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LAND-GRANT universities do have an obligation to offer two-year programs of technical education. This obligation is somewhat more than vocational training and should not be confused with terminal vocational training and should not be confused with terminal vocational programs offered in high schools. The Stockbridge School of Agriculture is really a technical institute. In a recent book John Gardner of the Carnegie Foundation makes a persuasive case for excellence at all levels of education. The development of superior two-year programs is just as important as high quality four-year and graduate programs of instruction.

Several of the large states have done a good job in establishing two-year institutes on campuses scattered throughout the state. The best examples are New York and more recently California and Pennsylvania. How may a state with a small College of Agriculture meet its obligation? Massachusetts established the Stockbridge School in 1918. Over 5,000 men and women have been graduated and at the present time the associate degree is offered.

(Continued on Page 3, Col. 1)
As Highway Landscape Supervisor, Joe Beasley is in charge of the Highway Roadside Section of the Maintenance Division of the Mass. Dept. of Public Works, and as such he is assistant to and directly responsible to the Maintenance Engineer in charge of the Maintenance Division.

In his job Joe is responsible for supervising the technical planning and execution of Roadside Maintenance projects involving tree removal, tree trimming, tree replacement, roadside spraying for control of pests and noxious growth, grass mowing, selective clearing and trimming, erosion control planning, development of roadside rest areas, and general measures for the preservation of existing natural growth. Also he directs the technical specifications and special technical provisions for all highway roadside projects. In addition, Joe establishes administrative and technical measures for the control of District roadside maintenance. In his capacity with the D.P.W. Joe Beasley confers with and advises District Highway Engineers and their assistants on established policies and procedures pertaining to roadside maintenance, as well as participating in conferences of the Commission and various Department heads on matters pertaining to field roadside activities. Moreover, Joe represents the Commissioner and the D.P.W. within and outside of the Commonwealth, when so assigned, in connection with roadside development interests.

Our VP has served on the American Association State Highway Officials Committee to formulate landscape design guide standards which are utilized for the National System of Interstate and Defense Highways Programs. Five times he has represented the DPW at the Northeast Weed Control Conferences, and in three instances during sessions of the Ohio Short Course on Roadside Development at the University of Ohio.

A prolific writer, Joe prepares on the average three papers a year in the name of the D.P.W. but with his own "by-line" on various phases of Massachusetts roadside activity for such national publications as "Public Works Magazine," "Trees" magazine, "Proceedings of the National Shade Tree Conference," etc., as well as articles for newspaper supplements or as palliatives for an anxiously inquiring public.

The people of Massachusetts insist on well-groomed highways keeping within the three-century tradition of having a village green in the middle of every town. But, at the same time their Yankee thrift demands that the scenic beauty be achieved at the lowest possible cost, a task Joe is well-equipped to handle.

We of the Massachusetts Turf and Lawn Grass Council can be proud of the accomplishments of our Vice President, and to him we wish continued good fortune in his profession. Incidentally, Joe says, with the continued growth of the Council it being recognized more and more as the one group which is really devoted to "Better Turf Through Research and Education."—Editor

GET OVER THE IDEA that only children should spend their time in study. Be a student as long as you still have something to learn... and this will mean all of your life.

—Henry Doherty
There are significant economies in terms of staff, administration, and physical facilities in having the Associate Degree program on the campus of the state university. Another advantage is that it is possible to maintain high admission standards for the B.S. program and then admit the less gifted, but highly motivated candidates, to the two-year course. It is worthy of mention that two-year students profit in certain intangible ways by spending time on a university campus.

Table 1 points out enrollment trends in the College of Agriculture at the University of Massachusetts. It is significant that graduate school enrollment has almost doubled in the last ten years, two-year enrollment increased by 70 percent, whereas the four-year enrollment has not shown any significant change.

