

BETTER LAWN - - HARVESTS

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PRESS KIT ISSUED ON SCHEDULE

The spring 1981 Institute press kit, designed chiefly for garden writers, and editors of newspapers having gardening pages, was mailed in early February. Seventeen pages of text were included, with covering letter, two back-up informational reprints, and four "reproduction quality" two-and-three column illustrations.

The tail item on page seventeen offered the Variety Review Board list of cultivars to anyone sending in a stamped envelope. Ever since release of the press kit a trickle of such requests has come to the Marysville office, indicating that this offer has been utilized by the newspapers in various parts of the country.

COOPERATIVE SUPPLEMENT PUBLISHED

Lawns, Gardens and Pools, 1981 was mailed out by Pflaum Associates in early February. This is the cooperative informational sheet, in newspaper format, designed chiefly for smaller newspapers not having gardening editors (the items can be placed in the papers just as they are without change). This year the cooperative venture was sponsored by these associations, in addition to the Lawn Institute (and the Lawn and Turfgrass Division of the American Seed Trade Association, which shares expenses): American Association of Nurserymen, International Fence Industry Association, National Bark Producers Association and National Spa and Pool Institute. Space, including illustrations, is apportioned according to participation. The Institute enjoyed nearly 100 column inches of text and 4 illustrations including a front page cartoon. The printing is folio-size, 12 pages, front side of pages only (since items would be destroyed when necessary to cut out others on the opposite face). As information is gained from Pflaum Association concerning response, we will pass comments along to the membership in future Harvests. One thing is certain: costs will be about a third greater next year for participants if the present form of publication is maintained.

HORTICULTURE STORY APPEARS

"A Spring Tune-Up For Your Lawn" is the titled settled upon for an Institute story in Horticulture magazine, March issue. The editors chose an attractive format, utilizing line drawings. The several pages were combined into an over-length reprint, which has been circulated to the membership.

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HORTICULTURE STORY APPEARS - Continued

We are especially pleased with the prominence given Variety Review Board listings, which appear in attractive tabular form under the heading "Best Bets For Your Turf".

Gist of the article is spring lawn-to-do's. Overseeding to bolster thin turfs is suggested, techniques explored, with the newer cultivars suggested for upgrading turf quality. A balanced approach to fertilization and weed prevention follows.

AMERICAN LAWN APPLICATOR STORY

Upon assignment from the American Lawn Applicator, Dr. Schery prepared "Turfgrass, The Times and Some Trends" for the magazine. The story, with an attractive box entitled "The Niche of the New Lawn Cultivar", appeared in the March issue.

The article opens noting that considerations concerning lawns and their care face change. Many improvements have come, but public fears have also arisen (as is the case with pesticides, and suspension of silvex). Yet, the technology is excellent, the infrastructure in place. It is believed that biological considerations are likely to become more important in the future.

Lawn service firms will generally be pleased with the evolving lawn seed regulations, as embodied in the Pennsylvania law. Some of the trends in the lawn seed industry are reviewed. Principally the advantages of modern cultivars, as exemplified in the boxed listings, are highlighted. All of these cultivars serve some useful purpose and were selected as an improvement over common grass.

The story has been reprinted and mailed to members. If the supply holds out, it will probably be used in a forthcoming press kit as a back-up informational leaflet.

FLOWER AND GARDEN CARRIES ITEM

The story entitled "In Bluegrass Country . . . Lawn Repair Likely" appeared in the May issue of Flower and Garden magazine. The item was timely, since it dealt with the consequences of last year's drought and bad weather that wiped out lawns from Texas to Minnesota and along the East Coast. Even yet sufficient rainfall has not compensated for the dry autumn and winter.

The story outlines two approaches to devastated lawns, - one complete remaking, and the other renovation preferably utilizing a knock-down chemical such as glyphosate. New turf-type perennial ryegrasses are suggested for quick repair, and the article provides a special box listing the Variety Review Board perennial ryegrass cultivars.

Although the item is seasonal (spring), and refers to present conditions (results from 1980 weather), the problems are recurring. Reprints have been circulated, and additional copies offered where good use can be made of them. Early in the season is opportune time to think about repairing lawns damaged by intransigent weather.

INSTITUTE ELECTIONS CARRIED

The February issue of Lawn Care Industry carried on page 23 the complete resume of election of officers and trustees as a result of last year's annual meeting.

FOR THE LANDSCAPE ARCHITECTURAL FORUM

We are indebted to Richard Hurley, Lofts, for steering a request from Gail Gridley, President of Gridco Publishing, publisher of the Landscape Architectural Forum, for a story about the new fine-textured tall fescues. Under the heading "Rebels in the Tall Fescue Ranks" an article was sent to Ms. Gridley in early March, which hopefully will prove suitable for her needs.

The story emphasizes exciting possibilities for releases such as Falcon and Rebel, assuming experience confirms their durability (like their cousin, Kentucky 31). Both are polycross combinations out of the Rutgers breeding program, with other releases expected shortly. The "fine-turf" characteristics of the new cultivars are discussed, along with the general adaptation of tall fescue for difficult middle latitudes. An excellent color picture of a Rebel planting at the Congressional driving range near Washington was provided by Mr. Hurley, which, if used, will dramatize the story.

