

"I was most pleased to see that Plants Alive magazine continues to publish, and that my contribution appeared in the May-June issue" - R.W.S.

Harvest Publishing issued in early spring the Turf Managers' Handbook, authored by Drs. Daniel and Freeborg of Purdue University. The Institute had a hand in referring this manuscript to Harvest Publishing initially. A review copy was sent the Marysville office in April.

Daniel and Freeborg are to be congratulated upon the breadth of their coverage; almost no facet of turfgrass management remains unmentioned. The 423 pages of this book constitute an immense assemblage of information.

Unfortunately the style adopted fails to synthesize the information well. Rather the book resembles an accumulation of charts and headings, thrown together under general subject titles. Many are inadequately explained (or not even mentioned) in the text. Consequently, the book is more a documentary for consultation than pleasant reading in conversational style. Even the language is awkward in places.

The book is well illustrated, by charts and diagrams more than photographs. No credits are given, including an Institute photo. One cannot help but be impressed, however, by the breadth of coverage, and the ability of the authors to be up-to-date in all facets.

One blemish of a scientific nature occurs throughout the volume, unfortunate since such errors tend to be copied by others looking to such books for authority. This is the rather frequent incorrect spelling of latin names. Apparently little or no attention was paid the checking of these, and leads one to wonder whether similar carelessness extends to other documentation. Sometimes the authors own admonishments (as about proper capitalization) are violated.

There is no index to the book, but an ample table of contents, and "outlines" at the beginning of chapters (coded by letter to successive sections in that chapter). Unfortunately these are often confusing, with subsections (such as C-1 after C where there is no need for it, there not being any subsection C-2 or other subdivision). In spite of such attempts at assistance, it is more difficult and tedious to zero in on a topic this way than if an alphabetized index were at hand.

The flavor of the book is technological, in keeping with Dr. Daniel's emphasis at Purdue University through the years. His well known attention to control of root-zones (artificial soils and water level maintenance, etc.) extends even to special separate chapters on construction of bowling greens, organizations involved with turf, school educational programs, - even including sample recording forms, and so on. Thus, this book constitutes a rich lode of source materials. However, without credit or bibliographies, it will not be academically very useful, or even for the serious professional who wishes to distinguish whose ideas are being advanced.

Of particular interest to Institute members will be chapter 8 on "Cool Season Grasses" (and to some extent subsequent chapters, including chapter 10 "Legumes for Turf Use", which in spite of the title includes the non-legume Dichondra). Bluegrasses are given most attention, modern cultivars being listed, with "quality performance" cited. Originators and proprietors are listed. Various tables characterize the cultivars, citing resistance to specific diseases, tolerance of cutting height, and so on. The authors wisely let the reader decide for himself which cultivars are "best", and wind up the chapter with brief discussion of secondary grasses (including Poa annua).

Twelve pages of colored photos, six to a page, make an attractive center section for the book. Cost probably prevented dispersing these through the pertinent chapters, where particularly in the case of diseases colored illustrations would

NEW TURF MANAGERS' HANDBOOK - Continued

have been helpful. In at least one case captions were interchanged, and there are occasional misspellings.

All in all the book represents a formidable accumulation of information under one cover, information that would be difficult to search out in the scattered technical literature. Compilation lends a service that should be much appreciated for those interested in turfgrass but do not have access to academic facilities.

PUBLICITY COSTS

Here's what press releases (newspaper format) run according to the latest quotation from North American Precis Syndicate, N. Y. Columns are seven inches, and costs do include collection of clippings. At these rates Institute volume in the joint "Supplement" would come to about \$9,000.

RATE SCHEDULE

SIZE OF RELEASES	1 RELEASE	4 RELEASES	12 RELEASES	48 RELEASES
one-column wide	\$ 945	\$ 895	\$ 860	\$ 850
two-column wide	1,245	1,195	1,160	1,150
three-column wide	1,545	1,495	1,460	1,450

NEW LOOK TO GOLF MAGAZINE

The old "Golf Superintendent Magazine", publication of the Golf Course Superintendents Association of America, became "Golf Course Management", with a new format, beginning the year. Under a new editor, John Schillings, knowledgeable organization seems to have been achieved.

