BETTER

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MARVES

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HIGHLAND BENTGRASS COMMISSION

Word has been received from Wally Hunter that Gene Lewis of Sublimity, and Ken McKenzie of Scio, are new appointees to the Highland Bentgrass Commission for 1967-68 fiscal year. The commission re-elected Howard Mader as Chairman. We are pleased to have Messrs. Lewis and McKenzie join a Commission that has been very helpful to and enthusiastic about the Institute. Congratulations to Chairman Mader; we look forward to his continuing fine leadership, and influence as a member of the Institute Board of Trustees.

LAW

PROOF OF THE PUDDING

The effectiveness of the Institute approach in sending out press kits was demonstrated to the Board of Trustees by mailing each of them a copy of the tear sheet Alice Duston kindly sent from the Newark New Jersey Sunday Star Ledger of August 20. On the garden page, Mrs. Duston had utilized several stories from the press kit, combining them into a severalcolumn article entitled "Plush Grass Does More Than Look Nice". Throughout the compilation the flavor of the original stories is unaltered, except to occasionally make mention of New Jersey services. As a result quality turf grasses are mentioned repeatedly, - viz. "popular Kentucky bluegrasses, Oregon fine fescues and Highland bentgrass all make efficient use of the warm days with crisp nights....fine fescues (Chewings, Illahee, Pennlawn) do remarkably well in the shade....Kentucky bluegrasses (Merion, Park, etc.) spread by underground rhizomes....bentgrasses (such as Highland) do remarkably well in cool, humid locations....it's a good idea to spread the same quality seed....bluegrasses, fescues and bentgrasses are not bothered by frost; indeed they grow best when nights are cold, the days bright and sunny."

SEPTEMBER STORY

"What Happens to the Best Bluegrass Lawns in September" is the title given an Institute story for The Floral Magazine (originally sent as "Choice Lawns"). The six-page story is amply illustrated, and reprints are being circulated. The story opens, "...the lawnsman'schoice in grass is the fine textured species. The latter is today's badge of quality in bluegrass country,...." It goes on to explain, "The new lawnseed labeling permits several grasses in the fine-textured category, the most important of which are the Kentucky bluegrasses, the fine fescues and the bentgrasses.". A column of drawings by Patricia McComas shows "....(1) Kentucky bluegrass' start in life. (2) The spring after an autumn seeding young bluegrass may spread by rhizomes... (3) The seed of fine fescue is bigger than that of bluegrass, provides early energy for seedling growth; fine fescue is an excellent substitute for the traditional nursegrass. (4) What an individual Highland bentgrass plant looks like mowed only a half inch tall, crowded into a dense weed-resistant turf."

INQUIRY FROM BELGIUM

Maurice Loiseau wrote the Institute seeking information, at the suggestion of The American Nurseryman. It is expensive to be internationally known! In addition to overseas postage for reply there was 7¢ due on the inquiry from Belgium.

POA ANNUA CONTROL

Juska and Hanson report on experiments in controlling Poa annua, in the September-October The Golf Superintendent. They find that control with the familiar crabgrass preventers is generally inhibited somewhat by higher pH, and at higher levels of phosphorus. DMPA (zytron) was the most effective chemical, followed by bensulide; bensulide remained toxic in the soil for the greatest length of time. Neither of these chemicals injured any of the test strains of grass, although others created some difficulty with certain varieties only.

ROADSIDE INSPECTION

On the way back from Cleveland, after speaking before the American Horticultural Society, Dr. Schery took time to inspect the all fine-textured roadside planting near Upper Sandusky in Wyandot County, Ohio.

The planting looks very attractive at present except for occasional clumps of tall fescue cropping up as a weed. Some of these may have come from crop in the fine fescue seed, but most are more likely spread through contamination from other roadside seedings that rely heavily upon tall fescue.

The fine fescue component dominates the stand at present, although there is a scattering of Kentucky bluegrass within it. Highland bentgrass is confined mostly to the low borders of the central drainageway. The cover is decidedly more dense (and hence a better soil protectant) than the adjacent berm plantings made to tall fescue. It would be far more attractive, too, and presumably less a maintenance problem, if there were not the inadvertent spots of tall fescue.

A second all fine-textured planting has been made on Interstate Highway 75, in the Lima area, southward from Highway 30S to the High Street overpass. On this particular occasion, because of lateness of the day there was not time to inspect the Lima planting.

SEED SAMPLES DISTRIBUTED

Six-ounce polyethylene-packed seed packets were prepared by Mangelsdorf Seed Company for distribution through the Lawn Institute to the attendees to the 26th Short Course on Roadside Development, October 2-6, Columbus, Ohio. This is the annual national gathering of highway landscape architects, at a program sponsored jointly by the Ohio Dept. of Highways and The Ohio State University Department of Landscape Architecture.

The Institute printed cards afixed to the seed packets read:

ALL FINE-TEXTURED GRASS SEED BLEND

Included are approximately equal numbers of:

Oregon Fine Fescue - Large seeds Kentucky Bluegrass - Medium seeds Highland Bentgrass - Small seeds

This is a blend of attractive grasses like that planted on Hiway 23 median near Upper Sandusky. They are low-growing, not coarse-clumpy, should require less maintenance than Tall Fescue.

<u>Grass</u> <u>Feature</u> Fine Fescue - Adapted to dry, infertile or sandy soils. Bluegrass - Spreads into one of best soil-holding sods. Highland - Economical low cover for damp soil & drainageways.

Courtesy of THE LAWN INSTITUTE

FIRST CLIPPINGS RECEIVED

The September 1 clippings envelope, containing a few clippings from late August, included 7 items credited to The Lawn Institute, directly utilizing press kit stories. These represented newspapers in the following metropolitan areas: Buffalo, New York; New York City; Lansing, Michigan; Columbus, Ohio; Rockford, Illinois; and Kansas City, Missouri; as well as the city of Fort Dodge, Iowa.

In Lockport, New York the headline was "Fescues Fine in Shady Area". This continued with the gambit, "The fine fescues that come from Oregon are the turf world's shadiest characters, according to The Lawn Institute.". The Newark, New Jersey News, Sunday circulation nearly a half million, advised that "Lawns Sprout Quickly - Fine fescues begin sprouting in as little as four days under ideal conditions, and Kentucky bluegrass within a week, says the Lawn Institute."

The Lansing, Michigan State Journal headline was, "August a Good Month to Start Lawns", and recommended bluegrasses, fine fescues or bentgrass. The Columbus, Ohio Dispatch, in its by-line story, headlines "Label Tells True Story", and mentioned the Lawn Institute and supporting grasses by name, with main emphasis on the "fine-textured types" ("Outstanding in this category are Kentucky bluegrass varieties, and the fine or red fescues such as Chewings, Illahee, Pennlawn and Rainier. Bentgrasses such as Highland also fall in this group").

The Kansas City Star, in its Sunday issue of August 20, with a circulation of over 1/3 million, says, "Dr. Robert W. Schery, Lawn Institute Director of Marysville, Ohio, recommends ---". Among the recommendations were, "Kentucky bluegrass and various name strains such as Park, Merion --". In Ft. Dodge, readers are advised, "Autumn Ideal Time to Begin New Lawns". The story continues, "Your favorite Kentucky bluegrasses, Oregon fine fescues and Highland bentgrass make efficient use of the warm days with crisp nights." In the Rockford, Illinois Star the Institute is again favored by direct mention through Earl Aronson, of AP Newsfeatures. Earl says that the Institute recommends, "Kentucky bluegrass in such varieties as Park (for seedling vigor); Merion (--luxury); Arboretum, Delta and Newport. Fine fescues such as Chewings, Illahee, Pennlawn and Rainier. Bentgrasses such as Highland, Astoria, Exeter for more easily maintained colonial types; and creeping bentgrasses such as Penncross for specialty turf.". Also, "in buying seed, be sure you get all fine-textured grasses--", and, "most soils north of Tennessee will handle Kentucky bluegrass, fine fescues or Highland bentgrass."

ROADSIDE SEEDING INTEREST CONTINUES

A letter from Wilbur J. Garmhausen, Chief Landscape Architect for the Ohio Department of Highways, indicates continuing interest in the possibilities with fine-textured grasses for planting roadside medians and berms. Mr. Garmhausen writes, "I am sure that Loy Stevely will be very anxious to meet with you and give you details on the maintenance of the area and comments in general. If these lower growing grasses have a maintenance advantage I would think they would have a place in the highway seeding program."

REPRINTS TO FLORIDA

A request was received from Lake City Junior College, Florida, for multiple copies of 14 different Lawn Institute reprints. Apparently these are being used in classroom work and for reference. This is the ideal means of re-employing stories done for the gardening press.

MORE CLIPPINGS REPORTED

The second autumn clipping envelope of the season was received the second week of September. Discounting 25 clippings relating to a publicity stunt in shipping Kentucky bluegrass seed to a homesick soldier in Viet Nam, over half of the remaining 71 clippings seemed directly attributable to the Institute press kit.