JOURNAL-AMERICAN REQUEST

Sherry Grindeland, special sections editor of the Journal-American, Bellevue, Washington, requested of the Institute a Variety Review Board listing of cultivars, and "Any other grass publications or stories that might be suitable - - -". This was for a special gardening section to be published April 11. Informational literature was sent Ms. Grindeland, and custom articles offered as time permitted. She was referred to Lawn Keeping for a more complete discussion of turfgrass ecology in her climatic region.

SEED WORLD STORY PREPARED

Glenn Wiklund invited the Institute to prepare an item about lawns, for the annual spring issue of Seed World. Unfortunately the invitation arrived when Dr. Schery was out of the country, and when he returned mail delays made it doubtful deadline could be met. Nevertheless an item was prepared, and forwarded immediately to Des Plaines, entitled "Lawnkeeper's Calendar". The story approaches lawn establishment and care on a seasonal basis, and carries a tabular listing of Variety Review Board cultivars as a reminder of the "good things" available today for improving lawns. This issue of the magazine had already gone to press, but it is anticipated that publisher Wiklund may be able to use the story on a future occasion.

ENCYCLOPEDIA TEXT READIED

The Institute received from the Encyclopedia Division of McGraw-Hill Book Company, galley proof for the 5th edition of the Encyclopedia of Science and Technology. The subject of "Lawn and Turfgrasses" was written up by Dr. Schery, originally for 1980 publication. Corrections and updatings have been suggested to bring this into 1981 relevance, with newer Variety Review Board listings included (America, Merit and Vantage bluegrasses; Falcon and Rebel tall fescues). The treatment opens discussing "Modern Turfgrasses" proceeds with "Turfgrass Management", and winds up with "Pest Control". A lawngrass zone map, and a table of Variety Review Board cultivars, serve to illustrate the piece.

AN ASSIST FROM DOC ABRAHAM

Doc and Katy Abraham, widely recognized "Green Thumb" columnists, support the Institute position in their column in the March Nursery Business. They scorn the thought of lawns let "grow wild". These columnists say, "Any nurseryman or landscaper who talks a customer into letting a lawn grow wild has to be insane - - - a \$50,000 home can have an abandoned look if surrounded by weeds instead of grass - - - a trimmed lawn can increase the value by - - - as much as 15%".

INFORMATIONAL PROGRAM WITH A SOUTHERN FLAVOR

Jim Bennett, producer of the "Weekend Gardener" aired on television stations in many parts of the South (and increasingly in the North as well), has asked the Institute for assistance. A copy of the Lawn Keeping book, the spring press kit, and other supportive literature touching upon southern conditions, was mailed to Mr. Bennett at the Aiken, South Carolina, offices. Large scale distribution of the program will begin in June. Bennett indicates that it will be a somewhat livelier type of dirt gardener approach than used by Crocket.

EXTENSION IN URBAN AREAS

Perhaps a portent of things to come is a program announced for homeowners in the "commuter corridor" between Columbia and College Park, Maryland. An integrated pest management program has been announced this year as an urban phase of the cooperative extension service.

Advisory service will be offered for controlling pests in lawns and ornamentals. The advice will be based upon weekly scouting reports, and all participants will receive a loose-leaf binder, various pre-punched leaflets and fact sheets, a customized landscape map, soil test, etc.

The idea is to provide intelligible advice for prompt action by the homeowner himself. Only to a limited degree will it compete with services offered by lawn service companies. The program will not furnish the services.

THAT LAWNS ARE NOT UNDULY COSTLY IS PRESSED

Bob Russell noticed in the January Nursery Business magazine, a "Viewpoint" discussion by Ann Reilly, in which she characterized lawns as "high energy consuming". A note to Ms. Reilly from Mr. Russell protesting this statement resulted in exchanges of correspondence and interchange of literature with the Institute. Not all lawns need be extravagant of energy, and considering the country as a whole there is nothing more efficient than the conventional lawn for handling the urban landscape. Custom materials have been offered Nursery Business should Ms. Reilly wish to explore the matter further.

ROTHWELL ELECTION ANNOUNCED

The January Park Maintenance magazine carries in its "People in the News" column, mention of the election of Institute officers, noting that Mr. Rothwell is the first Canadian to hold the President's office since the Institute's founding in 1957.

INTERNATIONAL SEED REQUEST

Howard C. Lee, The Queen's University of Belfast, Plant Breeding Station, Manor House, Loughgall, Armagh, Northern Ireland, U. K., requested seed samples of all the varieties available here from the Marysville office. Mrs. Scheiderer sent one Chewings fescue, five perennial ryegrasses, and eight Kentucky bluegrass in mid-February.

Dr. Lee's letters also indicated interest in reprints relating to lawn-care, especially regarding Kentucky bluegrass. A goodly number were forwarded. Lee's letter acknowledged, "I would like to thank you and Dr. Schery for your help and cooperation in this matter." We are pleased to cooperate in this international courtesy.

NATURAL GRASS FOR ATHLETIC FIELDS

The University of Nebraska is quoted in the March Grounds Maintenance as indicating that "natural turf is best for athletic fields" according to coach John Melton. Coaches prefer natural over artificial turf the Nebraska football coach told a turfgrass conference in Omaha. Melton feels there is less injury, and that natural turf is "easier" on player's legs. He did recognize, however, the advantage of artificial turf in inclement weather.