In addition to coverage by experts in various fields, the editorial staff has undertaken well-organized reviews. In the February issue, for example, Schilling provides "A Review Of Pest Control" that is quite comprehensive, and Janet Ferree (assistant editor) undertakes a thorough review of brown patch disease, "Fifty Years of Brown Patch". Associate editor Cora Marquis, in a briefer piece, discusses "Protection from Pesticides with Closed Systems".

Advertising seems to have picked up. Many Institute members are represented, and grass cultivars seem to outnumber equipment displays (golf carts, for example). It will be of interest to see if the pace can be maintained!

RECIPROCAL LITERATURE EXCHANGE

In late May the Institute mailed fourteen reprints to seventy five technical specialists around the country, as participant in the ongoing reciprocal literature exchange.

SEED SAMPLES DISTRIBUTED

Approximately one pound each of all cultivars received from our VRB members were sent to Dr. Eldon R. Everhart, Horticulture Instructor, at Iowa Lakes Community College, Emmetsburg, Iowa. This will enable Dr. Everhart to reestablish test plantings at a new location, the old plantings have been destroyed by construction of a new building last year.

#### TORO DONATES IRRIGATION REPAIR

For more than a year the underground irrigation system servicing the Institute's demonstration plantings has not been functioning, due partly to obsolescence but primarily from winter damage to the valves (for which service was not obtainable). Through Dr. James Watson, Toro has kindly replaced the old electrically operated control box with a new timing device based entirely upon water pressure. We hope to have everything functioning before the dry weather of summer hits, and are most grateful to Toro.

#### ITEM IN "NEWS AND VIEWS"

The May issue of News & Views (American Horticultural Society) carried an Institute item as a "Lawn Care Tip". The Institute was fully credited. The story advised, "The newer, lower-growing bluegrasses will endure being cut 1 1/2 inches or less, but probably may be more vigorous if cut somewhat higher".

#### THIRD PRINTING OF THE HOME LAWN HANDBOOK

The Brooklyn Botanic Garden is undertaking a third printing of "The Home Lawn Handbook", to which Dr. Schery and the Institute contributed two items, "A New Lawn - Step By Step", and "Buying Lawn Seed". Editor Fred McGourty has asked Dr. Schery to review these items, updating them or making other necessary changes. Changes must be minimal, however, since space will remain exactly the same (if a new line is added, an old line must be sacrificed).

#### MONEY MAGAZINE INQUIRES

A writer for, and the editor of, Money Magazine has telephoned the Institute on several occasions, inquiring about the significance of various frequently advocated lawn care measures. In particular the magazine was concerned about how serious lawn clippings are (fearing build up of thatch), and whether the "mulching mowers" are all they are touted to be in preventing the need for collecting clippings. Several reprints were sent to the staff writer.

#### PERENNIAL RYEGRASSES REVIEWED

Dr. Beard, Texas, staff contributor to Grounds Maintenance magazine, provided a tabular listing of most familiar cultivars in the May issue of that magazine. Since most of the better cultivars are so much alike, it is difficult to say something "different" about each, and the table does little to guide one on selection. But it is handy to have characterizations of the majority of today's cultivars in one place.

#### BLUEGRASS PERFORMANCE CHART

Bill Meyer, Turf-Seed, is author of an item entitled "Blend Bluegrasses for Best Disease Resistance" in the May issue of Lawn Care Industry. Twenty one cultivars are tabulated, rated for "improved", "average", and "negative" results for eight diseases plus shade and heat tolerance. Asked by the editor to comment upon the listing, Pickseed, Lofts and Jacklin's offered helpful elaborations, printed with the item.

#### ALL IN THE DAYS ACTIVITIES

"Here are the photos you loaned me. I have made velox copies - - - Thank you so much for allowing me to use the four grasses in a yet-to-be-written article. I will send you a tear sheet, of course". - - Marina Blomberg, Home & Garden Editor, Gainesville Sun, Gainesville, Florida.

TECHNICAL SECTION  
PROCEEDINGS FOR MISSOURI TURF CONFERENCE ISSUED

In mid-May Proceedings for the 1978 Missouri Lawn and Turf Conference was published. An impressive array of outside speakers gathered at Columbia, most of them providing well-balanced in-depth coverage.

