January 1984

LAWN INSTITUTE

Harvests

Volume 30 Number 4

THE HARVEST MIX

Harvests in tabloid format was initiated with the January 1983 issue. Your response has been favorable. In order to more fully concentrate on turf and lawngrass research, recommendations and issues, Harvests contents will henceforth feature only six sections:

- Directors Dialoque-- editorial type commentary;
- Lawn Institute Pitch - discussion of current issues;
- P.O.Box 108 - industry wide news and views;
- Threshing the Journals - published research results;
- Conference Topics - presentations of note;
- Field Day Score Card - field plot evaluations.

Matters pertaining to The Lawn Institute, including quarterly program report, will be presented to members through release of a Lawn-O-Gram (LOG) special mailing. General information on The Lawn Institute will be included in Lawn Institute Pitch as appropriate.

Director's Dialogue

(Editorial Type Commentary)

arvests
1

LAWN CARE IN ESREVER (REVERSE)

by
Eliot C Roberts

The idea of reverse pyschology is familiar to all of us. Convey the notion that something shouldn't be done and at once it's accomplished. Tasks that generate reasonable expectations all of a sudden are impossible. This all came into focus again back in May at the Arizona Turf and Landscape Conference in Tucson. Professor K C Hamilton of the University of Arizona Department of Plant Sciences stimulated a lot of thinking with a topic "How Not to Control Weeds In Turf".

Why not ? It's easy to find lawns about most neighborhoods that look like the gardener knows how to grow good weeds. Ask, and in just a few moments all the things you need do to grow weeds can be outlined. A list of at least thirty is certain to include :

- Never Ask Advice-
  You don't want your neighbors to think you're a gardening dum-dum, now do you ? Certainly not ! So never ask advice. That way, when the weeds are at their best in your lawn, you can take all the credit for being the expert.

- Best Source of Information Is Your Own Experience -
  What do the experts know about lawn care they've never had to contend with your lawn, have they ? If you want the best weeds in the neighborhood, don't bother asking for advice on lawn care; don't waste your time on lawn establishment and maintenance bulletins. They're no match for your considerable experience.

- Rely on New Salespersons Who Phone With A Deal -
  Now, there are deals, and then there are deals. The best come by phone from someone you've never heard of in the next state who has an offer you simply can't believe. Jump at these opportunities to try something new and satisfaction with the ultimate in weedy lawns is certain.

- Use the Cheapest Seed -
  Even the cheapest grass seed will not come close to providing the potential for weed development that is already in the topsoil. Never-the-less, do read the label on the lawn seed mixture and select the one containing the most weed seed, if weeds are indeed what you want. Even better, select seed that contains all or a lot of annual grasses. These die out during the year and leave the ground open for more rapid weed establishment.

- Use Least Expensive Topsoil -
  Weed free topsoil is difficult to find-even non existant. Not only is top soil the number one source of weed seeds, but it may also contain pieces of vegetative matter from which weedy plants develop. The least expensive topsoil is also generally sandy or gravelly, not really the best for growth of lawngrasses, but fantastic for weeds. In building a new lawn, get the poorest soil possible in order to have the most weeds.

- Use Fresh Manure to Provide Organic Matter -
  Fresh manure often contains a good source of weed seeds. Use it as a soil amendment in building a new lawn or as a topdressing. Not only will this add a barnyard quality to your grounds, but the supply of weeds should continue for some time to come.

LAWN CARE IN ESREVER (REVERSE)

Continued

2 Harvests

- Don't Bother to Remember What Grasses Were Planted In Your Lawn -
To grow a fine lawn, it's important to know what grasses are present in the sward so that their requirements may be well satisfied. In order to grow weeds, just forget all about the lawngrasses. They'll usually fade away quietly.

- No Need To Identify Any Weeds -
Weeds are weeds. Simply any unwanted plant or any plant in the wrong place is a weed. Since you want to grow weeds, the weed isn't a weed any more. The lawngrass is a weed. So, don't bother to learn about weeds; after all, you never bothered to learn about your lawngrasses. The best way to grow weeds is ignore them; they'll take over- no problem.

- Don't Bother To Fertilize The Lawn -
Fertilizer helps develop a thick, vigorous turf that will crowd out weeds. So, don't use much fertilizer if you want a weedy lawn.

- Use Extra Water -
Over irrigation is one of the best ways to weaken lawngrasses and give the competitive edge to weeds. Lawn weeds generally have long tap roots and don't have high moisture requirements so heavy watering stands to ruin the lawn and give weeds plenty of room to spread.

- Mow Close -
Close clipped lawns are less likely to have the vigor to compete with weeds and thus weeds spread and become dominant. If you like crabgrass, clip the lawn as close as you can and apply plenty of water in late spring and early summer. Close clipping also stunts root development so that in summer lawngrasses die out and weeds take over.

- Never Bother to Control Lawn Insects and Diseases -
Insects and diseases are generally not as serious a threat to lawn quality as weeds are. One thing is certain, failure to control insect infestations and disease infections will so weaken the turf that weeds may take over. So, if you want weeds, let insects and diseases do their worst - first.

- Ignore Small Weed Patches -
Never bother with small weed patches. They're likely to be struck by lightening and disappear on their own. If they don't, then they'll become big patches and once the lawn is all weeds, it's the ultimate.

- Save Money By Spot Spraying -
Spots look good on some dogs and horses and now you may create them on lawns too. Just use weed killers - a little dab here, a little dab there; think of the fun you can have. In doing this, don't bother to pay attention to how much chemical is sprayed here or there; it'll be more than needed for selective weed control and you'll get spots to please in any season. You may even use less herbicide than would be required for the whole lawn, and this will save money.

- Use Soil Fumigants Near Trees and Shrubs-
Soil fumigants and sterilants do a good job of getting rid of all vegetation, including weeds. They produce a nice brown (dead) ground cover. Use them on or around trees and shrubs and you can get rid of that green vegetation too. There's nothing like doing a complete job in producing a completely fouled up landscape.

- Store All Lawn And Garden Chemicals Together -
With more and more gardening tools and supplies available, the need for storage space becomes more critical. One thing is certain, when herbicides are stored with seed, fertilizer and other lawn care products, the likelihood of contamination increases. The result favors weakened lawngrasses and more weeds about the yard.

- Read The Label But Throw In A Factor For Local Conditions -
Many gardeners fail to read or pay attention to all the information on the herbicide label; some don't read any of it; others always throw in a factor to adjust for local conditions. After all, no one has a lawn like yours, and you know what it takes to kill weeds. That is, until the treatment is made. All of a sudden that "extra factor" rate of application results in dead grass and plenty of weeds that recover.

- The Wrong Herbicide Is Probably As Good As Any -
Weeds are weeds and a weed killer is a weed killer. The herbicide in the closet may not be the right one, but it's a weed killer, so use it anyway. It's sure to do something. Probably wipe out more lawngrasses than weeds - under the conditions used.

- Measure Pesticides by the "Glug"-
When you need a tablespoon or a fluid ounce measure for a weed killer, there's never one around. So, measure by the "glug"; two "glugs" are always better than one. Not so many weeds will be killed, but a lot more lawn can be burned out with really no additional effort.

LAWN CARE IN ESREVER (REVERSE)

Continued

3 Harvests

- Make Your Own Herbicide Mixtures -
The manufacturers of weed killers only spend millions of dollars to put an effective herbicide on the market. But, certainly they never thought of the combination of chemicals and rates of application you have. Why not ! Make your own herbicide mixtures. Become famous for having dead lawngrass and super weeds.

- One Sprayer is Enough -
One of the best ways to destroy the most grass and keep the healthiest weeds is to use one sprayer for all pesticides. Who knows what is going on when -insecticide, fungicide, selective herbicide, soil sterilant, or other chemical has accumulated in a dirty tank ? When control of the chemical is lost, lawngrasses are likely to be injured most.

- Don't Bother to Calibrate the Sprayer -
A sprayer is a sprayer, isn't it ? Certainly the manufacturer calibrates each one so that its use may be relied upon. After all, clibration only assures proper rate of pesticide application, and if weeds are what you want, why bother with proper rate of application !

- Use Pesticides Any Time Convenient -
Busy gardeners don't have time to apply pesticides when the pest is most susceptible to control. So applications made at the convenience of the applicator are seldom successful and this will help create the best of conditions for lawn weeds.

- Spray on Windy Days -
Sprayers permit only a limited distribution of an herbicide to a target area. By spraying on windy days, you can get the chemical much more widely dispersed. Some of it will blow onto shrubs and trees and even roses and kill them all. That means there will likely be insufficient herbicide to kill the lawn weeds and they will continue to grow and spread like - well, like weeds.

- Use High Pressure Mist Sprayers for Weed Killers -
Since you can't always rely on a windy day for spraying herbicides, be sure to use a high pressure mist sprayer. This will do the same thing. Get the chemical all over everything for the maximum in damage to landscape plants and the minimum in injury to weeds. These sprayers are ideal for preserving weedy lawns.

THE LAWN INSTITUTE

- Inject Herbicides Into Irrigation Water-
Look for new ways to save time in gardening, like injecting weed killers into a watering system. It'll not only save time, but wipe out a lot of the garden in the process. Those plants most likely to survive will be none other than the weeds you only thought you wanted to get rid of.

- Never Clean the Sprayer When Through -
There is usually a little herbicide residue in the bottom of the sprayer when a treatment is completed. If this is left in a metal tank, it will speed up rust formation. This will clog the nozzle when used next and the result will certainly favor weed survival. Aside from this, that little extra herbicide in the tank will add just a bit more punch to the next pesticide used. Who knows what spectacular results may be obtained.

- Never Clean Nozzles and Screens -
Cleaning up sprayers after use of a weed killer only helps keep the nozzle and screens clean so that when used next the rate of application and distribution pattern will be accurate. Where weeds are more important than lawngrasses, distorted spray patterns will permit greater weed survival and more streaks of burned grass.

- Be In a Hurry to Finish Up -
Never forget that your time is valuable. Life is ticking on and you're likely to miss something important on the tube. After all, plants have much greater tolerances than people. So, be in a hurry; get the job done; finish up. You'll be pleased with the result - a finished up lawn complete with the best weed stand in history.

- Hire Least Expensive Lawn Service -
Should you decide to pass the buck for lawn care to someone who will be certain to provide the best in a weedy lawn, make it a small denomination buck and hire the least expensive lawn service available. They may not know much more than you, but can help you have the best of weeds with less effort on your part. Now, that's certain to be worth at least a few bucks.

