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PAST-PRESIDENT OSBURN "REPORTS IN"

Receipt of a plaque acknowledging his excellent service to the Institute during his term of the Presidency, stimulated George Osburn to convey his appreciation to the Executive Committee. George writes: "It was indeed my pleasure to serve as your President, and the acquaintences throughout the country plus the personal friendships will be long remembered. --- beyond that is the satisfaction of knowing that the Lawn Institute is a very viable, vital Institute which performs a great service to all those engaged in and enjoying the benefits of better turf."

QUARTERLY RELEASES

During the quarter the following items were prepared, in press, or reprinted for distribution:

American Horticulturist	"Lawn Basics"
Better Crops With Plant Food	"Fertilize The Lawn, Too?"
Brooklyn Botanical Garden, "Handbook"	"Lawns And Their Tending"
The Gardener	"Hit Paydirt, When Seeding The Lawn"
The Gardener	"The Perennial Ryegrass Rise To Stardom"
Horticulture	"Autumn Care For Lawns"
House Beautiful	"Timely Turfgrass Topics"
Plants and Man, book	Review sent Elsevier International, London, England
Seed World	"Rally 'Round The Ryegrasses"
Countryside Press, reading-rack book	"Choice Lawns"
Institute Press Kit	Releases for newspapers
Metro Associated Services	Text for Garden Section, for newspapers
The William C. Pflaum Company	Text for the Supplement, for newspapers
Prentice-Hall, manuscript for book	"Lawn Keeping"

PRESIDENT APPOINTS

President Doyle Jacklin has appointed V.P. Gordon Miller to review Institute membership classifications. Classes of membership important when The Institute was largely supported by growers and their organizations in Oregon have little relevance today. The review will be submitted to the full board at the summer annual meeting.

SEED DISTRIBUTION REMINDER

President Jacklin has reaffirmed the Executive Committee's decision of last September (announced in the October Harvests), of having available a small supply of one pound samples of turfgrass cultivars of interest to the Institute, on hand at the Marysvile office for distribution to experimenters and technical people. All sponsors are urged to have about a half dozen one pound bags of the varieties in which they have an interest sent to Marysville as quickly as possible. As soon as samples are accumulated an offering will be circulated to key technical personnel on the "advisor" mailing list, with any remaining sjpplies held in stock for honoring requests. This should help to excite interest in Institute varieties, enlarging familiarity with the cultivars.

CANADIAN VISIT

At the invitation of Norman Rothwell, of the Board of Trustees, Dr. Schery paid a "goodwill" visit to Canada in late November. Snow hampered visiting some of the sod production fields near Ottawa, but a number of worhtwhile visits were possible, including delivery of printed materials not possible by mail because of the postal strike.

Proposals for ammendment to lawngrass regulations were reviewed with Dr. Singh (Head, Seed Standards unit) and Ronald Junk, of the federal offices, Agriculture Canada, Ottawa. The research of Dr. Cordukes (Ornamental Research Service) was reviewed, including his interesting series of Poa annua investigations in growth chamber. These and other contacts will prove quite helpful in maintaining liaison with Canadian officials and Institute members in Canada.

URBAN LAWN VALUES

An interesting discussion by S. H. Nelson, University of Saskatchewan, under title of "Urban Agriculture" appeared in the November issue of Landscape. A survey was made of Saskatoon (a city of 31,275 home lots) with "in depth" interviews of homeowners. Statistics were quite revealing:

About 95% of the lots were seeded, sodding being practiced only in the newer residential areas. Nearly 47% of the lawn mowers were gas, a surprising 43% electric, the rest hand. Only 6% of the lawns had underground watering systems, but there were 1,212 miles of lawn hose in the residential area. Nearly 88% of the lawns were fertilized (at least occasionally), with the average about 1.9 times per year. Nearly 38% of the respondents aerated at least within the last three years.

Less than 5% practiced insect or disease control, but nearly 22% hand weeded the lawn, while over 34% used herbicide bars and 21% herbicide-fertilizer combinations. The appraised value of turf for the area exceeded thirteen million dollars, about one fourth the appraised value for ornamentals on the residential lots.

Dr. Nelson concludes that "urban agriculture" provides quite a significant "recycled" input to the local economy. He calculates that a little more than a hundred and twenty two dollars per capita can be assigned to urban agriculture in Saskatoon.

ARTIFICIAL TURF DE-BUNKED

Melvin Robey, writing in the October Weeds, Trees and Turf, under the title "Natural Grass Versus Artificial Turf; Which Costs More To Maintain?", documents costs for maintaining natural grass fields at Purdue University compared to claims made for artificial turf nationally. He "proves" that natural grass costs about 10 times less to maintain than "salesmen" for artificial turf claim, and that artificial turf costs many times more to keep up than the figures commonly advanced by its proponents. Robey concludes that maintenance of natural grass field, even liberally figured, would come to about $5,000 annually; he has statements from managers of artificial turf indicating that a professional stadium costs $40,000 to maintain, a college stadium $15,000. It looks as though, contrary to what is usually claimed, that living grass has a 3-8-fold advantage over artificial turf!

