

sugar in milk. Like mother hens, Louisville's bank presidents, publishers and manufacturers greeted their caddies at the tenth tee with, "Did you drink your milk?"

Today, while no actual figures are available as to the amount of good done for these young Americans, certain conclusions may be drawn. Since early spring an average of four hundred and fifty half pint bottles of milk have been distributed each week to caddies by the Louisville Country Club, nearly 7000 to date, a quantity of the fluid that cannot be discounted in assessing the general health of the group.

There is strict anonymity surrounding the origin of the plan. "This idea belongs in every club in the United States," said one of the idea's founders. "It's too important to be stymied by the feeling that it was done to give some individual publicity."

Already letters have gone out to representative golf clubs throughout the country, outlining the plan and urging its use in each vicinity. The letter closes as follows, "It is felt that this interest in the physical welfare of the boys who make our game of golf more enjoyable will result in better health for our caddies and far more important, will provide them with a concrete example of good neighborliness between employer and employee that will contribute to the development of a better understanding of our American way of life."

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## Clarify Members' Place in Caddy Program

By John Brooks

Professional, Twin Orchard Country Club (Chicago district)

Our club determined this spring to do everything possible to get plenty of good caddies. In making our plans accent was placed on the members' responsibility for making the caddy plans work. Often much is said about what caddies should do, but seldom is much attention given to what the members should do in attracting and providing agreeable work for good caddies.

Our president, Morey Cole, caddy chmn. Andy Steinberg and Art Malkin, green chmn. Harry E. Wolff and I formulated a caddy program which we passed along to our caddymanager Andy Wrobel.

Ten points in the program are:

1. The caddy's welfare above the member's. Acts or lack of consideration by members, are to be reported by caddy, and members notified. If further violation oc-

curs, member is deprived of caddy privileges.

2. A rigid, but fair, training program held twice a week during school vacation, with a promise of rewarding deserving boys.

3. Personal contact with parents of boys employed by the club, to the extent of informing them of their boy's misbehavior at the club in any way.

4. A fair registration system, with adjustments, to be careful not to overburden a small boy.

5. Keeping a strict point system on attendance and caddy rating with the understanding that a reward is to be given at the end of the year for attendance based on points.

6. To make Monday available to the boys for playing and seeing to it that any boy wishing to play should not be deprived of this; also making members' golf clubs available.

7. To make every effort to see to it that transportation is provided at certain hours, and to see to it that caddies are provided with jockey caps to identify them as Twin Orchard caddies.

8. Impressing upon the boys the need of keeping their surroundings clean at all times, just like they would their own home.

9. Impressing upon the boys that they are not wanted on the grounds at any time during school periods.

10. At the end of the season, the caddy fund, which accumulates from a charge of ten cents paid by every member for each round of golf, is used to provide a dinner for all the caddies. Two hundred boys last year enjoyed the chicken or fish dinner served by ten waitresses in the club dining room. Fifty prizes were given for the caddy championship and caddy winners in various classes. The balance of the prizes were for the points accumulated during the season. We were careful not to deprive a boy of a prize if he had been absent for any unavoidable reason. For instance, we had four boys who were sick. We sent them each a very generous prize and the price of a good meal. This affair was attended by the club officers and a great many members, who took a day off to be sure the boys were well taken care of.

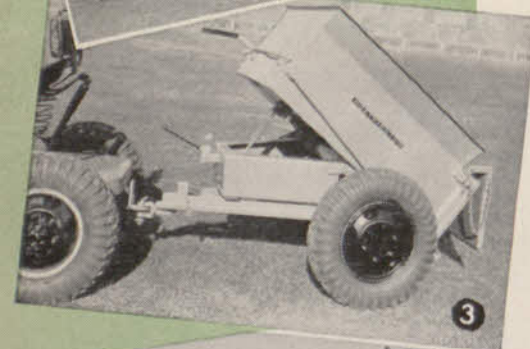
We have had a policy that I think every club should follow. We provide medical service for boys, but we go one better. For instance, if a boy is hurt while playing and through no fault of his, he is deprived of caddying, we see to it that the caddy fund reimburses him for the time lost.