C. Reed Funk of Rutgers spoke on the blending of Kentucky bluegrasses. He recognized some weakness in every cultivar, which can be partly offset by blends of the cultivars. Research is still uncertain as to how many cultivars are best included in a blend; one blend at Rutgers utilized thirty eight cultivars and has improved as time went on. Funk recognizes two general categories of bluegrass, 1) - erect plants susceptible to *Helminthosporium* (especially under close mowing), and 2) - the more decumbent type with broader leaf blades, frequently showing up in mowed turf, and the basis for most new cultivars. At Rutgers the blending of cultivars having contrasting leaf widths has produced an attractive turf, and restricting blends to cultivars of similar appearance shows no advantage. Newport has been a very poor competitor in blends; at the other extreme, Merion is too competitive. Funk concludes, "In general, the average performance of blends has exceeded the average of the component varieties grown separately, especially in a long-term test". He also states, "There are reasons to expect that many of these bluegrass blends should be produced together in the same seed field".

Funk also discusses "Facts and Fallacies About the New Perennial Ryegrasses". He notes the limited adaptability of the original ryegrass selections (mild-climate, northern Europe); the best cultivars come from late-flowering types having abundant tillers and fewer stems, selected both in Europe and New Zealand. He looks for continued progress in improved mowing quality, disease resistance, and tolerance to heat and cold. He feels that in general long-term performance equal to the best bluegrasses has not yet been achieved.

Funk commends Manhattan and Goalie for winter hardiness. Most winter kill has occurred in damp, depressed areas under ice sheets. In mild winters brown blight disease can be troublesome, bothering Manhattan, Yorktown II, Yorktown, Blazer, Pennant, Diplomat, Omega and Loretta less than Citation, Pennfine, Regal and Derby. Showing good heat tolerance and summer performance have been Pennant, Citation, Pennfine, Birdie, Yorktown II, Diplomat, Omega, Fiesta, Dasher, Blazer, Derby and Regal. Especially low growing, fine and dense is a European selection, Elka, which may be a good breeding source for these characteristics in America. In his experience all of the ryegrasses thatch less than do bentgrass, bluegrass and fescue.

Funk feels that of current cultivars Loretta probably mows most neatly; heat-tolerant types such as Citation and Pennant mow best during hot weather. On the other hand, the early flowering cultivars such as Regal, Citation, Derby, Pennfine, Birdie, Fiesta, and Dasher are said to produce an abundance of stemmy culms during May that become difficult to mow. Later maturing cultivars such as Loretta, Manhattan, Diplomat, Blazer and Yorktown II are less likely to form stemmy turf during seeding season. In New Jersey Citation, Yorktown and Caravelle have shown the darkest green color. Most cultivars have reasonable shade tolerance. Loretta, Pennant, Yorktown II, Pennfine and Birdie have showed the best resistance to crown rust. Funk looks to exciting breeding developments with perennial ryegrasses in the decade ahead, on a par with the progress that has made during the past decade.

Keen, Kansas, reviewed bermudagrasses for the transition zone. He has already released the Midway cultivar for lawns in western Kansas, and the triploid hybrid with ugandagrass, Midiron, for a strong, traffic-tolerant turf (being installed on one race track).

- Continued

Beard, Texas reviews thatch at length, in his typical step-by-step, logical fashion. The disadvantages of thatch are cited, and some of its benefits also mentioned (thatched turfs wear better, for example). The physical and chemical composition of thatch is discussed, and it is noted that cultivar differences do occur (especially with respect to the root mass in thatch, shoot mass being about equivalent). Contributing to thatch are the planting of vigorous cultivars, heavy fertilization, soils with extreme pH, fine-textured soils, generous irrigation, application of certain pesticides. Thatch can be controlled, at least partially, by slowing growth, by top-dressing, by adjusting pH, by coring, perhaps by influencing the carbon-nitrogen ratio (light release of nitrogen in the thatch layer), and by encouragement of earthworms. Mechanical removal is often necessary.

Beard also presented a paper on controlling annual bluegrass. This is patterned very much after the lengthy treatment that he and other Michigan state authors published in April of 1978 as Research Report 352. As is well known, close mowing, heavy irrigation, high fertility, and compacted soils encourage annual bluegrass, which also endures shade fairly well and "enjoys" near neutral soil.