PRESS KIT READIED

Text has been prepared, materials ordered, and reprints secured, for issuance of the familiar Lawn Institute spring Press Kit. This will be in production in early January, for mailing about mid-February. Subject to final editing, the spring Press Kit will contain 30 titles, a covering letter, and four reprints.

ANOTHER NATIONAL RELEASE

Metro Associated Services of New York called upon the Institute for materials suited for their Newspaper Services issue going to four thousand newspapers nationally. This year a spring "Clip Sheet" is planned for mailing out in January. Metro is waiving any charges to the Institute in exchange for the "authority" Dr. Schery and the Institute can lend in providing generic coverage. Costs are borne by major firms subscribing to the service, which also supply text (slanted to their particular interests).

It was not felt possible to supply custom material requiring the amount of effort given the Institute's own Press Kit, or the joint Supplement being produced through Pflaum. But Dr. Schery did authorize usage of the 1975 Spring Press Kit, a copy of which was checked for currency. This was sent to Metro along with a wide assortment of reprints, several photographs, and an announcement about the forthcoming Lawn Keeping book. The Institute will receive a copy of the January mailing, when we will report more fully on the outcome.

PERENNIAL RYEGRASS REVIEW

"Rally 'Round The Ryegrasses" is title for an Institute story appearing in the November Seed World. Reprints are being distributed. The story reviews distinctive features of perennial ryegrass as a turfgrass species, mentions modern cultivars, and discusses ryegrass seed mixtures and care.

SUPPLEMENT PREPARED

The Institute has continued its participation in sponsoring (along with three other associations) the Spring Lawn and Garden Supplement, sent in newspaper format to thousands of newspapers, trade magazines, and other outlets. As the Institute's contribution Dr. Schery prepared 25 titles, covering 20 double-spaced typed pages, the Institute's allotment. In addition 4 or 5 photographs will be carried. Production, this year, has been returned to William C. Pflaum, Reston, Virginia, who has provided workmanlike responsibilities in past years (last year production was assigned Paul Dawson and

SUPPLEMENT PREPARED (Continued)

Friends, apparently less experienced with this sort of thing). We look for widespread pickup of this successful Supplement by smaller newspapers and other outlets lacking garden editors.

REQUESTS AND INQUIRES CONTINUE

Continuing appearances in newspapers around the country of our offer of reprints, to persons sending in a self-addressed stamped envelope, results in sporadic requests long after a Press Kit is "history". Moreover, word apparently gets around whereby a trickle of letters inquire about specific lawn problems, affording opportunity for enlarging the Institute's influence.

IN ASSOCIATED PRESS

Our good friend, Earl Aronson, Associated Press, Albany, New York, again favored the Institute with mention in his widely released column this autumn.

READING RACK BOOK

A revision and consolidation of the previous TFH publications, "10 Frequent Lawn Problems", "Selecting Lawngrasses" and "Luxuriant Lawns", purchased by Countryside Press, was completed by Dr. Schery in November. The resulting book is to be offered in the spring of 1976, chiefly from reading racks, at proposed price of about 89¢ each. It is expected to carry 16 pages of color, for which over 32 Kodachrome slides were supplied. Countryside Press is a division of the A. B. Morse Publishing Company, Barrington, Illinois. It is hoped that the new book, tentatively entitled "Choice Lawns", will prove an effective medium for publicizing the virtues of new lawn cultivars.

HOUSE BEAUTIFUL STORY REVISED

A spring story done for House Beautiful magazine last year was not then used, and has now been revised to bring in mention of some of the latest cultivars. We hope that this "Timely Turfgrass Topics" will be forthcoming next April.

FOR MEN'S GARDEN CLUB

Dr. Schery has readied two stories for the official magazine of the Men's Garden Clubs of America, The Gardener. "Paydirt", dealing with the proper selection and planting of lawns, was patterned after script released last year in the press kit and otherwise. This is expected to be used during winter. For the March-April issue a special write-up entitled "The Perennial Ryegrass Rise To Stardom" has been furnished Lyman Duncan, Executive Director.

BOTANIC GARDEN HANDBOOK

The Brooklyn Botanic Garden has enlisted the efforts of Paul Frese as editor of a revised "Handbook on Gardening", an updating of a previous review done for the Brooklyn Botanic Garden, in which the Institute participated in its early years. The Institute has been asked again to prepare text for the chapter "Lawns And Their Tending". We look forward to its appearance in the highly respected Brooklyn Botanic Garden series. Reprinting of the item should provide a handy, comprehensive summary useful for handouts and as an envelope stuffer.