SCHOOLS CONTINUE TO REQUEST INSTITUTE LITERATURE

Several times weekly requests are received from horticulture and related departments in schools around the country, requesting Lawn Institute informational leaflets about lawns. The requests apparently originate from an offer in a publication going to these schools that lists sources of free educational materials. We are pleased to note the popularity of this service.

STORIES IN TROY, OHIO, DAILY NEWS

A forty-page supplement, the so-called, "GROW Magazine" appeared in the Miami Valley Sunday News, March 29. We're indebted to garden editor Morris for sending us a copy. Utilized with credit were Institute items embracing four pages, - 11 - 14. Many titles are from the press kit, and a large spread is a recopy of the story done for Country Gentlemen Magazine. We are most gratified with this abundant use of Institute materials in an excellently edited garden supplement.

MIDWEST REGIONAL TURF CONFERENCE

Dr. Schery attended the Midwest Regional Turf Conference at Purdue University, March 2,4. A complete resume of the conference will be provided in Harvests when the Proceedings have been received (it is impossible to cover all sessions, three of which run concurrently). Dr. Schery's assigned papers are provided in this Harvests separately, since they will not be reprinted for distribution to members.

As is typical, this conference is well attended, with representation especially from the Midwest. This year "acknowledgement" was given Bob and Inez Dunning, of Oklahoma, posthumously, for their contributions. Dunning was the subject of the opening presentation by Larry Runyon, of El Paso, Texas. Subsequent general coverage in the opening session discussed the energy gap (80 quads today, which by the year 2,000 may be 15% satisfied through biomass). Other general presentations were on the order of reminiscences by old timers, with Wayne Huffine, Oklahoma State University, discussing "Old and New Grasses". At the convention banquet Joe Rossillon, of Minneapolis, hit hard at impending water shortages.

After the opening session, the conference broke up into three coordinate groups: Golf Courses, Professional Lawn Care, Grounds and Landscape/Sportsturfs. All in all the meetings provide a useful assemblage of varied interests, perhaps more valuable for developing acquaintanceships and familiarity with areas of investigation than in actual information imparted.

Institute's contributions to the conference, as mentioned, follow:

NEW CULTIVARS AND TURF CARE

Dr. Robert W. Schery
The Lawn Institute

Specially bred and highly selected turfgrass cultivars are a fairly recent innovation compared to agricultural crops for which "varieties" have been chosen since time immemorial to enhance production and facilitate harvest. It began with Merion bluegrass about mid-century, and is currently reaching a crescendo. Merion (and subsequent improved cultivars) proved that without doubt a market exists for better quality, esthetically pleasing turfgrasses even at a premium.

New cultivars are invariably screened for low-dense growth and disease tolerance. However, other characteristics can weigh heavily, too, - things like durability under climatic extremes, vigorousness, tolerance of special conditions (such as acidity or alkalinity, or chemical treatments), and so on. Indeed, today, sophisticated choice may extend to color, texture, length of season, response to weather, palatability to insects, seed size and its germination, compatibility in mixtures, tendency to thatch, mowing quality, wear, perhaps even allelopathic responses. In short, a new cultivar may feature almost any imaginable quality, - but it must show no serious deficiency in other respects.

The breeding of new cultivars follows many avenues. Sometimes this is simply left to nature, and selection made from the huge assortment of grasses on display in the turfs and hedgerows of an urbanizing world. This has been particularly successful with Kentucky bluegrass, where a high level of ploidy and aneuploidy allows a good bit of genetic heterogeneity even with an apomictic "inbred". But

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proven bloodlines have been isolated and crossed, too, to yield elite cultivars. With the perennial ryegrasses and most of the fescues, well-adapted bloodlines are isolated, then intermixed for random crossing (the "polycross"). Parental lines are subject to rigorous mass selection and isolation, of course, but polycross recombination seems to impart enough heterogeneity here, too, to avoid inbred weaknesses. Some turfgrasses are used as pure lines, an attestation to the remarkable flexibility within the grass family. Interspecific crossing to yield sterile progeny has proven remarkably successful where vegetative propagation is feasible, notably so with the "Tifton" series of bermudagrass hybrids (Tifgreen, Tifway, Tiffine, etc.).

With seeded turfs, two or more cultivars may be combined into a blend, or two or more species into a mixture. This further diversifies the planting in anticipation of a differential environment. In some instances synergesis seems to occur, as when the stand better resists disease than might a monostand. The broader adaptability of a mixture is constantly witnessed, for instance where one component dominates in the shade another in the sun, or where one covers quickly until another can gain ascendancy. One might regard blends and mixtures as turf care "insurance".

Of course turf care is involved with the interplay of many factors; few can be foreseen, and many are subtle and hardly measurable. Their interaction with the cultivar's genotype will determine success. A skilled turf manager directs major inputs, - things like fertilization, mowing height, irrigation, and, where necessary, pest control. That different turfgrass species respond differently to such treatments is well recognized. But less pronounced, more subtle responses are characteristic of cultivars within a species; indeed, a cultivar's personality may differ from one location to another, or under one kind of management as compared to another. And with scores upon scores of cultivars these days, it is all but impossible to chart individual characteristics with meaningful exactitude.