Later presentations are of perhaps less general interest to members. Bardsley, St. Louis, spoke about turf disease, directing much criticism to government restrictions on use of chemicals. Randell, Illinois, noted insect outbreaks that were troublesome in Illinois during 1978 (white grubs, Artaenius, a new chinchbug in the St. Louis area, greenbugs; webworms were a minor bother). Chippendale, Missouri, reviewed the new hormonal approach to insect control. Ornamental plantings, and insect control for ornamentals are subjects for the final two papers of the Proceedings.

#### RHODE ISLAND SPRING REPORT

The University of Rhode Island "Turfgrass Research Review" was received in late May, with reports on turfgrass growth retardants, and control of stripe smut disease.

Jagschitz, investigating the former, experienced mixed results. Many trial materials were ineffective, and even the better ones were questionable for fine turf (although they worked rather well with high-mowed roadside grass). Grass retardation could be achieved for up to a few weeks, but often with unpleasant side effects (undertone of brown seedheads, degrees of injury to the turfgrass) and considerable bother for "full" treatment (fertilization, weed control with the repressant, better results when a fungicide was also used).

Dernoeden and Jackson note that stripe smut has become a serious problem because of widespread planting of Merion bluegrass, perhaps the most susceptible cultivar. They note the prevalence of races of stripe smut that are specific to certain hosts only (certainly at the species level, often at the cultivar level). They have an involved infective process. Chemical control of the disease is possible, but using benomyl alone weakens the turf because of eruption of leafspot, so that PCNB is recommended along with the benomyl to restrain the leafspot. Only two fungicides prevented stripe smut entirely (Bayleton and EL222), neither of which is apparently readily available.

#### INSECTS FOR CONTROL OF NUTSEGE?

Researchers in Mississippi reporting in the March issue of Weed Science tell of reasonably effective control of both purple and yellow nutsedge by letting an insect (Bactra verutana) lay eggs on them as a host. This could lead to biological control with this species.

## ARIZONA 1979 CONFERENCE PROCEEDINGS

This year's Arizona Turfgrass Conference Proceedings, for the conference held May 9-10, established something of a record (the Proceedings were mailed before the end of the month). The content, of course, deals chiefly with arid climate problems, and southern grasses. Bruce Shank, editor of Weeds, Trees and Turf, provided an opening presentation emphasizing trends created by the "lawn care boom". He stressed that autumn overseedings, ornamental sprays, disease control, aerification, dethatching and soil testing still deserves additional attention.

Other papers emphasized the peculiar importance water plays in Arizona, and that landscaping must cope with water shortages. Jones, U of A, feels, "drought dormant bermudagrass is still one of the best ground covers for erosion and dust control." U.S.G.A. Greens Section soil testing was reviewed, and the way in which water is used by grasses covered by Kneebone, U of A, (he feels that cultivars more tolerant of drought can be developed in almost every species). Youngner, California, provides technical documentation concerning turfgrass irrigation, and notes that southern grasses demand less moisture than do northern ones (bluegrass at the height of the summer season may use over two-tenths inch of water daily).

Experts from Wyoming review water use by Kentucky bluegrass in that state. They introduce the concept of "consumptive use", and show that many times this is exceeded in watering programs with no advantage to the grass and with waste of water. Golf superintendents in the Tuscon area discuss problems with using effluent water for golf course irrigation, a necessity that must be lived with nowadays. Bob Moore, Aquatrols, outlines usefulness of wetting agents for efficient soil moisture control.

Pepper, U of A, presents some interesting data on nitrogen fertilization of Penncross bentgrass. Surprisingly, the more the thatch the better the grass rating. Also, ammonium sulphate proved better than urea, which was better than IBDU, which was better than SCU. High levels of nitrogen gave better ratings, and lowering the pH helped a little (probably because it gave more efficient nitrogen usage). Hoffman, U of A, discussed ground pearl insect pests, apparently commonplace in Arizona. Kneebone winds up the Proceedings with a practical discussion of ryegrasses for winter overseeding. He is "high" on the turf-type perennial ryegrasses (mentioning Pennfine, Manhattan and Derby especially), and notes that ryegrasses alone give better turf initially than where mixed with slower-developing fescue (but the fescue combination is equally as good late in the season). Poa annua infestation is least at low fertility; and at high fertility (then the ryegrass is more competitive). However when there is an occasional sudden frost, heavily fertilized ryegrass suffers damage.

