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PRESIDENT MANGELSDORF REVIEWS INSTITUTE WORK

In late November it was possible for Dr. Schery to visit with President Mangelsdorf in St. Louis, to review Institute problems and developments. The continuing need for stable support, and methods by which it might be gained, was the chief topic of discussion. President Mangelsdorf was especially pleased with fine efforts being made by the Membership Committee, under Gordon Newton, but it is recognized that the great need is for consistent, basic support.

Mr. Mangelsdorf suggested, that in an effort to create continuing interest among technical people, that the Institute offer seed free of charge for experimental purposes, primarily to Institute advisors. A note to all advisors will be issued during winter, offering Kentucky bluegrasses, fine fescues and bentgrasses to qualified experimentors. At the same time there is opportunity to mention support given The Lawn Institute by the Oregon Fine Fescue Commission, the Highland Bentgrass Commission, the Merion Bluegrass Association, the Northern Minnesota Bluegrass Association, and the Pacific Northwest Bluegrass Association. It is anticipated that most of the leading experimental locations will already have the traditional grass varieties under test, but even so an additional offering should redound to Institute credit.

CUE FOR BLUEGRASS SALES

At the recent "Midwest Turf Field Days" at Purdue University, Institute Advisor Daniel is reported to have advocated for extending the durability of athletic fields, frequent overseeding with 5-10 pounds per acre of a bluegrass mixture. It is said this is done at Purdue University before all home games, which makes a better sod during the playing season, and extending it into the next.

NEW MEMBERS WELCOMED

We are delighted to have added to the roster of firms supporting quality lawn seed, the following new members having joined during the quarter:

Wetsel Seed Company, Harrisonburg, Virginia
Quebec Seed Company, Ltd., Montreal
Michael-Leonard, Inc., Grant Park, Illinois

It is a pleasure to have these fine firms joining the Institute, and we are grateful to Gordon Newton, Chairman of the Membership Committee, for serving as liaison. A full parcel of Institute releases and information was sent each new member, and we look forward to working with them in support of marketing quality seed.

SOUTH DAKOTA REQUESTS

The Institute has had a request from Dr. R. M. Peterson, head of Horticulture and Forestry, South Dakota State, for Institute literature on bluegrass ("The Migration of a Plant", "This Remarkable Kentucky Bluegrass" and "Portrait I on Bluegrass" were sent).

FESCUE COMMISSION OFFICERS

Word is received from Dick Kuehner that appointments to and election by the Oregon Fine Fescue Commission designates Mr. Amos Funrue, Silverton, as Chairman of the Commission, and as co-Vice President of the Lawn Institute. Tom Ruckman, Imbler, was Secretary-Treasurer of the Commission until his death in mid-December. His replacement on the Lawn Institute's Board of Trustees had not been announced as this goes to press.

ST. LOUIS COURSE INCLUDES TURFGRASS

Dr. Schery has been invited by the state extension service in Missouri, to participate in teaching sessions for professional turfgrass people in the St. Louis area. As part of a series of meetings extending over a span of several weeks during February and March, Dr. Schery will discuss turfgrass management with lawn service and landscape interests. Such meetings provide an excellent opportunity to reach key personnel, and to distribute literature where it can be most effective.

TOM RUCKMAN DIES

The Lawn Institute was saddened by the death of Tom Ruckman, Imbler, Oregon, member of its Board of Trustees, and staunch supporter through the years. Tom had for many years lent valuable service to the lawn seed industry through his leadership in eastern Oregon and his activity on the Oregon Fine Fescue Commission, of which he was Secretary-Treasurer at time of his passing. We join Tom's many friends in expressing sympathy to his surviving wife and daughters.

MRS. McCOMAS REPLACES MRS. NEASON

Mrs. Nancy Neason, who filled in at the Marysville office following the sudden departure of Mrs. Payne, rejoined her former employer, the local bank, in November. Mrs. Patricia McComas replaces Mrs. Neason as office manager and secretary to the Director in the Marysville office.

Mrs. McComas has had considerable prior experience as a typist, secretary and in other office positions. She has worked with farm, credit, insurance, television and federal agricultural organizations in Columbus, Lima and Marysville, Ohio. We look forward to having Mrs. McComas with us. Her husband, Glenn, is with the Defense Contract Audit Agency, and she has two children, Christopher, 5 and Julia, 2.

MORE CLIPPINGS

Early October brought another envelope (104 items), of clippings picked up by our service during late September. This adds over another 1000 inches to autumn lineage spotted by the clipping service. We were very pleased to note that over 40% of the coverage represented direct use of Institute kit materials, often with by-line. We are not a little indebted to the Earl Aronson AP Newsfeature for continuing spread of the "good word".

The twenty-two appearances of the Aronson stories, citing the Institute and directly composed from the autumn kit, were in these papers (in addition to those mentioned in the previous Harvests): Richmond, California; Boulder, Colorado; Champaign-Urbana and Morris, Illinois; Owensboro, Kentucky; Annapolis, Maryland; Northampton, Massachusetts; Jackson, Michigan; Duluth, Minnesota; Trenton, Missouri; Omaha, Nebraska; Willingboro, New Jersey; Albany and Ogdensburg, New York; Durham and Burlington, North Carolina; Toledo, Hamilton, Massillon and Upper Sandusky, Ohio; Staunton, Virginia; Oshkosh, Wisconsin.

The Cincinnati Enquirer used two Institute stories on September 30, another on October 2. The Institute was mentioned, and bentgrass cited in one title. The Canton, Ohio, Repository used an Institute story September 25, "Good Grass Seed Builds Fine Turf". A few miles north the Lansing, Michigan, State Journal headlined an Institute story "Bluegrass Sends Out Rhizomes", while Redford and Livonia, Michigan, heard that "Bluegrass Native to Europe" (in the story that cites Merion and Park by name). There were two items in the Omaha World-Herald, including the headline "Bluegrass Puts Out a Lot of Rhizomes". The San Bernardino, California, Sun preferred bentgrass, using the "Bentgrasses Prefer a Misty Climate" item, which reads (in part) "Highland Bentgrass, the Lawn Institute reports, is the most important seed type. Where Highland seed is grown in Oregon --".

In the Hagerstown, Maryland, Herald the headline was simple "Bluegrass", while in the Merrill, Wisconsin, Herald, it was "Lawn Seeds Sprout and Grow Best In Autumn" -- viz. "-- those grasses which thrive in cooler climates (bentgrasses, fine fescues, Kentucky bluegrass) --". The Quincy, Illinois, Whig gave the Institute a by-line, in the story beginning "Autumn is the best time of year for seeding 'cool-season' lawns of Kentucky Bluegrass and Fine Fescues, or Highland Bentgrass. But good seed deserves a good seedbed. --" The Rock Island, Illinois, Argus picked up the heat cable short, which concludes "A bluegrass or fescue has to be durable to take this kind of treatment."

Another Institute by-line was granted by the Fayetteville, North Carolina, Observer (viz. "Fall Lawn Seeding Spreads in the South"). A local writer adapted Institute materials to provide "It's Time to Seed Lawns" in the Nashville, Tennesseean. Institute materials were also spotted in Jamestown, New York, and Boston, Massachusetts.

There were useful mentions in other items that may have been inspired by Institute releases. For example, "In heavy shade and in the mountains, Kentucky bluegrass used alone or in combination with red fescue is recommended (North Carolina); "Read Label When Buying Lawn Seed", and "Select the Proper Mixture of Lawn Seed" in several New Jersey papers (also, in New Jersey, in a question-answer item as to kind of seeds, - "Suggest a Merion Kentucky bluegrass in combination with one of the Red Fescues and common Kentucky bluegrass."); "The blends should contain about 40% bluegrass, 30% creeping and meadow fescue, a little bentgrass and clover but no ryegrass", (California); a number of additional repeats in Missouri, of the state

extension release that cites in part "Pennlawn, Illahee and Rainier. Chewings fescue is similar to Creeping Red Fescue but has a more bunchy growth habit", "Common Kentucky Bluegrass is the most widely used and generally best adapted grass for Missouri lawns"; "It's Time For Bluegrass" (in Kiowa, Kansas); papers in Iowa suggest, "Select the right kind of lawn seed"; in Wyoming it is, "Select mixtures containing at least 50-75% Kentucky bluegrass or varieties of it, with the balance Creeping Red Fescue, and only 5-10% ryegrass or other filler grass."

There were a couple of cases of special information, attributed to county agents. In Ossining, New York, we have this explanation for summer trouble: "Temperatures were near or over the 100° mark for several days -- it is at this period that Poa annua (making up) most Westchester lawns, died leaving areas of dead grass." Immediate renovation of good grass is advised. In Erwin, Tennessee, a lot of the space is devoted to Institute information, with this admonishment, "Common Kentucky bluegrass seed should be Kentucky-or Missouri-grown -- from western Europe should not be used, because it lacks adaptation to our conditions."