<table>
<thead>
<tr>
<th>Program</th>
<th>1953</th>
<th>1963</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate School</td>
<td>66</td>
<td>117</td>
<td>Almost doubled</td>
</tr>
<tr>
<td>B.S. program</td>
<td>371</td>
<td>361</td>
<td>Not much change</td>
</tr>
<tr>
<td>Stockbridge School</td>
<td>261</td>
<td>451</td>
<td>70 percent increase</td>
</tr>
</tbody>
</table>

Table II lists changes in choice of majors in the Stockbridge School between 1953 and 1963. There have been highly significant increases in numbers of students majoring in Arboriculture and Park Management, Turf Management, and Restaurant and Hotel Management; moderate increases in Landscape Operations, Floriculture, and Dairy Technology; no change in Animal Science; and significant decreases in Poultry Science and Horticulture (Fruit Growing and Vegetable Crops). New programs in Wood Utilization and Restaurant Management are showing promise. Who was wise enough to predict in 1953 that the number of Vegetable Crops majors would decline from 9 in 1953 to 1 in 1963? Or the number of Turf Management majors increase from 9 in 1953 to 65 in 1963?

**Table II**

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>1953</th>
<th>1963</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arboriculture and Park Manag.</td>
<td>16</td>
<td>65</td>
<td>Highly significant increase</td>
</tr>
<tr>
<td>Animal Science</td>
<td>83</td>
<td>87</td>
<td>About the same</td>
</tr>
<tr>
<td>Turf Management</td>
<td>9</td>
<td>65</td>
<td>Highly significant increase</td>
</tr>
<tr>
<td>Restaurant and Hotel Manag.</td>
<td>22</td>
<td>48</td>
<td>Highly significant increase</td>
</tr>
<tr>
<td>Landscape Oper.</td>
<td>32</td>
<td>46</td>
<td>Moderate increase</td>
</tr>
<tr>
<td>Floriculture</td>
<td>25</td>
<td>39</td>
<td>Moderate increase</td>
</tr>
<tr>
<td>Wood Utilization</td>
<td>6</td>
<td>21</td>
<td>Program started in 1953</td>
</tr>
<tr>
<td>Dairy Technology</td>
<td>15</td>
<td>23</td>
<td>Moderate increase</td>
</tr>
<tr>
<td>Poultry Science</td>
<td>26</td>
<td>15</td>
<td>Significant decrease</td>
</tr>
<tr>
<td>Fruit Growing</td>
<td>0</td>
<td>2</td>
<td>***</td>
</tr>
<tr>
<td>Vegetable Crops</td>
<td>9</td>
<td>1</td>
<td>Significant decrease</td>
</tr>
<tr>
<td>Vocational Forestry</td>
<td>24</td>
<td>16</td>
<td>Program discontinued in 1963</td>
</tr>
</tbody>
</table>

**TOTAL** 261 451

***Vegetable Crops and Fruit Growing combined into Horticulture starting with the academic year of 1963-64.

(Continued Col. 2)
A Neglected Aspect Of A Common Turf Disease

E. M. Stoddard
Plant Pathologist Emeritus
The Connecticut Agricultural Experiment Station

Observations over a period of years have led to the conclusion that many of us get so much concerned with Curvullaria, Helminthosporium, Fusarium and other fungi ad infinitum that we forget the old and present fungus Rhizoctonia. If we do remember it we think only of the "smoke rings" on the green in the morning after a foggy night.

This picture has become well fixed in our minds and we may even think that it is indigenous to golf greens and does not bother our favorite front lawn. Not because Rhizoctonia is not there, but primarily because the fungus is confining its activities to the roots where it rightfully belongs and where it causes the most serious damage.

Returning to the golf greens, we feel safe in saying that "smoke rings" are not the most serious part of Rhizoctonia damage but that root injury is really what spoils our greens. The "smoke rings" are only visible evidence of the presence of the fungus on the roots and if the roots were not infected there would be no "smoke rings".