I try to keep up with observations concerning the Lawn Institute's Variety Review Board acceptances. Even for just this limited group of about 40 selections it is hard to develop full scale information. Seldom is any cultivar rated "tops" in all areas, by all observers, under all modes of care; early in the season as well as late, and year after year. Reciting the evaluations for even a handful of the VRB acceptances would be deadly boring. What I can state confidently, however, is that the concept of the improved cultivar has merit. Comparing almost any modern selection to old-fashioned common grass usually reveals striking differences. Newer cultivars are almost invariably more attractive, because they are more disease resistant, more decumbent (thus retain more foliage after mowing) and more responsive to care. Under neglect some of the old-fashioned selections stand out, at least in certain habitats, - 'Arboretum' bluegrass, for example. More cultivars are being chosen for minimal care aptitude, now that everyone is so conscience of fuel scarcity and soaring costs. Rather than a tedious recitation characterizing cultivars, thumbnail sketches of Variety Review Board selections can be found in the reprints for those wishing them. A few slides (slides 2-4) will exemplify the far from consistent opinion concerning even widely grown cultivars.

In summary, the "new cultivar revolution", although perhaps confusing, has brought the kind of respect once accorded mainly crop plants to the ornamental turfgrass realm. The fruits from the breeding and release of improved cultivars should yield more attractive, more readily maintained, less troublesome turf for America in the years ahead. Certainly there are ample cultivars nowadays from which to choose, for satisfying almost every taste, and for providing respectable turf for most habitats or levels of management.

PUBLICIZING RESEARCH

Dr. Robert W. Schery
The Lawn Institute

Perhaps we had best begin by examining what "research" is. Certainly it has come to be big business in the modern, technological world. No wonder, then, that one of the motivations for research, especially the applied research of the commercial world, is to gain expertise which will enhance profitability. An equally strong motivation, manifest especially in the academic world (where most basic research is undertaken) involves satisfaction that comes from achievement, acknowledging that this leads to personal advancement and prestige.

The multifarious results from research are generally highly technical, abstruse to the average individual. Being at the leading edge of discovery, they are ill-defined and always changing. How is the 99%-plus of the population not directly involved in such research to be made aware of its importance? Because the dollar makes the mare go, - and often it is the tax dollar, - researchers increasingly realize the need to acquaint the public with research and its benefits. Today, when belligerents seek a "whipping boy" for the ills of the world, it even becomes necessary to counter an anti-science attitude. Most scientific societies are trying to better explain themselves to the lay public, something Dr. Daniels and the Midwest Regional Turf Foundation have done for years through meetings such as these.

Few research workers, individually, take pains to explain their activities publicly. Partly this is because there just isn't time nor easy opportunity. Partly, a "salesperson" personality is foreign to scientific methodology. And partly, some professional conceit exists, such that peer approval results from communicating within the group, not from popular indulgences: thus researchers are generally talking to one another, not to the non-specialist (who we have postulated it has become desirable to reach: if people are to govern themselves wisely in a democratic society).

This, then is our millieux. Just as corporations discovered the advantages of having a public relations department, "pure" science is realizing the desirability of conveying information about its research accurately and broadly.

Which brings us to the mechanism for getting information out. As time permits I will show a few slides depicting ways our Lawn Institute has found effective for distributing information. One can't always foresee the opportunities for communicating with the public, so it is necessary to be constantly alert. Avenues for expression include personal presentations, invitational appearances on television and radio, but especially the written word. Flooding publications with convenient, authoritative, easily-utilized items of information is de rigueur. Press kit mailings, custom articles and stories, correspondence, informational leaflets, and so on can all play a part.

Yet a "mechanism" is of no avail if not accompanied by adequate talent. All too often a public relations house quite adept with mechanisms fails for lacking expertise in the field. Someone must scrutinize every step, guiding the flow of information to be certain the fruits of research are properly explained. One booboo can destroy the credibility of a major, costly effort. Of course information must be conveyed in a literate fashion, fluently and grammatically proper.

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PUBLICIZING RESEARCH - MIDWEST REGIONAL TURF CONFERENCE

With millieux, mechanisms, and talent properly appreciated, publicizing research should not be difficult. An innate hunger exists for new information. Present this information with the golden rule in mind, - i.e. - Do unto others as you would want done unto yourself! A few reminders may help polish up your public relations techniques:

- Put yourself in the place of your reader/listener. Use understandable language, but don't "talk down"; avoid unintelligible expressions (e.g. statistical signicance, specialized vocabulary).
- Try to achieve smooth-flowing expression that conveys interest and excitement, but stay down to earth avoiding "slick" mannerisms that breed distrust. Humor adds interest; personal involvement in research instills confidence.
- Be as brief as possible, or provide summaries for longer presentations; highlight important points, explaining why these make a difference to the reader/listener.
- Emphasize the positive. Useful end results are what the reader/listener seeks; he is often appalled by expense, tediousness, or difficulty (as is often characteristic of fighting turfgrass diseases, for example).
- Try to foresee irreconcilable obstacles, and not dwell upon them; but be honest, - it is better to say "I don't know" than to feign expertise. There will be conflicts, because all human activity depends upon support from other human beings, and not all agree; recognize this, but don't let it compromise personal integrity.

PENDING WATER SHORTAGES

Following last year's dry weather in many parts of the country, particular concern about turf irrigation has surfaced in recent months. Typical is the March issue of Grounds Maintenance, which features on the cover "Water: How Much Longer Can We Take It For Granted?". "Viewpoint", by Dr. Watson, Toro, states "Industry Should Consider Water Shortages The Primary Resource Problem of the 1980's". Critical shortages seem imminent, especially in the West. In the eastern United States crises are usually forgotten once normal rainfall returns (generally there is enough rain to sustain turf, although it may not be luxuriant without supplementary water).