Conclusion

Now, what may we conclude from all of this ? Simply that it's much easier, much more fun, and much safer for you and your neighbors to grown lawngrasses than weeds. There is no reason for having a weedy lawn once you decide to grow lawngrasses.

Lawn Institute Pitch

(Discussion of current issues)

Harvests 4

Information/Communications

by Eliot C Roberts

In preparation for a career in teaching, some time ago, I came across the following example of the critical importance of inflection in oral communication:

"I never said he stole the money."
(Someone else said it)

"I never said he stole the money."
(I said other things, but not that)

"I never said he stole the money."
(I might have written it)

"I never said he stole the money."
(He stole other things, but not money)

"I never said he stole the money."
(He borrowed it)

"I never said he stole the money."
(He stole other things, but not money)

Each of these six sentences contain the same words but convey different meaning depending on how the listener interprets the inflection placed on various words. Thus, in oral communications it's little wonder that we find answers to questions posed that are, in fact, answers to different questions than originally intended. Lack of understanding and confusion are often generated because of failures in the communications process.

With increasing information available and continuing demand for information in all aspects of problem solving, our future will be determined by the effectiveness of our communications. This is not merely a matter of classroom concern, but is recognized in politics as well as all business and trade.

SCSA CONVENTION

The 1983 thirty-eighth annual meeting of the Soil Conservation Society of America featured the theme "Resource Information for Conservation Decisions". In recognition of the importance of Information/Communications, delegates took an in depth look at this process as it relates to conservation. Do some of the following statements and concepts attract your attention ? Do they extend beyond our interest in conservation to landscape horticulture ?

- Sixty percent of the people in the United States are already engaged in information generation and distribution.

- Information is:
  - a commodity;
  - money;
  - technology;
  - an agent of change;
  - an end unto itself.

- Information:
  - defines and publicizes problems and issues.

- Margin of profit depends on the management of information.
  - Cost/Benefit ratios depend on information.

- Enterprises that involve risk, such as agriculture, must have accurate information available to help offset the risk.

- Information on societal characteristics will provide a data base for new management approaches. New applications for technology are important. Information refinement, as well as development, is required.

Information / Communications Continued

- Changes in people are required in order for new information to be fully utilized and advantageous. These changes are difficult to bring about. For some thirty years, governmental change has been considered with minimal accomplishment. In agriculture alone, twenty billion dollars a year is spent on farm programs. With all this, we still recognize that the farm economy is weaker than we would like. Compared with world agricultural economics, we are strong. In 1985, the reinactment of the basic farm act will take place. There will be major change leading to new farm policy and this based on resource, production and marketing information.

- Technological information permits the consideration of alternatives and the stretching of uses to new applications.

- Both the agricultural community and the industrial community developed from technology and appropriate use of information.

- Information may not be adequate for a problem or issue to be resolved. Before action can take place, a consensus is required relative to immediate danger. Information is seldom lacking; a consensus more often is lacking.

- Communications have to deal with getting information to policy makers and other users in a form that is brief and accurate. If we fail to communicate in this way, we are at fault when our perception is that the wrong decisions have been made.

- There must be a linkage between policy making and policy implementation.

- One thing is clear, there is not a lack of information. The challenge is to get it into usable form at the right time.

American Agriculture

American agriculture has advanced through four different eras. The first was the age of hand power and extended to about 1860. During this period, increases in production per year amounted to about 0.4 percent. Horse power from 1860 to about 1920 increased production to about 0.5 percent per year. The mechanical era, from 1920 to about 1945 brought about a major increase in annual production to about 1.2 percent. The age of science, from 1945 to 1980 and beyond has elevated productivity to about 1.6 percent increase per year.

During the past twenty to thirty years, development of computer information systems, from main frame types to mini and micro computers, has taken place. Their impact on our future is predicted to be great.

Future Pathways

Our needs for the future are based on an assessment of societal characteristics today. This country was settled as an agricultural community. More and more people pursue other vocations as agriculture, built up by technological advances, produces reserves so that fewer and fewer people are required in that labor force. Agriculture and industry both developed as the result of new, practical, technological information. In fact, information is the basic agent of change that has brought about the societal advances we recognize so readily. We are now less an industrial society than an information society. Agriculture and industry have become secondary activities, but no less important.

Of primary concern to us today is the answer to the question, "where do we want to go?". Necessary information on which to bring about action is available, but not useful unless we know long range objectives. Our government acts on immediate and intermediate issues for which current information indicates need. For example, Social Security programs face difficult problems, both economic and political. The newsprint headlines "Social Security is Going Broke". This stirs interest and things happen. On the other hand, loss of farmland because of development or soil erosion fails to stimulate much interest. Conflicting reports lead to no consensus that there is any immediate danger. Food is readily available and there are no signals that new shortages related to loss of farms are forthcoming. Still we expect that, like fossil fuel, sometime in the future this may well be a critical issue with which we will have to contend. In the meantime, recommendations for changes in policy receive little attention.

COMPUTER SUITABILITY

How does the computer fit into all this ? Well, the computer represents change and change is hard to control, even frightening. There may be the tendency to close the eyes and hope that the computer will go away. This is not to be. The present economy and level of technology are forcing computers on us.

Basically, the computer will provide us with the information to better cope with the needs of a more complex society or societies. In time there may be more computers working than people. This in itself is cause for some alarm. The potential for computer domination of our lives rather than creation of improved quality of life is real. We must become familiar with this new tool and how it works. Only by so doing will we take advantage of an unparalleled opportunity to manage an increasingly complex society.

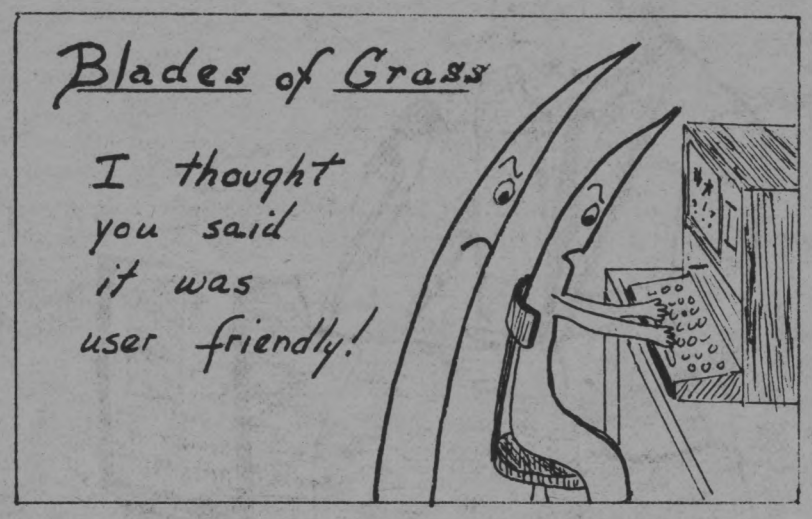
Computer scientists provide the following insight on what is ahead -

In response to the notation that computers have no common sense, the question is raised whether common sense is really necessary for useful function. To the degree that common sense can cut through red tape, this function would be useful. If we can ultimately analyse brain function, this component will be incorporated into computers.

In regard to intuition, computers may be programmed to introspect on logical processes. Thus, where processes are based on past experience, conclusions may be reached that relate back to the processes.

How about personality ? Software can be programmed to have personality as evidenced by tone of voice and words used.

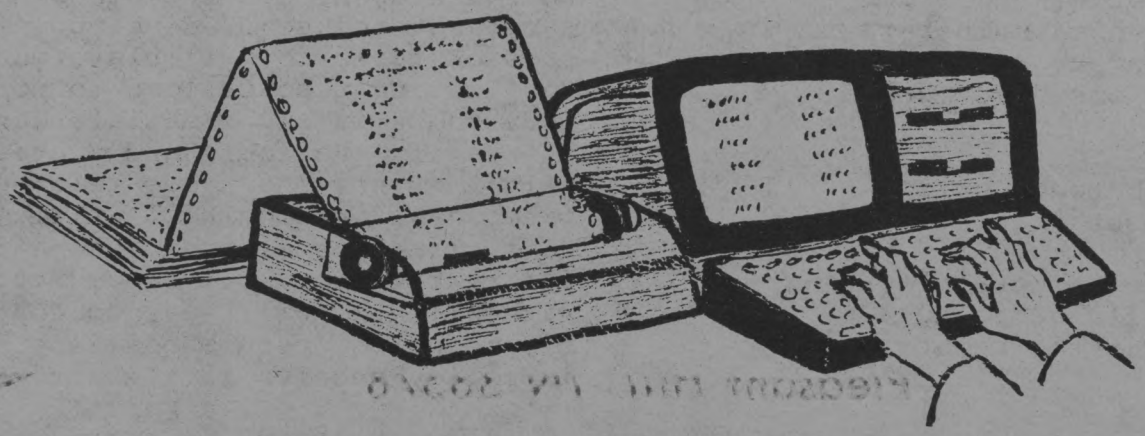
What about thinking ? As artificial intelligence programs are developed more fully, there will be more evidence of computers developing new ideas after analyzing facts.



Computers will extend teaching capabilities on a major scale. The old methods involving learners gathering in classrooms at certain times, (where teachers repeat presentations, visualization is limited, information base is dispersed spatially in minds of people, journals and references in libraries) will likely change. The new method involving scholars creating an information base to form a system of networks that can be accessed complete with voice, visualization and print will be emphasized. The learners/users need not all gather in one place. Schedule flexibility will be featured. Repeat learning experiences will be available through the computer. These can be highly individualized.

The information base, concentrated in space, provides access to information that can be repeated time after time with the advantage of search and research and reorganization as needed. All of this is only limited by the development of software to bring about desired results.

Computer information will cause some separation between people that are the source of information and the user. Voice and picture of those scholars seen over the computer will cause them to be well known and influential. Two way communication will help bridge this gap to some degree. Overall, the computer is projected as having great potential for developing basic skills, new techniques and simulation of processes to increase visualization.



Information / Communications Continued

Computer Application

Computer applications that will benefit the lawn and turf industry will require simultaneous development in the following five areas:

First, technological advances in seed and sod farms, and sports turf and grounds facilities -
- machinery,
- field equipment & sensors,
- structures.

Second, fundamental improvements in record keeping:
- inventories,
- land characteristics,
- production,
- financial.

Third, data base information that can be applied to local conditions:
- cost/benefit,
- weather,
- pest,
- pricing.