Most voluminous was pickup in small Missouri newspapers, from a University of Missouri Extension Service release. Apparently the service drew upon Institute information in compiling "Bluegrass Varieties for Missouri Lawns", which listed and described several.

New York and New Jersey carried several prominent items, in the Newark, New Jersey Star Ledger, the Newark News, the Camden Courier Post; the Jamica (Long Island) Press and the Schnectedy New York Gazette. Curtis Schick stressed fine fescues and Highland bentgrass, commenting "Don't confuse the fine fescues with the coarse tall fescues. Under modern labeling practices the fine fescues will be listed on the seed box among 'fine-textured' grasses while tall fescues are 'coarse kinds'. Chewings, Illahee and Pennlawn are finetextured fescues --". The Schnectedy story utilized the Institute item about autumn being the "beginning" of the lawn season, and advised "your favorite Kentucky bluegrasses and fine fescues make efficient use of the warm days with crisp nights." Otto Langhans, writing for the Long Island Press, credited the Lawn Institute by name in advising an autumn program.

Richard DeLano repeats Institute words in his column, appearing in three Illinois newspapers. The same is true for stories appearing in the Wilkes-Barre, Pennsylvania Times Leader News, the Harrisburg Patriot and the Lansford Record.

In Michigan the Institute is credited by name, in the Grand Rapids Press, quoting the advice: "Fertilize Kentucky bluegrass or Highland bentgrass at least once, better twice, through autumn. Even fine fescue in shade should be given enough fertilizer for both grass and tree. Bluegrass, fescues and bentgrasses are not bothered by frost --". The Lansing Michigan State Journal, under the title "Bluegrasses Meet Varied Needs", opens with "Kentucky bluegrass in numerous varieties such as Merion, Newport and Park, is a perennial lawngrass." The Ann Arbor News mentions, "With less dense bluegrass such as Park, thatch does not build up -- most fine fescues (Chewings, Highlight, Illahee, Pennlawn) don't thatch any faster than does bluegrass -- Highland, most used lawn bentgrass does not thatch quickly, but is nonetheless spruced up by occasional thatch removal."

Other appearances included the Evansville, Indiana Courier, and the South Bend Tribune; the Elyria, Ohio Chronicle-Telegram (viz. "It's hard to improve upon Kentucky bluegrass --" and "Mowing is not much of a chore in autumn in Kentucky bluegrass lawns."). Oklahoma, Idaho and Oregon each had a pickup, and in the South, Virginia, Alabama and Louisiana. In Ponca City, Oklahoma the News utilized the Swenson syndicated column, which mentioned, "Kentucky bluegrass, Merion bluegrass, fine fescue or Highland bentgrass do well".

PARKER COOPERATION

Parker Sweeper, Springfield, Ohio, has assisted the Lawn Institute grounds demonstrations program, through donation of the new Power Sweep, and a Thatch-O-Matic with three interchangeable reels. These will prove especially helpful in the maintenance of bentgrass, and in upgrading rough turf to a fine-textured composition. Parker has been very helpful in distributing tens of thousands of informational leaflets featuring quality turfgrasses, and plans a new one of these for the spring season, to be prepared in cooperation with the Institute.

INSTITUTE LITERATURE PURCHASED

We always feel gratified when the Institute's reputation reaches distant places. One such instance was an inquiry from Louis A. Brandenburg Advertising, Tulsa, Oklahoma, representing a new entrant into the field of lawn irrigation. Brandenburg Advertising sent a small check covering cost of handling and mailing for a complete battery of reprints such as are circulated by the Lawn Institute. This will be a helpful means for getting the name of the Institute and its sponsoring grasses before a potentially national promotion.

USDA TURFGRASS FIELD DAY

Dr. Schery was present for the National Turfgrass Field Day, held in Betsville, Maryland, August 3. Here are some of the general impressions, and a few of the highlights marking this nationally prominent demonstration.

The summer has been generally kind, with adequate rainfall, and the bluegrasses especially were looking very good. This tended to diminish differences, and even varieties or "common" bluegrass that the experts do not generally rate very highly looked attractive. As is expected this far south, fine fescues do not show to great advantage during summer, although it was explained that they are very attractive at other times of year. Because of the criticalness of the season differences between varieties showed up much more strongly with the fine fescue selections than with the bluegrasses. It was apparent that high mowing was especially advantageous to the fine fescues, and low fertility levels also. Bentgrasses and ryegrasses were not widely represented, but there was a fair scattering of southern species (primarily bermudas and zoysias) to round out the display. Beltsville is also pushing the use of tall fescue for this climate, and seeking improved selections of the species.

Blends of bluegrasses showed to advantage, and mixtures of varieties were commended by Juska in his discussion. On the test plots there was not great visible difference, but combinations that looked good included Merion-Belturf, Belturf-Anheuser, Nugget-Windsor-Newport, Nugget-Newport-Common. Photos were taken for the Institute files. Individual bluegrasses looking well included Fylking and Penn State 106 (seem essentially the same), Merion and several others.

Of the fine fescues, best appearing were Alaska Synthetic 1-64, Alaska Arctared, Alaska Station, some plantings of Oasis, and Ruby. Of satisfactory appearance were Golfrood, Chewings, Pennlawn and other plantings of Oasis. Poorest appearing were Creeping Red, Illahee and Quebec.

Among perennial ryegrass plantings improved selections such as Nonlea appeared definitely superior to common.

In overseeding of four different bermudagrasses with five different cool-season grasses (tall fescue, fine fescue, perennial ryegrass, Poa annua, Merion bluegrass), the fine fescues established best and persisted longest. While this made the most attractive cover, it also most severely retarded revival of the bermudagrass. However, with cool-season grasses doing so well, there would seem little occasion for the use of southern species! If an overseeding was to be used, these tests appeared to favor Poa annua as the least troublesome in competition with the bermudagrasses.

In comparisons of grasses maintained under low maintenance, natural, Park, Delta, and Arboretum bluegrasses were all excellent, about equivalent one with the other. They were definitely better than Merion, Newport, Campus, and so on. The fine fescues prosper under this sort of treatment, too, with Pennlawn, Jamestown and Chewings best appearing in the demonstrations. In a test of fertilizer applications to tall fescue, and tall fescue combined with Kentucky bluegrass, it seemed not to make any difference what kind of fertilizer was used (or when); fertilized turf was definitely thicker and with less crabgrass than unfertilized. In his comments Juska commended tall fescue by itself (without the bluegrass component), but in looking over the plots it seemed as though the bluegrass was more attractive than the tall fescue (in color, his basis for judgement), and that the bluegrass was gaining slightly on the tall fescue where generously fertilized. Other fertilizer tests indicated that very high levels of phosphorus cause little or no damage to bluegrass, especially if balanced by some nitrogen. Phosphorus as high as $2\frac{1}{2}$ tons per acre annually is used in some of the treatments.

In plantings of Merion, Newport and Common Kentucky bluegrass started in 1958, the Newport has definitely deteriorated and is the poorest of the three. Varying maintenance practices have been tried on all three (including veritcal mowing, aerification, differing rates of fertilization), and none of these seem to make a great deal of difference except that Merion left unfertilized deteriorates. Juska thinks vertical mowing may have helped appearance a little, but in the ratings differences are not statistically significant. With the systemic fungicides so far tried for stripe smut control, nothing has been successful, even though the same products (DCMO and DCMOD) have been successful against flagsmut in the West. Likewise, there have been little benefit from thatch control in common Kentucky bluegrass, although there might be a slight advantage from aerification.

In his discussions Juska recommended the use of blends or mixtures rather than straight plantings. He commented upon the Beltsville 117 (seedling out of radiated Merion) as being a definite improvement. He also commented that many selections brought in, including Silverblue, are severely stricken with disease. Juska also criticized the marketing of Newport as "common", although admitting the legality of this. He suggested that users of oommon specify the new Kenblue (natural, from Kentucky) or certified South Dakota seed. Thus we see the cycle coming back to official recommendation of natural Kentucky bluegrass!

So far there has been no luck in finding a tall fescue plant capable of spreading by rhizomes. In the zoysia plantings, Emerald seems superior to other varieties. In wear studies on bermudagrass, Tufcote seemed able to "take it" as well as any at the time of visit, but in Juska's ratings the Kansas selection (S-16) tops the list.

There was rather little in the way of pesticide demonstrations. The familiar crabgrass controls had been used on bluegrass, with no new or original conclusions. Dacthal was said to damage some strains of bentgrass, and betasan occasionally bluegrass. Perhaps of greatest interest was use of rates as high as 100 pounds/A of siduron as a seed treatment, made to coat the seed with a binder of 20% corn syrup; this in no way injured the germination or the seedlings of the fine turfgrasses, while yet preventing crabgrass and other annual grasses in the seedbed. There would be definite promise, by this technique, of extending the lawn planting season into summer. A few strains of bentgrass are said to be injured by appreciable rates of siduron, but not Highland (which is said to stand it well).