UNIVERSITY OF DELAWARE INQUIRY

David Heller, studying marketing (of lawn products) at the University of Delaware, wrote asking for information that might be of assistance in the development of and launching of sales with a "hypothetical" item. Dr. Schery offered a number of suggestions, and enclosed several Institute reprints. Lawns and lawn products seem increasingly the object of commercial educational interest.

CUSTOM STORY

At the request of Mrs. Venus Barnett, garden columnist in Kingsport, Dr. Schery drew up a lawn story suitable for the eastern portion of Tennessee and adjacent Appalachian areas. This features fine-textured grasses, suitable for lawns in this part of the South. Recommendations are given for bolstering and seeding new lawns of Kentucky bluegrass-fine fescue and spring procedures for their care.

ADVISOR MAILING

In early November a mailing was made to the 78 Lawn Institute advisors, mostly located at universities throughout the country. Included with the covering note were 14 reprints, of stories which appeared in recent months. Advisors are invited to request additional copies of such literature, sometimes useful in extension activities or in teaching. The Institute welcomes regional or local views from all advisors. Advisor mailings have as their chief purpose liaison with the technical and research community, and frequently provide busy researchers with ready-made materials that well express their own views.

TURFGRASS CLASS

During a visit to Purdue University, with advisor Dr. William Daniel, Dr. Schery was invited to address the senior class in Turfgrass Management. Twenty students are enrolled, some of them already active in managing golf courses.

Dr. Schery spoke on the hidden qualities in lawn seed, distributing to the class reprints of "Lawn Seed, and What's a Weed" from American Horticulture and "The Importance of Quality Seed" from Seed World. Time for discussion allowed development of ideas, particularly relating to economic facts-of-life that permit some contamination of lawn seed so long as the contaminants are not live seed of a type that would be persistently harmful in the lawn.

The final part of the presentation included slides depicting traditional harvesting areas for quality lawn seed, graphed and statistical data on variability within Kentucky bluegrass, and views taken in Oregon showing the especially clean farm fields there.

LANDSCAPE GROUP ADDRESSED

Upon invitation of and as guest of the Borden Company, Dr. Schery addressed a meeting of nearly 200 landscape men in Cleveland the evening of November 14. Host was Carl Iofredo, distributor of garden supplies, supported by suppliers such as Amchem, Geigy, Greenfield and Lawn Boy as well as Borden.

Dr. Schery's presentation dealt chiefly with proper maintenance of Highland bentgrass and Merion Kentucky bluegrass turf, the two predominant types in the Cleveland area. The group in attendance consisted chiefly of men engaged in lawn service maintenance, plus a sprinkling of golf course superintendents and the local Extension representatives. Problems in recent years with these turfs have been sod webworm and disease. The advantage of pedigreed seed and proper fertilization practices was stressed by Dr. Schery.

Three reprints were distributed to all in attendance. ("Why Not Bentgrass Blends?", "Lawn Weeds...Don't Let Them Rob You", and "Turfgrass Portraits III: Bentgrasses"), and a small supply was left with Mr. Iofredo for distribution through his office. A move is under way to organize an association of landscapers and nurserymen for the Cleveland area, perhaps leading to publication of a newsletter to which the Lawn Institute might contribute.

MAGAZINE STORIES DURING THE QUARTER

During the second fiscal quarter the following magazine stories either appeared or were prepared for appearance shortly, in several of the gardening and trade magazines. In most instances reprints of the stories are secured, and further use made of the information by utilizing it as envelope stuffers, as hand-outs at public appearances, and through offerings to the membership and others for their distribution.

- "Ground Covers" - Horticulture
- "Bargain Time for Lawns" - Seed World
- "Remarkable Kentucky Bluegrass" - Weeds, Trees and Turf
- "Top Lawn Grasses Need Little Mowing" - Seed World
- "The Lawn Seed Industry Comes of Age" - Crops and Soils
- "Turfgrass Management in the United States" - Advances in Agronomy
- Hardware Merchandiser story
- "Seed and Fertilize Lawns at the Same Time" - Seed World
- "Saving on Lawn Maintenance" - American Cemetery

"Where Bargains Are Not Bargains" - Seed World
"Now, the Lawn" - The Floral Magazine
"Early Fall Is Best Seeding Time for Lawns" - Turf-Grass Times
"Ready, Set and Go with the Lawn" - Resort Management
"Is Your Lawn Maintenance Up to Date" - Buildings
"Rise of Urban Gardening Parallels Farming in Growth of Mechanization" -
Home & Garden Supply Merchandiser

STORY RESCHEDULED

We have been informed by Resort Management magazine that they have rescheduled "Ready, Set and Go with the Lawn" for March, set back from February. Editor Martin Judge writes, "Thanks for the very neat wrap-up on the three areas of the country with 'Ready, Set and Go with the Lawn'. As an old newspaper hacker, I can tell you technique and presentation of the three areas is first rate."

IN SEED WORLD

"Top Lawn Grasses Need Little Mowing", with by-line crediting the Institute, was featured in Bulletin Board Suggestions of the September 9th Seed World. The story begins, "Kentucky Bluegrass-Fine Fescue lawns require little mowing in autumn. This despite generous fertilizing highly recommended at that time of year. Bentgrasses such as Highland should be mowed on schedule right up to frost -- Merion Kentucky bluegrass is characteristically rather low-growing. But even it, along with natural Kentucky bluegrass and other select varieties such as Park, --"

FOR BLUEGRASS GROWERS

Music to bluegrass growers ears is a statement such as that made by Edd Cott, Iowa, in September, "Weeds, Trees & Turf". Ed advised, "Remember that Kentucky bluegrass is still the best all around permanent turfgrass throughout much of the country." For open, wooded spaces Cott recommends a half-and-half mixture of Kentucky bluegrass and creeping red fescue.

MEMBERSHIP COMMITTEE ACTIVE

In early November Gordon Newton, Chairman of the Membership Committee, generously took time to mail a membership invitation to a select list of candidate firms. Included with his customized letter were example reprints drawn from the Institute's informational files. It is gratifying to have the Membership Committee hard at work.

FROM POTASH NEWSLETTER

A midwest Potash Newsletter estimates 18 million home lawns, amounting to 5½ million acres, in the United States. Nearly a million more acres is added in golf course turf. That is a sizable amount of land to be seeded, fertilized, and otherwise cared-for.

SEED INDUSTRY STORY APPEARS

The December issue of Crops and Soils carried Dr. Schery's review of the lawnseed industry, entitled "The Lawn Seed Industry Comes of Age". The story was reprinted and mailed to members late in December, in the belief that there may be some advantage to having this review disseminated as widely as possible. Use of the reprint in the spring press kit is anticipated.

REPRINTS PUT TO WORK

Upon request from Dr. F. B. Ledebauer, University of Rhode Island, sufficient copies for class use of each of a dozen Institute reprints was sent for the basic course in turfgrass management. The reprints requested include:

- Start Your Lawn Planning Now
- Invest in Your Lawns
- Common Sense Lawn Care
- Lawn Weeds - Don't Let Them Rob You
- Improving an Old Lawn
- Lawn Zip and Zoom
- Southern Turf Grass Newsletter Volume 13
- Remarkable Kentucky Bluegrass
- Good Seed Makes Good Sod
- Steps to Assure a Good Lawn
- Buying Seed for the Roadside Lawns

Dr. Ledebauer writes, "-- your recent publications make valuable hand out material for our basic course in turfgrass management."

NEW IDAHO BULLETIN

Recently received from the University of Idaho was Extension Service Bulletin 464, "Idaho Lawns". This is an attractive two color booklet of 12 pages, following the traditional pattern of presentation. Initial steps for establishment are covered, lawn grasses described, maintenance discussed, and steps for renovating old lawns reviewed. Perhaps the greatest difference with similar bulletins for the East is the advice that most Idaho soils do not need phosphate or potassium, that nitrogen alone usually suffices.

As to lawn grasses, Kentucky bluegrass and the fine fescues are given top billing. Merion is recommended where care can be adequate. Park, Newport and Delta are all listed. Cougar is given special attention, with preliminary experiences indicating it to be equal to Merion. Pennlawn is the recommended variety of red fescue, and the fine fescues are especially emphasized for shade and difficult situations. Both Astoria and Highland among the colonial bentgrasses are recommended where local care and conditions permit bentgrass growing. It is suggested that ryegrass not be used.

All in all this is an informative booklet, a fine contribution to the increasing availability of information for homeowners in all parts of the country.

FUTURE SEED USERS

Institute friends, particularly in the eastern states, often refer students to The Lawn Institute as a source of information for science projects and term papers. This may seem like something of a nuisance, until one stops to consider that these are the future seed purchasers; and they already may have quite an influence with parents and other elders.

Typical of this sort of inquiry is a letter from Sue Willard, of Bethesda, Maryland, a junior high school student. Sue writes, "I am working on a science project about the main types of lawn grasses, their differences and similarities -- if you could give me information - I would appreciate it very much." A short note and a comprehensive set of Institute reprints should get the project off to a good start, and perhaps be educational for the whole class.