Fourth, keys to management power:
- decision aid programs,
- budgeting,
- comparative analysis,
- income tax,
- facility scheduling,
- irrigation,
- crop variety selection.

Fifth, office management programs.

Farm and grounds operations will have prime concern for the first area. The private sector will likely develop and distribute material based on information from the scientific community in the second area. The public sector will provide information in area three. The scientific community will contribute to the fourth area and the fifth area is pretty much available now.

Changing Public Attitudes

Changing public attitudes through use of information/communications techniques is fundamental to the establishment of the true potential for use of plants that enhance our environment. Landscaping and interiorscaping require public support which requires public understanding. Individual support and understanding only lead to islands of environmental quality.

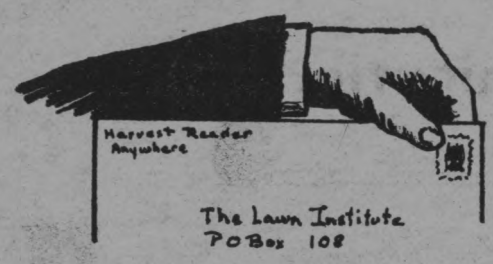
We need ask, what do people want us to do ? The answer is certainly not environmental degredation and the creation of disorder and uglyness. We have technological expertise in landscape horticulture to do so much better. But, how do we get this into operation or practice ? What will the public accept as a start ? What are their needs ? What will they buy ? How much will they pay ? What do you think ? What do you think that others think ? All of this matters.

We live for today but look to the future for an even better life. To the extent we can develop a clear vision of the future and to the extent that we can convey this vision to those who will develop and manage resources, the vision will become reality. Historically, information, including visions of future possibilities, has passed through one person to another.

In order to deal effectively with these information/communications situations, time to develop clear understanding is necessary. New information analysis systems shorten the time requirement and increase prospects for favorable results. We may not understand now how we can live with these new devices, but it seems certain that we will not be able to live as well as we have without them.

P.O.BOX 108

(Industry Wide News and Views)



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8

EFFICIENT TURF VARIETIES

New Mexico State University, Department of Agricultural Information, Las Cruces New Mexico 88003

Dr Jerry Pepin, Research Director for Pickseed West in Tangent Oregon, has noted tremendous advances in lawngrass breeding during the past decade, according to a report presented at the annual southwest Turfgrass Conference held in October in Albuquerque.

He predicted that low maintenance, slow-growing turf varieties will become more and more popular in the decade ahead. These qualities translate to big savings in equipment and labor costs.

In addition, all major turf species are being studied for reduced water, fertilizer and maintenance requirements.

For low maintenance, many growers are turning back to turf-compatible legumes for groundcovers in polystands with turfgrass. Dr Pepin cited the recently released New Mexico State University variety Fresa strawberry clover as a new, low maintenance, slow-growing turf-compatible legume. Fresa also is heat tolerant and grows well in salty, high pH soils.

Best of all, Fresa can fix nitrogen from the air at a rate of 2 to 3 pounds of nitrogen per 1,000 square feet and does not need nitrogen fertilizer. Under low management, Fresa can supply all the nitrogen needed for grasses when grown in combination with them.

Fescues also require low maintenance and have drought tolerance characteristics which interest growers in the Southwest. New turf types such as Rebel, Falcon, Houndog, Mustang and Olympic are available and other new varieties will soon follow, according to Dr Pepin.

The new turf fescues are generally finer leaved and more dense than Kentucky 31 or Alta, but not as attractive as Kentucky bluegrass or perennial ryegrass. The turf-type tall fescues do well under summer heat conditions and under limited irrigation and low maintenance. They also have good tolerance to high pH and salty soils.

During the 1980s, the turf-type fescue market should blossom into a major factor in the turf industry, Dr Pepin predicted, comparing it to the 1970 ryegrass market.

He described the turf-type perennial ryegrass market growth as "spectacular".

From practically nowhere, this market has grown to nearly 40 million pounds for annual turf usage. Ten years ago, Manhattan was just becoming available in limited supply and Pennfine was being prepared for marketing. Now we have many excellent varieities such as Blazer, Citation, Derby, Fiesta, Loretta, Pennant, Regal and others.

According to Pepin, high turf quality, good wear tolerance and rapid establishment characteristics make turf-type ryegrass an excellent choice for many turf areas. He expects breeders to continue developing improved ryegrass cultivars.

Kentucky bluegrass varieties also were developed rapidly during the 1970s. Improved turf types such as Baron, Victa, Touchdown, Glade, Merit, Adelphi, America, Sydsport, and others are excellent in medium to high management turf areas. Some of the newest varieties are Banff, Eclipse, Midnight and Wabash.

ARCHITECTS RESPONSE TO SOCIETAL CHANGE

The American Society of Landscape Architects, 1733 Connecticut Ave NW, Washington DC 20009

Ann McMurray reports that the ASLA addressed the profession's response to societal change at its annual meeting held November 22 in Indianapolis, Indiana. Major issues affecting the natural and built environment are facing humankind. These include: historic preservation, urban revitalization, housing, surface mining reclamation, and public park and recreation needs,among others. A full and complete consideration of land use and environmental quality must be made part of the public decision-making process.

ASLA is the only organization which represents landscape architects in the United States. Headquartered in Washington, DC, it is a voluntary professional society which has grown from 11 landscape architects in 1899 to nearly 7,000 members in 45 components nationwise in 1983.

NEW SLIDE SETS ON LAWN PESTS

New York State Turfgrass Association, 210 Cartwright Boulevard, Massapequa Park, New York 11762

Ann Reilly, Executive Director of NYSTA has announced the release of three slide sets on lawn pests. Insects, diseases, and weeds are featured. These slide sets are a useful tool in the identification and diagnosis of turfgrass problems, and are of value to turfgrass superintendents of golf courses, athletic fields, parks, schools and universities, cemeteries, institutional and commercial grounds and residential complexes; landscape gardeners; lawn care firms; and those in the educational fields.

The 66-slide set on turfgrass diseases, compiled by Dr Richard Smiley of Cornell University, pictures the characteristics and effects of snow mold, leaf spot, dollar spot, rust, red thread, slime mold, striped smut, mildew, fairy rings, brown patch, melting out, fusarium and pythium. The 76-slide set on insects of turfgrass in the northeast, compiled by Dr Haruo Tashiro of the NY State Agricultural Experiment Station, pictures a variety of chafers, beetles, weevils, sod webworms and chinch bugs and the damage they do to turf. The 80-slide set on weeds, compiled by Dr Arthur Bing and Robert O'Knefski of Cornell University, features line drawings and identifying photos of 16 common weeds, including annual bluegrass, crabgrass, goosegrass, tall fescue, nutsedge, wild onion and garlic, woodsorrel, clover, dandelion, ground ivy, plantain, chickweed, knotweed and black medic.

Each slide set is $30 for NYSTA members and $35 for NYSTA non-members, and includes a written key, handling and third class postage. Add $1.50 per set for first class postage. Send your check made payable to NYSTA to NYSTA, 210 Cartwright Blvd, Massapequa Park, NY 11762.

LAWN DISEASES TRACED TO WATER

New Mexico State University, Department of Agricultural Information, Las Cruces, New Mexico 88003

Dr Emroy Shannon, Plant Pthologist at New Mexico State University, has traced lawngrass diseases to water, according to a report presented at the annual Southwest Turfgrass Conference held in October in Albuquerque.

Helminthosporium, Fusarium and Pythium diseases, brown patch, powderymildew, rust and various algae and slime molds can be traced to irrigation water.

Although overwatering is associated with most of the turf diseases, too little water or poor drainage can cause problems as well. Also, high summer temperature and excessive nitrogen fertilizer applied during the summer to cool season grasses will bring on diseases.

According to Shannon, prevention is a key to good turf. There are fungicides which will help protect turf during periods favoring disease development. However, these chemicals should be used only as a supplement to good cultural practices.

He advised turf managers to always check labels for rates of application and safety precautions before using fungicides. A list of fungicides with diseases that they control is compiled in "Chemical Control of Lawn Diseases", a publication available from the Cooperative Extension Service at New Mexico State University.

NATIONAL GARDENING WEEK IN JUNE

National Gardening Week, Box 1774, Parkersburg, West Virginia 26101

Lawns and gardening go together like hands and gloves. Even though lawn care is first in the minds of spring gardeners, and most lawns are groomed to near perfection by early June, having National Gardening Week June 3-9 gives us another good opportunity to promote the pleasures of our landscape environment. Write to Box 1774, Parkersburg, WV 26101 for more information.

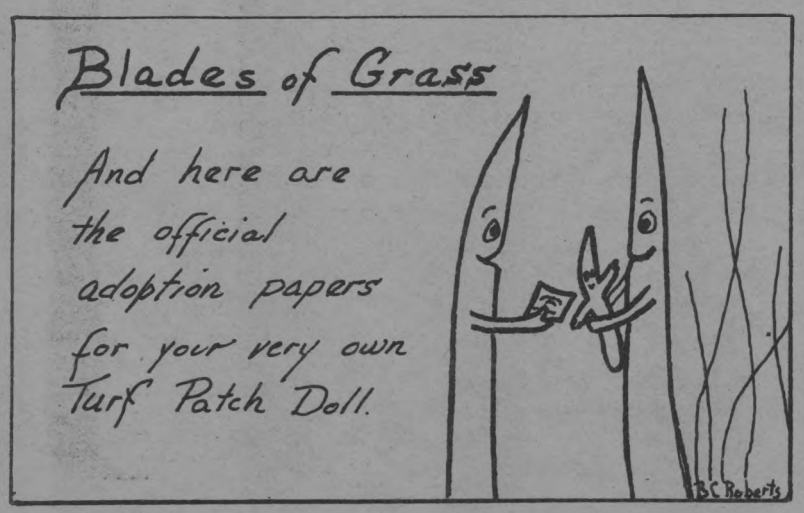
YOUTH GARDEN PROGRAMS

National Association for Gardening, 180 Flynn Avenue, Burlington VT 05401

Lynn Ocone, Director of Youth Garden Programs writes "If a child is drifting like a seed on the wind, a garden is a good place to take root". The Association is involved in the advancement of gardening to add joy and health to living and to improve our environment. If you feel sorry for children today, growing up in a world of computers and television and cashierless banks, write to the National Association for Gardening and find out how wisdom is found in understanding simple things - gardens, for instance.