By the time summer weather arrives the golf green, and the front lawn also, begins to lose its nice fresh green look of spring and the golf course superintendents (we don't say greenskeepers anymore) begin to lay awake nights worrying about how the greens are going to look for the tournament a week after next. The grass wilts in the hot sun and has to be watered in the middle of the day, the full schedule of spraying goes into effect and still the greens are looking pretty shabby.

The superintendent knows the grass has only about one inch or two of roots and some of the turf experts know this also, but strangely enough there seems to have been very little interest in connecting the short roots with the "smoke rings". But the roots are short primarily because Rhizoctonia has been killing faster than the plant can grow new ones and the grass consequently suffers from lack of food and water in the presence of plenty of both. It is true that compaction of the soil from heavy play contributes something to the problem but it has been found that this factor is of minor importance if Rhizoctonia is controlled.

We have recognized this aspect of the Rhizoctonia problem for many years and had waited patiently for the day when a cooperative superintendent and a heavy root infection of Rhizoctonia could be found on the same golf course so that we could prove our story. That day came and Dr. Ray Lukens and the writer were able to set up some experimental work for the control of Rhizoctonia root infection on greens in actual use.

It was determined that the roots of the turf on the greens in question were short and sparse and heavily infected with Rhizoctonia, as we had suspected. We knew that Nabam would control Rhizoctonia and that it would accelerate the production of new roots on plants and that to be effective against a soil pathogen it would have to be injected into the soil under pressure. On the basis of these facts, we injected some of the worst greens on the course with a solution of Nabam. What happened? In ten days new healthy roots were being produced and the greens were improving to such an extent that the superintendent injected the remainder of the greens on the course with the same result.

This was all very fine, the results were as we predicted and here was a solution of the immediate problem, but was it really true and were the results reproducible. Two years' work following the original trial demonstrated that Rhizoctonia was the principal casual agent of the deterioration of the greens and that it would be controlled by chemotherapy.

In the succeeding experimental work randomized plots on four greens were injected with Nabam, oxyquinoline sulfate, and water, and of course there were appropriate check plots. The Nabam was used at a concentration of 1 to 600 and the oxyquinoline sulfate at 1 to 2000, both in water solution. All were injected up to a depth of 12 inches with a tree feeding gun at 200 lbs. pressure. Liquid injected at 200 pounds pressure will lift the turf slightly in a radius of 2 feet from the point of injection with a consequent breaking of the compaction zone, hence the use of water alone to determine the effect of such breaking on the subsequent depth of root penetration. The effect was not highly significant. Periodical counts were made of the number of mycelial strands of Rhizoctonia per given length of roots which showed that Nabam was giving slightly better control than oxyquinoline sulfate and both were better than the checks. In no case was there complete control of Rhizoctonia but the "smoke rings" were a rarity. The grass had roots 6 to 12 inches long all summer and the greens were green.

This story is not primarily intended to delineate a method of Rhizoctonia control but to stress the point that Rhizoctonia root infection is an important factor in the deterioration of turf on greens and lawns and this we feel has been demonstrated by the above experimental work in which the control of Rhizoctonia root infection alone was enough to keep the greens in good condition through the playing season under the usual techniques of good management.

This is not to say that we can forget all about Curvullaria and Helminthosporium as they are active pathogens and can cause trouble aplenty, but it is to say that one should not forget that Rhizoctonia can cause a lot of injury to turf besides the traditional "smoke rings".

Notice: The Turf Bulletin wishes to announce a new policy. Subscriptions are now being accepted for advertising in the Turf Bulletin. All agreements will be on a yearly basis. For further information write to:

Joseph A. Keohane
Editor
Turf Bulletin
Stockbridge Hall, UMass.
Most professionals working with turf have other ornamental plantings under their care or jurisdiction. In some cases, it is only a few shrubs, but in other cases, a great variety of trees, shrubs, and flowers may be involved. Here are a few thoughts on the fall maintenance of these ornamental plantings.