OREGON SEED LEAGUE MEETING

December 12th through December 14th Oregon held its annual Seed Growers League Convention at Salem, according perhaps the nation's most concentrated attention to turf-grass seed. From the opening "greetings" by the Governor-elect to the last gathering of independent associations, the agenda is chock full of technical presentations and policy discussions. Bill Herron, past President of the American Seed Trade Association, came across the country to review "Our Nation's Seed Supply", and Dr. Schery was able to accept the Pacific Northwest Bluegrass Association's invitation to attend. It also proved possible for Dr. Schery to visit Oregon State University on Saturday morning before the meetings began, where he profited from discussions with OSU personnel and inspection of research plots.

The formal program opened with Dr. Freed of OSU emphasizing the need for complete ecology consideration in pesticide use. There may be side effects on pollinators, for example, and possibly build up of toxic residues in the soil. He felt that it is comforting to know that almost all pesticides prove to be metabolized by soil microorganisms; still, "pollution" of the environment is a real and increasing concern. He feels that we are now witnessing the mere beginning of chemical control of plant growth.

Dr. Hardison, ARS in Oregon, stressed that more care must be taken not to introduce plant diseases with foreign seeds. Disease that can be transmitted on grass seeds has been very little studied and needs much work. He described and pictured a steam heating device to sterilize seed at 140° F. without harm to germination (a useful quarantine procedure).

Dr. Leach, commenting on a visit to Europe, pointed out that the United States is not first in all aspects of seed technology, but that Oregon is especially fortunate in having dry summers that reduce disease, and is hence one of the world's most naturally suitable seed producing environments.

The special turf committee meeting, chaired by Tom DeArmond, Jr., opened with Bob Every, entomologist, showing excellent color photos of insect pests of turf. Considered important in the Oregon seed fields are thrips (probable cause of "silver-top"), cutworms, sod webworms, symphilids, aphids, and possibly a newly introduced crane fly. Dick Malpass gave statistics on the burgeoning of golf courses, of which there are a hundred in Oregon, and for which as much as \$4,000 is spent annually for

maintaining a single green. Jim Carnes, Lawn Institute trustee, and Dr. Schery teamed to review "Turf Seed Marketing and Use", that included several slides depicting Institute research and publicity efforts. Dr. Lee, USDA at Oregon State, wound up the committee meeting with a review of weed control measures for turfgrass.

Monday evening the annual meeting of the Northwest Chewings and Creeping Red Fescue Association was held, parent association for the Oregon Fine Fescue Commission. The association passed a resolution recommending that the Commission give consideration to increasing its support of The Lawn Institute. Dr. Frakes reviewed the fescues breeding program at OSU, from which already there has been released a new Cascade Chewings fescue, Illahee foundation stock, with others about ready. He showed illustrations of vegetative propagation of two strains which are left to hybridize naturally giving a cross which appears promising. Don Brewer of OSU discussed seed certification, indicating a 5¢ premium could be expected for "no crop-no weed" seed. Amos Funrue, Institute VP and Chairman of the Fine Fescue Commission, presented his annual report to the membership quite ably, after which Bill Herron and Dr. Schery gave short presentations reflecting the eastern viewpoint on the use and importance of Oregon seed.

Tuesday morning meetings opened with a symposium on "Soils, Fertilizers and Water". Dr. Jackson recommended autumn fertilization before November 1st for grass seed crops east of the Cascades, some autumn and somewhat heavier spring application for bluegrass and fescue west of the Cascades. Spring fertilization seems most important for bentgrass. Dr. Boersma spoke about trace element deficiencies (of which there is little in Oregon), and Dr. Gardner reviewed nitrogen fertilization (pointing out that there is the possibility of volatilization in hot weather when urea is applied to alkaline soil surfaces). Marvin Shearer offered calculations concerning water loss through poor distribution of irrigation.

Bill Herron's address concerning trends within the seed industry was the highlight of the late morning program. This was followed by an early afternoon symposium dealing with farm machinery of various types. Ray Teal, OSU, then spoke about "Foreign Markets for Grains and Seeds".

Hank Rampton, ARS at OSU, reviewed his experimentation on the viability of seed when left in the soil for lengths of time. In general the viability was greater if stored below the ground water level than when above it. All kinds of seed were nearly inviable after 53 months in the soil (the exception being slight activity with clover, and occasionally annual ryegrass). No viability was retained by perennial ryegrass, Kentucky bluegrass, fine fescues or bentgrass. At the 29 month point some viability had been noted with annual ryegrass, occasionally Highland bentgrass and frequently with clover. It was noted that annual bluegrass and Merion Kentucky bluegrass develop some induced dormancy when buried for one year. Relating these findings to field crop changes, it would seem that a year or two of fallowing with subsequent planting that does not greatly disturb the soil, should pretty well give crop-free stands of the new type. With roguing it should prove possible to make rather quick transitions.

The annual banquet offered a slide presentation depicting the importance of college activities and research. At a breakfast the following morning Dr. Furtick of OSU reported to the Pacific Northwest Bluegrass Association on his sponsored research in control of cheat and *Poa annua*. Both Hyvar X and a new herbicide called Sinbar give excellent control of cheat, which should no longer be a problem. However, the chemicals are not completely efficient with *Poa annua*. Sinbar will take quackgrass out

of alfalfa, but it has residual effects against wheat for up to five years. It seems to injure turfgrasses other than bluegrass, too. Sinbar is safer than Aspirin to people and it shows promise for *Poa annua* control as a pre-emergent in the establishment year. On established stands Furtick recommends Karmex or Hyvar in the autumn, with a repeat during February germination. Some new carbonate chemicals offer promise, too, seeming to work both as a pre-emergent and post-emergent chemical on *Poa annua* (the uptake being through the shoot, not the root).

Discussion followed concerning possible creation of a bluegrass commission in Oregon. Ben Allen and Jay Glatt of the Oregon Department of Agriculture reviewed the necessary procedures.

At the formal sessions Dr. Frakes reviewed for the full convention breeding techniques used in the creation of new turfgrass varieties. Dr. Cowan followed with a point-by-point evaluation of certification procedures necessary for quality seed. Attracting most attention was the panel on field burning, a serious concern in Oregon because of current interest in correcting air pollution. Legislation is pending which very well could restrict field burning, felt necessary for grass hygiene and consequent adequate yields.

The panel approached this touchy question both constructively and ably, expressing hope that methods being undertaken to reduce the problem would help satisfy city people so vocally in opposition to field burning. Vern Adkison, in charge of air pollution in Eugene, the valley city apparently most subjected to drift of smoke, emphasized how perturbed his constituents were, and how strong bills would be forthcoming if something was not done. Bob Black of the weather bureau reviewed weather-scheduling that would make burning less objectionable, and Amos Funrue spoke of the excellent support from Oregon Associations in financing research on this subject. Dave Chilcote reported on some of the research, in which straw of various grasses has been analyzed chemically to show what factors are serious pollutants. It is encouraging that straw smoke is not a serious source of the usual smog contaminants. He pointed out that there was no economical substitute for burning at present, that aftermath left on the field not only fostered disease but made new seeding difficult.

Jay Glatt reviewed OSU publicity that included brochures, a speakers' bureau, and fact sheets on field burning issued during the year past. Jim Heater discussed communications with farmers in an attempt to get full observance of recommended procedures and cooperation with district fire authorities. He emphasized that even one lone farmer not observing these niceties could jeopardize a \$30 million industry. Bill Rose reviewed the legislation being offered at state level, and discussed a bill his committee was supporting that would not be too restrictive to agriculture. He mentioned possible creation of a regional "pollution authority", financed one part locally, one part by the state, and six parts federally. It was obvious that a great deal of hard work had been expended by all subcommittees on this important problem, being taken quite seriously by the seed industry.

PROGRESS NEVER ENDS

A letter from Struthers Research and Development Corporation, Washington, D. C., inquires whether we can name the individual most familiar with female dog urination on the lawn! This is a serious inquiry. They are attempting to develop a chemical pre-treatment of the lawn that will prevent damage to the grass!

WEED SUCCESSION

It has been theorized that annual weeds "prepare the way" for perennial weeds. Studies conducted at the Academy of Natural Sciences in Philadelphia, reported to the Ecological Society in December, indicate the contrary. Perennial weeds volunteer much more rapidly and fully when free from annual weed competition; they did not even volunteer on ground where the annual weeds (such as foxtail) had already died. Apparently there is some residue factor in annual weeds that repress growth of other vegetation. This has long been thought the case with annual ryegrass, often used for winterseeding southern turfs.

OHIO RESEARCH SUMMARY

In conjunction with the September Field Day, Ohio State University issued its "Lawn Ornamentals Research" booklet of about 50 pages. The forepart of this is devoted to lawns and turfgrasses. This year Dr. Davis reviewed mixtures and blends, preferring all-bluegrass blends, but conceding usefulness of mixes containing fine fescues and occasionally nursegrasses. He preferred ryegrass to redtop as a nurse species. In comparison of bluegrass varieties, Merion is still rated best, except where stripe smut attacks. Windsor also suffers from stripe smut, but Park and Prato seem resistant.