INSTITUTE HELPS LANDSCAPING BRIEF

A Lawn Institute photograph was utilized with the "Occupational Brief" on Landscape Gardeners. The Occupational Briefs are offered by Chronicle Guidance Publications of New York, for students considering a career in the field. The Lawn Institute is listed among the "Acknowledgements".

BOOK ON LAWNS COMPLETED

Dr. Schery has completed manuscript for a book entitled Lawn Keeping, to be published by Prentice-Hall next June. Prentice-Hall specializes in textbook offerings, but the Spectrum Book Division also releases less expensive soft-cover books such as Lawn Keeping will be. Prentice-Hall is publisher of Dr. Beard's college teaching text, Turfgrass Science and Culture. However, Dr. Beard's book is too technical for a popular audience, and vocational-type turfgrass courses, for which Prentice-Hall hopes to offer Lawn Keeping. The book provides "how to" advice, but approaches recommendations from an ecological viewpoint that tries to create understanding of lawn behavior in terms of local environment.

CHLORDANE-HEPTACHLOR HEARINGS

Dr. Schery was called to testify briefly at the EPA hearings in Washington D.C. concerning possible suspension of chlordane and heptachlor. No claim was made for expertise in toxicology or entomology, but it was felt that it would perhaps be helpful to emphasize the extent to which lawns and turfgrass are important in the modern, rapidly urbanizing world.

"ADVISOR" MAILINGS

The Institute maintains a regular exchange of literature with leading lawn authorities at research centers, an outgrowth of the old "advisor" program, and in keeping with the Agronomy Society reprint exchange program. Mailed to about 75 recipients were reprints accumulated since the last distribution, including "The New Look To Lawns" from Landscape, "Let's Not Fritter Fertilizer" from American Horticulturist, "Basic Lawn Care" from Horticulture, "Lawns Come Into Their Own" from Home And Garden Supply Merchandiser, "Autumn Care For Lawns" from Horticulture and "Lawn Basics" from American Horticulturist.

"ECOSYSTEM" STORY CONTINUES TO DRAW

Most distant request for a reprint for the quarter, is from T. M. Paul, Officer-in-charge, Western Regional Station, Bombay, India. Runner up was Dr. Emilio Dormond, Universidad Nacional, Departamento De Biologia, Heredia, Costa Rica. Both requests were for "A Man-Made Ecosystem, Your Lawn", which continues to excite a good deal of interest both nationally and internationally. Five hundred reprints were sent to "Doc" Abraham, syndicated Green Thumb columnist for his distribution through his TV show.

NEW RESEARCH REPORT

The University of Rhode Island "Turfgrass Research Review" was initiated with Volume 1, Number 1 (summer 1975), by the Cooperative Extension Service of the University. This small state supports a turfgrass research staff of 12 faculty members, with almost as many part-time technicians and graduate assistants. In recent decades it has been an important center for turfgrass research. The "Review" is an attempt to make information publicly available.

GOOD PRESS FOR MANHATTAN

The September issue of Parks, Golf Courses and Sports Grounds, London, carried a flattering review of Manhattan perennial ryegrass, now being marketed in England. The title of the story was, "Grass Variety of the Future?". Trials at the Sports Turf Research Institute are cited, in which Manhattan required 1/3 less mowing than did the traditional S-23 ryegrass, and was 38% better in wear resistance. Mention is made of Manhattan's propensity for quick establishment, density, pleasing color, decumbent growth, drought resistance, and winter hardiness. It is reported to have received favorable comment from groundsmen at several cricket pitches.

INSTITUTE CREDITED

We are pleased that Chronicle Guidance, Moravia, N.Y., acknowledges the Institute in its "Occupational Brief" for Landscape Architects. The third edition was recently published. Roberta Gamel, of the research department in charge of vocational and educational materials, writes, "We appreciate the time and personal attention you gave this matter -- If you can use additional copies, a limited number are available --".

WHAT WE LIKE TO HEAR

"We are glad that you are doing a new book on lawn keeping. You should know that A Perfect Lawn is a standard reference here and we turn ot it quite often." - Fred McGourty, Jr., PLANTS & GARDENS

YEAR-END

We wind up 1976 with a successful record of presenting the "Institute Story", to both public and professional audiences. For their usual fine cooperation, the Marysville staff thanks the officers and executive committee wholeheartedly. It has been a good year for widespread acceptance of Institute Press Kits, magazine stories, and books still in press.

The year was marked, too, by confusion concerning decisions voted at the annual meeting, which has resulted in reduced participation for the fiscal and calender year ahead by firms not part of the seed trade. An "emergency" meeting in Marysville by the executive committee in September clarified some of the confusion, and it is hoped that supporters outside of the seed trade can be urged to once again become active in Institute affairs. We thank executive committee members for making the effort to gather in Marysville.

1975 was a great growing year in Central Ohio, with an early spring and bounteous crops. A hot spell in summer "tested" turf, but on the whole almost all of the cultivars (save some fine fescues) performed very well. No serious disease outbreaks occurred on the Institute grounds. May 1976 work out as well, and may it prove prosperous to all!

