

ing. Syringing washes the guttation water off the leaves.

Britton also noted that temperature, light and mowing affect the severity of diseases. He pointed out that most disease causing organisms have survival mechanisms (such as spores) to grow under any conditions. Free moisture keeps fungi alive outside of the plant.

Decreased light decreases photosynthesis and increases carbohydrates, said Britton, making the plant more susceptible to diseases. This decreased light also affects temperature which, in turn, affects various organisms, depending on which temperatures they need to survive,

Britton also pointed out that close mowing increases plant numbers, decreases plant size and increases the effect of a single infection on turf. The smaller plants in a denser population are weaker and less able to fight off disease.

Manage Fertilizer For More Heat Tolerant Bent

Using less nitrogen and boosting the potassium rate when hot weather arrives may reduce heat damage to creeping bentgrass. This type management may increase the use of bent on southern golf courses.

Results from experiments on Pencilross bentgrass indicate proper fertilizer will improve year-round performance of the grass, even in warm, humid climates. Results show that nitrogen should be reduced and potassium increased at the start of hot weather. This hardens the grass against high temperature.

Research was conducted at the University of Arkansas, Fayetteville, Ark., by Dr. C. L. Murdoch, agronomist. It was supported in part by a grant from Arkansas State Golf Association. A number of Arkansas golf course superintendents, have found bent-

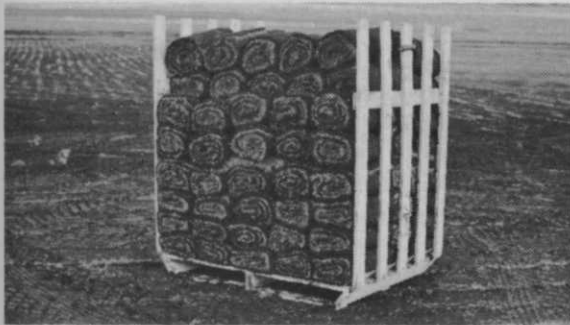
grass hard to maintain during the summer when temperature and humidity are high.

Experiments by Murdoch were based on the common knowledge that nitrogen will increase succulence of plant tissue, and at the same time decrease hardiness. It is also known that potassium decreases succulence and increases hardiness. Purpose of the research was to determine if Pencilross bentgrass could be hardened against heat injury by varying applications of potassium and nitrogen fertilizers.

Pencilross bentgrass seeds were grown for 30 days on a greenhouse bench at 80° F. They were in soil which contained adequate nutrients for favorable plant growth. Plants were clipped to ½ inch and kept at this height throughout the experiment. After 30 days, the various fertilizer treatments (listed in table) were applied to the plants and they were kept on the bench for an-

(Continued on page 38)

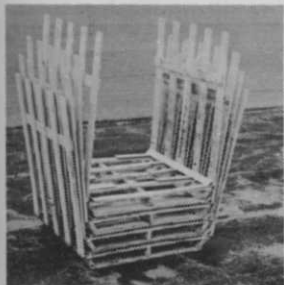
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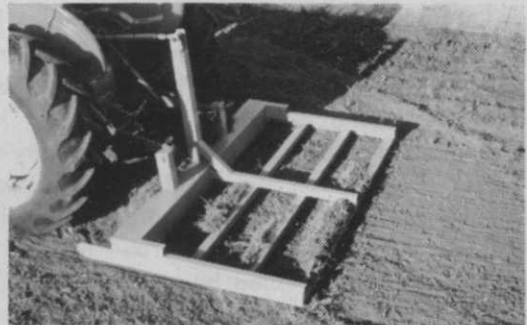
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Manage Fertilizer

(from page 35)

other 7 days. Plants were then transferred to a growth chamber.

The chamber maintained a 95° F day temperature and 85° F at night (14 hour light period) and 90 percent humidity. After 14 days in growth chamber, the plants were rated for vigor and then clipped at the soil surface.

A close relationship was found between vigor ratings and dry

Response of Bentgrass Grown under High Temperature and Humidity to Nitrogen and Potassium¹

Lb. N/ 1000 sq. ft.	Lb.K/1000 sq. ft.			N av- erage
	0	1	2	
0 lb.				
Gm. dry wt.	.30	.46	.48	.41
Rating ²	1.88	3.22	3.38	2.99
2 lb.				
Gm. dry wt.	.22	.27	.34	.28
Rating	.81	2.12	2.88	1.76
4 lb.				
Gm. dry wt.	.36	.30	.38	.35
Rating	1.94	2.50	2.44	2.26
K averages				
Gm. dry wt.	.27	.34	.40	—
Rating	1.54	2.61	2.70	—

¹Applied as solutions of NH₄NO₃ and KCl.
²Rated on a scale of 0 to 5 with 0 representing no vigor and 5 high vigor.

weight of clippings for all fertilizer treatments. Dry weight and vigor were increased as levels of potassium fertilizer increased, while applications of nitrogen reduced dry weight and vigor. Best growth was at the highest level of potassium with no nitrogen.