In the past Highland bentgrass has not had a good press from Ohio. This may be changing, perhaps partly because the Institute has pressed for new trials and has furnished seed. Of course Highland is still not regarded as a putting green grass, but we are pleased to note in the booklet, "Highland and Astoria colonial bentgrasses are recommended for use on golf course fairways and other places which are mowed 1/2 to 3/4 inch. Colonial bentgrasses are more resistant to diseases and require less nitrogen fertilization than the creeping bentgrasses. For this reason, colonial bentgrass is recommended for home lawns where bentgrass is desired. Exeter colonial bentgrass has not performed as well as Highland and Astoria in the study conducted at Columbus."

Weed control, insect problems (none serious recently), and turf diseases were other subjects covered. It is interesting that in a chart showing tolerance of bentgrass varieties to dollar spot disease, that Highland was among the leaders, exceeded only by one creeping bentgrass and one experimental type not yet released. Even more encouraging is that Highland alone among the bentgrasses was mixed with bluegrass in certain tests, the kind of combination long anathema to Dr. Davis. A blend of 25% Highland and 75% Merion bluegrass had the lowest number of dollar spot blemishes of any plot observed.

Regular application of dyrene fungicide (weekly intervals, May 20-July 15) greatly prevented damage to bluegrass from leaf spot, reducing it to inconsequential proportions even with common Kentucky bluegrass (which when sprayed and not irrigated, had a lower percentage of infected leaf than did even Merion similarly treated - only 6.5% of the grass leaves showing leaf spot).

Because stripe smut is systemic, and nearly impossible to control short of using resistant varieties, it was singled out for special attention. The pathologists state that the disease can be brought into a new area on the seed! This is something for Merion Kentucky bluegrass seed growers to be concerned about, and take steps to avoid being publicized if not provably true. The pathologist suggested treating seed with an organic mercury fungicide before planting.

CURRENT RESEARCH AT PURDUE

Taking advantage of an appearance at Purdue University, Dr. Schery inspected experimental areas with Bob Segar, in charge of their maintenance.

Presently under test at Purdue are a goodly number of foreign introductions, perennial ryegrasses as well as fine fescues and bluegrass, along with newer yet-unnamed domestic selections. Brabantia perennial ryegrass looked especially attractive at time of visit (November 22), and has been consistently among the better perennial ryegrasses in the Purdue ratings since autumn of 1965. A Purdue experimental picked up in Dayton, Ohio, initially looked a little better, but lately has not rated as highly. In any event, it is evident that serious attention is being given perennial ryegrasses from both domestic and foreign sources, the main disadvantage of which seems to be the typical poor mowing quality ryegrass exhibits as compared to bluegrass and fine fescue.

Among the bluegrasses all were looking well, following an excellent autumn. Frankly, it was difficult at time of visit to see any great advantage of one over the other, although Prato, among others, was looking well. Purdue seems most interested in the "Dwarf" bluegrass (Anheuser) picked up in St. Louis some years ago, which is also rated well at Rutgers University. One can anticipate eventual release of the variety. On the Institute grounds "Dwarf" has been nothing outstanding, but it seems to show to best advantage under low cut and generous fertility (not the maintenance practice on the Institute grounds).

A number of fine fescue were looking well, including some experimental selections obtained from Michigan State University. Bentgrasses are not much tried, except for golf green usage. The Purdue recommendation is still for a blend of several bluegrass varieties, possibly along with a small proportion of fine fescue to serve mainly as a nurse (under ample fertility the bluegrass generally overruns the fine fescue).

One of the chief research interests at Purdue these days, is study of "soil" medium for growing grass under regulated watering (both surface and sub-surface). This ties in with the interest in soil-warming by electric cable, and is of most interest for athletic fields including golf greens. It would appear that systems under study are getting so technically exacting that their practicality is limited. Even under expert attention there is ample chance for "something to go wrong", as has happened repeatedly at the new St. Louis stadium, (for which Dr. Daniel was consultant). With many of the rooting mediums being tried, the situation is akin to hydroponics; the "soil" consists of nothing but sand or combinations of sand with calcined clay and occasionally peat. Drainage is almost immediate. The search is for a medium that can accept five inches of rain, not compact (yet remain firm under foot), and have an adequate cation exchange capacity (no less than 10 meq.). The underground watering schemes are essentially automatic. Systems such as this can work only when well tended, with fertilization, for example, constantly required in exact quantities. It is an interesting field of specialization, but hardly practical for the average home lawn.

OHIO LANDSCAPING SHORT COURSE

The Ohio Short Course for landscape and related interests is being held January 23rd, in Columbus, Ohio. Landscape, nursery, seed, sod and grounds maintenance people all

attend. The program is under direction of Ohio State University, and Dr. Schery has been invited to give a presentation on lawns and lawnseed.

ROADSIDE SEEDING REVISITED

In previous Harveys mention has been made of the experimental roadside seedings made in Ohio, through the courtesy of Ohio Department of Highways, involving all fine-textured seeding mixtures. The first extensive "in-use" planting of this nature was arranged by Loy Steveley, Division Landscape Architect, near Upper Sandusky. A quarter mile or more of median on the new divided section of Highway 23 was seeded to a blend of Kentucky Bluegrass, Fine Fescue and Highland Bentgrass. Seeding was in October of 1965, but because of lateness of sowing and a dry autumn germination was not general until spring of 1966. Planting was at the usual highway rate of 3 pounds /M, with conventional equipment the same as seeded the neighboring berms with the standard tall fescue mixture.

Dr. Schery had opportunity October 27th, to inspect this demonstration planting with Mr. Steveley. With favorable autumn weather establishment was excellent, especially for the fine fescue. A scattering of Kentucky bluegrass is evident, interspersed among the fine fescue, but there has so far been very little establishment of Highland bentgrass (found principally in the depressed portion of the median that conducts water to the drain outlets). Signs have been maintained at both ends of the test planting, identifying this test planting as co-sponsored by the Lawn Institute (even though all seed was purchased by the Highway Department in conventional fashion).

There has been no supplemental fertilization of the area since planting, and it is obvious that the stand would show to better advantage, particularly in better color, if it could receive an added fertilization. This Mr. Steveley has promised to do, even though the season is a bit late. With a booster fertilization the appearance should attract attention of passing motorists, and help encourage filling of the turf to restrict weed growth. The biggest detriment this first growing season has been presence of weeds, which had to be mowed even if the turf did not need it. Unfortunately, too, there are occasional clumps of coarse tall fescue scattered here and there through the planting, possibly because they were in the seed mixture, or possibly because they were carried from berms planted with tall fescue towards the periphery of the highway.

Pictures of the planting were taken by Dr. Schery, which should prove useful in future presentations and articles. Especially encouraging is the fact that Steveley is well impressed with the planting, and has specified the same mixture for a number of additional miles of highway planting in his district. Some of these have already been made (but the turf not established), and others are contemplated in the near future in contracts already "sold".

Mr. Steveley informs us that even with a number of weeds present this first growing season, that the fine-textured median required only three mowings all summer. In contrast, berms and other medians seeded with the conventional tall fescue mixture required four or five. He speculates that perhaps two mowings a year will be all that is needed once weed control is achieved. Saving of a single mowing can, of course, compensate for such increased cost as an all fine-textured seed blend might entail as contrasted to tall fescue mixtures.

PENNSYLVANIA ON BLUEGRASS

Bluegrass growers, especially those dealing in Merion, will be pleased with these statements appearing in Pennsylvania's "Turfgrass Guide", a copy of which was recently received by the Institute. The opening page advised, "Kentucky bluegrass - *Poa pratensis*. This is the best adapted and most widely used turfgrass species in Pennsylvania. It is a perennial sod-forming grass that spreads and continuously reestablishes itself -- in dense shade -- should be used in mixtures with creeping red fescue to provide a buffer against variable conditions, --". Incidentally, for those not having seen this guide, it is an attractive 32-page booklet with grasses and weeds pictured on the back cover. The first seven pages are devoted to grasses and seed mixtures, pages 14-32 a tabular outline of weed, insect and disease control.

STORY IN "HOME AND GARDEN SUPPLY MERCHANDISER"

We were delighted to receive a courtesy copy of the October issue of the Home and Garden Supply Merchandiser, from Editor Emmet J. Hoffman. Page 42 is devoted to a story authored by Robert W. Schery, with credit to the Better Lawn and Turf Institute, "Rise of Urban Gardening Parallels Farming in Growth of Mechanization". It deals with ways for keeping the lawn neat and maintaining good perennial grasses "like a golf green".

