

Southern California Turf Culture

A Quarterly Publication devoted to the activities of the Experimental Program in Turf Culture of
the College of Agriculture, University of California, Los Angeles 24, California.

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USGA GREEN SECTION ACTIVITIES

Fred V. Grau, Director
United States Golf Association Green Section
Plant Industry Station
Beltsville, Maryland

For over 30 years the Green Section has been doggedly working on turf problems, developing better grasses, and generally helping the golf course superintendent to be able to do a better job and produce better turf at lower cost. More recently, the Green Section has developed a National Coordinated Turf Program, whereby everyone interested in better turf is benefited.

In general, the place of the USGA Green Section is not well understood by the people who benefit from its activities. The Green Section is a private non-profit research and educational organization which operates in cooperation with the Bureau of Plant Industry at Beltsville, Maryland, and uses government facilities, but receives no subsidy from the government. It pays its full share of light, heat, greenhouse, land, etc. Money for the Green Section budget comes from the United States Golf Association General Fund, which in turn is financed out of the USGA memberships and proceeds from tournaments. In the past, 100% of the money from USGA memberships has gone to the Green Section.

The Green Section maintains a Service Subscription plan for non-golf activities, including commercial firms, the annual subscription rate being \$35.00 per year. This money has been used to support cooperative research and service work all over the United States.

The Green Section works closely with state experiment stations, golf course superintendent associations, golf associations, and other affiliated groups. It is the firm policy of the Green Section to help develop strong local and regional turf groups and programs.

The Green Section has developed a nation-wide system of testing new grasses for everyone's benefit. No longer does anyone have to take the word of someone who has something to sell. The modern approach is for the seed growers and the seed vendors to affiliate with the National Coordinated Turf Program through a Green Section Service Subscription, and to keep up-to-date on developments.

Weed control in turf has been one of the outstanding contributions of the Green Section and

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CRABGRASS TRIALS OF 1951

John E. Gallagher and M. Zaki Mahdi
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In the fall of 1950, Crabgrass was considered by many to be the number one weed pest. We are all aware of how rapidly crabgrass can invade and completely dominate a stand of turf. Dr. Fred Grau, Director of the U. S. G. A. Green Section, realizing the need for complete information on the use of chemicals for selective control of crabgrass, assigned to Mr. Alex Radko, Research Agronomist of his staff, the task of coordinating the National Coordinated Crabgrass Trials. Ours was one of the experiment stations cooperating in these trials.

A preliminary questionnaire showed that most cooperators favored the use of potassium cyanate (KOCN) phenyl Mercuric acetate (PMA) and sodium arsenite. The test was to be conducted on a representative stand of turf. We used the No. 15 fairway at the Bel-Air Country Club, A Latin Square type of plot layout, designed to allow four replications of each material, and four control plots was used. The plot size was optional with each cooperator. We used a 10' by 20' to give a plot size of 200 sq. ft. The first sprays were applied on June 4.

All calculations were based on amounts per acre. To potassium cyanate (91%) at 8 lb., phenyl mercuric acetate (10%) at 5 pints, and sodium arsenite (75%) at 1 lb. was added in all cases, a spreader, Igepon AP Extra at 1 lb., and water at a rate of 100 gallons to the acre. Using a 15 gallon Hudson spray rig equipped with a hand boom with three Teejet Nozzles, #1/4T65015 the herbicides were applied at 40 lbs. pressure and timed to make two passes over each plot.

During the Spring Trials actual crabgrass plant counts were made in an area of three square feet of each plot. These counts were made before each treatment and at intervals of one week, and three weeks following the last application of herbicide.

Table I shows the change in the average number of crabgrass plants from the high point at the time of the second count to counts made one week following the last application of herbicide.

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This publication "Southern California Turf Culture" is sponsored and financed by the Research Advisory Committee. Communications regarding this publication should be sent to the Division of Floriculture and Ornamental Horticulture, University of California, 405 Hilgard Avenue, Los Angeles 24, California.

We are gratified to note that a member of our advisory committee Mr. Wm. P. Bell of Pasadena, California, was elected president of the American Society of Golf Course Architects at their recent annual meeting at Belleair, Florida. Congratulations!

**CRABGRASS TRIALS OF 1951
(Continued from page 1)**

TABLE I

SEASONAL CHANGE IN CRABGRASS DENSITY			
	Plant count June 13, 1951	Plant count June 28, 1951	% of Orig. Crabgrass 1 week after last treatment
KOCN	245	45	18.7%
PMA	245	80	32.6%
Sodium			
Arsenite	280	75	26.7%
Check	425	580	131.5%

To get more complete information, the program called for a second series of treatments to be made when the crabgrass seed head was halfway out of the sheath, The same set of plots was to be used to determine the effect of two series of treatments during one season. A completely new series of plots was established adjacent to the original plots. This second set of plots was needed to give information on the value of fall treatments alone. The procedure used for the Spring Trials was followed in the Fall Trials, with the exceptions that a percentage estimate of the entire plot was used instead of actual plant counts, and four applications of the herbicides were made instead of three.