Association membership reached 210,000 gardeners this year and continues to grow at a rate of some 5000 each month. According to Nancy Flinn, Association Public Relations Director in 1983:

- Gardens for All work in youth and community gardening brought us three national awards;
- Gardens for All Radio was developed for distribution;
- We are working on the Gardens for All Newsmagazine for television and the software computer market;
- Gardens for All/Gallup National Gardening Survey has grown to better serve the gardening industry with data in both published survey form and with on-site specialized consulting;
- We added a full time gardening answering service to the organization;
- Gardens for All Newsmagazine, along with press releases, are being received by 2400 media folks. We are providing information to the general public and the gardening public (35 million American households and many in Canada and other countries).



WM E "OLD BILL" LYONS WILL LONG BE REMEMBERED

Dr Fred V Grau, President, The Musser International Turfgrass Foundation, P O Box AA, College Park, MD 20740

Dr Grau expresses the thoughts of us all upon learning of the December 8,1983 loss of "Old Bill" Lyons.

The world of turfgrass has lost a leader. Bill was an innovator and a promoter. His ideas to improve the lot of public golf courses were not always accepted for he was ahead of his time. He succeeded in improving Lyons Den Golf to a quality that attracted golfers who appreciated quality turf.

As a Director of The Musser Foundation, he worked long and hard to raise money for turf research. His heart and soul were dedicated to the concept of Better Turf.

Bill did not seek publicity but it found him. Many awards came his way. The latest, shortly before his death, was the coveted National Golf Foundation Award, presented to him in Las Vegas.

"Old Bill's" impatience with wasted effort at turf conferences led to the now famous "Cheese Bar", first launched at Purdue University in the early 40's. His generosity with Ohio cheeses and Trail Bologna drew turf lovers to his quarters where ideas were exchanged and discussions augmented the educational sessions.

One of Bill's projects, away from golf, was the improvement of athletic fields. He improved the turf for some local fields to the point that, for two straight years, no injuries occurred. He was dedicated to the principle of reducing injuries by growing grass !

His name will be inscribed on The Memorial Roll of Honor of The Musser Foundation. The Fellowship Fund will thus be expanded as a Living Memorial to his memory. Contributions in honor of "Old Bill" may be forwarded to The Musser Foundation in care of Dr Grau.

STANDARD SEED SPECIFICATIONS

Atlantic Seedsmen's Association, 230 Park Ave, New York, NY 10017

Margaret Herbst, Executive Secretary of The Atlantic Seedsmen's Association has recently issued an updated 1983 Edition Standard Seed Specifications List. It contains current nomenclature and the new seed types that have been developed more recently.

The information is intended to serve as a guide to those writing specifications, but who are not familiar with seed qualities. It is not to serve for an assumed basis for trading among seedsmen. Specifications presented are fair and realistic and represent high standards of quality in seeds insofar as purity, germination and seed count are measures of quality.

These specifications should be of assistance to buying agencies - government, industrial and otherwise. They might also be of use to educational institutions, engineers, and architects, both general and landscape.

It is hoped that those responsible for writing specifications for grass seed will review their present specifications and be guided by these standards.

Days for Official Germ Test	Accepted name	% Purity	% Germ	Approx Range Seeds/Pound
28	Kentucky bluegrass	98	85	1,021,000-1,758,000
28	Kentucky bluegrass	85	80	1,000,000-1,500,000
28	Merion Kentucky bluegrass	92	80	2,200,000
28	Kentucky bluegrass(varieties)	98	80	Varies with variety
28	Canada bluegrass	85	80	2,290,640
21	Poa trivialis	90	80	2,090,320
10	Redtop	92	85	4,851,000
14	Annual ryegrass	98	90	179,600-201,000
14	Perennial ryegrass	95	90	210,500-270,300
14	Per ryegrass(turf-type)(var)	98	90	226,000
14	Tall fescue (varieties)	98	85	177,800-233,600
14	Tall fescue(turf-type)(var)	98	85	285,000-300,000
14	Meadow fescue	97	85	225,440
21	Hard fescue	92	85	591,920
21	Red fescue (varieties)	98	85	365,100-448,660
21	Chewings fescue	98	85	365,100-448,600
10	Timothy	99	85	1,090,400-1,236,000
28	Colonial bentgrass	98	85	6,129,840
21	Velvet bentgrass	98	85	8,247,200
28	Creeping bentgrass (varieties)	98	85	6,129,840
7	White clover	98	90*	672,000-888,000
12	Birdsfoot trefoil	98	85*	369,840
14	Crownvetch	98	75**	138,160
7	Alsike clover	98	85*	369,840
21	Orchardgrass	90	85	377,840-477,200
21	Bermudagrass (hulled)	98	85	2,071,120
21	Bermudagrass (unhulled)	98	85	1,586,240
14	Korean lespedeza	98	85*	138,160
21	Sericia lespedeza	98	85*	372,000

*Including not more than 25% hard seed.
**Including not more than 35% hard seed.

Source of information: Association of Official Seed Analysts
Volume 60,No 2 Rules for Testing Seed

THREADING THE JOURNALS

(Published Research Results)

Harvests 12

ISOELECTRIC FOCUSING OF ESTERASES FOR FINE FESCUE IDENTIFICATION

C B Villamil, R W Duell, D E Fairbrothers and J Sadowski.

Crop Science Vol 22 Number 4 786-793

Validation of the identity of lawngrass cultivars based on commercial seed lots would meet an increasing need among both turfgrass scientists and practitioners. New techniques are under investigation. These would serve as an alternative and/or complement to the more costly and time consuming performance tests. Isoelectric focusing is one technique used for distinguishing among fine fescue species, subspecies and cultivars. This study concerned the stability of esterase patterns of seeds as influenced by year and location of production.

The technique involves use of seed material (caryopses plus lemmas and paleas). This is ground and delipified prior to protein extraction, isoelectric focusing, esterase staining and evaluation. The following twenty seven cultivars were among the thirty eight studied:

Festuca ovina L.subsp.duriuscula (L.) Koslow

- Balmoral
- Biljart
- Centurion
- Reliant
- Scaldis
- Sylvana
- Tournament
- Waldina

Festuca rubra L.subsp. commutata Gaud.

- Adonis
- Barfalla
- Banner
- Frida
- Highlight
- Jamestown
- Ilona
- Koket
- Longfellow
- Shadow
- Veni

Festuca rubra L.subsp. rubra A.R.P. daSilva and Sob.

- Fortress
- Gracia
- Merlin

Festuca rubra L.subsp. trichophylla Gaud.

- Barbara
- Dawson
- Golfrood

Festuca tenuifolia Sibth.

- Barok
- Renova

Fifteen commercial samples of seeds of Jamestown harvested in five consecutive years did not reveal detectable differences in the number distribution or relative intensity of the esterase bands. Analyses of three samples of Banner harvested from three different fields in the same year and three samples harvested from the same field in three consecutive years did not reveal any detectable differences among samples. Similar results were obtained with Koket. There were consistant differences between Banner and Koket in the development of bands of esterases. Scaldis and Biljart were compared and identified on the basis of esterase bands. Where seed of Reliant was slightly contaminated the match with uncontaminated seed did not hold. It was concluded that there is a high degree of constancy for both qualitiative and quantitative aspects of esterase patterns. Neither year of production nor location of production significantly altered the banding pattern that characterized each cultivar. Therefore, esterase patterns were found to be stable characteristics reflecting the uniqueness of genetic constitution of each cultivar.

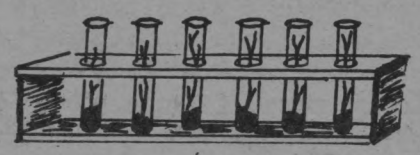
CALLUS INDUCTION, MAINTENANCE AND PLANTLET REGENERATION IN CREEPING BENTGRASS

J V Krans, V T Henning, and K C Torres

Crop Science Vol 22 Number 6 1193-1197

Plant cell and tissue culture studies have involved several plant species. Dicots have received more attention than monocots. Plantlet regeneration in turfgrasses has been reported for ryegrass hybrids (Lolium multiflorum X L perenne and reciprocal crosses), for tall fescue (Festuca arundinacea Schreb.) and for creeping bentgrass (Agrostis stolonifera L.). Callus induction and maintenance without regeneration has been reported in some additional turfgrasses. Meristem culture studies have involved several more.

Hormonal and environmental requirements for callus induction, maintenance and plantlet formation are of critical importance. This study of Penncross creeping bentgrass evaluated the effect of 2,4-dichlorophenoxy acetic acid and light versus dark incubation on callus induction from mature caryopses. Callus growth and plantlet regeneration were also investigated using 2,4-D and Kinetin.



THRESHING THE JOURNALS CONTINUED

Penncross was found to be readily manipulated in callus culture. Optimum levels of the hormone for callus induction and maintenance were relatively similar. Dark incubation for inducing callus from mature caryopses proved best. Greatest callus yield and less time and effort required to excise callus were noted. Kinetin was not found to be a necessary media constituent for callus induction. Viable callus may be stored over an extended period of time for use in later experiments. The apparent lack of phenotypic differences between cultured plants and seeded plants and the low frequency of albinism in plantlets indicates a high degree of Penncross stability in culture.

USE OF CALLUS CULTURES TO SCREEN TALL FESCUE SEED SAMPLES FOR ACREMONIUM COENOPHIALUM.

B V Conger and J K McDaniel

Crop Science Vol 23 Number 1 172-174

The presence of an endophyte in tall fescue plants has been correlated with bovine fescue toxicity and related poor performance of steers grazing on these lands. The endophyte, Acremonium coenophialum, produces no external symptoms on infected plants. The fungus is conspicuous in tissues of tillers in actively growing plants when stained and subjected to microscopic examination. Now a rapid and sensitive enzyme-linked immunosorbent assay (ELISA) technique is available to detect the fungus in both plants and seeds.

Results of these studies show that embryo-derived callus tissue can be used to screen tall fescue seed for the endophyte. Hundreds of seeds from several samples can be easily tested at one time and the results obtained in three to four weeks. This technique provides an alternative to previously used histological and ELISA procedures on actively growing plants. With embryo-derived callus, seeds do not need to be germinated and grown to plants before determination of infection or noninfection. Testing large numbers of seed is necessary if the endophyte occurs in low frequency in a particular seed lot. Identification of the endophyte is highly reliable using this technique.