The heat and dry weather of summer has had adverse effects on many plants. Now, with the return of cooler weather, many of the rather shop-worn plants will begin to perk up. You can help these plants by giving some additional care in the way of water if rain is not forthcoming. Water to soak the soil deeply by applying at least 1/2" of water for shrubs; 1" for turf, about once a week. A plentiful supply of water at this season will help to stimulate the growth of root cuttings. Its removal now can help to eliminate or reduce such re-infection.

Along this same line, be wary of fertilizing woody plants now. It is best not to fertilize now as this would tend to promote soft growth which would not harden before cold weather and would thus be more subject to winter injury. Withhold fertilizer from woody ornamentals until after the leaves have fallen and all growth has ceased for this year. Better yet, fertilize early next spring before growth starts.

Many flowering shrubs have developed uneven tops or too much top growth. These should be pruned back to the desired shape and size now to reduce the chance of breakage by ice and snow during the winter; and while pruning, remove all dead and severely weakened branches and twigs.

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THE LAWN SEED SITUATION is in a healthy condition. This applies particularly to those fortunate enough to have held large quantities of low priced seed. Just a matter of a few months ago, holders of large quantities of seed were wondering just what they were going to do to move their seed through any channel, anywhere. Now it is generally agreed that the lawn seed market is in excellent balance compared to the last few seasons; and because of this situation all prices are firm with considerable trading taking place.

Among the items enjoying strong popularity are Chewings and red creeping fescue which have just about doubled in price as compared with the low figures of a year ago. Kentucky bluegrass is several dollars higher than last year. Bentgrasses are reported to be unchanged from this time last year. White clover prices are said to be lower than last year due to the fact there appears to be a bumper Idaho crop. And ryegrasses are somewhat firmer than a year ago.

—Seed World
TURF BULLETIN

THESE QUESTIONS AND ANSWERS were prepared on the basis of questions that have been asked of the Seed Branch by seedsmen and others since 1960. They are intended to supplement the 78 questions and answers in a publication issued in October 1960, “Questions and Answers About the Federal Seed Act,” (AMS-415).

Q: Why isn’t POA ANNUA, annual bluegrass, recognized as a noxious-weed seed under the Federal Seed Act?
A: If the various States add POA ANNUA to their State noxious-weed lists, this noxious-weed seed would be automatically recognized as such under the Federal Seed Act in connection with shipments of seed made into those States. With respect to imported seed, if it were recognized as noxious, Kentucky bluegrass or rough bluegrass seed containing five POA ANNUA seeds in 25 grams would be prohibited from importation. The burden on our testing staffs, the extent of restrictions on importations, and the need for such stringent prohibitions argue against recognizing POA ANNUA as a noxious-weed seed in imported seed. Recognition as a weed seed with the usual 2 percent limitation appears to be justified.

Q: Is it illegal under the Federal Seed Act to advertise “Highland Colonial bentgrass”?
A: The wording of section 201.12 of the regulations is construed as requiring that complete kind and variety names be shown in labeling seed; for example, “Ky blue,” “Cr. R. Fes.,” “Bt. grass,” “P. fes.,” “Poa Tri.”

Q: Must the terms “Highland” and “Astoria” appear in labeling “Colonial bentgrass”?
A: The term “Colonial bentgrass” or “bentgrass” is considered a kind name under the Federal Seed Act. The terms “Highland” and “Astoria” are variety names. It is not required under the Federal Seed Act that agricultural seed be labeled as variety. If it is labeled as to variety as well as kind it may be labeled “Highland bentgrass” or “Highland Colonial bentgrass.”

Q: Is it illegal under the Federal Seed Act to advertise seed to have “Unequaled quality”? A: It may be proved misleading if it can be established that any other firm can and does market seed of equal or superior quality.

Q: Can the name of one ingredient be used as the name of a mixture of seed?
A: No. It is considered misleading and in violation of the act.