For the plots receiving both Spring and Fall treatments, a comparison of the percentage estimate of Crabgrass made at the start of the Fall trials, with one made one week following the last treatment of the Spring trials, showed reinfestation in all plots. Table II shows the average percentage increase of Crabgrass for each series of plots.

TABLE II

	SEASONAL CHANGE IN PERCENTAGE OF CRABGRASS	
	Percentage Crabgrass June 28, 1951	Percentage Crabgrass Aug. 28, 1951
	KOCN	0
PMA	1.1	4.25
Sodium		
Arsenite	0	10.8
Check	16	51.8

The results of the Fall trials and the combined Spring and Fall trials were similar in respect to the effectiveness of the herbicides. Crabgrass was killed and faded out of the mixture. Potassium cyanate and Phenyl Mercuric Acetate gave almost complete eradication of Crabgrass at the end of four weekly applications, reducing a stand of almost 50% Crabgrass to less than 5%. Sodium arsenite in the same period reduced the stand of Crabgrass from 40% to 10%.

Table III shows the average percentage change of Crabgrass in the Fall trials from August 28 to October 8.

TABLE III

LATE SEASON CONTROL OF CRABGRASS

	Percentage Crabgrass Aug. 28, '51	Percentage Crabgrass Oct. 8, '51	Percentage of Original Crabgrass 1 week after last treatment
KOCN	43.%	1.6%	3.72%
PMA	46.%	.25%	0.53%
Sodium			
Arsenite	36.%	6.0%	16.65%
Check	38.%	50.0%	131.50%

Table IV shows the average percentage change for the fall treatments of the combined Spring and Fall trials.

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USGA GREEN SECTION ACTIVITIES

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cooperating stations, to turf management. Intensive work on weed control has been continuous since 1927, when Fred Grau started with the Green Section at the University of Nebraska. Sodium arsenite was the first proven chemical, and it still occupies a high place in weed control among professional men. During 1951 the Green Section conducted the National Coordinated Crabgrass Trials at 17 locations. This involved a tremendous job of coordination.

The development of better grasses for better turf has been another significant achievement of the Green Section. Among the improved turf grasses given to the public are: Washington, Arlington, Congressional, Collins, Cohansey, Old Orchard, and Dahlgren creeping bents; Merion bluegrass (the first improved bluegrass for turf ever to be put on the market); and Meyer (Z-52) Zoysia, a superior turf strain of this important species. The Green Section has cooperated with the Pennsylvania State College and with Oregon seed growers in developing improved red fescues. Work is in progress with Rhode Island Experiment Station in developing superior types of Colonial bentgrasses. Work at Beltsville is now under way to develop finer-bladed, disease resistant types of tall fescue. The Green Section has cooperated with the Southeastern Turf Research Center at Tifton, Georgia, in testing improved types of bermudagrasses, chief among which is Tifton 57. Other improved types are on the way.

The development of better and cheaper insecticides and fungicides represents another phase of Green Section activities. The Green Section has held a high place in the United States in promoting this type of work.

In 1946 the Green Section opened its arms to commercial firms in the matter of Service Sub-

scriptions at \$35 a calendar year. The money from this Education Fund has been largely responsible for establishing and promoting cooperative research at nearly half of the experiment stations in the United States. It is hoped that more seed firms, landscape contractors, gardeners, and others serving the public in the matter of lawns and other turf will help support the Green Section, in return for the great fund of information that the Green Section has made available to all.

Two publications coming from the Green Section deserve to be in the library of every person interested in better turf. "Turf Management" is the USGA's book edited by H. B. Musser, published by McGraw-Hill. The price is \$6.00 and worth it. Order from your bookstore or from the USGA Green Section, Beltsville. The other publication is a pamphlet entitled "Turf Research Review 1951." It gives complete information on turf work in the United States including workers, projects, publications, etc. The price is \$1.25 and orders should go to:

USGA Green Section
Rm 331, Administration Building
Plant Industry Station
Beltsville, Maryland

Finally, we believe that every eligible golf club in the United States should be a USGA member, if for no other reason than to say "Thanks" for all the Green Section information they have been getting free all these years. Also, a boost for the Green Section is a boost for your local, state and regional program, because the Green Section supports our work in every way possible, both morally and financially. We are proud to be affiliated with the Green Section in the National Coordinated Turf Program.



JOHN GALLAGHER LEAVES U.C.L.A.

Mr. John Gallagher -- "John" to a multitude of friends in circles devoted to turf culture in Southern California -- has left the Los Angeles Campus of the University of California to go to Pennsylvania State College, Pennsylvania. He will study there under the direction of Prof. H. B. Musser, an outstanding authority in the field of turf culture. Much as we have regretted to see John leave, we have believed that he is very wise to complete his training in this field at the institution which has developed the most outstanding turf research program in the entire country. We believe that in a few years he should become an outstanding leader in turf extension or research work. Our loss in California will become a gain for the entire field of turf culture. Best Wishes, John!