TECHNICAL SECTION

OHIO TURFGRASS CONFERENCE AND SHOW

The Ohio Turfgrass Foundation's annual show continues to be impressive in terms of interest and excellent commercial exhibits. This year's show was in Cincinnati, taking advantage of the fine exposition center there.

The general sessions opened with a keynote address by M. J. Rebholz, Ohio Department of Natural Resources. Rebholz predicted several hundred new golf courses in Ohio in the decade or so ahead, three or four hundred in the next five years, and as many more in the ten years following. The Cleveland area has greatest need, followed by central Ohio (Columbus area) and southwestern Ohio (Dayton area).

Dr. Ledeboer, Lofts, evaluated Kentucky bluegrass and perennial ryegrass cultivars. An excellent series of slides added to Dr. Ledeboer's interest. Lee Record, of the U.S.G.A. Green Section, reviewed bentgrasses in a general way, and Dr. Watson, Toro, reviewed efficiencies that are possible in maintaining turfgrass in this era of shortages and stringencies.

Subsequent presentations were divided into three parallel sections relating to golf courses, general grounds, and cemetaries. This is somewhat unsatisfactory since it almost requires missing certain presentations. Many of the later papers scheduled had to do with concern about pesticide regulations and OSHA rules.

In the session relating to general grounds Dr. Powell, Ohio State, reviewed fungicides. He feels that perhaps 60% of the time fungicides are not properly used, or are used unnecessarily. He cited various examples (mostly dealing with ornamentals) in which disease was incorrectly diagnosed (commonplace even by experts), or fungicides poorly chosen, inadequately applied or improperly timed.

Dr. Miller, Chem-Lawn (formerly at O.S.U.), provided a similar summary concerning herbicides for annual grass control. He stressed that sometimes a high percentage of control is not sufficient, the residual crabgrass population being significant even when 98% of thousands of seedlings is eliminated. Most homeowners expect virtual eradication rather than partial control. He noted that control chemicals are mostly those few which have stood out through the years, but that Eli Lilly will soon have a new product named Sward. Preemergence herbicides do have their side-effects, such as restricting roots and causing some cultivars to turn coarser. Because of cool weather in early spring, breakdown of a crabgrass preventer is not rapid then, though it speeds up as weather warms (perhaps necessitating a booster application). Miller noted that bensulide, even DCPA, may inhibit a new seeding for up to six months, so that a spring treatment can actually have some influence on an autumn seeding success.

Dr. Wilkinson, Ohio State, compared IBDU and UF slow-release fertilizers. He mentioned poor spring performance with IBDU (at least on alkaline soils), suggesting late autumn application to take care of early spring, followed by a spring application for summer. UF did not show so much of a spring insufficiency, but neither was it very efficient in terms of nitrogen applied. These

findings would prove subject to other interpretation, depending upon what is wanted in a lawn: in most cases heavy spring growth (which gave high clipping weights and good ratings) would hardly be desirable, and even in hot weather one could question the need for much nitrogen stimulation.

Dr. Partyka, also of Chem-Lawn, rounded out the presentations with a review of pesticide injuries around the home. Partyka noted how a pesticide applicator gets "blamed" for many things having entirely different causes than the treatment made. Still, there is potential hazard from chemicals applied to lawns, and he feels this has been insufficiently studied. For example, we don't know much about commonplace weed controls such as dicamba under specific conditions and with different species. Certainly a good educational program directed to owners has been lacking, to acquaint them with the usefulness and harmlessness of lawn chemical treatments. In most cases lawn chemicals have a "bad" image, partly because of concern about the environment, and partly because of the occasional "disasters" arising from homeowner misuse.

CALIFORNIA TURFGRASS RATINGS

An unusually complete and detailed rating of familiar turfgrass varieties for 1970-1975 was released by the Cooperative Extension Service of the University of California in November. Eight specialists cooperated in detailed evaluations conducted at nine locations in Southern California, each of which was replicated four times. Ratings were tabulated separately for the cool and warm seasons, as well as for the individual locations.

For the most part not a great deal of difference showed up between cultivars (an exception being one saline location). Nor was there, in general, much difference between coastal and valley locations (although perennial ryegrass did better in the coastal environment). Rather surprisingly, although all the cultivars were of "cool-season" species, ratings were generally higher for the warm season than for winter (especially pronounced with Kentucky bluegrass).

General averages are not particularly significant, since poor performance at one location could reduce a cultivar's average score significantly in view of the narrow spread between cultivars. More meaningful would be to consult data for the individual test sites (at least ones close to or similar to anticipated planting). However a statewide average is the only means for generalizing a summarization such as this:

KENTUCKY BLUEGRASS - closely grouped were Victa, Fylking, and A-34, Baron, Primo, Sodco tied for third. Fylking was "tops" by a small margin in the coastal areas, Victa by a small margin in the valley locations. Rating little if at all better than "common" statewide were Nugget, Merion, Park, Prato, Newport, and Campus (lowest rating).