ROADSIDE DEVELOPMENT PROGRAM

October 3-7, the XXV Short Course on Roadside Development, co-sponsored by the Ohio State University and the Ohio Department of Highways, was held in Columbus, Ohio. This brings together the leading highway landscape men from the majority of states and several foreign countries. Dr. Schery has regularly attended on behalf of the Lawn Institute and the American Seed Trade Association, and contributed to the program. This year Institute reprints were furnished Mr. Garmhausen for hand-out to those making the tour. William Cromer attended the tour and ASTA-sponsored luncheon in behalf of the Farm Seed Division.

The 1966 program had as its chief theme consideration of highway design. Technical reports with a "how-to-do-it" flavor were confined chiefly to a single afternoon's presentation, with Dr. Daniel Purdue, presenting "Promoting Turfgrass Wisely". Other associated papers were on contract seeding, "Seeding the World Over", specific programs (such as that in Cincinnati), "Infiltration and Soil Surfaces" and sanitary considerations. Nothing novel was brought out relating to seed, kind of grass, or methods and equipment involved in its planting and care.

The main "new" development appears to be a trend toward considering the "complete highway". Perhaps partly sparked by government interest in beautification, highway developers are now thinking in terms of "transportation corridors", rather than mere ribbons of pavement in a rigid right-of-way. The talk now is of scenic easements, even outright procurement, of unusual aesthetic features (such as a unique grove of trees, control of the complete view from a look-out point, even of the opposite bank where a highway parallels a river or lake).

Led by Wisconsin, highway developers are drawing on a fuller gamut of information. Land use patterns are mapped in detail (showing where the scenic landmarks fall, where non-agricultural land lies, where wildlife abounds, where hunting is permitted,

etc.), giving the highway planner more information than just geography and soil conditions on which to base the placement of highway. Apparently this concept is being accepted, permitting new highways to be intelligently laid out according to land use potentialities. For example, the highway may skirt and keep inaccessible significant ecological areas where concentrated public use would be damaging, but would be routed to scenic sites where the view is excellent and roadside stops not interfering. When the multiple land use patterns are superimposed, about 90% of the non-agricultural uses of land seem to fall in narrow, linear corridors, to which and along which the "new" highway can be built in keeping with the kind of use the land can support. It's an intriguingly different concept than the old idea of laying a ribbon of pavement between two points considering only topographical features that influence difficulty of construction.

MORE ON THE AUTUMN PRESS KIT

In the previous issue of Harvests mention was made of the excellent help we received with press kits, from Earl Aronson (AP Newsfeatures). By the end of September our clipping service had picked up 33 Aronson columns compiled entirely from the autumn press kit, crediting Dr. Schery and the Lawn Institute. Included were 6 important New York papers, 4 prominent New Jersey papers, and others in Stamford and Greenwich, Connecticut; Columbus and Cincinnati, Ohio; Rockford, Illinois; several spots in North Carolina; Palo Alto, California; Marinette, Wisconsin; Durango, Colorado; Cumberland, Maryland; Corpus Christi, Texas and many others.

Another clipping envelope was received in early October, involving usages through late September. The Aronson stories appeared in 26 additional newspapers noted by our clipping service. Nine of these were New York (ranging from Elmira and Albany to New York City bedroom communities such as White Plains and Yonkers), 5 from Pennsylvania, 3 from North Carolina, 2 from Indiana, and others from Colorado, Maine, Missouri, New Jersey, New Mexico, Vermont and Wisconsin.

STORY IN HARDWARE MERCHANDISER

Editor James McKelvey, of the Hardware Merchandiser, Chicago, sent us a complimentary copy of the September issue. The magazine had used a lawn story prepared during the summer, helpfully distributed by the Borden Company. The Institute is given direct credit, viz., "Dr. Robert Schery, Director of The Lawn Institute, made this comment --". It was possible in the text to bring forth the advantages of good perennial grass, "Usually it is poorer, volunteer grass that fails. For example, annual bluegrass (*Poa annua*), - not to be confused with the highly esteemed Kentucky Bluegrass - fades very quickly in hot weather -- but new lawns planted with top quality seed generally suffer much less from disease". Mentioned also in the item are bentgrasses and fine fescues, and Merion Kentucky bluegrass by name.

WINTERSEEDING IN FLORIDA

A telephone report from Dr. Evert Burt, Ft. Lauderdale, indicates plans for extensive winterseeding tests there this year. Dr. Burt particularly wanted test seed of "The Lawn Institute Mix", sent previous years. He has already contacted other sources, including the Fine Fescue Commission and the Milwaukee Sewerage Commission about donation of seeds and blends they have recommended. Dr. Burt would also like to have a few pounds of *Poa annua* seed, for use in his herbicide program.

INSTITUTE FURNISHES COVER

A request was received from Dr. Henry W. Indyk of Rutgers University for a photograph to be used as a cover picture on a lawn leaflet. The leaflet is being prepared for distribution at the 50th International Flower Show in New York. From eight candidate selections sent by Dr. Schery, Rutgers chose a simple Marysville home with a well-tended lawn.

WEED CONTROL IN SEED FIELDS

Canode and Robocker in Weeds, report that for controlling weeds in seedling perennial grass plantings in eastern Washington, dicamba rated best of items tested. There was temporary injury to the seedlings, but not permanent damage.

LAWN RELEASE PREPARED

Upon invitation of the Smith-Douglass fertilizer people, a special release was prepared for distribution through that organization on the importance of balanced fertility in keeping lawns thriving in summer. The parallel was drawn that adequate phosphorus and potassium, needed in winter for preventing cold damage, are also required in summer to prevent undue disease. Bluegrass, fine fescue and bentgrass were cited in the release as exemplifying quality species.

DEVOTED TO TURFGRASS

The December issue of Weeds, Trees and Turf was entirely "turf", except for its supplier guide section. There is an extensive report by Rutgers researchers on stripe smut. Although afflicting many grasses, Merion bears the brunt of this newly important worry. Equally of interest to seedgrowers is the "sod industry section" where Maryland seed specialist M. H. Day discusses at length quality factors in selecting seed for sod. We have referred many times to the pressure of the sod industry for quality crop-free, weed-free seed. The issue rounds out its discussion of turfgrass topics, chiefly with a report on the recent Florida Turfgrass Conference.

"ADVANCES IN AGRONOMY" APPEARS

Members may recall that last year Institute advisors Drs. Daniel of Purdue and Roberts of Iowa asked Dr. Schery's help in reviewing a discussion of "Turfgrass Management in the United States" due to appear in Vol. 18 of "Advances in Agronomy". This issue is now out, and a reprint sent the Marysville office. The review is 67 pages long, and includes four pages of bibliography as well as an acknowledgement of assistance. It presents a consensus of current research thinking in these subject areas; Turfgrass Selection (bentgrasses, bluegrasses, fine-leaved fescues, ryegrasses, tall fescues and other coarse-textured grasses, bermudagrasses, Zoysia, other warm season grasses); Turfgrass Adaptation (temperature, moisture, fertilizer and lime requirements, use requirements, grooming requirements); Turfgrass Establishment (seedbed preparation, seeding, post-seeding treatment, use of stolons, sprigs or plugs, sodding); Rootzone Modification (additives, aeration and spiking); Plant Competition (changing populations, weed control, disease control, control of

insects and other pests); Renovation; Turfgrass Utilization (putting greens, golf course tees, golf course fairways, lawns, cemeteries and parks, athletic turf, roadside turf); and a Summary. We are pleased that the Institute has had part in shaping up this presentation, and in enabling quality lawn species to be presented more positively than was the case in the original manuscript.

HIGHLAND BENTGRASS OVERSEEDING

We were pleased to note in Western Landscaping News, mention of the planting of the posh Las Vegas International Country Club, a "no-expense-spared" project in Nevada, employing "a unique high quality grass seeding process --".

An unusual assortment of grasses is being used, including, strangely, a combination of Merion bluegrass and Kentucky 31 tall fescue for the roughs. The fairways are being sprigged to Tifway bermudagrass, "-- and overseeded with Highland bentgrass. Greens are Penncross and Seaside bent. Collars of greens will be Seaside, Highland and Penncross mixture."

WEED SPREADING

Studies at the University of Washington showed that various weed species (such as are frequent in lawns) adapt remarkably to local conditions. Weeds grown from the identical seed source produced as many as 23,000 seeds per individual plant under low density, to as little as 202 seeds per plant under high density. Thus no matter how heavy the population, relatively uniform production of seeds resulted, equipping the weed well for rapid spread and persistence.

STORY IN SEED WORLD

The November 25th issue of Seed World carried as its "Bulletin Board Suggestions", two Lawn Institute stories with by-line. These were "Seed and Fertilize Lawns at the Same Time", and "Where Bargains are not Bargains". The former noted that good seed is nearly indestructible until germination begins, but that "the proportion of Kentucky bluegrass and fine fescue (seed of the similar size)" could undergo some segregation if one tried to blend them with a fertilizer for home distribution. The latter story recommended quality lawnseed, likening the quality lawn to a limousine ride and the less adequate one to a truck ride. "But most homeowners prefer the more luxurious limousine equivalent and will be happy with nothing less than a turf of Kentucky bluegrasses, fine fescues or Highland bentgrass."