In the same issue of the magazine Dr. Beard, Texas, consultant on turf, reviews "Preparing for Drought: Water-Conserving Turf Maintenance Practices". This is to be the first in a six-part series. Beard advocates many familiar turfgrass maintenance practices that may lessen the need for water. Among them are measures to increase rooting depth, reduce shoot growth, cause stomatal closure, etc. Entrapment of rainfall rather than letting it run off is suggested. Coring or use of a wetting agent may help. Beard also suggests that increased attention be paid the breeding of grasses that are more drought tolerant. He lists buffalo, bermuda, zoysia and bahiagrasses as the most drought resistant species; fescues next; with Kentucky bluegrass in the middle range; centipede, carpet, bent and rough bluegrass are cited for poor drought tolerance.

Most procedures normally would be followed under common sense turf maintenance. Anything that encourages deeper rooting should help grass withstand drought; deeper rooting can be achieved by a number of techniques, including reduction of soil compaction, maintenance of proper pH, reducting of extensive thatch, using care with pesticides, fertilizing moderately, etc. The article is a convenient pot pourri of measures which, in toto, could produce better turf with less water consumption.

CORNELL 1981 RECOMMENDATIONS

Because of their significance in a major marketing area, Cornell University recommendations for Turfgrass Management are worthy of attention. The 1981 recommendations were received in February.

For Turfgrass Management, the recommendations are not greatly changed. Glyphosate is recommended for control of difficult weeds before planting. The usual lawn species, and most of the Institute cultivars, are listed ('Highlight' fescue is misspelled 'Highland'). Tall fescues are not recommended for lawns, but only for utility-type ground cover. A blending of bluegrasses is suggested.

A chart characterizes twenty five bluegrass cultivars according to characteristics and adaptability, taken from Beard, Grounds Maintenance magazine. Comparisons are not too meaningful, and the cultivars are not rated for disease tolerance.

For seeding mixtures it is suggested that perennial ryegrass be kept to 20% or less. Fine fescue content should also be low except for dry shade. Seeding is suggested from August 15 - October 15 in various parts of New York, or secondarily April 1 - May 1. Customary instructions are given for sodding, turf care and weed control. Some detail is given about fertilizers and their usage.

Growth retardants are recommended only for low maintenance, difficult-to-mow sites. Mechanical thatch removal is recommended when thatch exceeds one half inch, but top-dressing should prevent its build-up.

The pest control recommendations (a separate leaflet) are fairly involved. Definition of terms occupies most of the first page. Benefin, bensulide, DCPA, methanearsonates, oxadiazon and siduron are all listed for crabgrass control; bentazon and methanearsonates for nutsedge; 2,4-D for wild onion. 2,4-D is still standard for broadleaf weeds, amplified by dicamba, dichlorprop, and mecoprop. DCPA wettable powder is suggested for Veronica filiformis control. Bromoxynil can be used for young weeds in seedling turfs. A 7 day wait is suggested with glyphosate, to assure uptake of the chemical.

Fungicide listings are voluminous, with certain trade names given as exemplification of the common name. Then the diseases are charted according to the common name of the disease, with the fungicides named for control. However, it is pointed out that disease-tolerant varieties should receive primary consideration. Cultivars resistant to the particular diseases are named, although the listing is not, of course, inclusive. For leafspot and melting out, for example, these Institute cultivars are mentioned: Adelphi, Birka, Bonnieblue, Fylking, Majestic, Merion, Nugget, and Touchdown. For dollarspot Adelphi, Bonnieblue, Majestic, Touchdown, and Vantage. For fusarium Adelphi, Enmundi, Glade, Sydsport, Touchdown and Vantage. For stripe smut Adelphi, Birka, Bonnieblue, Glade, Plush, Ram I, Sydsport, Touchdown and Vantage.

Insect control recommendations are similarly grouped according to pest. In most instances familiar insecticides are suggested, but in one or two cases restricted products are named that are not available to the homeowner. "Comments" offer details for methods of application, timing, etc.

All told, pest control has become quite involved and its practice may be generally beyond the understanding of the average homeowner, who likely does not have sophisticated apparatus, means for handling chemicals effectively, nor skills in understanding recommendations such as are given.

NEW FUNGICIDES

Dr. Don Scott, Purdue University, discussed new fungicides at the Midwest Regional Turfgrass Conference. His listings included a number of things which have been on the scene for a few years, under test, but which are still being screened for effectiveness and safety. Among those pretty well along towards release are Chipco 26019, Bayleton, Previcur, and Ridomil (Subdue).

Chipco 26019 (iprodione) is not a systemic, but rather a contact fungicide; it is very effective on dollarspot, brown patch, helminthosporium, and for suppression of snowmold.

Mobay's Bayleton (triadimefon) is quite effective for dollarspot on bentgrass, and is good for controlling red thread and stripe smut. It is systemic.

Nor Am's Previcur (propamocarb) is a water-soluble preventive, intended for control of pythium.

Ceiba-Geigy's Ridomil or Subdue (metalaxyl) is a systemic (mainly used on tobacco for bluemold control, and so popular there that it is in short supply for other usages bringing a premium on the black market). It is a 50% wettable powder and has been in use in Europe where diseases have built resistance to it, so that it is recommended to be used in mixture with other fungicides or alternately...