PERENNIAL RYEGRASSES - Pennfine and Pelo tied for top rating in the coastal location, followed closely by NK-100 and other turf-type cultivars, all appreciably better than "common". In the valley locations Pennfine led, closely followed by Manhattan and Lamora. Statewide Pennfine was "tops", with Manhattan and Lamora not far behind.

CALIFORNIA TURFGRASS RATINGS (Continued)

FINE FESCUES - again there was not a great deal of difference between cultivars, although Highlight did quite poorly during the warm season (although it was up with the leaders in the cool season). On the whole the cultivars did slightly better in coastal locations than in the valleys. Statewide Golfrood led, followed closely by Jamestown, Pennlawn and Illahee; Highlight and Wintergreen brought up the rear.

COLONIAL BENTGRASSES - again the grouping was quite close, with Holfior rating best statewide, followed by Highland and Astoria tied for second, with Exeter bringing up the rear.

In a high salinity environment (Marina Golf Course) most of the cultivars proved quite unsatisfactory. Among the bluegrasses Fylking was markedly superior, followed by Pennstar, with the remainder not even in the "satisfactory" bracket. Differences were not so great with the perennial ryegrasses, with Manhattan leading, followed by Pelo (Pennfine was not included in the ratings). All of the fescues and colonial bentgrasses were quite unsatisfactory.

Taking scores as a whole the bluegrasses were slightly ahead of the perennial ryegrasses in making superior turf statewide, followed closely by colonial bentgrasses, with the fescues less than satisfactory.

The researchers conclude that the bluegrasses performed considerably better in the warm season than in the cool (surprisingly), that the perennial ryegrasses are slightly better in coastal locations than valley ones, that the fescues leave something to be desired (especially during the warm season), and that the colonial bentgrasses were satisfactory but with little difference between cultivars. For saline habitat the perennial ryegrasses and a few bluegrasses (Fylking, Pennstar) were adequately adapted.

CULTIVARS UNDER LOW MAINTENANCE

Bulletin 753, by Lukens, Walton and Miller, Connecticut Experiment Station, New Haven, discusses "Performance of Bluegrass Cultivars Under A Low-Maintenance Program". Involved are twenty nine cultivars planted in 1968. Unfortunately, some of the newer releases such as Baron, Bonnieblue, Galaxy, Glade, Majestic, Plush and Touchdown are not included for comparison.

The investigation is intriguing, and in keeping with current interest about low-maintenance. However, the authors' backround in turf seems limited, and their conclusions simplistic (not considering all of the variables of maintenance and environment that might be involved). Depending upon circumstances, one might also argue that "dense turf on low fertility appears to be the most desirable characteristic for lawns" doesn't always hold.

Table 2 offers a comprehensive rating of the cultivars for emergence, density, persistence, thatch, color, texture, weeds, etc. In most cases there is not a great deal of difference between the better-rating and the poorer-rating cultivars. Showing best density after one season were (in order of best first, considering seeded varieties only): Jacklin S-21, Geary, Kenblue, Park, and Delta; poorest (worst first) were Nugget, Cougar, Sydsport, Belturf,

CULTIVARS UNDER LOW MAINTENANCE (Continued)
Sodco, and Adelphi. After five years the ratings had changed, showing Birka first, followed by Kenblue, Belturf, Minnesota-6, Campus, Cougar, Geary, and Pennstar; poorest were Adelphi, Nugget, Delta, Georgetown, Park, Sydsport and Newport. Using a density average for four years, Belturf ranked best, followed by Minnesota-6, Birka, Pennstar, Prato, Primo, South Dakota, Fylking and Sodco; poorest were Adelphi, Nugget, Delta, Vantage, Georgetown, Sydsport, and Park.

Most resistant to meltingout disease were Sydsport, Nugget, Sodco, Campus, Georgetown, and Belturf; most seriously afflicted were Kenblue and other "common" types. Best resistance to dollarspot was shown by several "common" selections, while Arista, Sydsport, Vantage, and Merion showed greatest susceptibility. As was noted earlier, on the whole the discrepency between the "best" and the "worst" was not great.

The study gives considerable food for thought, especially when it comes to low maintenance turf. The authors conclude that performance can be best measured by density. Linked with density are fine-texture and few weeds. However, dense turf may also thatch heavily, perhaps not too meaningful a statistic since fertilization and other management factors strongly influence thatch formation. The authors consider thatch to be advantageous for wear resistance, but also to encourage disease and nematodes. The authors conclude that higher mowing creates more thatch than does low mowing, which might be questionable. Considering thatch depth, fine leaf texture, dark color and resistance to leafspot-dollarspot, only Birka and Pennstar receive "plus" ratings in all categories.