This National Field Day is perhaps more significant for the publicity it gives than for the research it uncovers (which would be slanted to a somewhat untypical climate). Attendance was estimated at slightly less than 300, among which are prominent turfgrass people (both academic and commercial) from throughout the area and from so far distant as Missouri and Maine.

MAILING TO ADVISORS

A special mailing was made to 27 of the Institute advisors in late August, that included the reprint "Turf Preparation for Summer".

OHIO FIELD DAY

"Research Summary 24" reviewed the presentations of the Ohio Agricultural Research and Development Center staff during the Lawn and Ornamental Field Day of 1967.

Dr. Davis reports on grass mixtures. He reviews the familiar arguments for and against combining species, concluding generally that there is a balance in favor of combining bluegrasses, usually bluegrasses and fine fescues, but not bentgrasses, ryegrasses or redtop. He particularly singles out redtop as a persistent "weed" in seed blends. One of his findings is that bluegrass and fine fescue together give a higher percentage of sod cover than does either alone.

Dr. Niehaus in reviewing "Kentucky Bluegrass Varieties" is more definitely inclined to blends of grasses, at least bluegrass varieties. He lists as outstanding varieties Merion, Pennsylvania K-5, Windsor, Prato and A-20 (as well as a couple of coded numbers). However, Merion and probably Windsor are becoming questionable because of smut. A second group of varieties includes Cougar, Kentucky grown Common, Newport, and Delft, as well as an experimental. With poorer performance are Delta, Danish Common, Nudwarf, Campus and Park.

Dr. Miller reviews causes for the elimination of tall fescue in the athletic stadium, being superceded by Kentucky bluegrass (even though only ½ pound of Kentucky bluegrass was combined with 9 pounds of tall fescue/M in the original seeding). Main causes seem to be moderate or generous fertilization (at least four pounds N/M annually), and about a 2 inch height. This seems to set up conditions for winterkill of the tall fescue, and gradual domination by the bluegrass.

Other presentations deal with water relationships of the soil, controlling weeds, renovating turf, and fungicidal treatments, - all giving information now reasonably well known in turfgrass circles. Final portions of the program deal with street tree evaluations and landscaping.

The main criticism to be leveled against these reports is the implication that what is observed on the test plots equally well applies generally. For example, experience in the state generally does not reveal ability to get rid of tall fescue so easily as at the stadium and in followup research. Nor under other conditions do the announced interrelationships between varieties, and between fine fescue and bluegrass, always hold true.

HORTICULTURAL CONFERENCE PRESENTATION

The Lawn Institute, in the person of Dr. Schery, was invited to participate in a panel discussion at the annual meeting of the American Horticultural Society (jointly with the Men's Garden Club), at Cleveland, Ohio, September 22. Dr. Schery covered the subject of lawns, and answered questions from the floor. Other participants were Thomas Anderson, of the Soil Conservation Service; Irma Bartell, garden editor of the Cleveland Plain Dealer; Fred Buscher, regional Extension Specialist; and Herman Porter of the Bartlet Tree Service; Dr. John Fogg, past director of the Morris Arboretum at Philadelphis, was moderator. Reprints of the story done for the Canadian Rose Annual were given the audience, as a reminder from the Institute of the importance quality turf grasses play in the horticultural scheme.

SPEAKS TO SALES MEETING

Dr. Schery had the pleasure of speaking to the Borden Chemical Company sales meeting, on lawns and grass seed. The company lends fine support to the Institute, not only in its grounds program, but in distributing reprints and other informational items.

RESEARCH AT NORTH CAROLINA STATE

While visiting the East Coast, it was possible for Dr. Schery to spend a day with Dr. William Gilbert, North Carolina State University. An interesting set of trial plots is being observed at Raleigh, the climate of which permits northern or southern grasses if properly cared for. A number of bluegrasses looked excellent at time of visit (September 14), obviously not harmed by the summer (which this year was bit cooler than usual). Normally bluegrasses do better in broken shade this far south than in the sun, but these fully exposed test plots were excellent at time of visit. Dr. Gilbert's chief advice for keeping bluegrass attractive is little or no fertilization in summer.

Tall fescue is widely utilized this far south as more enduring than fine fescues. It is the standard seeded grass for roadsides, since bermuda is prohibited by law. Sericea lespedeza is planted on roadside cuts. Gilbert finds ryegrass continuing to be widely used for winter-seeding, because other species don't hold up quite so well as does rye through the season.

Among the bluegrasses both Merion and Newport have been behaving well, although Merion gets abundant rust in springtime. Windsor has proved no better than common. Penncross has been excellent as a seeded bentgrass, while Cohansey and Toronto (thatches quite much) are Gilbert's favorites among vegetative strains.

A distinctive centipede selection is under test, and several zoysias look well (but mow difficultly). No-mow bermuda grass stands shade well. Tifgreen bermuda is said to make an excellent grass for the coast if given limited fertility. Tifway is favored for athletic fields, and has been utilized on the school stadium field.

Prominent weeds noted at time of visit were spotted spurge, dallisgrass, cudweed, crabgrass, foxtail, plaintain, goosegrass, volunteer bermuda, and dandelion.

MORE ABOUT WINTERSEEDING

Gill, Thompson and Ward report on "Species and Methods for Overseeding Bermudagrass Greens", in the September-October The Golf Superintendent. Much of the material is taken from the Gill thesis, upon which Dr. Schery reported to the Fine Fescue Commission some years ago. One of the four test components is the "Lawn Institute mix" (a blend of fine fescue, Kentucky bluegrass and Highland bentgrass).

The authors find that ryegrass and Illahee fescue are quickest to give cover, but that Kentucky bluegrass is densest late in the season. Mowing the bermuda short was generally the best technique for good establishment. Ryegrass interfered with bermudagrass recovery less than did fescue or the Lawn Institute mix.

In the discussion the authors conclude: "Results of 2 years of sod preparation experiments indicate that ryegrass at 10 lbs. -- or Illahee fescue at 5 lbs. - - provide a satisfactory winter turf when overseeded on U-3 or Ormond ---- low temperatures in December severaly damaged the ryegrass and reduced turf quality ratings. Illahee fescue and Kentucky bluegrass were not damaged to any degree -- of the four cool-season grasses used in the seeding rate study, ryegrass, Illahee fescue and the Lawn Institute mixture gave satisfactory winter turf quality when overseeded at the medium or high seeding rate."

ON FERTILIZING FESCUE AND BENTGRASS

Virginia researchers, reporting in the July-August issue of the Agronomy Journal, emphasize the value of autumn and winter nitrogen fertilization in that border state. Good color was maintained on both bentgrass and fescue without adverse physiological changes, by fertilization even in the coldest parts of winter. Fertilized turf became very dense even though there was no measurable top growth during winter. This study affords added documentation to the recommendation we have long been making for feeding lawn in autumn and winter.

MORE ON THATCH

Ledeboer and Skogley, Rhode Island, report in the July-August Agronomy Journal on turfgrass thatch. Various treatments, including addition of sugar, affected thatch little, although it did modify response to fertilization and incidence of disease. Chemical analysis of bentgrass thatch showed this to have higher lignin content than cereal straw. The parts most resistant to decomposition (persisting thatch) were mainly vascular strands from the leaf bases, crown tissues and fibrous roots; leaf clippings were less resistant.

BENSULIDE CRABGRASS CONTROL

Bingham and Schmidt, Virginia, report on persistent use of bensulide with bentgrass, in the July-August Agronomy Journal. Because it controlled crabgrass consistently, it was beneficial to the bentgrass. However, toxic quantities (to new seedings) build up in the soil, although if two months were let pass after the most recent application before reseeding seedlings emerged well.

IN KANSAS CITY STAR

We didn't see the story, but an airmailletter from Missouri opens, "In today's Kansas City Star your name is mentioned several times in an article on establishing a good bluegrass lawn." The letter from Matney Mills Farm requests further information on a number of points, which, of course, the Institute was glad to supply.

NEWSLETTER MENTIONED

It is always pleasant to receive outside publicity about the Institute and its grasses. Thus we were pleased to receive copies of the September issue of the "Blue Ridge Garden News", apparently sponsored by the Borden Chemical Company. In it were reproductions of several gardening columns, including that by Art Kozelka in the Chicago Tribune based partly on Institute materials. In addition there were "Garden Notes" by Harry O'Brien of the Columbus, Ohio Dispatch, and "Lawn Seeding Weather Hints", as "the advice of Dr. Robert W. Schery, Director of the Lawn Institute". The item, apparently adapted from the press kit, advises that autumn is certainly the best time for fertilizing the lawn in order to make the dollars go farther, and offers this quote: "Adequate feeding in autumn accomplishes more for the top lawn species such as Kentucky Bluegrass, Fine Fescue and Bentgrass, that does equivalent care any other time of the year --." It is nice to have this commendation of these grasses widely spread at no cost to the Institute, through the good offices of a major organization.