INHERITANCE OF OZONE RESISTANCE IN TALL FESCUE

W J Johnston, R L Haaland and R Dickens

Crop Science Vol 23 Number 2 235-236

Ozone is considered the most widespread air pollutant in the United States. It is certainly the most important contamination of air that affects vegetation. As urbanization increases, ozone levels elevate and now in many locations exceed federal standards with increasing frequency.

Research has found that ozone tolerance of plants is a highly heritable characteristic and that the selection of resistant plants and the breeding for ozone resistance should be successful. This study was undertaken to gain information on the inheritance of ozone resistance in tall fescue.

A major portion of the genetic variance for ozone resistance in tall fescue seedlings was found to be additive. Thus, improvement in resistance should be possible using mass selection or recurrent selection methods. In general, results also show that northern European and US ecotypes are more resistant than are Mediterranean types. Additional studies in this area are considered desirable as little has been accomplished to date except for the selection of a smog-resistant turf-type bermudagrass cultivar, Santa Ana.

VARIABILITY IN ROOTED STEM PRODUCTION AMONG TALL FESCUE GENOTYPES

P D'Uva, J H Bouton and R H Brown

Crop Science Vol 23 Number 2 385-386

Tall fescue is usually described as a deep rooted perennial bunchgrass with numerous leaves and few to many stems. Occasional plants have short rhizomes. Because the internodes of the underground stems are short, a relatively nonspreading habit of growth is common. Recently, plant types with creeping rooted stems have been observed. These stems have spread both above and below ground with distinct internodes and roots and sometimes tillers or secondary rooted stems at their nodes. The objective of this study was to determine the genotypic variability in rooted stem production among twenty four tall fescue genotypes grown at two locations in Georgia.

No differences in plant response were found related to location. Thus, soil and climatic variables did not affect the expression of rooted stem development. There were significant differences among the tall fescue genotypes in the number and length of rooted stems and in plant area measured at the soil surface. Plant area and rooted stem number and length were directly related. The variability in rooted stem production and the high degree of development of this character in some genotypes indicates its potential use in breeding tall fescues for better adaptation as turfgrasses.

THRESHING THE JOURNALS CONTINUED

EFFECTS OF GIBBERELLIC ACID ON THE CARBON DIOXIDE EXCHANGE RATES OF BERMUDAGRASS AND ST AUGUSTINEGRASS WHEN EXPOSED TO CHILLING TEMPERATURES.

K J Karnok and J B Beard

Crop Science Vol 23 Number 3 514-517

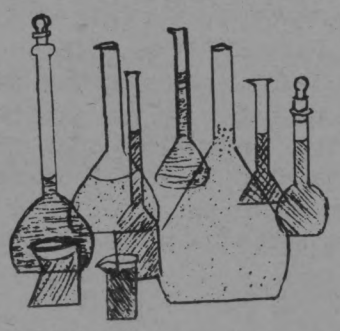
Cool temperatures within the range of 50 to 60° F (10 to 15° C) set back the growth of warm-season perennial grasses. In time, a complete loss of pigmentation occurs and plants enter a state of dormancy. This is caused by physiological disruptions often simply called chilling injury. Photosynthesis is perhaps the first physiological function affected by chilling temperatures. Rate of photosynthesis for both cool and warm season grasses is reduced at lower temperatures. Some grasses are more chill tolerant than others. Among the bermudagrasses Ormond is considered chill tolerant and Pee Dee, chill sensitive. Floratam St Augustinegrass is chill tolerant and Texas common, chill sensitive.

The application of gibberellic acid is known to delay the start of chilling injury. When used at the proper time, increases in dry weight, total leaf area and shoot length have been observed.

This study was conducted to determine the effect of chilling temperatures on the carbon dioxide exchange rate and to observe the effects of gibberellic acid on plant responses.

The carbon dioxide exchange rates were lower for the chill sensitive bermudagrass and St Augustinesgrass than for the chill tolerant cultivars. Both bermudagrass cultivars increased carbon dioxide exchange rates following gibberellic acid treatment. Floratam St Augustinegrass decreased carbon dioxide exchange rate following an application of gibberellic acid, and Texas common did not respond. Rates of application for gibberellic acid may well be more critical for St Augustinegrass than for bermudagrass.

These results indicate that the chilling resistance of Ormond is at least partly due to its ability to maintain a relatively high daytime carbon dioxide exchange rate while under chilling stress. This maintenance of photosynthesis facilitates the production of new shoot growth which is resistant to chilling and is necessary for the replacement of chill injured above ground plant parts.



GENETIC VARIABILITY OF SEED YIELD AND REPRODUCTIVE CHARACTERS IN TALL FESCUE

H T Nguyen and D A Sleper

Crop Science Vol 23 Number 4 621-626

Breeding for improved seed production in tall fescue is essential for the assurance of continuing adequate seed supplies.

The objectives of this study were to determine the extent and nature of genetic variability, genotype times environmental interactions and heritabilities for seed yield and reproductive characters. Interrelationships among these characters and prediction of genetic gain from selection and correlated responses in other characters were also evaluated. All entries were evaluated for the following ten seed production characters:

- maturity score;
- plant height;
- lodging score;
- number of panicles;
- panicle length;
- seed yield;
- 100-seed weight;
- reproductive herbage yield;
- seed weight per panicle;
- seeds per panicle.

Early maturing tall fescues had greater seed production. This was related to larger number of panicles and increased seed size. The extent and nature of genetic variability indicates excellent opportunities for improving seed yield.

MANAGEMENT OF HERBICIDE AND FERTILITY LEVELS ON WEEDS AND KENTUCKY BLUEGRASS TURF

B J Johnson and T H Boyer

Agronomy Journal Vol 74 Number 5 845-850

Most weeds can be controlled in turf by proper use of selective herbicides; however, without optimum fertilization, turf growth can be inhibited by herbicide treatments and additional weeds may invade the turf area.

Kentucky bluegrass is grown in the mountain region of Georgia. In the summer it is subjected to stress conditions that can so weaken the turf that loss from heat, disease, and other related factors are common. Since it is usually necessary to clean up weeds with herbicides and use fertilizers to maintain growth, an experiment was conducted to determine the influence of combined herbicide and fertility levels. The degree to which fertilizer can substitute for herbicides in controlling weeds and maintaining turf quality was studied.

THRESHING THE JOURNALS CONTINUED

Crabgrass control was better when both nitrogen and preemergence herbicides were used together. However, postemergence control of crabgrass with monosodium methanearsonate (MSMA) was the same with and without nitrogen applications. MSMA also effectively controlled dandelions. Fewer dandelions were noted in fertilized plots. In one of four years, the combination of isobutylidene diurea (IBDU) and MSMA caused injury to the turf. Similar injury was noted with urea-formaldehyde (UF) and sulfur-coated urea (SCU). Much less injury was evident when ammonium nitrate was applied. MSMA reduced the incidence of red thread disease. After four years, there was generally less disease where ammonium nitrate was used and more disease on turf treated with slow release nitrogen.

CULTIVAR AND SEEDLING RATE EFFECTS ON SEVERAL PHYSICAL CHARACTERISTICS OF KENTUCKY BLUEGRASS TURF

A D Brede and J M Duich

Agronomy Journal Vol 74 Number 5 865-870

Management and environmental factors affect tillers in a Kentucky bluegrass lawn. The growth habit and dimensions of bluegrass plants vary with: cultivar, light intensity, photoperiod, nutrient supply and cutting practices. The fold of the leaf blade changes with available moisture.

Studies of bluegrass physical characteristics are difficult to accomplish. Variations are noted in spaced plantings and in seedlings that are no longer evident in mature stands. Clipped plants do not behave the same as unclipped plants.

Turfgrass managers make frequent decisions that affect the growth and development of the grass. The reaction of the tiller is often unknown or not considered. This study was conducted to evaluate the physical response of A-34, Baron, Bonnieblue, Newport and Pennstar Kentucky bluegrasses grown under dense field conditions. Seeding rate and cultivar differences were evaluated.

Seeding rate had a positive effect on leaf angle. The percent loose tillers per sample, which serve as an indicator of nonvertical tiller orientation, green leaves per tiller, sheath-axis width and leaf widths were negatively affected by seeding rate. Over five growing seasons stand densities developed to a mature density. This was affected by cultivar and cutting height.

A-34 had the highest tiller density, fewest green leaves per tiller and narrowest leaf angle and blades.

Baron possessed the most brown leaves per tiller and equalled Bonnieblue with the widest sheath axis width.

Bonnieblue had the most green leaves per tiller and equalled Pennstar with the lowest mature tiller density.

Pennstar had the most base tillers per sample, the widest leaf angle and the most narrow sheath-axis width.

SIMAZINE FORMULATION TREATMENTS ON CONTROL OF WINTER WEEDS IN BERMUDAGRASS TURF

B J Johnson

Agronomy Journal Vol 74 Number 5 881-886

Preemergence herbicide treatments do not consistently control all the different broadleaf winter annual weeds commonly found throughout the southeastern United States. Postemergence treatments also vary in effectiveness. Simazine has both pre and post emergence activity on winter weeds in Georgia. Therfore, an experiment was initiated with Simazine to determine if variation in weed control can be reduced or eliminated by proper selection of formulation, rates and frequency of treatments on a bermudagrass turf.

Preemergence treatments in September provided best control of winter weeds when 1.6 and 2.0 pounds per acre (1.8 and 2.2 Kg/ha) of granular formulation and 2.0 pounds per acre (2.2 Kg/ha) of the wettable powder were applied. Slurry treatments in September did not control parsley-piert or corn speedwell.

Postemergence February treatments controlled parsley-piert, corn speedwell, hopclover and annual bluegrass regardless of formulation used or rates of application, except for the granular formulation on hopclover. In this instance, control from 0.8 pounds per acre (0.9 Kg/ha) was not as good as when treated with other formulations at the same rate. Also, the February granular treatments did not satisfactorily control spurweed, while control was good with the wettable powder and slurry when at least 1.6 pounds per acre (1.8 Kg/ha) was used. None of the Simazine treatments delayed early growth of bermudagrass in the spring regardless of formulation, rates, or dates of treatment.

Conference Topics

(Presentations of note)

Three topics from three different conferences are summarized here in an attempt to illustrate change in turfgrass research and practice as well as stability in recognizing value in the turfgrass commodity. A resolution from the American Seed Trade Association speaks to the importance of continuing cooperative effort between public and private researchers and administrators. Presented at the 1982 ASTA Convention, this resolution is helping in the development of research priorities to assure continued progress in the release of improved turfgrass cultivars.