As interesting as this study is, one finds it difficult to believe results are indicative of what would happen in other locations, or under slightly differing modes of care. But it should be of some concern that most cultivars had a somewhat lower rating after five years than was their average up to that time. This suggests general deterioration under a low regimen of care. Of the seeded cultivars, only Birka and Kenblue seemed to be improving, while such stalwarts as Adelphi, Sydsport and Georgetown deteriorated badly, more so even than Merion, Sodco and Vantage (which were also well off their averages).

BLUEGRASS COMPETITIVENESS AGAINST POA ANNUA

Dr. A. J. Turgeon, University of Illinois, has reported further on "Progress in Poa Annua Control". Difficulties in repressing Poa annua with either pre-emergence or post-emergence herbicides, while still maintaining Kentucky bluegrass vigor, is alluded to. Turgeon feels that the best approach may be use of bluegrass cultivars that are strongly competitive against Poa annua. Judging by bluegrass plugs planted in a Poa annua population, Turgeon finds that these cultivars (ignoring unnamed coded selections) rate as follows (from strongest competitor to weakest): Ram I, Touchdown, Parade, Glade, Baron, Brunswick, Plush, Kenblue, A-34, Adelphi, Sydsport, Geronimo, Sodco, Windsor, Nugget, Pennstar, Victa, Bonnieblue, Merion, Vantage, Fylking, Majestic, Campina, Monopoly, Park and Galaxy.

MORE ON POA ANNUA

Stephen Cockerham, writing in Western Landscaping News, December, states that "Poa annua is the result of a natural cross between two European bluegrasses, Poa infirma and Poa supina." If this is true it helps explain the tremendous variability noted in Poa annua.

RHODE ISLAND BLUEGRASS RATINGS

A five year evaluation of over 50 Kentucky bluegrasses planted at the University of Rhode Island, was published in the initial Turfgrass Research Review of the University. Many of the selections are still identified by code number only, no commercial seed being available. A few that have become commercial (such as Touchdown, P-142) are not included in the comparisons. The top performers (mentioning only those which have become commercial) are, in this order: A-34, Majestic, Adelphi, Bonnieblue, A-20, Aquilla, Sydsport, Georgetown, Sodco, Baron and Merion; least satisfactory are many of the common types. These ratings are for the 1 1/2 inch mowing height considered typical of the home lawn. When the mowing height was lowered to 3/4 inch (typical of a golf course fairway), ratings were somewhat different; then Brunswick rated first, followed by Bonnieblue, A-20, Merion, Baron, Sodco, Nugget, Sydsport, Adelphi, A-34 and Majestic. Again the common types rated about as poorly as at the taller clipping height. Showing good resistance to both leafspot and stripe smut were: Bonnieblue, A-20, Sydsport, Sodco, Nugget and Birka (none of the other commercial cultivars carried a "good" for both diseases).

MIDWEST FIELD DAY

A field day was held at Purdue University September 29, about which the hand-out report was received from Dr. Daniel. Dr. Daniel epitomizes information so greatly, that some of it is not entirely clear from the report. Here are a few of the seeming highlights:

Continued use of pre-emergence crabgrass preventers for ten years has not resulted in observable damage to the lawngrass. Some of the follow-up treatments were at reduced rates. Calcium arsenate has built up sufficiently so that no crabgrass, Poa annua, chickweed or earthworms occur in the test plot; treatment is "reinforced" most years with a one-eighth normal rate booster application. It is suggested that arsenate soil toxicity be preserved (calcium arsenate is no longer available to homeowners), by omitting application of phosphorus.

Glyphosate appears to have been moderately satisfactory for taking bentgrass out of mixed plantings. It has been quite useful for renovation, its use followed by successful reseeding with Manhattan ryegrass, Koket fescue, and Bonnieblue bluegrass.

Data seems to indicate no particular advantage from coring (with a Greensair) on the local silty clay loam.

Various fertilizers were compared on Sodco bluegrass, Pennlawn fescue and Manhattan ryegrass; assuming that the figures given are clipping weights, there was reasonably little difference in response between products on the fescue or ryegrass, but considerable with Sodco (it is not clear whether the markedly lower clipping weights resulting from use of "slow-release" materials are regarded as contributing to quality or not?); it would seem that the markedly reduced clippings from Sodco (compared to fescue and ryegrass) would have advantages.

Broadleaf weed control was excellent with a number of products, and in no case was there serious damage to bluegrass turf.

MIDWEST FIELD DAY (Continued)

Daniel continues to emphasize how numerous lawngrass cultivars are these days, and terms the conflict between seed yield and turf quality to be "the dilemma of today". He groups bluegrasses by similarity, and mentions the susceptibility of Merion-Windsor to both rust and Fusarium roseum, Fylking-Pennstar to Fusarium roseum. Sydsport is touted for athletic fields, but dollarspot can be severe. Nugget, Fylking and Pennstar are reported to have thinned appreciably compared to Sodco.