PRAIRIE THATCH

A study in Kansas by Dr. L. C. Hulbert showed that when the accummulated litter in a natural prairie was removed, that activity by the grass was stepped up. There were about twice as many tillers, soil temperature rose a few degrees in summer, grass production was nearly twice as great. This is the sort of response looked for in lawn thatch removal. Apparently even the native prairie litter (thatch) has a buffering influence, which develops even more quickly (as thatch) in intensively cared-for lawns.

TURF ANNUAL APPEARS

Park Maintenance Magazine, in its July issue, presented its 11th "Turf Annual", a resume of current research and trends in the field. Guest editor this year was Dr. Joseph Troll, University of Massachusetts, an Institute advisor. The Institute was listed among "references" for the information contained.

First major topic after introductory discussions was "Diseases". There is still no easy answer to disease control, in most cases persistent use of fungicides as preventives rather than correctives being necessary. Also, the selection of fungicides is extremely' wide, with variable reports concerning their effectiveness; many seem specific for certain diseases or certain regions, so that it becomes difficult to generalize and disease control is complicated for the uninitiated. One interesting report from Rutgers showed leafspot (<u>Helminthosporium vagans</u>) to form spores much more abundantly during the cool season (November-April) than in warm seasons. Rutgers reports also cite three bluegrasses (Anheuser Dwarf, Park and Penn State K547) as resistant to stripe smut. Fylking has since been reported so, although Merion, Windsor and other well known selections are quite susceptible.

Not a great deal new was reported on "Fertilizers". Contradictory evidence on the usefulness of phosphorus is presented, and editor Troll seems impressed that perhaps more phosphorus is being used in turf fertilization than is necessary. Under "Grasses", mention is made of pending issuance through Purdue University of a composite of bluegrasses, built primarily around selections out of Anheuser Dwarf. The multiple line would be released through the Seed Improvement Association, primarily aimed for the sod market, with the sod expected to be certified. Considerable mention is made of Bermudagrass selections, including a new Australian "No-Mow". Shade tolerance studies in Texas are cited, in which the American "No-Mow" showed up advantageously. Institute observations on Highland bentgrass in mixture are reviewed in some detail.

Michigan State work on winterkill of grasses and recovery from drought is reviewed. Park and Merion are mentioned as having good drought recovery characteristics, and none of the bluegrasses are seriously affected by winterkill under normal growing conditions. However, fine fescues are said to be susceptible to low temperature injury. Highlight is cited as one of the more winter hardy selections, but all factors considered Pennlawn is nominated as about the best of the currently available selections. However difference between named varieties is not great, and the Michigan State conclusion is said to be, "Four years of red fescue variety and performance data at East Lansing, Michigan, has shown no great superiority of any of the commercially available red fescue varieties. However, date obtained concerning relative tolerance to winterkill and drought indicate that Pennlawn is definitely superior to other red fescue varieties in these two important characteristics."

Discussions under "Insects and Pests", and "Irrigation", involve chiefly established products and methods. Much attention is being focused on irrigation, and wetting agents, for drier climates. Under the title of "Management" coloring agents for grass, seeding and sod, soil warming, and winterkill are all discussed. It is thought that recommended seeding rates are often higher than need to be, but quoting work by Madison, California, one reads "Others have suggested weedy land requires higher rates of seeding as an aid to weed suppression". The new attention soil warming is receiving for stadia gets one into engineering considerations more than biological ones. But Watson, Toro, Minnesota, found more snowmold disease where the soil was heated to slightly above freezing. "Weed Control" research shows that dicamba is as effective in the dry form as in solution, whereas 2,4-D is not. Dicamba plus 2,4-D is improved in its effectiveness by a wetting agent. Very small additions of picloram further enhance effectiveness. Effectiveness of crabgrass preventers is related to time of application. The Institute is quoted at some length on regional usage of pre-emergence herbicides. Work on controlling Poa annua, by Juska and Hansen, is reviewed - something already reported to members in the previous issue of Harvests. Some interesting results were obtained in Michigan research, in which the addition of paraquat to chemicals such as simazine, diuron or amitrol appreciably increased their control of quackgrass. This synergism was obtained even when the paraquat and other herbicide applications were made separately days apart.

RECOMMENDED FOR ROADSIDE

In offering reprints for the "Roadside Beautification and Pest Control" conference in New England, Dr. Schery offered this suggestion in communication with the sponsoring extension service:

"I was wondering, if in the New England area, especially on the poorer soils, blends containing a fine fescue might not be especially appropriate. The familiar red fescues such as Chewings, Illahee, Pennlawn and so on are extremely durable in dry shade and on poor soils in your area. For the more misty uplands Highland bentgrass might be a very economical addition. And certainly the bluegrasses would merit inclusion, for their unparalleled ability to weave a sod in locations where the soil is good."

ROADSIDE COVER

A study by Dr. Phillip Buckley, Texas, on western Kansas roadsides, showed that introduced rather than native species made the quickest and most enduring (through the early years) cover on seeded road banks. Native grasses such as buffalograss, dropseed, the gramas and wheatgrass eventually provide significant cover where mowing is not frequent. But alfalfa, brome, perennial ryegrass and similar species were the most effective early colonizers.

INSTITUTE PHOTO USED

We were surprised to see an Institute photo used as the cover for "The Seedsman's Digest" August, 1967 issue. The illustration was one of the earlier ones taken on the Institute grounds.

HIGHLAND BENTGRASS PUBLICIZED

Many members will have read the coverage given the Institute report on Highland bentgrass, in the "Eleventh Research Annual" in the July issue of Park Maintenance. Editor Troll introduces the discussion, "To dissuade turf 'purists' who believe that bentgrass in a mixture with bluegrass and fescue is detrimental to the density and attractiveness of turf, Schery reports that the Lawn Institute has completed a four-year test of quality bentgrass in bluegrass mixtures. Schery says there seems to be unjustified alarm about quality bentgrass in lawn mixtures...the tests at the Institute don't indicate any pestiferousness with Highland bent, even when mixed with its companion fine turf grasses such as Kentucky bluegrasses and Oregon fine fescues. The test indicated that in four years Highland bentgrass invaded adjacent bluegrass very little, even when mowed close, overseeded with Highland. In none of the cases did the Highland bentgrass 'get out of hand'... 'this experience does suggest that the concern about the weediness of bentgrass in mixtures is more an indictment of wild types than a considered judgement of colonial bentgrass varieties properly chosen for quality'".

RUTGERS TURFGRASS

One of the country's outstanding turfgrass breeding programs is in charge of Dr. Reed Funk, at Rutgers University, New Brunswick, New Jersey. Perhaps the world's greatest assemblage of bluegrass germplasm has been gathered at Rutgers. Dr. Schery recently had opportunity to spend the afternoon with Dr. Funk inspecting his test plantings. At the moment research is mainly concerned with rough screening of immense quantities of selections, looked at especially for disease resistance, degree of sexuality and response to differing maintenance conditions (especially mowing height, and fertility). The better performing lines are being hybridized in the greenhouse, and the seedlings re-examined for performance in the field.

At the time of visit most bluegrass selections were performing well, reflecting the rainy weather prevailing on the East Coast this year. Moreover, Merion was not suffering from stripe smut as it had in previous years, and therefore was very attractive, the "standard of comparison". But even volunteer bluegrass in the border strips was looking well.

Fine fescues, on the other hand, suffer a setback in hot weather under New Jersey conditions. Dr. Funk refers to it as a lack of "thriftiness" in summer, but qualifies this by mentioning their excellent performance in cooler weather from autumn through spring.

The Rutgers selections of perennial ryegrass looked very good at time of visit also, far better than common and most presently marketed named selections. Dr. Funk explained that 19 different clones have been combined to yield "Manhattan" ryegrass. These are interplanted, and the seed harvested as breeder seed. He explains that there is a good bit of self sterility in these ryegrass selections, so that appreciable natural crossing must take place.

Among the bluegrass selections, aside from Merion, hybrids and selections out of Anheuser Dwarf are the especial favorites of Dr. Funk. The chief drawback is susceptibility to rust. Some of the Warren selections also look very good, with the A-20 among the best. Dr. Funk says that all of these varieties are rather strongly sexual.

Fylking has looked very good, but it is reported that there are survival problems when it is cut very low. By and large Fylking is indistinguishable from several Penn State selections (K547); planted side by side all look much alike, and were performing well at time of visit. Beltsville's ll7, derived from radiation treatments of Merion, also looks good; it is reported as about 20% sexual. Nugget, from Alaska, is reported very photosensitive, responding differently to day length at different latitudes.