Ceiba-Geigy 64251 is Vanguard (a triazole derivative), that is systemic, broad spectrum, but has not received a label yet.

BASF's Ronilan (vinclozolin) is a contact fungicide with promise.

Dupont's DPX 4424 is promising for dollarspot, brown patch and helminthosporium control.

Eli Lilly has reactivated EL222 (Rubigan), a systemic useful for brown patch, stripe smut, fusarium and pink snowmold control.

Discussion from the audience indicated that Bayleton, which has become available, has given good fusarium protection in the summer. Scott, however, was not ready to go all out in his recommendation of this or any other of the new products, feeling that not enough is yet known about side effects and influences. The big worry these days seems to be build up of resistance by diseases when a particular fungicide is used widely and intensively.

ABUNDANCE OF WEED SEED

An item in the Early Spring, Weeds Today, notes that cultivated land usually contains about ten million weed seeds per acre in the top six inches of soil and some land may contain one hundred million or more. Think of the potential problems when building a new lawn in a subdivision that was formerly cropped land! Interestingly, Beltsville research has shown that many of these seeds can be made to break dormancy (ie. germinate for easier control) by an application of ethanol (ethyl alcohol) or other anesthetics.

A nicely done, 118 page booklet was received from Roy Goss, Puyallup, Washington, representing the Proceedings of the 34th Northwest Turfgrass Conference, held last September at Sunriver, Oregon. Especially useful for the record are the technical ratings made primarily by the staff at Puyallup, that include most of the modern cultivars.

Shearman, Nebraska, obsessed with "stress", provides an opening paper that deals with generalities about fertilization. Hoos, California, reviews problems of the year in a slide presentation, chiefly concerning golf greens. Johnston, Washington state, takes a comprehensive look at air pollution, finding that motor vehicles are the single most important source. He cites those areas in Washington particularly affected, and notes that ozone is the most significant and farthest reaching of the pollutants (sulphur dioxide and fluoride are others that are monitored; perhaps many others occur, but are not commonly checked). Although tall fescues showed no visible damage from exposure to ozone levels tolerable by prevailing health standards, nonetheless there has been significant weight debilitation from exposure. Effects have been even more severe with annual ryegrass in British Columbia. Levels of magnesium and chlorophyll are particularly impaired. Differing susceptibilities seem to occur among turfgrass cultivars, but widespread screening has not yet taken place.

Skogley, Rhode Island, considers a matter of current interest, "Low Maintenance and Quality Turfgrasses". He notes that with concern about wastefulness of natural resources, extravagant turfgrass management may have to give way to simpler, less costly means. He offers a dozen suggestions, most of which involve common sense maintenance, and suggests more attention be given selection of grasses that can endure low maintenance.

Barnes, Scotts, reviews the theoretical points behind fertility, in a workmanlike and understandable fashion. Moore, Aquatrols, reviews the importance of water to turf survival, and of course the usefulness of wetting agents for maximizing thatch and soil penetration. For soil insect problems, such as grubs, he suggests a wetting agent along with the pesticide to assure reaching the pest without so much dissipation in the thatch.

Goss, Puyallup, provides a nice summary of Poa annua and the best measures for retaining it (as where it dominates a putting green). Among measures suggested are close mowing, high fertility, abundant moisture, syringing, leaving clippings, controlling disease, etc. Goss, who had been on sabbatical to New Zealand, also reviews turf conditions in that country in an interesting fashion. He finds New Zealanders doing an excellent job of turfgrass management considering limitations we are not accustomed to in this country (for example one man tending an entire golf course). Cook, Oregon, reviews the turfgrass programs under way at the horticulture department.

Skogley, in a second presentation, looks back upon many years of golf green top-dressing studies. There are still no firm conclusions. The most recent studies suggest that light-frequent applications of half-and-half sand-soil compost provides somewhat better quality than other treatments. In Rhode Island tests, dollarspot increased with more frequent topdressings. Shearman, in a second presentation speculates about turfgrass management in the decades ahead. Johnston considers a particular problem on the Northwest, - volcanic ash in turf management (the difficulties were not so bad as had been expected). Goss elaborates upon the volcanic ash fallout: he found it not inhibitory to turfgrass growth (although seed would not emerge so easily

as from conventional soil when deeply placed). The ash does not seem to be toxic in any way, and most of it confers at least mild fertility. Chief damage is mechanical, from smothering of vegetation and abrasion of equipment.

Ensign and Hickey evaluate turfgrass in northern and southwestern Idaho. Their charts give no numerical scores, but they list "Outstanding Cultivars" for certain qualities on bluegrasses, fine fescues, and perennial ryegrasses. Many cultivars are listed, including most Variety Review Board listings. Ensign and Hickey also evaluate slow-release fertilizers. Ratings are chiefly for color response, which may or may not have anything to do with long-range performance of the turf. Among slow-release products, fairly heavy rates of IBDU were superior to Milorganite or Nitroform, but of course soluble products give a more sudden (but not as long-lasting) a response.

Chastagner and Vassey, Puyallup, evaluated fungicides for control of fusarium patch. A number of products prove quite effective, but Scotts FFII, Terraclor 75W and BFN8099 were phytotoxic. In another paper the authors report upon a strain of Fusarium nivale that developed resistance to a previously excellent fungicide (Chipco 26019). Chastagner, McElroy and Vassey are also investigating nematode control, which they conclude is a problem in the area.