NATURAL WEED STUNTING

Studies at Rutgers University reported to the December meeting of the Ecological Society show that various weeds grow tall and dense on newly seeded ground, but are decidedly stunted (perhaps only 1/5 as vigorous) in the same ground in subsequent years. The stunting mechanism is specific for the particular weed, and does not influence other weeds; thus foxtail grass is stunted when growing where foxtail has previously grown, but is not stunted growing where pigweed had grown. Investigations continue to determine if there are products in the litter that cause stunting, or whether competition or altered environmental conditions have a greater influence.

RUTGERS RESEARCH REPORT

One of the most impressive college research reports on turfgrass to appear in recent years, is Bulletin 816 from the New Jersey Agricultural Experiment Station, "1966 Report on Turfgrass Research at Rutgers University". This 110 page bulletin summarizes turfgrass findings (and conclusions so far as they are possible) over the last decade. Being near the heart of the market area, and staffed with competent personnel, the Rutgers findings are especially significant. Only a brief summary is possible here; the publication should be consulted for detailed data, which includes many tables, charts and graphs.

The first several items have to do chiefly with the grass breeding program, and are mostly authored by Dr. Funk. Emphasis is on actual crossing of proven clones of Kentucky bluegrass; although fine fescues, perennial ryegrass and bentgrass are not neglected. We note use of the specific name *Agrostis castellana*, which Scholz finds is the correct name for Highland bentgrass, the first occurrence of this name in recent American literature. Funk finds that apomixis in bluegrass seems at least partly heritable, but that it is far less frequent than is often supposed for the species. Less than 10% of the bluegrasses tested showed as much as 90% apomixis.

Observation of the Kentucky bluegrasses under different fertility levels and cutting heights mostly confirmed previous knowledge. Merion consistently exhibited good resistance to leaf spot as did some of the Pennsylvania State experimentals (out of Merion?). Mowing bluegrass close and withholding fertility increased weed invasion. Merion was consistently a better performer if it escaped stripe smut. Dwarf (Anheuser) seemed resistant to leaf spot and reasonably so to stripe smut. So was Park rather resistant to stripe smut. Merion was highly susceptible to stripe smut, more so than moderately susceptible varieties such as Delta, Newport and Cougar. Newport rated poorly, forming a weak spring turf that permitted much weed invasion. Dwarf, like Merion, required a high fertility level for adequate performance; and, again like Merion, it is highly susceptible to stem rust.

Extensive research on fertilization of bentgrasses is summarized, but of reduced interest because so many of the materials are coded experimentals. Also, one might question the importance accorded clipping weights as a criterion of performance. By and large there was no decidedly superior form of fertilizer, and urea-impregnated hydrocarbon nitrogen carriers performed about as well as ureaform when given monthly application. Longer than monthly feeding intervals were unsatisfactory, no matter type of fertilizer.

Several authors combined to report on bentgrass variety performance. Under low mowing Penncross was hard to beat, superior to Seaside. But under higher cut Seaside seemed to offer fewer problems, and Arlington (C-1), normally a golf green creeping bent, appeared very good (suggested use is for tees, collars, etc.). Exeter did not perform well at a low mowing height, and had the poorest rating of all, "but appears to have promise at a higher cut". Kingston velvet bent showed high susceptibility to copper spot, and "velvet bentgrasses have not normally performed as well under New Jersey conditions as in New England --".

Highland was intermediate in most disease resistance ratings, rated of higher quality than Exeter but less than Penncross and most experimentals or vegetative golf course bentgrasses. In another study bentgrasses were compared at lawn mowing height (1/2-3/4 inch), over an eight year period. At this height all of the colonial bentgrasses were reasonably resistant to dollar spot, and, surprisingly, the

creeping bentgrasses showed no drastic or sudden decline with age. The fact that looser-growing colonial bentgrasses such as Highland (as compared to dense creeping forms such as Penncross) showed greater weed invasion, would seem to support the Lawn Institute's suggestion of mixing other species into Highland for close-mowed turf. The tests seem to indicate no particular trouble from thatch and no significant difference between varieties as to thatching.

Use of ryegrass for turfs in New Jersey was reviewed. Annual ryegrass and common perennial ryegrass did not rate well. Norlea perennial ryegrass received a better rating, with the NK selections generally only a little behind. Best were some of the experimentals (developed at Rutgers?). When ryegrass was used in mixture, almost invariably it gave way quickly to Kentucky bluegrass of any type. In some cases it may have delayed establishment of the permanent turf, but on the other hand consistently fewer weeds showed up initially where ryegrass was included as a companion grass. If weed problems and erosion can be otherwise controlled at planting time, it was concluded that a companion grass is not needed. Where these factors are not under control, it was suggested 1/2 lb./M of Norlea be utilized (or other improved varieties such as NK 100 and NK 106 where greater persistence of the ryegrass is desired).

Among the fine fescues, Pennlawn generally rated best among present commercial varieties. It is suggested that fine fescues receive high mowing and light fertilization.

Helminthosporium attack on bentgrasses was studied in some detail. Apparently this disease, usually thought to be important on grasses other than bentgrass, is responsible for some of the "unexplained" thinning of bent. The temperatures at which the disease and the bentgrass sprouted and grew was determined. It is felt the disease and grass are in close association throughout the year, but that the disease becomes pathogenic only in a certain temperature range. Interestingly, mercury sprays actually stimulated the disease, and may have weakened the grass. One side observation from this study of interest to Highland bentgrass growers, is the evidence that Highland more than any other bentgrass requires a higher temperature to sprout. While other varieties were sprouting as much as 86% at 12°C., Highland did not sprout at all; and it was less than half as thoroughly sprouted at 16°C. This possibly explains its slowness to colonize roadsides where it has been tried in the East, plantings usually made when soil temperature is moderately low (thus favoring the fine fescue and bluegrass over the bentgrass). This may also account for some of Highland's slowness when used alone for winter seeding in the South.

In other research reported, diazinon, ethion and trithion seemed best for chinch bug control; much the same for sod webworm. Dicamba and mecoprop proved to damage bentgrass less than silvex. Sindone gave best control of goosegrass, but old standbys such as zytron were not far behind. Extensive fungicide ratings according to effectiveness from 1953 through 1963 in control of several turf diseases were given, varying greatly; it is difficult to select any one compound as best for all purposes. Finally, the report ends with suggestions for treatment of insect and disease attack.

PROMOTIONAL DIRECTOR

Wally Hunter has recently assumed responsibility as promotional director with Pioneer Advertising, Salem, Oregon, in behalf of the Highland Bentgrass Commission. It has been our pleasure to offer technical counsel to the capable Mr. Hunter, in preparation of a contemplated brochure and release materials.

STRIPE SMUT ON MERION SEED?

Dr. John Hardison, pathologist located at Oregon State University, indicates that there is little likelihood of stripe smut being spread by seed, and that the disease is exceedingly rare in Oregon seed producing regions. He points out that where the disease is a problem in eastern areas, it is already so prevalent and capable of spreading, that seed contamination would have little influence even if it did occasionally occur.

MASSACHUSETTS TURF

The October issue of the Massachusetts Turf and Lawn Grass Council "Turf Bulletin" borrows heavily from outside sources. It opens with a story on "Light Dependency in Seed Germination", perhaps too technical for practical application at this time. This is followed by a review by L. W. Niddler, out of Geneva, New York, on "Seeding Characteristics Useful in Identifying Kentucky Bluegrass"; unfortunately, tests at the Seed Technology laboratory do not substantiate the marked changes in color, tillering, etc. claimed. Nematocides are reviewed by Massachusetts researchers, showing inconclusive benefits from treatment. Professor Wheeler, of Massachusetts, levels a deserved barb at labeling requirements for pesticide names, citing the complicated terminology and resulting confusion that makes it almost impossible for even the relatively expert to know what he is dealing with in commercial products.

Ed Cott, Institute advisor in Iowa, had his Ground Cover story reprinted in this issue, and Rutgers University researchers devote several columns to the increasingly important stripe smut. The research at Rutgers indicates that only three promising bluegrass varieties are relatively immune to stripe smut infection, Dwarf, Park and Pennsylvania K 547. The similarity between stripe smut and flag smut is pointed out, requiring microscopic examination to make the distinction. It is also pointed out that stripe smut, known to be systemic, can often reside in a semi-dormant condition in turf for a number of years. Greatest susceptibility of the turf is not until it is 3-5 years old. The Rutgers men conclude that there is no effective control of stripe smut at present, reports on effectiveness of nabam or urea drenches not being substantiated in their research. Heavily fertilized turf seems to "snap out" of infection, but undergoes a more severe attack later. Lawns mowed high seem to suffer less than lawns mowed close.