Among the fine fescues, Golfrood, Pennlawn and Oasis were all reasonably attractive at time of visit, especially where mowed tall and not over-fertilized. A good many code selections are being grown, too, which seem to withstand summer weather reasonably well.

There is a small Basidiomycete fungus showing up on all turfgrasses, apparently introduced from agricultural crops. It does not seem too serious, and the researchers are not sure whether it is saprophytic or parasitic.

EXETER PECULIARITY

Fertilizer application on the Institute test grasses made July 12 brought out a peculiarity in the Exeter variety of bentgrass only. Unaffected were Highland, Kingstown and Astoria. Where ureaform fertilizer was applied, the Exeter turned "soggy brownish", as if in the incipient stages of disease. But where it received regular chemical fertilizer at the same nitrogen strength it greened nicely without exhibiting this behavior. Obviously this was not a hot weather reaction to nitrogen. There seemed to be a specific temporary response of Exeter to what is considered the "safest" form of nitrogen for hot weather!

MICHIGAN RESEARCH

Received from a supporter is a copy of "A Review of Turfgrass Research at Michigan State University", offered to attendees at the July 11 Turfgrass Field Day, Lansing, Michigan. This is one of the most concisely presented resumes of any field day program we have seen, notable for giving general conclusions. A wealth of information is conveyed in about 20 pages, representing research work undertaken by more than a score of individuals. Members may be interested in some of the high points relating to lawngrasses of interest to the Institute.

The resume opens with a review of weather and prevailing conditions during the year previous, which might have influence upon the observations. This spring leafspot disease was heavy and early, soil temperatures unusually low and <u>Fusarium</u> blight on the increase.

In bentgrass evaluations (maintained much like a golf green) Penncross has rated very well, being only slightly behind Cohansey and Toronto in the numerical scores. In other comparisons that included colonial bentgrasses, coded selections from Michigan and New Jersey constituted the group with best ratings (also "Springfield", from Kansas), while Highland joined several little-known varieties in an intermediate group. Exeter was among the poorest(only Bore having a lower rating), and Holfior, while considerably better than Exeter, still rated below Highland. The plantings were started in 1962.

A comparison of the ecology of mixtures is continuing, from a planting made in 1962. Rating best are combinations of Kentucky bluegrass and fine fescue (the percentages of each seeming to make little difference). Dr. Erdmann concludes, "Mixtures which originally contained a ryegrass or tall fescue components have not yet achieved the quality level of the Kentucky bluegrass-red fescue mixtures. ..Mixtures containing redtop or rough stalk bluegrass are generally inferior."

Mowing studies confirm what is well known, - that lower cutting heights increase number of sprouts but reduce total leaf area. It is concluded, "A greater leaf area is more desirable than high density."

Bluegrass variety comparisons are in their 5th year of evaluation. Merion and Penn State K547 continue to rate high (as in the past), but Newport and Prato are declining. Brabantia was 70% lost over winter. Quality ratings listed, from the best to the poorest, were: K547, Delft, Merion, Prato, Delta, Park, Cougar, Newport, Campus, Windsor, Common, Brabantia, Poa trivialis.

In a comparison of bluegrass blends combinations of Merion and Common headed the list. Michigan State concludes, "There is not any significant difference in turf quality between blends which contain a Merion component. --The severity of disease has been reduced by blending."

In fine fescue evaluations, Pennlawn and Rainier continue to rate well among commercially available selections. However, newer selections just becoming available rate even higher, along with some coded experimentals. Among familiar names, in the order of the quality ratings given, are: Highlight, Oasis, Golfrood, Rainier, Pennlawn, Olds, Illahee, Chewings, Creeping Red, - and far down the list hard fescues.

Michigan coded selections of perennial ryegrass and tall fescue have rated very well, and along with Pelo and Norlea ryegrasses considerably better than common. Kentucky-31 tall fescue is slightly ahead of Alta. In general, Michigan seems to feel there are advantages to thatch removal, and have statistics showing that collection of clippings lessen thatch accumulation. Among the fine turfgrasses, the fine fescues appeared most easily injured by familiar herbicides (but Betasan also injured Kentucky bluegrass). Pesticide applications have been noted to result in turfgrass response, and the causes are being investigated (as to whether there may be pest control, biological influence through the soil, or some direct stimulation). Several other areas of research activity are discussed briefly, or outlined with listing of the researcher involved.

REPORT FROM PURDUE

Dr. William Daniel, advisor for Indiana, sent his recent report prepared for the Midwest Turf Field Day July 31. Mention of a few of the items may be of interest to turfgrass people.

A great many bluegrasses have been selected since 1952, some reproduced into the fifth generation in studying their variability. Some 3,000 seedlings have been planted and assessed. A punch card system has been developed by which a selection can be chosen according to such characteristics as short leaf, low seedhead, rate of spread, disease tolerance, color and other characteristics. Emphasis is being placed upon search for a vigorous, low-growing bluegrass for roadside usage.

At the moment blending of several bluegrasses is recommended, as the most practical means for achieving widely adapted turf with existing varieties. It is said that Sodco seed will be available in 1969, from breeder seed now being distributed (through auspices of the Agricultural Alumni Seed Improvement Association). Advance orders by sod-growers will absorb initial supply. Four selections are in the blend, at least one out of Anheuser Dwarf.

Both stripe smut and Ophiobolus patch have been abundant on Purdue bluegrass. It is recommended that fungicidal treatment be given bluegrasses that are mowed close. Generous fertilization, needed for attractive appearance, has caused greater leafspot disease on bluegrass, although less rust. The fertilizer encourages thatch formation, but also better recovery from damage.

The search is still on for a chemical which will selectively remove bentgrass from bluegrass-fine feacue turf; nothing very successful has yet been uncovered. The impractically high level of 12 lb. N/M of ureaform is reported to have carry-over into the second year, as would be expected. Dicamba is reported to give effective control of clover at as little as 1/8th pound active ingredient/A, if sprayed with a suitable wetting agent; at least 4 pounds are needed if applied as a granular. Fairy ring seems less evident where calcium arsenate has been used for crabgrass prevention. Extensive comparison of synthetic mixes for the rootzone continues, chiefly of value for intensively maintained turf such as a golf green.

RAIN PASSES INSTITUTE BY

As a whole the summer has been severely dry, for the Institute demonstration and test turfgrass plantings. A cold, wet spring turned very dry in June, with no significant rain until a couple of nice showers in late July. August had less than a ½ inch total rainfall, and early September none. As a result turfgrass has been badly offcolor most of summer, not very suitable for color photographs. We are especially grateful to the automatic irrigation system Toro has furnished, for keeping the bentgrass and other specialty plantings thriving. The plastic, underground Moist-O-Matic system has performed admirably.

DISEASE ON QUALITY GRASS

Dr. Houston Couch, of Virginia, sent a copy of his paper "Relationship Between Soil Moisture, Nutrition and Severity of Turfgrass Diseases". While quite technical, it may be of some interest because of use of various bluegrasses, Rainier and Pennlawn fine fescues, and Highland bentgrass as test species.

It is speculated that differing levels of soil moisture and nutrition should condition grasses differentially to disease. Occasionally this proved true, but seldom in a consistent or predictable fashion. Kentucky bluegrass and Highland bentgrass became more susceptible to dollar spot and Pythium respectively, when subjected to drought stress. But Rainier was more rather than less resistant to red thread when similarly treated. It seemed to not make any difference with Merion Kentucky bluegrass and Pennlawn red fescue. In fact Pennlawn and Rainier fescues acted the same in certain seasons, differently in others. There are so many imponderables and variables that it all becomes quite confusing, and Couch concludes that perhaps it is best to rely upon fungicides rather than nutrition for disease control, basing irrigation and fertilization on grass growth.

If there are any general conclusions, it is that low calcium levels seem to encourage disease, and that high nitrogen (particularly when out of balance with other nutrients) tended to also. Kentucky bluegrass was definitely more resistant to dollar spot under low nutrition. Highland bentgrass came down with Pythium more readily under either imbalanced or high nutrition. Rainier fine fescue suffered greater red thread disease under low calcium and imbalanced nutrition, but Pennlawn suffered likewise only in April-May (not in autumn).

BENTGRASS SEED SENT UNIVERSITY OF CALIFORNIA

Upon request from Dr. Madison, Davis, California, small samples of Highland and other bentgrass seeds were furnished for experimental purposes, and the Highland Bentgrass Commission made aware of this possibility for some gainful recognition.

BLUEGRASS PROMOTION

A well-rounded promotional program for Fylking Kentucky bluegrass has begun. An outstanding new variety of this type, widely promoted, will help to further the quality image of the Kentucky bluegrass name.

PROMOTING BLUEGRASS

A recent copy of Turf and Garden Topics (Borden Chemicals) contains an item "Cue for Bluegrass Sales", drawing upon a Lawn Institute release for information about extending the durability of athletic fields through autumn bolster seeding at the end of the football season.