### MORE ON POA ANNUA CONTROL

Watschke et al, Pennsylvania, report on experiments attempting to suppress Poa annua seedhead production with growth regulators. While some suppression was achieved, nothing sufficient to keep the Poa annua under control was achieved at rates which were not injurious to the turfgrass. In all cases multiple applications at low rate provided better Poa annua seedhead inhibition than did single treatments at higher rate, and the effects lasted longer. However, treatments sufficiently strong to reduce annual bluegrass significantly often caused objectionable discoloration of the foliage. Endothall was especially troublesome in this regard, MH and chlorflurenol less so.

### 1979 "CORNELL RECOMMENDATIONS" RECEIVED

In late April, the "1979 Cornell Recommendations For Turfgrass" were received, the official pronouncement for New York and widely followed in the East. General instructions are much like those of the past; seed mixtures for sunny areas are recommended to contain at least 55% Kentucky bluegrass (10-20% perennial ryegrass), those for shade or sand at least 65% fine fescue (also 10-20% perennial ryegrass). Leading cultivars of each species are listed, and it is recommended that "improved varieties should dominate mixtures for high maintenance turfgrass."

Oxadiazon is included as a crabgrass preventer, and bentazon has been added as a nutsedge control. The recommendation of silvex (for broadleaf weeds) became outdated by recent EPA action and suspended usage of this chemical. Disease control recommendations are said to have been simplified, but still seem far too complicated for effective use by homeowners. However, tolerant cultivars are listed for the various diseases, although the chart is not entirely clear whether the heading "Tolerant Varieties" means tolerance to the disease or tolerance to the several chemicals that are suggested for control. Insect control is more straightforward, with a half dozen approved insecticides listed, the main differences being in the way the treatment is handled (discussed under "comments").

### THATCH REVIEWED THOROUGHLY

The April issue of Weeds, Trees and Turf carried a series of articles by turfgrass researchers under the heading "Symposium on Thatch". Gradually, an overall consensus about thatch seems shaping up, but its causes and corrections (indeed, its importance) seem as uncertain and diverse as ever. Many of the specialists become involved with definitions concerning thatch, and are so immersed in the subject professionally that they lose sight of the fact that thatch really may not be "all this important".

It has become generally recognized that chemical treatments can influence thatch build up, particularly those which restrict earthworm activity. Obviously, not all types of chemicals are equally involved, and evidence is accumulating that fertilization generally is not a major factor. Turgeon, Illinois, reasons soundly in regarding thatch as a part of the grass "habitat". If one regards it in this fashion, how to handle it (if, indeed, any handling is needed) becomes more understandable. A favorite ploy of the experts these days is to invoke the word "stress" for just about anything discussed, and most seem to feel that thatch can intensify various kinds of turfgrass stress.

This issue of WT&T affords about as comprehensive a discussion of thatch as has been made available in recent years. Incidentally, the issue carries a cover picture furnished by Northrup King.

### ABOUT C-3 AND C-4 TURFGRASS CLASSIFICATION

Krans, Beard and Wilkinson, report in the April HortScience on research undertaken when at Michigan State University evaluating which turfgrasses utilized the C<sub>3</sub> fixation pathway and which were represented of the C<sub>4</sub> (dicarboxylic) one. Leaf anatomy (Krans leaf anatomy) was simpler to measure than was carbon dioxide compensation, but both of these (and other possible indicators, as by spectrometer) correlated well. From the popular viewpoint, all of the "cool-season" turfgrasses were of the C<sub>3</sub> kind, "warm-season" ones of the C<sub>4</sub> type.

#### ISSUE OF RASEN PUBLISHED

Issue 1, Vol. 10, March 1979 of Rasen (the German turfgrass publication edited by Peter Boeker, Bonn) was received in May. Reports given in German have both English and French summaries.

Mehnert found deficiency symptoms showing up in the Munich Olympic Park (four or five years old) with some differences at the 2-6 cm. depth due to the intensity of wear. Apparently an unusually high proportion of large pore space, and greatly increased permeability, mark the "impoverished" rootzones. Cation exchange capacity in areas showing deficiency symptoms was only about half that where symptoms did not appear.