Growth regulaters have been tested on mixed bluegrass turf, with appreciable growth reduction cited after various lengths of time (but it is difficult to see how there can be "115%" reduction, reported for one product!) No comment is given as to whether use of growth regulaters seems practical, but certainly most of them were not severely damaging to the permanent turf.

Resumes are given out of PAT athletic field installation, and rootzone formulations. There is nothing practical here for the homeowner. When simazine was included in irrigation water at 1 ppm/week, toxicity was severe.

Crabgrass pre-emergence controls are still being tested, with several products giving 100% control through summer; Dacthal worked as well as others, but some of the newer materials can be used at lighter rates.

Quackgrass was well controlled by glyphosate, especially when rotary-tilled in conjunction with the treatment.

SOUTHERN GRASSES TOUGHER

Research by Akin and Burdick, Georgia, reported in the September-October Crop Science indicates that southern species such as bermudagrass have more slowly-degradable vascular tissue than northern species such as Kentucky bluegrass. Four-week regrowth cuttings of five temperate and five tropical species were compared after periods of digestion by rumen microorganisms. Temperate species, however, show a slightly higher percentage of lignified tissue than tropical ones. But on the whole the leaf blades of the temperate species degraded more rapidly than did those of tropical species.

FUNGICIDE INFLUENCE ON NITROGEN TRANSFORMATIONS

Mazure and Hughes, Illinois, tested whether continuous application of a fungicide might have influence on soil nitrification. In the laboratory maneb, and to a lesser extent dyrene did, but benomyl did not. None reduced nitrification (they even increased it slightly) in field plantings of Penncross bentgrass. The research was reported in the November-December Agronomy Journal.

HERBICIDES NOT MUCH HELP

B. J. Johnson, Georgia, reports in the November-December Agronomy Journal, on herbicide treatments intended to encourage establishment of four turfgrasses (centipede, zoysia, two bermudagrasses). All turfgrasses except the zoysias competed well with the weeds even without treatment. Two of the herbicides (bensulide and terbutol) injured the turfgrasses more than did others (pronamide, DCPA, and benefin). Only bensulide controlled weeds satisfactorily during the first growing season. One must conclude that low rates of these herbicides helped very little with the establishment of the grasses.

SHEATH SHADING AND BLUEGRASS SELECTION

Drs. W. E. Cordukes and J. E. Fischer, Ottawa, Ontario, report research involving the shading of Kentucky bluegrass leaf sheaths on grass eprformance, in the January 1974 Canadian Journal Of Plant Science.

Shading the sheath portion of an elongating bluegrass culm gave a definite photoresponse, such that the stem continued to elongate (and buds proliferate) in response to the treatments. Apical dominance that prevented sidebuds from developing (thus affecting density) was much greater in certain cultivars than in others. Cultivars of more southerly origin (Windsor, Geary, Belturf, etc.) were more strongly inhibited than cultivars of northern origin (Fylking, Pennstar, Nugget).

In general higher turfgrass ratings coincide with the tendency of the shoots to elongate and produce viable buds (even though the sheaths may be shaded, as would be the case in dense turf). The authors believe that selections of northern origin provide breeders with genetic qualities for greater tiller production and density than would southern sources; the shading technique described provides a means for verifying these tendencies quickly.

SPEEDING GERMINATION

California researchers, reporting in the November-December Agronomy Journal, note that of several treatments accorded desert shrub seeds, that treatment with activated carbon was most effective in speeding germination. No mention is made of whether activated carbon has been used for other seeds.

PENN STATE ON FERTILIZERS

A scholarly review, "Response of Cool-Season Turfgrasses to Liquid Applications of Fertilizer", by Waddington, Turner, and Duich (Progress Report 350, June 1975) was recently received from Pennsylvania State University. Much meticulous data is accumulated and analyzed in the publication, confirming general impressions rather than uncovering dramatic new findings. Basically, the report indicates that any type of fertilizer properly used is beneficial to the grass, and that under the Pennsylvania conditions of the test neither additional iron nor inhibition-of-nitrification (N-Serve) were of value. Nitrogen is the most influential of the nutrient elements, and while other elements (including secondary and minor elements in the turf foliage) were influenced somewhat by the treatments changes were generally not significant.

A lengthy appendix supplies extensive data comparing all different treatments with the check. Clipping weights, for both Merion Kentucky bluegrass and Pennlawn fine fescue, accumulated on 28 sampling dates, showed response pretty much in accord with the quantity of fertilizer (nitrogen). Soil tests seemed less influenced by fertilizer applications than by change in season. No matter the fertilizer treatment, the nutrient ratio remained relatively constant in the clippings, on the order of 19-2-10-2-1 (N-P-K-Ca-Mg) respectively. Parts per million figures are also given for manganese, iron, copper, boron, aluminum, zinc, and sodium. The figures substantiate the usefulness of fertilizer for starting new turf, and for maintaining attractiveness of established grass (between 3 and 4 lbs N/M, in autumn and in late spring, is recommended).