At the 1983 ASTA Lawnseed Division meeting, Dr Victor Gibeault, University of California Turfgrass Educator, challenged his audience to take a close look at changes in turfgrass perspective. To best be prepared for the future, we must understand from whence we have come.

Finally, a thought provoking statement on Golf and America was presented by The Honorable Guy VanderJagt, Representative from Michigan, at the 1983 GCSAA Convention. His valued perspective provides ample justification for all our effort in behalf of better lawns and sports turf.

AMERICAN SEED TRADE ASSOCIATION RESOLUTION ON RELEASE OF GERMPLASM, VARIETIES AND RELATED TECHNOLOGY

Harold Loden, ASTA Executive Vice President in 1982, introduced the following resolution for discussion by stating that although it is apparent most universities have well-established policies in this area, it is believed important that ASTA take a formal position.

WHEREAS, the challenges to improve agricultural productivity are ever increasing, and

WHEREAS, the historically close cooperation between the public and private plant breeders has been mutually beneficial, and

WHEREAS, such cooperation has enabled the seed industry of the U S to attain a position of world leadership in the development and release of new varieties in many plant species, and

WHEREAS, the basic research accomplished by plant scientists in the public sector has been possible as the result of the team efforts of dedicated and capable public scientists in conjunction with available sophisticated physical facilities for such research, and

WHEREAS, it is recognized that public breeders have contributed significantly to the seed industry and to the benefit of the general public by the development of improved germplasm and varieties, and

WHEREAS, the seed industry recognizes the competition for available funds that may influence plant variety release policies of public institutions, and

WHEREAS, it is essential that both private and public research be perpetuated in a highly viable state.

Conference Topics Continued

ASTA Resolution CONTINUED

NOW, THEREFORE, BE IT RESOLVED that the American Seed Trade Association recommends that public institutions give consideration to the following basic concepts in the formation of policies related to release of germplasm, new varieties and related technology from their research programs:

1. Close cooperation between public and private plant breeders contributes materially to the successful introduction and utilization of new varieties and should be perpetuated.

2. Open exchange of germplasm and research information among public and private breeders is a practice that should be encouraged and continued.

3. The primary role of the public breeder should be that of "basic research", the development and general release of improved germplasm and the training of future plant breeders. It is recognized, however, that circumstances presently exist, and will exist in the future, whereunder public breeders will breed and release finished varieties of plant species.

4. As a general principle, varieties and germplasm and related technology developed at public institutions with public funds should be released on a non-exclusive basis. Exclusive or restricted release of varieties is acceptable in situations and to the extent that a general release will not protect the integrity of the variety or ensure the availability of the variety on a continuing basis. If a restricted release policy is contemplated for release of a variety or varieties, appropriate notice should be given to interested parties (through state and regional seed associations, ASTA, NCCPB) with opportunity to respond.

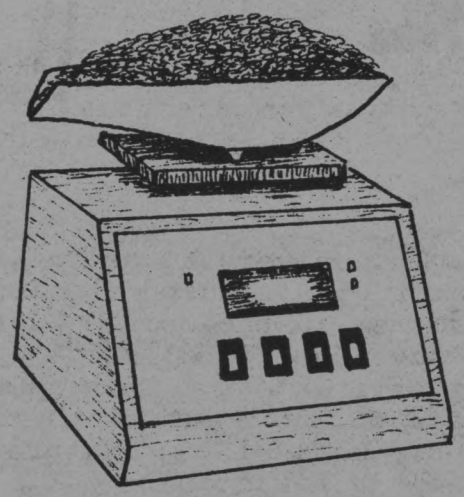
5. Public breeders should not personally receive royalties or alternative forms of remuneration for varieties, germplasm, or other research material that they develop and release, since such remuneration may restrict free exchange of germplasm and general research information among plant breeders, public and of the private sector.

6. Release of publicly bred varieties on a royalty basis may place public institutions in direct competition with private breeders. It is recommended that public institutions and private industry join in evaluating the impact of the breeding and release of varieties by public institutions on a species and geographical basis in order that policies will be established to properly define the role of the public institution in serving its supporting constituency.

7. The seed industry supports and favors public and industry-wide funding of specific research projects at public institutions, rather than grants which may provide for selective release of research results.

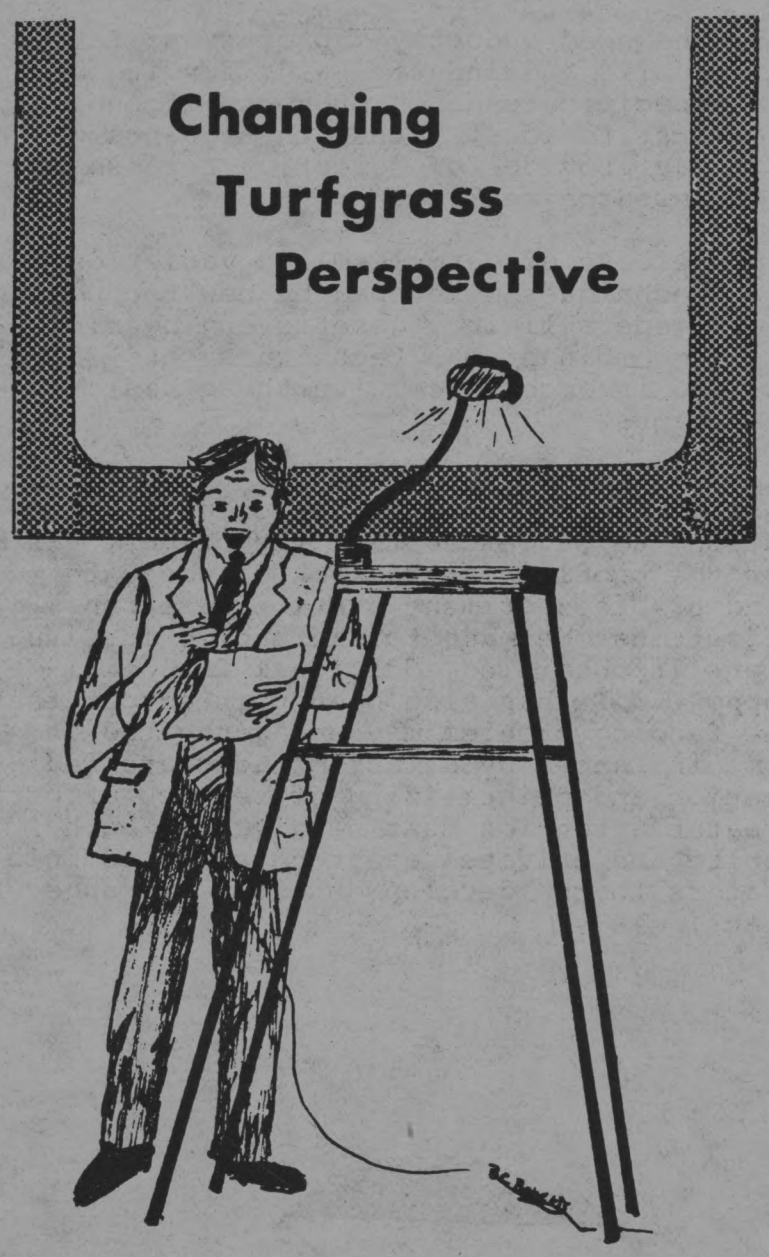
8. Release of germplasm and varieties or techniques developed by new technology (gene splicing, genetic engineering, recombinant DNA techniques, etc) should be in accordance with these basic concepts.

Subsequent in depth discussion of the resolution has suggested that the primary basis for the problem is the lack of adequate funding of experiment station research. Effort must be made to aid public institutions in obtaining additional financial support. It has also been pointed out that the funding problem may be aggravated in some instances by a lack of adequate redirection and prioritizing of reseach efforts. Greater attention must be given by both public and private researchers and administrators to the development of long range plans.



Conference Topics Continued

ASTA LAWNSEED DIVISION



Dr Victor Gibeault, University of California Turfgrass Educator, has studied the importance of turfgrasses in the United States. Lawns and turf have functional value in that they modify the environment. They reduce glare, reduce air pollution (both particulate and gaseous), control temperature to a degree and help in noise abatement. Lawns and turf also influence lifestyle through recreational activities (sports) and through development of attractive habitats (ornamental aspects).

Six factors have influenced the importance of turfgrass to date,according to Vic. These include: (1) urbanization, (2) suburbanization, (3) population increases - 265 million projected for the year 2000, (4) increase in leisure time- 60 hour work week in the 1800's to less than 40 hours in the 1980's, (5) increases in discretionary income - dollars available after needs are satisfied, (6) increase in importance of amenities - stimulation of comfort and joy.

The value of turfgrasses in California is listed at $1.08 billion dollars in a 1983 survey. Projecting this at the national level would make the turfgrass agribusiness a $24.7 billion dollar industry. 1977 data on California turfgrass acreage and value in various categories indicates a total of 1,380,295 acres costing $689,764,000 to maintain. Residential lawns represented, by far, the leading category.

1977 - Estimated Acreage and Maintenance Costs of Turfgrass in California

Location	Acres	Cost(thousand $)
Residential	860,800	467,694
Golf	75,000	72,800
Parks	42,000	12,039
Schools	68,864	20,035
Cemeteries	34,432	9,877
Sod	250	(16,000) *
Bowling Greens	25	684
Other	296,974	106,635
Total	1,380,295	689,764

*estimate not included in total

Conference Topics Continued

CHANGING TURFGRASS PERSPECTIVE Continued

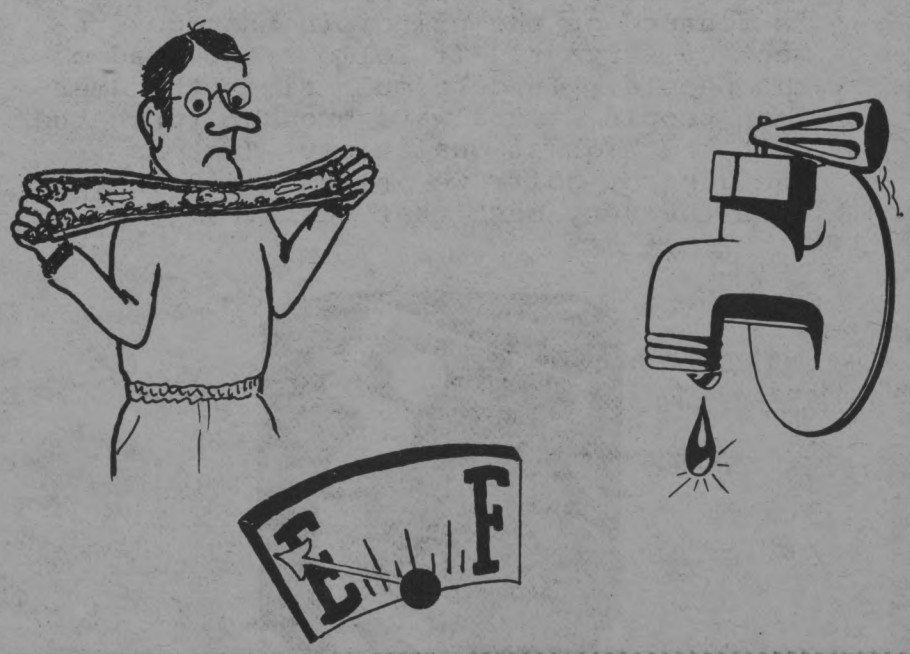
How did all this come about and what about future trends ?