RADIO RELEASES

The Lawn Institute has long felt there is potentiality in furnishing some sort of "press kit" for radio stations. It is hoped that a limited start can be made this spring, primarily to a list of stations obtained through Gordon Newton. After much correspondence last autumn, it became apparent that there is no consistent agreement among radio outlets, as to the form in which they prefer to receive garden information. Apparently the majority of significant outlets prefer not to have pre-recorded materials, preferring to exercise editorial control in its usage. In fact Ruth Alampi (New York City area) called Dr. Schery and suggested he appear in person as a guest on her program, something that would be eminently worth-while were the travel budget not so lean.

Dick Kuehner, Oregon Fine Fescue Commission, has some ideas along this line which he talked over with Dr. Schery at time of the Oregon Seed League Convention. It is

hoped that a trial operation can be run the coming spring, through materials developed during the winter and sent to Oregon. Some years ago the Lawn Institute prepared a number of categorized radio scripts, recorded in Kansas City, but the whole idea bogged down on the high cost of distribution by the Kansas City representation engaged at that time. We hope that some form of standardized, economical distribution can be developed, to service radio as successfully as have our press kits the newspapers.

SOD INTEREST CONTINUES

Evidence that interest continues unabated in sod production is indicated by inquiries received at the Lawn Institute office. A recent one was from Onondaga, in Maryland, asking for details on how different varieties should be handled to achieve maximum sod formation (rhizoming) in the least possible length of time. While the general requirements of different species and varieties are recognized, we have no precise information as to what are the exact environmental conditions stimulating the fastest possible development of rhizomes.

MEMBERSHIP ACTIVITY

Gordon Newton, Board member and Chairman of Membership, had a second solicitation letter "in the works" as the year ended, stressing the Lawn Institute Seal of Approval. Mr. Newton has already had fine response to earlier solicitation of non-voting members.

The Penncross Bentgrass Association Board members met during the Oregon Seed League meeting in early December, and have pending a request for full membership in the Lawn Institute as this goes to press. We hope it will be possible to officially welcome the Penncross growers into the Institute just as soon as the Board has had opportunity to act on the request.

GENERAL LAWN CLINICS

Word from our East Coast member, Lee Patten Seed Company, mentions a series of general lawn clinics at consumer level planned for the spring. Useful educational materials were solicited for these gatherings. We hope that some of the Institute releases, leaflets and display materials will be helpful in this effort to better reach and inform the lawnseed consumer.

TURF INTEREST PROMINENT

The importance with which lawns and turfgrass are regarded in the agricultural field, is pointed up by the September-October issue of the Agronomy Journal. In that issue nine different articles deal with research directly on or related to turfgrass.

Matell and Stanhill report a study for developing techniques to objectively judge quality of turf. They feel this can be accomplished with a light reflection device (results correlate well with subjective impressions). Duff and Beard (advisor, Michigan) report on "Effects of Air Movement and Syringing on Microclimate of Bentgrass Turf". Air movement can reduce turf temperature as much as 13° F.

Bensulide (Betesan) effectiveness as a crabgrass killer is reduced as soil pH lowers, and as cation exchange capacity increases. Mulch materials also reduce its effectiveness. This is concluded from research in Oklahoma, by Lynd et al. One of the conclusions from work concerning nitrogen content of coastal bermudagrass, in Alabama, is "Nitrogen content of the above-ground portion of the plant increased with clipping frequency and rate of N, but was not affected by soil moisture regime. From 20% to 89% of the applied N could be accounted for in the above-ground portion of the plant." There are obvious implications for lawn turf.

McBee and Holt report on "Shade Tolerance Studies on Bermudagrass and Other Turf-grasses". This report repeats the presentation made at the agronomy meetings, which showed "No-Mow" bermudagrass to be extremely shade tolerant, more so than Bahiagrass, Zoysia and even St. Augustine. Indeed, its turf quality was better when grown under some shade than in full sunlight, an unusual circumstance with bermudagrass.

A group of California researchers presented three articles having to do with soil conditions and turfgrass response. Water infiltration was better when soil was amended with calcined clay or liquified redwood than with peat, but peat better than with no amendment.

Under certain soil conditions wetting agents helped increase infiltration. Amended soil, as would be expected, showed reduced ill-effects from compaction. Each soil amendment had certain advantages and disadvantages, and none were superior in all respects.

A generalized examination of "Fertilizer Nitrogen: Its Role in Determining Crop Yield Level", was given by Engelstad and Terman. This pointed out the relatively greater permanence of P and K than N, and re-emphasized that for most of the United States N is the most critical fertility element to be concerned with. A study by Oklahoma researchers showed that bermudagrass (and weeping lovegrass) germination and emergence was directly related to moisture, and had very little to do with soil hardness or oxygen diffusion. Several other articles, such as one dealing with the sprouting of bermudagrass sprigs, also yield information applicable to turfgrass.

REQUEST FROM INDIA

A letter from Bombay, India, by botany student Maxim Miranda, brought request for books useful to study in that country. Mr. Miranda and his family are too impoverished to purchase textbooks. Dr. Schery dispatched copies of "The Householder's Guide To Outdoor Beauty" and "Plants for Man" as a donation.

ENCYCLOPEDIA REVIVED

Some time ago Dr. Schery prepared the Lawn and Soil manuscript for McCall's Encyclopedia. For reasons best known to the publisher, appearance was delayed. A long distance call from editor Harshbarger indicated that a new printer has now been engaged, and the work is proceeding. The lawn manuscript was sent to the Lawn Institute for rechecking, to assure the most recent information.

POTASSIUM PLUGGED

The autumn issue of "Better Crops with Plant Foods" (The American Potash Institute) contained multiple articles emphasizing the importance of potassium (and other fertility elements) in helping ward off plant disease. Two items were specifically on turfgrass, by Goss and Gould in Washington, and by Pritchett and Horn in Florida. It is interesting that the Washington researchers report greater severity of Fusarium under urea nitrogen fertilization than under ammonium sulfate. Phosphorus seems especially important in restraining Ophiobolus. The Florida men review research nationally, related chiefly to disease caused by over-fertilization. They note particularly how potassium helped restrain Helminthosporium leafspot on Bermudagrass (Alabama), and recommend potassium for its "toughening" role that makes grass foliage less lush and subject to attack by both disease and insects.

REPRINTS REQUESTED

A request was received from the Rudy-Patrick Seed Division of the W. R. Grace & Company for 25 additional copies of the reprint "Remarkable Kentucky Bluegrass".

NOTE OF APPRECIATION

We want to express our sincere appreciation to you for cooperation in making the Twenty-Fifth Short Course the grand success it was.

The warmth and friendliness of the gathering was very apparent, thanks to the Lawn Institute, and to you.

-- W. J. Garmhausen, Chief Landscape Architect

NEW FESCUE

As announced in the bulletin of the Oregon Seed Growers League and elsewhere, foundation seed of a new Canadian Fine Fescue to be named Boreal has been released. A Cascade variety of Chewings Fescue and foundation seed of Illahee have been built up in Oregon.

INQUIRY FROM JAPAN

A recent inquiry from Sapporo Konoyen Co., Ltd., Hokkaido, Japan, asked for suggestion of a variety of Kentucky bluegrass "equal to Merion in quality, but not susceptible to rust". We had to reply that in truth we knew of no commercial supplies of a qualifying selection exactly like Merion; that perhaps the experimental K 547 of Pennsylvania State University was the nearest thing to it. Perhaps members will want to contact Mr. Jiro Nishikawa, if able to supply a rust-resistant Kentucky bluegrass with attributes comparable to Merion!

OREGON TURFGRASS SEED

An excellent resume of the sophisticated Oregon Turfgrass seed production was given in the Sept.-Oct. Turfgrass Times, written by Dick Bailey of Grace and Company,

Halsey. The story was the feature of this issue, embracing most of four pages in the 24-page issue. Oregon Seed Associations were listed with address, instrumental in a number of specific inquiries later.

ATTRACTIVE BENTGRASS NEWSLETTER

We were pleased to receive the Fall 1966 issue of the Highland Colonial Bentgrass Newsletter. This is a very attractive, easily scanned publication, reviewing recent developments and offering additional literature. It helps the Highland Bentgrass Commission to continue "putting its best foot forward". Congratulations to the Commission.

THATCH ACCUMULATION

Research by Drs. Thompson and Ward in Mississippi, on Tifgreen bermudagrass, as reported in the "Golf Superintendent", shows that aerification made relatively little difference in preventing thatch, but that topdressing (especially on a monthly interval) was quite effective. If the thatch is partly buried, natural decomposition much more effectively speeds its disappearance than does aerification (or mechanical removal).

MARKET TRENDS

The Institute office receives, from time to time, interesting information from services seeking assignment. One of these is the Derus Media Service, Chicago, at one time successfully engaged by the Institute for distribution of cartoon features. The service now offers a variety of types of coverage, including radio and television, in which the Board of Trustees expressed particular interest at the last annual meeting.