SOIL CONSERVES FERTILIZER

A good point is made by L. M. Walsh, Wisconsin, in Fertilizer Solutions magazine. Arguing for autumn seeding, he points out that even with soluble nitrates there is insufficient rainfall north and west of the Ohio Valley to leach these from the root zone through winter. Where precipitation is 40 inches or more, or on very sandy soils, there might be loss, and then the ammoniacal form of nitrogen should be used for autumn fertilization. One usually thinks of nitrogen fixation in the soil, and doesn't stop to realize that in the total system there is not much loss of solubles from the soil except in regions of generous rainfall. This is another reason for feeding-seeding lawns through winter rather than awaiting spring.

INSTITUTE'S PHOTO

A Lawn Institute photo was used in the July Lawn/Garden/Outdoor Living, in conjunction with a story on non-farm utilization of fertilizer.

"FINE-TEXTURED" ILLUSTRATED

During July colored slides were snapped contrasting "fine-textured" plantings with "coarse kinds". There are both views looking down on sod, and with the grasses lifted for photographing closeup. Slides were furnished a member interested in utilizing such visuals in his company's educational program.

MORE ON VEGETATIONAL INHIBITION

The Ecological Society presented a series of papers on "Effects of Inhibitors" at the AIBS meetings in Texas. Several papers dealt with materials normally leached from vegetation that have profound physiological or inhibition effects on competing vegetation. Of especial interest to turfgrass people is a report by Robert L. Parenti, University of Oklahoma, on inhibitional effects of crabgrass. Extracts from crabgrass affected tomato seedlings as well as a number of pioneer plants of culivated soil. Crabgrass extract inhibited germination of most seeds. However, decaying crabgrass in the soil did not restrict germination. Several acids found in crabgrass have been isolated and shown to be inhibitory. Parenti speculates that such crabgrass inhibitors influence ecological succession and competition. Other Oklahoma studies show that the early weedy stages of abandoned fields are terminated by inhibitors in <u>Aristida</u> grass. <u>Aristida</u> also inhibited nitrogen-fixing bacteria, which seems to prolong its successional stage up to 13 years (because of its low nitrogen requirement). Perhaps there are similar mechanisms prevailing in lawns?

INSECTICIDE STIMULATION

Charles R. Malone, Rutgers University, reported to the Ecological Society on "Insecticide Induced Responses." He found in old fields much the same sequence of steps often noticed when lawns are treated with pesticides. An old field treated with diazinon showed an increase in herbaceous species diversity, with increased root production. Population of soil organisms were altered. Surprisingly, rate of soil organic matter breakdown was increased. By the second season an equilibrium was reached much like that prevailing before treatment. Such studies are reassuring, that chemical treatment of lawns will not be detrimental; indeed, side effects are apt to be stimulative rather than the contrary.

SOD CERTIFICATION

The trend towards sod certification continues unabated in the big consuming states. We have word from the University of Maryland that Mr. Malcolm Sarna is now in charge of sod certification, a practice said to be "extremely well received and a worthwhile program for metropolitan areas." The implied demand for quality seed is obvious.

ROADSIDE CONFERENCE

The Extension Service of the University of Vermont informs us that the 4th Annual New England Agricultural Chemical Conference on "Roadside Beautification and Pest Control" will be held at Concord, New Hampshire October 24-25. Emphasis is on landscape beautification. Institute literature relating to roadside planting is being offered for handouts.

BENTGRASS SALT TOLERANCE

Research in California by Youngner and colleagues, reported in the July-August Agronomy Journal, showed Arlington and Seaside creeping bentgrass to be reasonably tolerant of salinity, but Penncross least tolerant of the varieties tested. Some plants out of a Seaside population survived extreme salinity, indicating variability within the strain.

NEW GOVERNMENT BEAUTIFICATION PUBLICATION

Just received with a press release is the new miscellaneous publication 1056 from the USDA, entitled "A Guide to Natural Beauty". One might wonder whether the USDA should be spending tax money in competition with the various gardening and outdoor publications, in issuing a sumptuous 30 page book such as this containing no less than 35 color plates, some of them two-page spreads. One might also question the skimpy factual information provided amidst all this glory, and the backpatting lavished on government activities in this field. Overlooking these matters, this beautiful guide carries a listing on the back page that cites other government publications dealing with various facets of home beautification (included, for example, is the familiar G-51, "Better Lawns", available at 15¢). Within the publication itself there are occasional references perhaps of value in landscaping, but relatively little about lawns. The sole admonishment noted: "And for variety allow the lawn to run up to the base of the house at various points."

LAWN MOVIES STILL IN DEMAND

Dr. Glen Wood, Institute advisor for Vermont, wrote wondering where good lawn movies might be secured for class use. "Bluegrass Beauty" is, of course, out of date, although filed copies were offered. More recent is the Union Pacific movie, which was suggested; and "Beautiful Lawns", by the National Plant Food Institute, for which the Lawn Institute was consultant. This request typifies the continuing interest in movies about lawns and lawn making, sponsorship of which would seem very worthwhile could the Institute muster sufficient budget.

SEAL OF APPROVAL REPORTS ISSUED

Royalty reports for the Seal of Approval have been put on a twice-a-year basis, issued at the end of June to cover spring sales, and at the end of December for autumn sales. All Seal users received their talley sheets the first week of July.

SEAL MAILING MADE

A note was sent to all packager members of the Institute not currently utilizing the Seal of Approval, reminding them of the availability of this consumer identification. The rules governing use of the Seal are explained by a mimeographed inclusion. We wish to emphasize that utilization of the Lawn Institute "Seal of Approval" is not exclusive, and is available to qualifying mixtures of all member firms.

WEATHER

The summer "Bull Sheet" (Bulletin of the Midwest Association of Golf Course Superintendents, to which the Institute has contributed) offers a ten year record of the wind direction in gusty Chicago. In spite of being in the belt of the prevailing westerlies, there is a great deal of variability. Twelve percent of the time there is so little wind as to rate calm. Forty two percent of the time there was a westerly component, 35% of the time a southerly component, 26% of the time an easterly component and 28% of the time a northerly component. (Of course this does not add up to 100%, because each "in-between" is counted for both compass directions - "Southwest" in both "South" and "West", for example). This should convinwe those installing irrigation, of the futility of compensating for "prevailing" winds.

VARIABLE APOMIXIS

Research done by R. B. Knox at the National University, Canberra, Australia, showed apomixis in the <u>Dichanthium aristatum</u> not to be fixed, but to vary from nearly 50% to almost 100% in response to prevailing conditions. Most important was the photoperiod prevailing during development of the inflorescence; there was direct response to the length of day. Because of relationship of day length to latitude, it is apparent that the same clone might have differing degrees of apomixis depending upon where it is planted. A study of this sort might prove instructive for Kentucky bluegrass, in which apomixis often seems to be facultative rather than fixed for the genotype. The Knox report appeared in the July 21, 1967 issue of Science.

INSTITUTE QUOTED

The Lawn Advisory Service, which lists itself as "Division Soil Advisory Associates, of Alexandria, Virginia, sent a copy of its newsletter, Volume 3, Number 8. The newsletter opens, "Dr. Robert W. Schery, Director of The Lawn Institute in Marysville, Ohio, gives us the following.....". The letter goes on to define thatch and discuss measures to be taken, the quotation apparently picked up from Institute stories and reprints. This provides an excellent example of the way in which items once done trigger additional reach and influence. This newsletter lists itself as "Circulated privately by Las Alexandria Services, Leesburg, Virginia."

REPRINTS USED

An order from the Borden Chemical Company called for reprints from Resort Management magazine, on "Essentials for Lawn Care: Weed Killers and Pesticides". The distribution will be to key people and outlets. You will recall that this story recommended, "Kentucky bluegrasses are especially tolerant of pesticide chemicals, as are fine fescues."

INSTITUTE LITERATURE TO DEALERS

In visiting with Gus Day, Maryland, at the National Turfgrass Field Day, Dr. Schery was asked if reprints could be supplied for mailing (by Day) to all dealers in the area. These were promised without charge if Mr. Day will undertake the circularization.

RESPONSE TO PRE-EMERGENCE HERBICIDES

A report by Engel and Callahan appeared in the April issue of Weeds, on the response of Merion Kentucky bluegrass to residues of pre-emergence crabgrass herbicides. After 23 inches of simulated rainfall terbutol (Azak) and bensulide (Betasan) still provided sufficient residue in the top two inches of soil to seriously reduce Merion root growth. Chlordane did not show any restriction of root growth, but it was noted when Dr. Schery visited the Rutgers campus recently that grass plots where chlordane had been used for crabgrass control many years ago were still noticeable because of their thinness.