Field experiments are now being made to find the best schedule of nitrogen and potassium fertilization.

Persistence of Herbicides in a Moist Clay Loam Soil with Little or No Leaching under 60° to 80° F. Soil Temperatures

Chemical	Rate per Acre (Active Ingredient)	Type of Treatment	Persistence in Time
Amitrole	2-10 pounds	Postemergence	3-5 weeks
CIPC	4-8 pounds	Preemergence	3-5 weeks
Dacthal	6-12 pounds	Post or pre-emergence	3-6 weeks
Dalapon	5-20 pounds	Postemergence	1-6 weeks
Diphenamid (Dymid or Enide)	4-8 pounds	Preemergence	6-12 weeks
EPTC (Eptam)	2-6 pounds	Preemergence	3-8 weeks
Simazine	1-4 pounds	Preemergence	6-18 weeks
Trifluralin (Treglan)	¾-1½ pounds	Preplant (inc.)	1-5 months
2,4-D	½-3 pounds	Pre and post-emergence	1-4 weeks
2,4,5-T	½-3 pounds	Postemergence	2-5 weeks

Chad Research Fund Up By \$4,000

The L. C. Chadwick Memorial Research Fund was increased by \$4,000 at the recent 39th annual short course for vegetation care management personnel.

An exhibitors' auction raised the money for the fund which sponsors research in landscape horticulture at Ohio State University.

Herbicide Persistence Varies By Soil Type

Many conditions affect the length of time herbicides will remain in soil. These include application rate, rainfall, and soil type and temperature. In addition, herbicides differ in solubility and resistance to degeneration.

Generally more persistence occurs in dry, cold, clay soils, low in organic matter, and with a low rainfall. Persistence is less in moist, warm, sandy soils, high in organic matter content, and under high rainfall.

Following is a table of some commonly used herbicides. It should be used only as a guide. It was prepared from observation, references, technical sheets and other literature by Dr. Edward Stroube, agronomist at Ohio State University, Columbus, Ohio. Rates of application can be found on the respective labels.

Trimmings

How About Herbicides. Councilmen for the city of Dallas have bemoaned the fact that the city's ordinance for weed control is only about 10% effective. Of 1006 reported violations involving high weeds only 103 were satisfactorily disposed of. Problem seems to be that no city department has the equipment to keep up with the cutting job. We can't advise Dallas councilmen but we think the spraymen of the area need to enlighten the city on the use of custom contract applicators and tree care companies. There should be a chance for some good contracts in helping solve this problem via herbicides, not only in Dallas but in other cities as well.

* * *

Oak Trees Make Superior Campgrounds. Robert A. Bartlett, president of the tree care company bearing his name, said recently that areas with oak trees make the best camp and picnic grounds. Heavy foot traffic, he said, slows up circulation of soil oxygen which is vital to the root system. Oaks, Bartlett says, have roots which search far and wide for nutrients and are thus not hurt as badly by ground traffic. Beech, maple, dogwood, yellow poplar and other shallow-rooted trees suffer.

* * *

'Tis The Season. Time again to warn people, and especially your clients who should know better, that opportunists in the tree spraying business abound. We haven't heard of any specific cases but were reminded on reading that as of now no Dutch elm disease exists in Denver. City Forester George Stadler was issuing the same type warning last fall. He told homeowners to ignore itinerants who solicited them for spraying elms. Since a cleanup program in 1949, no positive cases of DED have been found.

* * *

Fertigation? It's a new word for us too. Seems that it describes the injection of liquid fertilizer into irrigation systems. The system isn't too new and has the advantages of cutting labor and getting nutrients to the plants in an available form more quickly. The system definitely has some advantages and we may see lots more of it. But we can't say the same for the newly coined "fertigation."

* * *

Congratulations to ASCA. The newly organized American Society of Consulting Arborists will be a boon to the vegetation care industry. Qualified, unbiased opinions are needed regularly by organizations and individuals who are willing to pay for consultation and technical advice. We hope the group expands to guarantee service throughout the country.