The technical staff, Washington, provides clear, numerical ratings of cultivar tests beginning on page 105. The turf is amply fertilized, frequently mowed, but generally not treated with pesticides. Among bluegrasses, in the regional turf trials seeded in September of 1978, Touchdown is the leading cultivar (Sydsport is fourth, Birka sixth, Bonnieblue eleventh, America thirteenth, Majestic fourteenth, Ram I fifteenth, Baron eighteenth, Glade nineteenth, Merit twentieth, Adelphi twenty-third, Enmudi twenty-sixth, Merion twenty-seventh, Plush twenty-eighth, Fylking thirtieth). Winter turf quality was considerably better where clippings were mulched (left on the plots) than where removed, but the difference was not great in summer. Leaving the clippings also increased density.

With the perennial ryegrasses, too, leaving the clippings had considerable advantage. Turf quality ratings increased, as did density. Among the perennial ryegrasses Diplomat led the ratings, with Yorktown, Blazer and Omega tied for a close second, Derby tied for third; Pennfine, Citation, Regal, Fiesta and Manhattan followed (all, however, considerably higher-rating than Servo, Caravelle and Compass). Mowing quality of certain cultivars was found to be materially better than others (among VRB selections Citation mowed best, followed by Diplomat, Derby and Manhattan).

Ongoing studies at Puyallup include evaluation of turfgrass mixtures. A mix of bentgrass, fine fescue, bluegrass, and ryegrass is given the highest quality rating, with Highland bentgrass alone poorest (however, Highland has proven good for bulking other cultivars). Fertilization of sand greens is under study, as is effectiveness of surfactants. Nortron and Endothall are being investigated for *Poa annua* control.

FUNGICIDES AND CREEPING BENTGRASS

Rhodes and Larsen, Ohio, discuss in the February Plant Disease, "Effect of Fungicides on Mycorrhizal Development of Creeping Bentgrass". Apparently beneficial fungi (mycorrhizae) associate with bentgrasses (Toronto and Penncross creeping bentgrasses were used in this study), and development of the association is prevented by a number of fungicides. The influence is on young or newly seeded bentgrass, and after about 20 weeks mycorrhizae development was not affected (according to a greenhouse study). One might well be cautious about fungicidal treatment of newly planted creeping bentgrass.

WEST CANADA CULTIVAR RATINGS

Turfgrass evaluations for 1980 were received from the Agassiz, B. C., Canada, Agricultural Research Branch, in early March. The reports are meticulously organized by Fushtey, Taylor and Harmsen. The Agassiz climate is not typical of that over most of the United States, being most like western Washington and Oregon. Rainfall is generous, over 60 inches, temperatures neither so high nor so low as in the continental United States. Compared to the long term average the year was slightly rainier than usual, a bit cooler and sunnier than usual, with October unusually dry (December unusually wet).

Plantings are now two years old, and are rated for the two year average as well as for 1980 alone. Scoring is for density, color, texture, winter greenness, weeds, and various diseases. We rely here chiefly on general appearance as a two year average.

Among Chewings fescues, Grelo led the ratings, with Koket and Bingo not far behind. Highlight and Banner placed medium high. Ensylva was the leading creeping fescue.

Bristol led Kentucky bluegrasses, with Fylking and Brunswick following. Sydsport, Majestic, Bonnieblue, Ram I, and several others clustered very close. Baron, Adelphi, Birka, Merit, and Glade followed. Slightly lower were Enmundi, Nugget, Merion, Plush, and Touchdown. Lowest rating was Park.

Loretta was the leading perennial ryegrass for the two year average, although beaten out by Elka for 1980. Close behind were Fiesta, Regal, Manhattan, Citation, Pennfine, Yorktown II, Blazer, Diplomat, with Derby and Omega only slightly lower. Poorest was Beaumont (a meadow fescue). The Canadian Norlea rated well below average.

A Manhattan-Merion mixture led ryegrass-bluegrass combinations, while a Loretta-Fylking-Koket combination led mixtures of ryegrass-bluegrass-fescue.

Among Colonial bentgrasses, Highland rated somewhat below average (a cultivar named Manitoba was leader). In a seven year average for creeping bentgrasses Penncross led, followed by Emerald and Prominent, with Seaside lowest.

USING LIQUIDS FOR LAWN CARE

Bob Earley, Lawn Care Industry magazine, is author of a summary for the Jan./Feb. Solutions magazine, entitled "Lawn Care: Big Potential for Fluids". Bob Earley relies chiefly upon a survey that Lawn Care Industry made of its readers, and concludes that about 30% of some hundred million dollars of expenditures is utilized for fluid applications. Earley states, "Fluid fertilizers have fast become the modern method of fertilizer application in the commercial lawn care industry." He believes that over 60% of this industry applies fertilizer in liquid form. He feels considerable potential exist for fluid fertilizer dealers near metropolitan areas. Earley concludes by listing and characterizing major lawn service companies nationwide, headed by ChemLawn Corporation of Columbus.

THATCH A RESERVOIR FOR PYTHIUM INFECTION

Hall, Larsen, and Schmitthenner, Ohio, report upon "Survival of Pythium aphanidermatum in Golf Course Turfs," in the December Plant Disease. Propagule densities were higher in thatch than in soil, but fluctuated seasonally (most abundant November through January). Oospores are probably the over-wintering form of the fungus. Bentgrass could be infected by inoculum from infested turfgrass.