You may be interested in some of the trends shaping up, as expressed in the Derus pamphlet "Put your message when your market is (Or where did all the people Go?)." This booklet gives details on the migration to the suburbs, in major marketing areas. Of the "forty primary markets", 26 remain in the northeastern quarter of the nation. But in this area almost all of the leading cities have actually lost population within the last decade. If the county areas surrounding them are included, however, in every case population increased appreciably. Considered as metropolitan areas (rounded to the nearest half million) the ranking as of 1963 was New York 11.0, Chicago 7.2, Los Angeles 6.7, Philadelphia 4.6, Detroit 3.9, Boston 3.2, San Francisco 2.9, Pittsburgh 2.5, St. Louis 2.2, Cleveland 2.0, and Houston 1.4. In effective buying income the New York area leads with about 20 billion, followed by Los Angeles at 18.7 and Chicago at 14.8, the remaining areas considerably less.

The number of newspapers published within a fifty mile radius of these large city centers ranges from only a few to as many as 423 (New York). Most are concentrated in the zone north and east from St. Louis, the primary area served by Institute press kits.

GROWTH REGULATORS FOR LAWNS?

Merck and Company telephoned inquiring about extent of lawns and golf courses in the United States. Apparently as a followup on the early Gibberellin work, the quest is for suitable plant growth regulators that may have pertinency to lawns and recreational turfs.

FAVORITE VARIETIES IN THE SHADE

Institute advisor from Vermont, Dr. Glen Wood, asked the Institute's help with illustrations for a story done earlier this year, "You Can Grow Grass in the Shade". This appeared in Vermont Farm and Home Science, Spring 1966. A Marysville home on a wooded lot thus exemplifies a shaded "Vermont" condition.

Growing grasses in the shade is not a subject often dealt with. There may be some points of interest in Wood's well-written story, especially for fine fescue purveyors. The story, in brief: "So long as 25% of normal light reaches the lawn, grass is possible. But tree rocks competing for moisture and nutrients, and increased prevalence of disease in shade, may be more important in preventing grass from flourishing than in reduced light. Tests on Kentucky bluegrasses and fine fescues show them to respond to increasing shade with narrower leaves, lankier growth, and reduced rooting. In heavy shade there is very little rhizoming."

Wood recommends: "Plant Pennlawn, Illahee, common, or Chewings - or preferably a mixture of these red fescues - with not more than 30% Kentucky bluegrass." It is mentioned that bentgrasses are pretty good shade species too, but may spread into sunny areas where not wanted. Wood continues, "Double or triple the usual lawn seeding rate to insure a good cover, for grasses planted in shade do not till or spread as much as those in the sun. Eight pounds per thousand square feet of an all fescue mixture, or six pounds if 30% bluegrass is added, is a good rate for Vermont conditions." Wood advises fertilizing shaded areas about 50% more heavily than normal, watering deeply but infrequently, mowing high and only when the grass becomes so tall as to be objectionable looking, removing the tree leaves, and carefully using chemical pest controls.

HARVESTS WANTED

We were flattered, when at the Oregon Seed Growers League Convention, a couple of growers not presently within the Institute framework, inquired whether they could enter a subscription to Harvests. They felt that the bits of research reported here provided a quick summary of developments in the field.

MORE ON BLUEGRASS

John Fisher continues his report on "The Growth of Rhizomes in Kentucky Bluegrass", in the Canada Department of Agriculture "Greenhouse-Garden-Grass". A lot of detailed information is provided on the obscurities of rhizome performance in Kentucky bluegrass, the feature of the species that makes it a nonpareil sod grass. Among other points, Fisher notes that the rhizome in its early stages assumes a constantly characteristic downward angle, which turns horizontal at the second stage, and upward at the third stage. Continued growth of the rhizome is determined

by darkness and carbon dioxide concentration in the soil; a rhizome can be made to grow almost indefinitely without leaf formation if supplied carbon dioxide artificially. One reason why bluegrass grows most obviously upward rather than downward on a slope, is that rhizomes produced on the upper side encounter soil (darkness and carbon dioxide) for a protracted period compared to those emerging on the down-side slope. It is interesting, also, that successive surges of rhizome development, with the daughter plants in turn producing rhizomes, are somehow chemically influenced by the parent plant to always turn away from it towards the "open" periphery. Thus new plants produced by rhizomes do not compete with the old plant, but with other vegetation surrounding the clones. Obviously, the fine turf qualities of Kentucky bluegrass are in large measure related to rhizome behavior. Its highly efficient repairing of damaged turf comes from the ability of a rhizome to produce side buds when severed (or even the tip itself form a plant).

TURF INSPECTED

In early October Dr. Schery had opportunity to visit the turf research plots at Ohio State University, with Dr. Robert Miller, in charge of turf research at OSU. In the party were also Dr. William Daniel, Purdue, and Dr. Eliot Roberts, Iowa, Institute Advisors. A favorable autumn made turf appearance excellent at time of visit, and the out-of-state men commented that they had not been able in their localities to develop so consistently thick a Fine Fescue sward. All bluegrasses were excellent, although in the spring of the year they had suffered considerable devastation from Helminthosporium. Among creeping bentgrasses for golf greens, Springfield was one of the best. There was not much to choose from between bluegrass and fine fescue varieties. OSU turfgrass research will be expanded in the years ahead, into a newly acquired 8-acre site.

USDA NATIONAL AGRICULTURAL LIBRARY

The Lawn Institute has been reminded by the USDA National Agricultural Library, of its interest in continuing to procure Harvests and related materials from the Institute. We are delighted to provide this information for so important a reference source.

ITEM IN TURF-GRASS TIMES

One of the Autumn Press Kits was sent Editor Nutter, of the Turf-grass Times, following visiting with him at the agronomy meetings. We were pleased to see a story quoting the Lawn Institute, "Early Fall Is Best Seeding Times For Lawns", appearing in the September-October issue. Quality lawn species are named.

A FEW FINAL "QUOTABLES"

Since not all press clippings had been received when the last issue of Harvest was prepared, members may be interested in a few more helpful comments noted in newspapers around the country, which we feel might be at least in part inspired by Institute releases.

From Ohio, including two stories in the Cincinnati papers, we learn that "Bluegrass Still Tops For Lawns", and that "Bluegrass --- Best Seed For Ohio --". Finally, "Don't Buy The Cheapest Seed Available.-- It's no bargain, often containing undesirable grasses."

In New Jersey, readers are advised, "Read Label When Buying Lawn Seed", "Merion Best Kentucky Bluegrass --", "Merion Kentucky Is Good But Can't Work Miracles", and "New Strains Of Bluegrass Available For Homeowner". Chicago readers were informed "Kentucky Or Merion Bluegrass And Red Fescue Are Suitable Lawngrasses For Most Of Illinois." In neighboring Iowa, "Select The Right Kind Of Lawn Seed", in several papers.

Detroit, Michigan readers were informed, in the Free Press, "Still Time To Renew Tired Turfs -- preferred lawn seed formulas are composed of well established stocks of Kentucky bluegrass or select strains such as Merion and Park -- or fine red fescues -- in lawns of variable exposure, mixtures composed of Kentucky bluegrass and fine red fescue may be sown." In Pennsylvania, "Choose Proper Seed For Lawn -- under heavy shade use a mixture of Pennlawn Red Fescue --." In Colorado, "Bluegrass Lawns Need Special Care Now", and in Kansas, "It's Time For Bluegrass".

In Wisconsin, "A good seed mixture should contain a high percentage of permanent grasses such as Kentucky Bluegrass, Red Fescue or Bentgrasses." In Indiana, "Bluegrass seed is the best adapted for the Midwest. -- Consider it first for new plantings, experts suggest." In Missouri, "It's also recommended that you use Red Fescue with the Kentucky Bluegrasses and nurse crop. The fescue sprouts faster and protects the soil, --" In North Carolina, "From now until mid-October is grass planting time - that is for fescue and bluegrass." In Charlottesville, Virginia, the headline reads, "Green Grass Now Possible All Year", backed up in nearby Staunton with, "Cool season grasses such as Fescue, Bluegrass and Bentgrass will maintain their green color when fertilized in fall and winter --."

ON SEED WORLD PAGES

The October 14th issue of Seed World carried the Institute story, "Bargain Time For Lawns", as one of its Bulletin Board items. This story stresses the bargain that good lawn seed is, with many thousands of potential plants for each penny. A key line reads, "With a half million fine fescue, two million bluegrass, and some seven million Highland bentgrass seeds to the pound, certainly seed is a bargain."

INSTITUTE ADVISOR ON HIGHLAND

Dr. John Madison, University of California, Davis, offered these comments, after Dr. Schery had informed him of Dr. Scholz' work in Berlin on renaming Highland bentgrass *Agrostis castellana*: "I have been checking Scholz out and in general his seed morphology as a distinguishing characteristic looks O.K. Looking at different lots of seed from different years there is some appreciable difference but the seed lots as a whole remain distinguishable."

"For me a more potent argument for removing Highland from *A. tenuis* is its failure to form a series of intermediate forms with the Astoria types when they both grow naturally in Oregon. The Highland remains a distinctive grass."