From 1950 to about 1973, increasing prosperity in the United States led to higher and higher expectations for lawns and turf. We could afford the best color, texture, density, uniformity and expect to have lawns pest free. Football fields, school grounds, golf courses and ornamental lawns could be enjoyed at their best. We could well afford to mow more, fertilize more, irrigate more, aerify more, control thatch and all pests at increased frequency. The only problem was, this required high energy inputs.

Then from 1973 to 1978, the energy crisis came to the forefront. Costs went up. Water, fertilizer, everything related to lawn construction, renovation and maintenance. The economy slowed and people started to reevaluate needs and establish new priorities.

Since 1978, we are in the midst of a tax and cost rebellion. Vic has observed in California that areas maintained with public funds are being cut back. Dollars are being stretched. Tax supported projects felt the crunch first, but now it is wide spread.

From 1983 through 1985 and probably beyond, water availability will become increasingly important. The cost to store and move water is likely to be an issue for many communities. What lies beyond this ? Do we continue as is, or do we move backwards ?



Vic feels that it's important for us not to go backward. But, we must return to some of the sound basic principles that we have set aside or by-passed in our rush towards affluency. For example, in California, turfgrass species adaptation must be considered in four categories:

- Use of well adapted grasses so that energy requirements are reduced to the minimum.

- Use of special high maintenance grasses that are known to cost more but are necessary for uses that can justify the expenses.

- Use of high level maintenance grasses in areas of extremely poor adaptation. These, such as creeping bentgrasses in Palm Springs, would be restricted or limited in use.

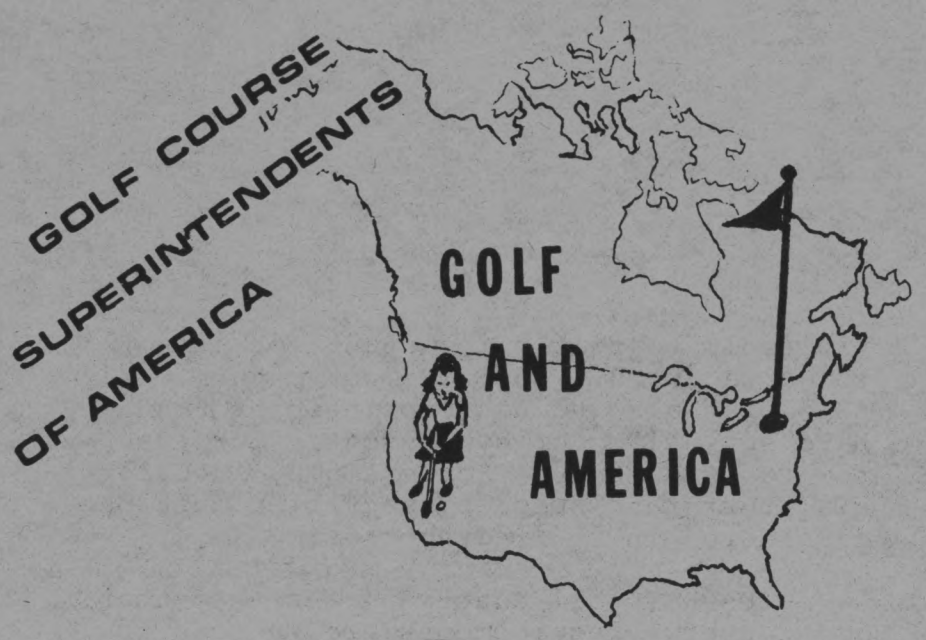
- Many grasses that are not well adapted in an area should not be used at all.

Like California, all states can be mapped and each of these four areas of adaptation identified and related to grasses that may or may not be used. Cost of use can be specified. For example, in Palm Springs Vic has found that it can cost $20,000 more to maintain bentgrass than bermudagrass with overseeding under golf green conditions. He has identified four zones in California where bermudagrass is restricted in use, three limiting use of Kentucky bluegrass and only two where turf type tall fescues may be costly to maintain. Bermudagrasses are thus least widely adapted and turf type tall fescues are most widely adapted. It's a fact well adapted grasses use less water.

Although species differences are greater; there are also varietal differences. Fit the grass to the use. Sports turf, such as golf and football, require high recuperative potential. Cost will be greater. Home lawns should have a moderate domestic potential. Cost will be less. Finally, parks, roadsides may be designated as having an industrial potential with minimum cost.

According to Vic Gibeault, this is the way to adjust to the changes that are upon us without loss of turfgrass quality across the board.

Conference Topics Continued



After listening to The Honorable Guy VanderJagt, PhD, member of the House of Representatives from Michigan, it was easy to conclude that golfers may well be the best of humankind and the most patriotic of our citizens. His topic, "Golf and America", presented some vivid images important for us to remember.

First - picture as many golf courses as you are familiar with. They are all different and yet, they all provide a unique environment for the game of golf. It requires skill to play each and a wide range of knowledge to maintain and manage them. The characteristics that make for high quality in golf courses are the same as those that make Americans the great people that they are.

Dr VanderJagt called attention to the following -

- Individuality - the making of a great golf challenge; the core that perpetrates the American spirit.

- Microcosm of life - both on and off the course:
  - joy: in a well played ball;
    in home, family, friends.
  - sorrow: in a missed put;
    in all losses through life.
  - good luck: as the ball bounces back on the fairway;
    as we reap rewards in life over which we have no control.
  - bad luck: as a gusty wind drives a ball off course;
    as we find ourselves in the wrong place at the wrong time.

On the course and off, this is life.

- Smiling through adversity - golf jokes and stories provide a lesson for us in search of the brighter side.

- Ecology and Environmentalism - Golf Course Superintendents were the first practitioners. A golf course ceases to be functional in the face of pollution and environmental degredation. We can learn from the methods golf superintendents use to improve environmental quality.

- Creation of enjoyment - both golf and the best of living experiences accomplish this for others.

- Experiencing the miracle of agriculture- recycling of water, conservation of soil, managing waste disposal, good land use, keeping living things in their proper environment for the benefit of humankind. All these are the elements of good golf turf management as well as the basis for agricultural science. All may not be fortunate enough to be farmers, but all may learn from being on the golf course.

- Working out differences - golf courses provide an atmosphere conducive to getting people together such that the forces of faith and hope may prevail in the identity of common ground.

Dr VanderJagt related these concepts of faith and hope to the future of America, noting the blessings we enjoy as individuals, as Americans, all qualities of the golfer. Individuality, Initiative. The individual is the key, capable of shifting the direction of even a great country.

Is it the government that is great, or is it the people who are great ? Our system is founded on the principle that government be servant. It follows the lead of the people. In difficult times the American people have always brought forth the best and highest qualities. Just as in the game of golf, we are called upon to give the very best that we have.

Field Day Score Card

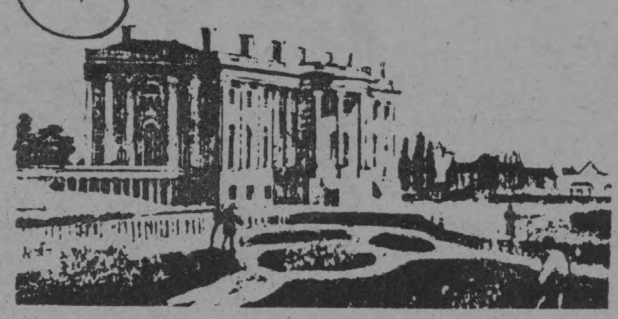
(Field Plot Evaluations)

Harvests
21

FIELD TOUR DEMONSTRATES 1983 LESSONS LEARNED

The American Society of Agronomy Turfgrass Tour of the Washington, DC area held on August 17 featured visits to the White House grounds, the Robert F Kennedy Stadium, and the Beltsville Agricultural Research Center Turf Plots, among others. Plans made by Pete Dernoeden, University of Maryland, Jim Patterson and Bob Cook, National Park Service, John Hall, Virginia State University, and Nichole O'Neill and Jack Murray, USDA-BARC resulted in a full day event that scored high in interest and educational value. The following notes are presented here as an example of the type of observations made and variety of topics discussed.

The White House Grounds



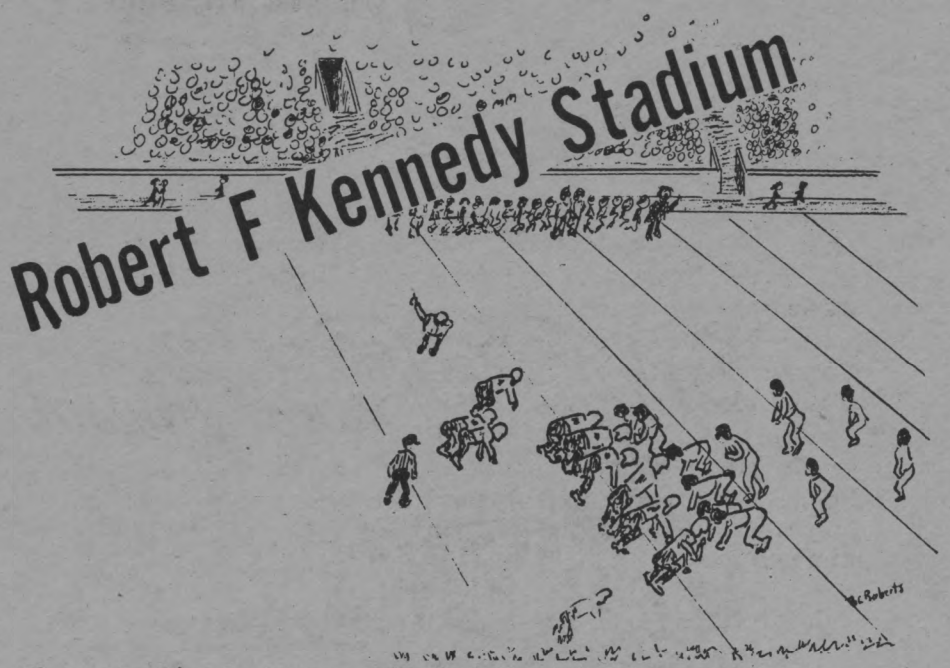
The White House grounds are beautifully landscaped with many specimens of historic significance. Lawn areas create open space and vistas from which views of the surrounding city become more interesting.