Mr. Gallagher will be replaced by Mr. C. Gordon Wyckoff, who was employed by the College of Agriculture on the Los Angeles Campus several years ago.

TABLE IV

EFFECTIVENESS OF COMBINED SPRING AND FALL TREATMENTS			
	Percentage Crabgrass Aug. 28, '51	Percentage Crabgrass Oct. 8, '51	Percentage of Original Crabgrass the Week After Last Treatment
KOCN	8.75%	1.60%	18.30%
PMA	4.25%	1.00%	23.50%
Sodium Arsenite	10.00%	8.75%	87.50%
Check	51.80%	60.00%	116.00%

Whenever chemicals are used selectively to kill one grass in a mixture of grasses a certain amount of injury to the other grasses of the mixture is to be expected. This usually shows as discoloration, which is a temporary condition, and depending upon the maintenance practice followed, normal color can be readily regained within a period of a few weeks. Potassium cyanate and Sodium Arsenite are rapid acting contact chemicals. Their control is immediate and short lived, The discoloration of these materials is more severe than that of Phenyl Mercuric Acetate, which while slower acting, was able to control crabgrass effectively as well as prevent a greater amount of reinfestation.

Table V shows the extent of discoloration to the turf during the Spring Trials, with 0 representing no discoloration and 4 representing very severe discoloration. In no case was the turf really injured.

TABLE V

COMPARATIVE DISCOLORATION OF FAIRWAY TURF

	Maximum Discoloration
KOCN	2.25
PMA	1.50
Sodium Arsenite	3.00

Maximum discoloration was reached four days following the first treatment, each succeeding treatment had less effect on the permanent grasses of the mixture.

In the period between the last Spring treatment and the first Fall treatment the turf had regained normal color.

The design of these trials was to prove the effectiveness of Chemical control of Crabgrass. The results show conclusively that certain chemicals can selectively eradicate Crabgrass, but chemical weed control should not be considered as a substitute for sound management. The factors of compaction, low fertility, and overwatering that lead to a high percentage of Crabgrass in a stand of turf are not changed by the use of chemicals for weed control. Chemical weed control should be a part of good management and used when needed. As soon as the chemicals finish their part, the program that plans for aeration, adequate fertilization, and sound irrigation practices can do more toward building a strong turf and preventing future invasion of Crabgrass than any periodic chemical spray program. As soon as the national results are released, we shall summarize them for readers of this publication.

WEED CONTROL COURSE

The Extension Division of the University of California announces a course in weed control. This is a practical course for farm equipment dealers, golf course superintendents, grounds maintenance personnel, highway maintenance personnel, horticulturists, landscaping contractors, nurserymen, pest control operators, ranchers, vegetable growers. Weed control problems to be studied include: identification, ecology, and physiology of weeds; modern agricultural chemicals and herbicides used in weed control; dosages, methods of application, spray rigs; specific methods of weed control in truck and field crops, turf, orchard, range land and industrial areas; use of plant growth substances for other horticultural purposes.

The course will be taught by Jesse D. Skoss, M.S., Consulting Agronomist, Johnston International, Los Angeles, California.

Place: Room 219, Polytechnic High School, 3575 Terracina Drive, Riverside. Room 29, Physics and Biology Building, U. C. L. A., Los Angeles.

Date and time: 7:00 to 10:00 p.m., Tuesday, March 25, 1952, and each Tuesday thereafter for ten weeks at Riverside. (Section 11)

7:00 to 10:00 p.m. Wednesday, March 26, 1952, and each Wednesday thereafter for ten weeks at LOS Angeles. (Section 1)

Fee: \$18.

6TH INTERNATIONAL GRASSLAND CONGRESS AT PENN STATE

The many friends of Professor H. B. Musser, in charge of the experimental work in turf culture at Pennsylvania State College, will be pleased to learn that his institution has been chosen for the Sixth International Grassland Congress. This Congress will be held Aug. 17-23 at Pennsylvania State College under sponsorship of the U. S. Government and FAO. It will bring scientists and technicians together from all-over the world to exchange information on production, improvement, management, and use of grassland.

About 65 countries have been invited, and 2,000 to 2,500 specialists are expected to attend from the United States and other countries. Penn State's classroom and other facilities will be used. Arrangements also are being made for tours to typical grassland areas of this country. Those attending will include agronomists, geneticists and plant breeders, soils and fertilizer specialists, range ecologists, livestock specialists economists and others.

U. S. agencies cooperating in the arrangements are the Land-Grant Colleges and Universities, State, USDA, Interior, MSA, and various trade associations. All the previous Grassland Congresses were held in Europe---in 1927 in Germany, 1930 in Sweden and Denmark, 1934 in Switzerland, 1937 in Great Britain, and 1947 in the Netherlands. The U. S. was represented in 1937 and 1947.