WINTER ISSUE OF RASEN

The winter issue of the German turfgrass journal, *Rasen*, (Peter Boeker, Bonn, editor), was received this quarter. One article, by Rhode Island researchers, was in English, the remainder in German with the customary capsule summaries in both English and French.

Hemmersbach, Bonn, completed the third part of his discussion of fertilizers, with a review of synthetic-organic types. He concludes that differing advantages can be found for all kinds of fertilizer, depending upon objectives. He found slow-acting synthetics to influence color and density of the grass favorably, and thus were helpful to the sward's quality. Rate of growth, weed competition, and so on fluctuated from year to year and according to the particular environment where a fertilizer was used.

Torello, Skogley and Duff, Rhode Island, have developed a technique for distinguishing most cultivars of Chewings fescue, on the basis of anthocyanin content. The cultivars are grown under regulated nutrition (low in nitrogen and deprived of phosphate, which brings out the anthocyanin), for a period up to 30 days. Average anthocyanin content proved effectively different for each of seven cultivars tested, except that Banner and Jamestown were not sufficiently different to prove distinguishable.

Von Boberfeld, Bonn, investigated mixtures of urea-condensation products for turf fertilization. Various aldehydes, crotonides, etc. had differing individual effects, but combined in a mixture proved quite useful for utility turf.

Hiller, Berlin, investigated grass and other vegetation for use on slopes and drainage ditches in northern Germany. Extensive tables of both Monocotyledon and Dicotyledon plants are given. Use of woody plants is considered for broad drainage ways.

WEED CONTROL WHEN ESTABLISHING BERMUDAGRASS

Bingham and Shaver, Virginia, report upon research with a number of herbicides used for the control primarily of goosegrass (when establishing bermudagrass), in the January *Weed Science*. Bermudagrass establishment is favored if goosegrass can be adequately controlled, and controlling annual grasses of all types encourages superior growth and winter survival.

Oxadiazon applied early enough to control crabgrass gave full season control of goosegrass as well. Other pre-emergence herbicides (prosulfalin, DCPA, pendimethalin, bensulide) worked well in established bermudagrass but not during initial establishment where bare soil was abundant. Napropamide interfered somewhat with the rooting of bermudagrass stolons. 'Midiron' bermudagrass survived better through winter than did 'Tufcoat'. Postemergence goosegrass control was obtained with MSMA and methazole if repeated during the season, and a mixture of the two herbicides was superior to either alone.

LITTLE FEAR FROM ARSENIC IN THE SOIL

Woolson and Isensee, USDA, report in the January *Weed Science* that as a result of their research with sodium arsenite, cacodylic acid and MSMA (all of which may be used in turf situations), that little danger of residues accumulating to phytotoxic levels under normal application rates seems likely. This reference can offer some authoritative reassurance.

NON-TARGET EFFECTS OF PESTICIDES

R. W. Smiley, Cornell, discusses the many side-effects and unforeseen complications that come from the use of pesticides, in the January Plant Disease. Sometimes a pesticide even intensifies the disease it is meant to cure, and quite frequently it has side-effects such that other diseases are encouraged or suppressed, or unexpected influences result (as when an insecticide controls a disease). The involved ecology is only beginning to be investigated.

Smiley first discusses a number of documented cases where a herbicide either decreases or increases disease. Probably the level of disease resistance in the grass is influenced by a pesticide meant for an entirely different class of pests. Examples include instances where crabgrass preventers enhance the severity of brown patch, dollarspot, pythium and so on; or where 2,4-D (and certain other phenoxy's, but not silvex) increased severity of leafspot.

In a number of cases insecticides have helped to control disease, as with chlordane for Ophiobolus, and chlorpyrifos for Curvularia (a colored picture of this accompanies the article). Smiley provides a table of instances in his own research where a "history" of various fungicidal practices has resulted in marked differences not only in pest control but in thatch development, sod strength, and so on.

Buried organic samples indicate that pesticide applications can have marked effect on both cellulose and thatch decomposition. Quite frequently fungicides (and other pesticides) do cause an increase in thatch formation. Obviously, there is differential effect of the pesticide on the various micro-organisms in the soil community. In general fungicide treatments improve turf, but on occasion they worsen the condition (as in 1980, when red thread was intensified on perennial ryegrass and red fescue from benomyl application). On a number of occasions fungicide treatment seems to have predisposed turf-grass to "disease".

Interestingly, a number of chemicals that have no suppressive effect on Fusarium when tested in the laboratory, help control the disease in the field. Among them are Cadminate, Daconil, Dithane M-45, Nematicur and Chipco 26019. Apparently thatch decomposition is also associated with presence of Fusarium. Smiley feels that such examples reveal that many secondary (and even tertiary) influences occur, all but unnoticed, often having long-term influences. Non-target effects can be costly, and of more importance than minor differences in the price of the pesticides.

NEW CREEPING BENTGRASS DISEASE

Larsen et al, Ohio, report in the January Plant Disease on the discovery of a new disease that attacks creeping bentgrass, potentially a problem on golf putting greens. The disease is a leaf blight and crown rot caused by Drechslera catenaria, a fungus not heretofore reported as bothering Agrostis palustris. Iprodione has effectively controlled the disease.