Muller-Beck discussed turf irrigation, and plant adaptations to watering (or lack of it). Schery reviewed "Lawn Service in the USA", in English, discussed in greater detail in the general section. Wagner discussed without English summary, fertilizer spreading.

Weber examined the quickness of roots of different species to break down in the soil. There was generally rather little difference between cultivars, but marked differences between species (red fescue broke down most slowly, followed by meadow fescue, with perennial ryegrass quickest). Potassium content seemed to have an influence.

#### BLUEGRASS, FESCUE SEED COUNTS

We have repeatedly referred to Christians (Ohio State) seed count work, first presented to the American Society of Agronomy in 1976. Results are formally reported in the May/June Agronomy Journal. Considerable variation occurs among cultivars (with bluegrass from 4,413 seeds per gram as a high to 1847 as a low; fescues from 1,272 as a high to 618 as a low). Even within a cultivar lots may vary (by as much as 805 seeds per gram for Merion). As would be expected, cultivars or lots with a high seed count provide denser turf more quickly, although eventually there is no difference in density or performance. Merion has the smallest seeds among the bluegrass cultivars (Sydsport and Adelphi are also smaller than average), Birka the largest (Nugget, Fylking, and Baron also tending to be large). Among Institute fescues Banner and Koket tend to be small-seeded.

#### JAGSCHITZ ON NUTSEGE CONTROL

Dr. Jagschitz, Rhode Island, discusses control of yellow nutsedge, a problem of increasing lawn concern, in the May Weeds, Trees and Turf. Dr. Jagschitz had very good results from higher rates of bentazon (3/4 and 1 pound ai/A rates, applied twice), and DSMA [and MSMA (applied twice, at 3.6 and 1.5 pound per acre rates) respectively]. Kentucky bluegrass was not injured by the treatments. Treatments were more effective as the season progressed.

#### THATCH EFFECTS ON PRE-EMERGENCE HERBICIDES

The March issue of Weed Science carries a report by Hurto and Turgeon, Illinois, on the "Influence of Thatch on Pre-Emergence Herbicide Activity in Kentucky Bluegrass Turf". The research reported is based upon the PhD thesis by Hurto, now at Mass. Thatched bluegrass, in several cases, was more seriously injured by the herbicides than that not thatched, because of greater mobility of the herbicide on the thatch than in soil. Also, more direct contact with the herbicide may come from roots and other absorbing organs growing in the thatch. Benefin, oxadiazon, and prosulfalin caused some summer injury, but DCPA and bensulide caused little or no injury.

#### LAWN OBSERVATIONS FROM ENGLAND

The February issue of Parks and Sports Grounds, London, carries as a "special feature" discussion of grass seeds and fertilizers by leading seedsmen of England. As one might expect, each house emphasizes the strengths of its proprietaries with scant mention of other cultivars.

Also carried is an article by B. C. Clayton, of Bingley, entitled "What is the Right pH for Turf?". Clayton reviews the pros and cons, and notes that bents and fescues are better adapted to acid soils than are other species and most weeds. Earthworms are more prevalent on neutral or alkaline soils than on acid ones. While the aerating activity of earthworms is desirable, their castings are unacceptable for fine turf.

When acidity is too great (pH of 5 or lower), disadvantages occur (thatch resists decay, for example); grass becomes more fibrous, moss appears and certain acid-loving weeds erupt. Liming is then advised. A pH within the range of 5-6 is said to be desirable, but higher pH typical near the coast is really no problem.

#### SLOW-RELEASE NITROGEN FERTILIZATION

Wilkinson, ChemLawn, reviews his research while at Ohio State on IBDU and UF fertilization, in the winter 1977 Turf Bulletin of the Massachusetts Turf and Lawngrass Council. The investigations were partially subsidized by Swift. Abundant graphs comparing the two fertilizers accompany the article.

Wilkinson found no appreciable difference between coarse and fine particles of IBDU. In spring there was less response from IBDU than from UF, presumably because UF contains more immediately-available nitrogen. The opposite was observed in late autumn, when temperatures were too cold for biological breakdown of UF. During summer little difference was noted between the two types of fertilizer. More than one application was needed annually with IBDU for uniform turf quality during the year.