WETTING AGENTS AID GERMINATION

A California study reported in Volume 48, Number 3 of Ecology, "Seed Germination and Establishment as Affected by Non-Wettable Soils and Wetting Agents", indicates that wetting agents may be useful in encouraging germination, better growth, and protection from erosion on types of soil that are basically non-wettable. However, with soils that are not hydrophobic, the wetting agents seem to have little value, and in some cases interferred with germination and growth of the cover. Wimmera ryegrass was the test species.

MORE ON TURFGRASS DEFICIENCY SYMPTOMS

Larson and Love, in the August issue of Golfdom, report on "Minor Element Deficiency Symptoms in Turfgrass". This is a laboratory study undertaken at the University of Wisconsin, and deals with a condition almost never found in the field (except for iron). However, with the recent trend towards artificial media for golfgreens, some bentgrass growing is not greatly different than laboratory hydroponics. It is thus good to have descriptions and a color plate showing deficiency symptoms, which are described for iron, manganese, zinc, molybdenum, boron and copper.

FROM U.S. STEEL

It is flattering when a corporation the size of U.S. Steel hears of the Lawn Institute. In late August the Commercial Research Department wrote from Pittsburgh, asking for certain items of information, "regarding residential and commercial acreage in lawn and turf, --".

BLUEGRASS FERTILIZATION

Juska and Hanson, reporting in the Proceeding of the American Society for Horticultural Science, offer interesting evidence on, "Effect of Nitrogen Sources, Rates, and Time of Application on the Performance of Kentucky Bluegrass Turf". It is not possible to review all of the conclusions and details, but in general Kentucky bluegrass was of poorer quality (more leafspot) when it received higher and more pronounced levels of fertility. Modest fertilization, especially in the autumn, was usually preferable. Fertilization increased turf density somewhat (season of application not making much difference) in good growing years, but lessened density during severe drought. Conclusions from this research on 189 test plots in the Washington D. C. area would seem to be that a single annual application of nitrogenous fertilizer sufficed, and that it made not a lot of difference at what season or what type of nitrogen. Organic and ureaform nitrogen, being less efficient, often gave less disease just as did the control.

CANADIAN PAPERS

We are pleased that the Toronto Star, Hamilton Spectator and Canadian Homes magazine, for whom H. Fred Dale is garden columnist, featured Institute materials in autumn. Mr. Dale wrote to the Marysville office for four photographs to back up materials contained in the press kit. We have had excellent reception of Institute materials from these Canadian publications.

SUNSET MAGAZINE

In an exchange of correspondence with Joe Williamson, Garden Editor for Sunset magazine, it was determined that Sunset has in the past featured wintergrass overseeding in appropriate editions, and will continue to do so in 1967. Mr. Williamson is contemplating this winter undertaking some demonstration plots on his own grounds, which would be photographed from time to time for use in emphasizing winterseeding at a later date. He asked of Dr. Schery what wintergrass species would be appropriate, and it was suggested that the blend of fine fescue, Kentucky bluegrass and Highland bentgrass used in Florida might be a good item to try.

BLUEGRASS FEATURED

In the "resort area promotion" column of July Resort Management (which also contained an Institute story), there was pictured a 2 ounce carton of Kentucky bluegrass seed, being sold in all state parks of Kentucky. Top of the carton reads "Kentucky native grown bluegrass seed - Punch and Sow".

STORY IN BUILDINGS

The September issue of Buildings Magazine carried the Lawn Institute story entitled, "For Springtime Beauty--Give Lawns Fall Care". There were three columns of text and an insert box entitled "Guide to Northern Lawn Grasses". In the latter were featured the fine-textured grasses, natural, Park and Merion bluegrasses, and the Oregon fine fescues mentioned by name. Sample quotes from the text include, "With dense bluegrasses, such as Park, thatch does not build up rapidly--fertilize Kantucky bluegrass or Highland bentgrass at least once and preferably twice during the autumn season. Bluegrasses, fescues and bentgrasses are not bothered by autumn frost--Kentucky bluegrass is notably tolerant of herbicides. The fine fescues (main varieties are Chewings, Illahee, Pennlawn and Rainier) are nearly as tolerant as the bluegrass. Bentgrasses require a bit more care, although the Lawn Institute reports that Highland bentgrass proves quite resistant to damage in tests."

SOLUTIONS STORY

The September-October Fertilizer Solutions carried the Institute Story, "Lest Hunger Haunt Your Lawn". This was attractively laid out with illustrations and a map. The prominent fine-textured turfgrass varieties were emphasized, enumerated and briefly described. Reprints are being offered.

INSTITUTE CREDITED

Chronicle Occupational Briefs sent the Institute a copy of its revised brief on "Landscape Architect", crediting the Lawn Institute with help and cooperation in supplying and reviewing the information contained. We are pleased to have been able to lend this assistance.

STUDENT HELP

Occasionally the Institute can be of help to students, such as this candidate for an advanced degree at Western Michigan University, who writes: "I am attempting to compile a history of turf as an introduction to my thesis. -- Drs. and Beard at Michigan State suggested that I write to you concerning this matter." Several Institute reprints were sent to Mr. Kurtz.

ANOTHER FILM REQUEST

Dr. R. C. Lambe, VPI, Virginia, inquired upon the suggestion of the University Turf Specialist, whether the Institute might furnish a film on home lawn management. Regretably "Bluegrass Beauty" is now retired, after 3,336 showings, and could not be furnished. Dr. Lambe was referred to the excellent Union Pacific film on lawns, and to that sponsored by the National Plant Food Institute (for which the Lawn Institute, in the person of Dr. Schery, was consultant).

GARDEN WRITER TOUR

In conjunction with the Horticultural Congress meeting in Cleveland, the Garden Writers Assoc. of Am. had its annual meeting and a preliminary tour. Dr. Schery met Barbara Emerson (President) and the group at the Wooster Research Center (Ohio State Univ.), where turf and ornamentals were inspected. Almost all grass plantings looked excellent where irrigated, but ragged from drought where not. Bluegrass varieties and fine fescues were featured.

The tour continued to Kingwood Center, Mansfield, Ohio, outstanding as a well-run botanical garden in this area; Director, Dr. Ray Allen, entertained the group at lunch. Conducted tours of library and grounds preceded adjournment and visits the next day to commercial horticultural enterprises in the Cleveland area.

STORY IN RESORT MAGAZINE

The Institute had a by-line story in Resort Management, July issue, winding up discussion on spring and summer lawn care. This segment was entitled "Essentials for Lawn Care: Weed Killers and Pesticides". Dr. Schery called attention to the excellent ability of quality lawn grasses to endure herbicidal treatment, - "Kentucky bluegrasses are especially tolerant of pesticide chemicals, as are fine feacues." The story has been reprinted and circulated.

ROADSIDE SEEDING IN VERMONT

Winston Way, Extension Agronomist for the University of Vermont, provided the Institute with the seeding mixture and practices currently being used for roadsides in Vermont. It's quite a conglomeration. Here is what is being used:

| Creeping red fescue | 33.3% | 20非 | 97 Purity | 82 Germ. |
|--------------------------|---------|-------|-----------|----------|
| Tall Fescue | 10.0 | 6 | 95 | 80 |
| Kentucky bluegrass | 16.67 | 10 | 85 | 75 |
| Redtop | 8.33 | 5 | 92 | 90 |
| Domestic ryegrass | 16.67 | 10 | 98 | 90 |
| Empire Birdsfoot Trefoil | 8.33 | 5 | 99 | 80 |
| Weed seed | 0.42 | 1/4 | | |
| Inert | 6.25 | 3-3/4 | | |
| Total | 100.00% | 60# | | |

THANKS FOR INFORMATION

Lawn/Garden/Outdoor Living recommended the Institute as a source of information to a Milwaukee public relations firm. We are pleased to note this appreciation: "Dear Mr. Bartonek: We have been in contact with Dr. Schery of the Lawn Institute and have received a substantial insight into the problems of turf and specific answers to the questions we posed."

THANKS FROM NORTH CAROLINA

When the Charlotte Rose Society contemplated a program on lawns, Mrs. Miller wrote the Institute for information. Many reprints and a copy of the "Householder's Guide" were furnished. It is very gratifying to have Mrs. Miller's acknowledgement: "Thank you so much for the literature and personal summation for the Garden Club program on 'Lawn Care'.. I have acquired a workable knowledge that will benefit me greatly in lawn care, and for which I am most appreciative. I love your book. It is the most complete, easily understood and informative book that I have ever read...I shall use it often and treasure it for years."

NEW LAWN AND GARDEN EQUIPMENT

Dr. Schery was invited to a special preview of John Deere lawn and garden equipment, in Columbus. For two years the company has lent the Institute a tractor for summer mowing. The new models are not to be unveiled until late October, but is not revealing any secrets to say that they are becoming ever more elaborate and full of conveniences. Similar to the horsepower race in automobiles, more power and greater capacity is the watchword, with new models aimed for the institutional market. In addition to grass-saving features, such as flotation tires, variable forward speed, mower independent of tractor speed, etc., these intriguing miniature tractors are ending up with sports-car type brakes, hydraulic transmission, and all sorts of automatic lifts for tillers, snow blowers, and various other attachments.