The south lawn is well turfed and uniform in appearance. Evidence of adverse effects of the hot summer of 1983 were not to be seen. Disease, weed and insect control practices were creating conditions favorable for fine turf production. Nut sedge was evident within the turf under close inspection, however, frequent mowing of this fast growing plant had been effective in making it less conspicuous. Turf type tall fescue has been overseeded in this area in an attempt to improve the hardiness of the turf cover.

The rose garden area consists of a high quality zoysia turf. This lawn is sodded to zoysia for late spring, summer and early fall months. Then, the sod is removed and replaced with a bluegrass sod for late fall, winter and early spring months. This rotation provides for an attractive lawn all year around.

Because of the use requirements imposed, the White House grounds present a unique management challenge. They must always look good and be ready for unexpected special events and services. Planning and scheduling renovation, repair or reconstruction are difficult, at best. Frequently, most desirable timing for maintenance and renovation practices are not possible because of restrictions dictated by use, or other considerations imposed by the executive staff. The maintenance staff received congratulations from tour participants for the excellent job being done at our nation's number one residence.

Field Day Score Card CONTINUED



The stadium, home of the Washington Redskins, was completed in 1961. Soil compaction on the field was battled for thirteen years before all existing soil was removed and the Prescription Athletic Turf (PAT) System installed. The 1975 installation involved approximately 11,200 cubic yards of sand to provide an eighteen inch profile. The prescribed plastic barrier, tile, pumps and heating cable were put in place. The surface one inch was modified with peat, calcined clay and vermiculite.

The following turfgrasses have been in use:

- April 1975 - Sod of Kentucky bluegrass blend.
- Spring 1976 - Sod Tufcote bermudagrass;
  - annual overseeding with perennial ryegrass.
- Spring 1981 - Sod Vamont bermudagrass.
- Fall 1981 - Seed Manhattan perennial ryegrass.
- November 1982 - Sod Kentucky bluegrass blend.
- Spring 1983 - Sod Rebel turf type tall fescue.
- July 1983 - Sod Vamont bermudagrass; to be overseeded with perennial ryegrass in the fall.

With eighteen to twenty five scheduled football games a year, including Washington Federal games in the spring, the field receives heavy use.

Bermudagrass receives four to six pounds of nitrogen per one thousand square feet during its growing season. The overseeded ryegrass receives one to three pounds of nitrogen between October one and January fifteen. High potassium levels are maintained to maximize winter survival.

Bermudagrass is mowed at heights of from three quarters to one half an inch. In September, the mowing heights are raised to one to one and one quarter inch to accomodate the overseeding, increase verdure and enhance winter hardiness.

Some topdressing is applied in conjunction with the fall overseeding. A sand similar to that in the field is used.

A clear vented (one quarter inch holes on six inch centers) tarpaulin is used in the fall to extend bermudagrass growth and enhance the development of the overseeded perennial ryegrass. The field is covered when night temperatures go below 45° F and the cover removed when daytime temperatures go above 70°.

In the fall, after each game, divots are removed and holes topdressed and reseeded. The field is tinted when the bermudagrass has gone dormant to aid in providing acceptable color.

Beltsville Agricultural Research Center Turf Plots

Inspection of turfgrass research plots during periods of climatic adversity are always of special interest. During these periods of stress, differences or lack of differences can be particularly meaningful. In the midst of a hot, dry summer, the following notes and observations were made.

National Kentucky Bluegrass Tests 1980 Seedings

These Kentucky bluegrass test plots are mowed at 1 1/2 inches, receive three pounds of nitrogen per 1000 square feet, and are irrigated to prevent dormancy. Out of one hundred and thirty one entries, forty seven are commercially available. Twenty seven entries were grouped as having best quality to date. Among those in this category were: Ram-I, Fylking, Enmundi, Rugby, America, Majestic, Merit, Sydsport, Eclipse. Note: the extra nitrogen and irrigation and different age of stand make a difference. (See trials seeded in 1981).

National Kentucky Bluegrass Tests 1981 Seedings

These Kentucky bluegrass test plots are mowed at 1 1/2 inches, receive one pound of nitrogen per 1000 square feet each year and no irrigation. Out of one hundred and eight entries, forty seven are commercially available. Twenty entries were grouped as having best quality to date. Among those in this category were: Monopoly, Ram I, Enmundi, Rugby, Touchdown, Majestic. Note: the lesser amount of nitrogen, lack of irrigation and age of stand make a difference. (See trials seeded in 1980)

Field Day Score Card CONTINUED

Beltsville Plots Continued

Kentucky Bluegrass Evaluations Under Low Maintenance -1977 Seeding

Kentucky bluegrasses seeded in 1977 and maintained at a 1 1/2 inch height of cut, fertilized with two pounds of nitrogen per 1000 square feet per year, and not irrigated were inspected for turf quality in the midst of the 1983 summer stress period. Adelphi, Enmundi, Vantage and Wabash were noted to be superior.

Perennial Ryegrass Varieties and Selections -1977 Seeding

Fifty two perennial ryegrass cultivars seeded in 1977 and maintained under a 1 1/2 inch clipping height and fertilized with two to three pounds of nitrogen a year were evaluated. Regal looked particularly good. Jack Murray noted that the best summer performers over the years, in addition to Regal, were Clipper, K5-683, Fiesta, Dasher, Blazer, Pennfine and Paramount.

Perennial Ryegrass Responses to Mowing and Nitrogen

Pennfine perennial ryegrass seeded in 1978 has been mowed at different heights and received different amounts of nitrogen. The following observations have been made-

- Ryegrass may be winterkilled even in the Washington, DC area.
- Two pounds of nitrogen was not enough; four pounds was about right and six pounds reduced tolerance to summer stress.
- Mowing at 3/4 and 1 1/2 inch heights produced best quality turf.

Effects of Cultivars in Tall Fescue-Bluegrass Mixtures

As little as ten percent Kentucky bluegrass in a turf type tall fescue seed mixture improves the sod strength. Mystic Kentucky bluegrass provided too much competition with the turf type tall fescues. Ram I Kentucky bluegrass worked well in fescue mixtures. Higher levels of nitrogen cause bluegrasses to be more competitive. Best turfgrass quality was noted with Rebel or Falcon alone. Mixtures with bluegrass produced a finer textured cover indicating less turf type tall fescue influence on the stand.

Bermudagrass Varieties and Selections

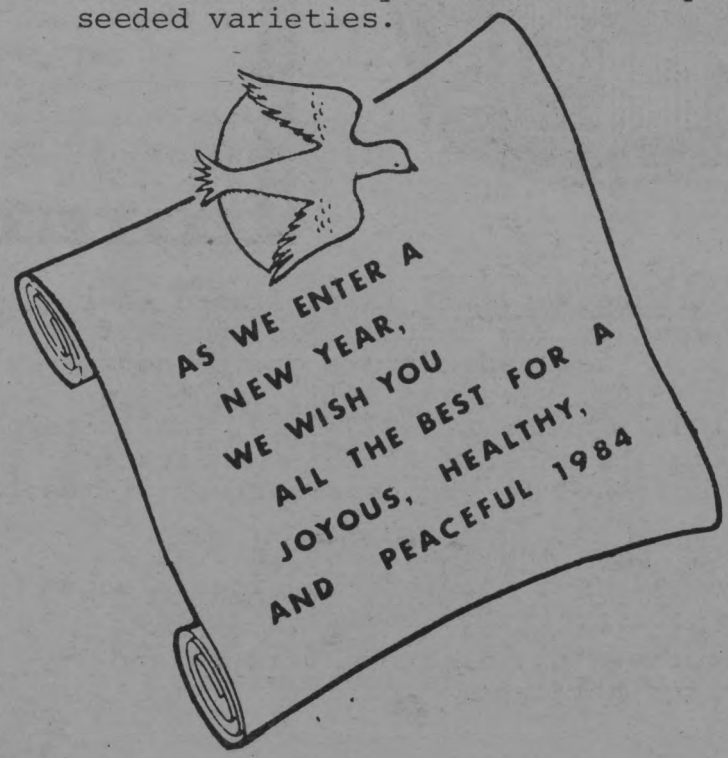
Twenty five bermudagrasses sprigged in 1976 are being evaluated for winterhardiness, color, density, rate of spread, disease resistance and turf quality in the transition zone. Turf is mowed at one inch. Three pounds of nitrogen are applied in equal increments in May, June and August. Of the named varieties, Tufcote and Midiron have produced best overall quality. Both of these have been subject to winter injury. One experimental entry looks promising.

A Comparison of Selected Zoysiagrass Clones and Their Poly-pollinated Progeny - Seeded

This study was initiated in June 1983. Comparisons are being made of zoysia establishment using plugs (2 1/4 inches in diameter on 1 foot centers), polycross seed at 1 1/2 pound per 1000 square feet and straw mulched, and sprigs on 1 foot centers. Seed was scarified with potassium hydroxide and light treated. Seed germinated in 4 to 6 days and plots looked good in early August. Seeded plots had more vegetative cover than where plugs and sprigs were used.

Zoysiagrass Variety and Selection Evaluation

Zoysiagrasses planted in 1980 are being evaluated for color, density, quality, disease and insect resistance, drought tolerance and rate of establishment. Turf was established from plugs, fertilized with two pounds of nitrogen per 1000 square feet each year and mowed at a one inch height. Plots were irrigated only during severe drought periods. Belair looked good and is being increased for release. Some selections are being evaluated for breeding material that may lead to development of seeded varieties.



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Lawn Institute Harvests is dedicated to improved communications among turfgrass seed and allied turf industries and other firms, businesses, organizations and individuals with lawngrass research and educational interests and concerns.

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