Q: Is it legal to emphasize in large letters on a package of mixed lawn grass seed a particular variety of lawn grass seed contained in the mixture?
A: Labeling wherein the name of a single component is emphasized is considered misleading and therefore in violation of the Federal Seed Act, unless the rate of occurrence of the component is directly associated with the name of the component. The rate must be at least equally prominent to that used in the name of the component. For example, the statement “with Merion Kentucky bluegrass” is considered misleading, but the statement “with 25 percent Merion Kentucky bluegrass” is not misleading if the statement is true.

Q: Can you help me collect damages for violation of a contract in connection with seed which was supposed to have a germination of 80 percent and was found to germinate only 78 percent?
A: Contracts entered into by individuals are civil matters to be settled between the parties of interest. In enforcement of the Federal Seed Act, we apply the prescribed tolerances to the labeling or representation made in determining whether the seed is correctly represented. A germination of 78 percent is within the tolerance of 80 percent.

PICKLES AND HUMBUG

A bit of comparative logic

“The human race in its poverty has unquestionably one really effective weapon—laughter. Power, money, persuasion, supplication, persecution—these can lift a colossal humbug, push it a little, weaken it a little century by century; but only laughter can blow it to rags and atoms at a blast. Against the assault of laughter, nothing can stand.”

—Mark Twain, “The Mysterious Stranger”

PICKLES WILL KILL YOU! Every pickle you eat brings you nearer to death. Amazingly, the “thinking man” has failed to grasp the terrifying significance of the term “in a pickle.” Although leading horticulturists have long known that Cucumis sativus possesses an indehiscent pepo, the pickle industry continues to expand. Pickles are associated with all the major diseases of the body. Eating them breeds wars and Communism. They can be related to most air tragedies. Auto accidents are caused by pickles. There exists a positive relationship between crime waves and consumption of this fruit of the cucurbet family. For example...

• Nearly all sick people have eaten pickles. The effects are obviously cumulative.
• 99.9% of all people who die from cancer have eaten pickles.
• 100% of all soldiers have eaten pickles.
• 96% of all Communist sympathizers have eaten pickles.
• 99.7% of the people involved in air and auto accidents ate pickles within 14 days preceding the accident.
• 98.1% of juvenile delinquents come from homes where pickles are served frequently. Evidence points to the long-term effects of pickle-eating:

• Of the people born in 1839 who later dined on pickles, there has been a 100% mortality.
• All pickle eaters born between 1849 and 1859 have wrinkled skin, have lost most of their teeth, have brittle bones and failing eyesight if the ills of eating pickles have not already caused their death.
• Even more convincing is the report of a noted team of medical specialists: rats force-fed with 20 pounds of pickles per day for 30 days developed bulging abdomens. Their appetites for WHOLESALE FOOD were destroyed.

In spite of all the evidence, pickle growers and packers continue to spread their evil. More than 120,000 acres of fertile U.S. soil are devoted to growing pickles. Our per capita consumption is nearly four pounds.

Eat orchid petal soup. Practically no one has as many problems from eating orchid petal soup as they do with eating pickles.

—Anonymous

(Reprinted from NAC Pesticide News)

Probably the top enjoyment comes when you are old enough to know what you are doing but young enough to do it anyhow.

—Ingham County News, Mason, Mich.

To climb the ladder of success you must get through the crowd at the bottom.
Roadside And Seaside

On September 10 and 11, 1963, the Agronomy Department of the University of Massachusetts conducted a tour of their experimental plots in Western Massachusetts and at Provincetown. These plots were established under a cooperative plan with the Massachusetts Department of Public Works, the University of Massachusetts and the ESIO Company of New Jersey. The tour was attended by research engineers from Washington, D.C., and the regional office of Albany. Planning engineers from the Boston office of the Department of Public Works, representatives of the Federal Bureau of Public Roads, members of the Cape Cod National Seashore Park Committee, research personnel from ESIO of New Jersey, and members of the University of Massachusetts staff.