#### NEW SOIL TESTING METHOD

The February issue of Agri-Fieldman and Consultant carries a review of a new soil testing procedure developed in Montana, which may do away with the "unnatural" conventional system (in which special solutions extract the nutrient ions, rather than having them diffuse as they would to a root growing in the soil). The soil sample is packed into a plastic container overlaid with ion-absorbing resins (such as are used for water purification). After a time natural diffusion of ions from the soil are trapped by the resin, and can be measured quantitatively. The method is slower than conventional soil testing, but the idea sounds promising.

#### SEED RESEARCH CONTINUES

The "Fall 1978" issue of Search (publication of the American Seed Research Foundation) appeared in April. It carried ongoing reports about sponsored research. McDaniel, Arizona, and Cardwell, Minnesota, were concerned with physiological aspects of heredity. Kahn, Cornell, had more practical conclusions to advance, noting that various compounds could be introduced into seed in solvents such as acetone, without bothering germination and often with advantages (e.g. protection by fungicides and insecticides, prevention of deterioration by antibiotics, stimulation of emergence from hormones, etc.).

## CARBOHYDRATE SAMPLING IN KENTUCKY BLUEGRASS TURF

Sheffer et al, Pennsylvania, report upon "Carbohydrate Sampling in Kentucky Bluegrass Turf" in the March-April Agronomy Journal. Generally non-structural carbohydrates (TNC) readings are taken as a physiological indicator of cool-season grass; these investigations indicate that mowing height, time of date, cultivar, portion of leaf-blade (sheath or blade or combination) can make a considerable difference. Intermediate mowing heights had a higher TNC than either low or tall. And the entire leaf (sheath plus blade) was a more reliable indicator than either the sheath or the blade alone. Newer leaf blades were generally much higher in TNC than older blades (so that leaf blade orientation, characteristic of the cultivar, would be influential in samples from mowed clippings). Fluctuations in TNC were sometimes significant within a two hour span.

## FEEDING VALUE OF TURFGRASS CLIPPINGS

Turgeon et al, Illinois, report in the March-April Agronomy Journal on the "Crude Protein Levels in Turfgrass Clippings". Clippings should qualify as a nutritious animal feed. Crude protein content of both bluegrass and ryegrass ranged generally between 22% and 32% (some variation with cultivar), was higher under lower mowing and heavier fertilization. Nitrate content never reached a toxic level no matter how the grass was managed.

## ABOUT BLUEGRASS SEED PRODUCTION

Canode and Law, Washington, report in the March-April Agronomy Journal on management practices affecting Kentucky bluegrass seed production. Seed yield depends upon an ample number of "large" tillers, and more large tillers are produced by bluegrass plants in the field when thatch is removed by burning (field burning is 50% more effective than mechanical removal).

## BLUEGRASS CULTIVAR DISTINCTIVENESS

Nittler and Kenny report in the May-June Agronomy Journal on experiences using ethephon to bring out differences in bluegrass cultivars being tested for varietal purity. Certain characteristics (stem length, leaf width, sheath color, etc.) were intensified, and, although not definitive by themselves, might prove helpful in distinguishing the cultivar.

## DEPTH OF BLUEGRASS ROOT ACTIVITY

Wisconsin researchers reporting in the May-June Agronomy Journal show that bluegrass sod laid over fertilizer placed at various soil depths was able to garner the nutrient even when it was so deep as 18 inches. More shallowly placed fertilizer was picked up more quickly, but within a few years the ammonium nitrate used in this experiment was nourishing the bluegrass no matter at what depth it had been placed (in plastic bags, with a few pinholes for slow-release).

## FERTILITY VALUE OF CLIPPINGS

W. A. Adams, University of Wales, discussed sports turf fertilization in the October 1977 Parks and Sportsgrounds. Some of the data have applicability world-wide. He notes, for example, that frequently mowed perennial ryegrass turf has a cumulative total of herbage only 50-65% that of similar turf mowed infrequently (about monthly). Nutrient value of the clippings, on an N, P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O basis, runs approximately 3.8 N, 1.0 P<sub>2</sub>O<sub>5</sub>, 3.2 K<sub>2</sub>O. While such ratios vary greatly depending upon fertilization practices, season, etc. it is good to have some carefully measured standards to refer to.