FOR AMERICAN HOME

Editors of American Home magazine have accepted a custom Institute story on "Play Lawns", for publication early next season. The story emphasizes that play lawns are no different than other fine lawns in choice of grasses to be seeded, but that care is "practical" rather than for appearance. Grass species and varieities are charted, and their proper care briefly discussed.

STORY IN BETTER TURF AND GARDEN

A beautifully colored map featuring northern and southern grass zones was the hallmark of the story "Grass Seed Varieties and How to Select Them", done for this National Farm and Home Publications (Borden sponsored), Dr. Schery and the Lawn Institute are given by-line credit. Southern grasses are not mentioned except in the caption to the map, whereas Kentucky Bluegrass, Fine or Red Fescues, and Bentgrasses are all developed in detail. In each case the prominent varieties are listed by name, such as: "Select varieties include Chewings, Highlight, Illahee, Pennlawn and Rainier.", and "The best lawn varieties from seed are Astoria, Highland and Penncross."

ON WINTERSEEDING

We don't know for certain whether this statement, in "Southern Living" (Birmingham, Alabama) results from last year's mailing, but it is good to see the advice: "In recent years Kentucky bluegrass and fescue and different mixture of these and ryegrass have also been used. Test plot mixtures of ryegrass, Kentucky bluegrass and Pennlawn fescue at Mississippi State University produced better quality turf lawns than any of the three seeded alone".

IN THE AUTUMN PRESS

Picked up from our press clippings are these items of encouraging advice, perhaps stimulated by the persistent barrage of Institute literature.

From the Schnectedy New York Union Star, under the title "Anyone can Manage a Fine Lawn", we read "Kentucky bluegrass, Merion bluegrass, fine fescue or Highland bentgrass do well." In an item widely spread to Ohio newspapers, presumably by the Extension Service, we find, "Use good quality grass seed. Don't buy seed by price --. That which is priced low per pound usually contains many wide leaf, undesirable grasses such as coarse fescue, timothy, ryegrass and redtop. It doesn't take much of these grasses to give a ragged appearance to a lawn in several years. --stick with Kentucky bluegrass -- or a mixtured of several varieties /including fine fescue for shade/".

A number of Michigan papers stated, "Kentucky bluegrass is a good seed for most homeowners to use. Beware of lawn seed mixtures that contain coarse, undesirable species."

SIDE BENEFITS

The more "lawn talk" the Institute can generate, the more chance to publicize fine turfgrasses, even though the thrust of a discussion is something else. For example, from Fertilizer Solutions magazine, we have this word, from the editor," I will be looking forward to receiving another article from you with the new fertilizer data from 1967 tests." With fertilizer tests conducted on quality grass, obviously the two must be discussed together.

COLUMNIST CITED

Editor and Publisher notes that George Abraham, who frequently utilizes Institute material and is familiar correspondent with the Marysville office, has been cited by the American Association of Nurserymen as the "Nation's foremost garden writer". The Editor and Publisher item gives background on the writing team of "Doc and Katy" and their "Green Thumb" column and radio program out of Rochester, New York. The column drew 150,000 pieces of mail last year, many of which were serviced with Institute reprints.

STORY FOR ROSE ANNUAL

At the request of Keister Evans, Executive Secretary-Editor of the American Rose Society, Dr. Schery has prepared for the next-to-be-issued Rose Annual a story about lawngrasses, tentatively titled "Seed and Feed to Hex the Weed". Most of this fairly extensive presentation is in the form of charts and tables, which list the major fine turfgrasses and salient features about them.

FLORAL MAGAZINE EDITOR

Charles J. Hudson, Jr. has assumed editorship of The Floral Magazine, in Greanwood, South Carolina. Charlie writes, "Of course, lawnmaking comes into the picture vividly, so I would like to get a story from you on 'The Essence of Good Lawn Making' for the April issue of our magazine." Naturally we are happy to oblige, and wish Charlie the best of luck in his new assignment, as well as Elvin McDonald (former editor) in his with House Beautiful.

IN COLUMBUS DISPATCH

The Sunday, August 20 Garden Section of the Columbus Dispatch carried an Institute by-line story, "Label Tells True Story". Excerpts: "--distinguish a fine fescue seed from a bluegrass -- the label groups the components as 'fine textured' and 'coarse kinds' -outstanding in this category are Kentucky bluegrass varieties, and the fine or red fescues such as Chewings, Illahee, Pennlawn and Rainier. Bentgrasses such as Highland also fall in this group.--"

OUTSIDE HELP

The manufacturer of a sprinkling device in Oklahoma contacted Dr. Schery about an informational booklet to accompany the product. In offering text for this proposed booklet, which it is hope will be distributed nationally, it was possible to emphasize the quality lawngrasses and especially refer to the "fine-textured" types important in the newer labeling. A box insert lists the quality lawn species by kind, and briefly defines the more prominent varieties of each species. We think this will be a very useful national summary of the important steps in lawn establishment and care.

RADIO-TV APPRECIATION

A card was received from WNDU, South Bend, Indiana, thanking the Institute for the press kit and commenting, "We plan to use these kits on our sign-on Farm and Garden Show".

INSTITUTE LITERATURE TO LIBRARY

Upon the request of Dr. R. G. Roe of the University of Wyoming, all reprints for the fiscal year ended were sent to the librarian.

WHAT THEY ARE SAYING

"Thanks for all the help you have given us, ... I'm mighty fortunate in being able to call on you." -George Abraham, AP Columnist

"You convinced me -- I'm going to try a bluegrass and fescue mixture as a wintergrass on all three of my lawns." -Joseph F. Williamson, Sunset Magazine

"Thank you very much for the article, and we'll be sure to use it..." -Bill Quinn, Lawn Equipment Journal

"I am sorry that I have not acknowledge your releases, - I find that they are very helpful. When I started in Turf, a few years ago, I never realized that we would have so many contacts for assistance in New Hampshire." -Leroy Higgins, University of N.Hampshire

" ---thanks for the arrival of your August 10th letter and the excellent slides enclosed. We are most grateful to you for your splendid, continuing service to the industry!" -W. Peigelbeck, Patco Products, Inc.

"Many thanks for your favors to ARS." -American Rose Society

"I appreciate your sending me the information requested concerning lawn culture, management, and care. In my extension work I need to work rather closely with seed dealers, sod producers and home owners as well as golf course and athletic field managers...I would like to have my personal copies so that I can refer to them from time to time...the material that you have been putting out...is quite helpful to the entire industry and to those of us in the extension field." -Joe Newcomer, University of Maryland

"I have collected and greatly value your splendid "Turfgrass Portraits"; ...your advice will be anticipated with appreciation and hope I will know just what to advise and do at this season." -Anne Bruce Haldeman, Landscape Arch,Ky.

"I have just received your latest literature resume and am delighted." -Joseph A. Keohane, Kerr-McGee

"I glanced through your more recent Better Lawn and Turf Institute folder. I think you have it filled with excellent material for the garden editor." -Rex Warren, Oregon State University

"We have appreciated receiving all the various information that you have been sending us.. Thanks again for your cooperation." John Deere Company

"Your recent 'Potpourri' on lawns, lawnseed and lawn care are the most interesting that you have put out,...Much good should come from this issue."

-C. H. Farris, Rudy-Patrick Seed Co.

"Thank you so very much for your splendid letter so fully answering my questions no one but you could have done. And I was delighted to have the missing "Portraits" which I value so highly." -Haldeman & Leland

"Many thanks for your prompt compliance. Your material is in line with what we had in mind. It will be an asset to the 1968 book." -O. Keister Evans, Jr., Am. Rose Annual

"We appreciated your taking time to attend our Lawn and Garden sales meeting..." -John Raber, John Deere Company

WHAT THEY ARE SAYING

"Your press kits this year have been most helpful, and I have used the material both on my Sunday garden page and my radio program."

> - Margaret C. Crooks, Garden Editor Asbury Park Press and Radio WJLK

"Thank you very much for your assistance in the revision of the brief LANDSCAPE ARCHITECT. We appreciate the fact that you gave your time and personal attention to this matter." - Chronicle Guidance Publications, Inc.

"Thank you for the excellent article on seed; we will use it as presented in our November-December issue."

- Thomas O'Hara, The Golf Superintendent

"It must be evident to you that the panel in which you participated was one of the high points of the Twenty Second Horticultural Congress. I am most appreciative of the thought, time and effort you put into making this so and thank you in behalf of all who attended these meetings in Cleveland."

> - R. Henry Norweb, Jr. The Holden Arboretum

"Your letter of September 5 was very welcome, indeed, ---. As you suggest in your letter we have been using bluegrass - - adding some fine fescue as we have some shady areas."

- McLean, Virginia