BLUEGRASS SEED YIELDS

Canode and Law, Washington, report upon age of Kentucky bluegrass as it might influence seed production in the November-December 1975 Agronomy Journal. The authors conclude: "--- good quality seed can be produced from older Kentucky bluegrass stands. Seed weight did not show a decrease associated with age of stand but tended to have a negative association with seed yield. Germination of seed tended to decrease with age of stand with significant reduction in the fifth crop--". PNW602 was the test strain of bluegrass utilized.

EXCELLENT WEEDS TODAY ISSUE

The Fall, 1975 issue of Weeds Today carried several excellent articles; although agricultural in nature they have implications for turfgrass.

Dr. Goeden, California, reviewed biological weed control. He pointed up past successes, mainly based upon introduction of insect predators. He points out that biological weed control is not well-suited to controlling weed species which are useful under certain circumstances, which are closely related to cultivated plants that may then be affected, where quick control (without time for build up of the predator) is needed, where eradication is required (predators require a continuing low level of weeds to sustain them), where weeds are part of an intensively cropped ecosystem that is therefore unstable and better suited to herbicide treatment than to phytopathogens. Nearest significance for lawns is control of puncture vine by the European puncture vine seed weevil. Of course biological control is very economical where it can be achieved, requiring little more than research on and introduction of the predator species. Most often weeds targeted for biological control are terrestrial, perennial, introduced species; they infest relatively undisturbed, extensive land areas of relatively low unit value.

The efficiency of herbicide weed control (in terms of energy usage) was reported on by Dr. Nalewagea, North Dakota. A net gain of over a hundred times energy preserved in the crop over that expended in weed control is generally shown. The introduced European wild garlic is reviewed by Dr. Peters, Missouri. It contrasts with the more easily controlled native wild onion. Garlic is especially offensive because of its spread by "hardshell bulbs" which serve instead of seeds, and are often carried in grain (because of the similarity in size and shape that prevents completely cleaning them out). Only seldomly (in the southern part of its range) does wild garlic produce flowers and seeds. Bulbs can resist drying out for up to two years.

An in-depth review of dioxin as a contaminant of 2,4,5-T is provided by Dr. Kearney, USDA Beltsville. While dioxin is very poisonous, it is carried in even the older 2,4,5-T (not so carefully prepared as in more recent operations) in infinitesimal quantities. Dr. Kearney is optimistic that some of the accumulated supplies can be utilized for agriculture. Approximately 39 million dollars worth (current market value) of the 2,4,5-T herbicide (Herbicide Orange) are left over from the VietNam War, and must either be disposed of or be reprocessed into usable form. It has been learned that the particular dioxin in the 2,4,5-T, seldom as abundant as one half part per million, does not leach vertically in the soil column, is not absorbed by plants, has a typical soil half-life of one year, is not translocated in the plant, may be

EXCELLENT WEEDS TODAY ISSUE (Continued)

destroyed by sunlight when wet, will not be produced by breakdown products of 2,4,5-T, and is typically eliminated in urine and feces of animals (but can be accumulated from water by fish).

Finally, a resume of glyphosate (Roundup), Monsanto, provides detail on this general knockdown chemical which shows much promise for use in lawn renovation. Glyphosate is not yet registered for weed control except on industrial and non-crop areas, although registration is "in the mill" for corn, wheat, soybeans, small grains, etc. Presumably this promising Monsanto herbicide will also be made available for turfgrass usage once clearance has been obtained for use on forages and similar crops.

IRREGULAR SCU RESULTS

G. M. Volk, Florida, reports in the November-December Agronomy Journal on the tendency of sulfur coated urea (SCU) to produce a spotted winterseeding turf of perennial ryegrass in dormant bermuda. Chlorophyl content is appreciably higher in the dark green spots than in intervening grass. Volk assumes that the pelleted nature of SCU causes it to disperse and concentrate in certain locations unless an effective thatch of bermudagrass is present. The results suggest that SCU is unsatisfactory for fertilizing an overseeded wintergrass.

MORE ABOUT POA ANNUA

Goss and Cook, Washington, continue to have good results in controlling Poa annua in bentgrass, by using a proper combination of fertilizer nutrients that includes approximately three and a half pounds of sulfur/M annually. Progress is reported in the December 1975 Northwest Turfgrass Topics.

GRUB CONTROL

With EPA restrictions now in force on chlordane, other insecticides for grub control will become increasingly important. One such chemical is chlorpyrifos (Dursban, Dow), which proved quite effective in controlling Japanese beetle and European chafer grubs, as reported in Down To Earth (winter, 1975). Tests in Ohio and New York showed chlorpyrifos to be even more effective than Diazinon and carbaryl in some tests. Occasionally unsatisfactory control was experienced, particularly where access to the grubs was restricted by thatch, or where the soil had high organic content. Grub insecticides control larval and instar stages in the soil, not the feeding adult beetles.