The first day of the tour was devoted to inspection of the experimental work being carried out at Provincetown on the sand dunes. This area includes: plots of drought resistant grasses, test plots for various types of mulches, and grass spacing experiments for inland dune stabilization. Among the mulches shown were those where asphalt is being used to cover the sands in and around the planted areas in order to conserve moisture and prevent the scouring damage of the winds. Plots visited also showed where successful machine planting of beachgrass was performed. In addition, the group saw the beneficial results of snow fences in areas where dune blowout is a hazard. Many of those present also viewed the problem areas, some two square miles, by helicopter. Also, the group saw actual planting of beachgrass by a transplanter at the Cape Cod National Seashore Park at Eastham.

The second day, the group visited experimental areas in the vicinity of Amherst. These experimental areas include: the establishment of different species of grasses, shrubs and trees on highway slopes, fertilizers for maintenance of grasses and shrubs, plant growth chemicals, mulch materials for grass establishment, species response, and grass mixtures. These phases of roadside development are being evaluated for use by the Agronomy Department for the Massachusetts Department of Public Works.

Members of the Tour Planning Committee were: Joseph Beasley, Highway Landscape Engineer, Department of Public Works, and Vice President of the Massachusetts Turf and Lawn Grass Council; Doctor William Colby, Head, Agronomy Department, University of Massachusetts; E. J. Bredakis, Agronomy Department, and Professor John M. Zak, Agronomist, University of Massachusetts.—Prof. J. Zak, U.Mass.

PATENTS 3,061,974 and 3,061,975, assigned to Esso Research and Engineering Co., cover the use of petroleum-based soil coatings to establish and sustain grasses or other crops on lands that receive insufficient rainfall for normal cultivation without irrigation. It is thought that many millions of acres in the western U.S. and other countries may be brought into productive use.
TURF IS BIG BUSINESS—Turf business is a big one in this country. This is particularly true in Fairfax County, Va. Although farm cropland in that county decreased from 21,000 to 13,000 acres from 1955 to 1960, fertilizer consumption made a sharp increase during the same period. "The increase is due to the growth in turf acres," says Assistant County Agent L. Hall of Fairfax County. In fact, about two-thirds of the 6,507 tons of fertilizer used in the county was utilized in turf production. Nationally, about one-tenth of the fertilizer is used for turf. A total of $5 million is spent for turf fertilizer yearly in Fairfax County, which has a population of about 300,000.

The easiest way to tell the difference between young plants and weeds is to pull up everything. If they come up again, they're weeds.

—Advance, Algona, Iowa

THE NATIONAL GOLF FOUNDATION estimates that more than 4,000,000 persons will play an average of 15 rounds of golf this year. The Athletic Goods Manufacturers Association says the players will spend $87,000,000 on equipment.

No matter how important a person becomes, his impression on you is less than maximum so long as he still owes you money.

—Gazette, Augusta, Kansas

THE DIRECTOR of The Royal Botanic Gardens as Kew, England, raised over 300 plants, including 20 species of weeds, from seeds collected in the turn-ups (cuffs) of his trousers during a walk around a farm at seed time. Ever look in the cuffs of your trousers to see how many weed seeds you may be carrying around and possibly dispersing in your turf without knowing it?

How Much is a "Part-per-Million"?
The following instructions are from Chemistry Newsletter No. 108 published by the Division of Chemistry of the California Department of Agriculture:

1 ppm is 0.0001%.
A one-gram needle in a one-ton haystack is 1 ppm.
A postage stamp is 1 ppm of the weight of a man.
One large mouthful of food is 1 ppm of all a person eats in a lifetime.
1 ppm is one inch in 16 miles.
Walk half a block and you've gone 1 ppm of the distance around the world.
One-quarter of a mile is 1 ppm of the distance to the moon.
1 ppm is one sheet of newspaper in a pile of sheets 100 feet higher than the ball on the flagpole on top of the dome of the Capitol in Sacramento.
1 ppm is one minute in two years, about 30 minutes in a lifetime.
One teaspoonful of DDT on five acres of alfalfa may theoretically impart 1 ppm in the hay.

A trouble with being a leader is some of the people who follow you.

—Herald, Danvers, Mass.