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This strong, well balanced dump unit is available as a cart (as shown) or as a dump body for the Worthington Chief Tractor. It has a 1 cu. yd. capacity and is equipped with a special spring-controlled chain which absorbs shocks when load is dumped. The dump cart is exceptionally useful at golf courses, parks, cemeteries and airfields for a wide variety of hauling jobs.



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The 9 gang is capable of mowing 46 acres per hour at a speed of 20 miles per hour. Ruggedly built for duty on airfields, golf roughs and road approaches, the sturdy "Grass Blitzer" is available in 3, 5, 7 and 9 gang units—a size and capacity to fit any need. The 10" reel with 4, 5 or 6 blades will answer the needs of your own local conditions.

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Built in 6 models with cutting widths from 20 to 62 inches, Worthington Rotary Disc mowers do a finished cutting job once over—no follow-up. Excellent for parks, golf courses, institutions, cemeteries. Special leaf pulverizer attachment makes short work of the autumn leaf nuisance.

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# Turf Round-up of 1948

By FRED V. GRAU

Director, USGA Green Section, Plant Industry Station, Beltsville, Md.

As this is written there is a considerable part of the 1948 growing season yet to be experienced. It is to be recorded, however, that in spite of floods, droughts, insect and disease epidemics, and weed invasion, there is a decided optimistic attitude among turf superintendents the country over. For the most part it has been a good season and there have been fewer urgent and insistent calls for help in cases of emergency. There has been far more of the "self-help" and "help-one-another" attitude in every section of the country. Superintendents and greenkeepers generally have reached a fuller recognition of the fact that, in their profession, they are not in direct competition but that they gain in stature and recognition as they exchange ideas and as they spread the knowledge which they have gained. The principal way in which this is done is through the meetings of the local associations.

## Cooperation

It is heart-warming to learn how the appropriate committees of local associations unselfishly assist a less fortunate member to solve his problems. The USGA Green Section staff frankly admits its physical incapability to visit all of its member clubs which are in trouble and repeatedly has suggested that the club seek the advice of the technical committee of the local greenkeepers association. The Green Section has complete confidence that the advice will be the best that it is possible to get. In many cases a copy of the recommendations are sent to the Green Section office which is deeply appreciated because it effects the coordination which is so urgently needed in a cooperative program. This "help-one-another" program has developed rapidly since it has been repeatedly demonstrated that good greenkeeping is based on sound scientific principles and not on "secrets of the trade."

## Green Section Program and Policies

A word of explanation is in order concerning Green Section affairs. With only two members on the technical staff, the Director and his assistant, Marvin Ferguson, it is necessary that one member remain in the office while the other travels, in order to keep abreast of the correspondence, the research work at the Beltsville Turf Gardens, and the many inquiries

on lawns which come in to the Green Section and the USDA.

The development of the Green Section's national program of cooperative work hinges to a large degree upon the staff's occasional visits to the cooperating experiment stations and to a sufficient number of turf projects so that the program is kept on an intensely practical basis to meet current needs. It is inevitable that the golf courses near the experiment stations or on the route to and from them are favored more by visits from the Green Section staff than those at a distance. In inspecting the work at the station, it is only natural to run out and visit a few courses to keep in touch with developments and conditions.

Insofar as possible the Green Section staff is represented at every turf conference in the country because it is considered a part of the service to which USGA member clubs are entitled. The staff attends a number of local superintendents' meetings and also has been active in developing educational meetings where no local organization exists.

The development of the "help-one-another" program in the local associations has relieved the Green Section staff of a heavy load of correspondence and has greatly reduced the number of visits to clubs in trouble. Consequently, the Green Section staff has had more time to devote to the planning and to the development of cooperative work with state experiment stations which is so necessary to continued progress. As a result, today there are many more capable workers devoting their time to a study of current problems. The results already are beginning to show and soon will astound the skeptics.

## Aeration and Drainage

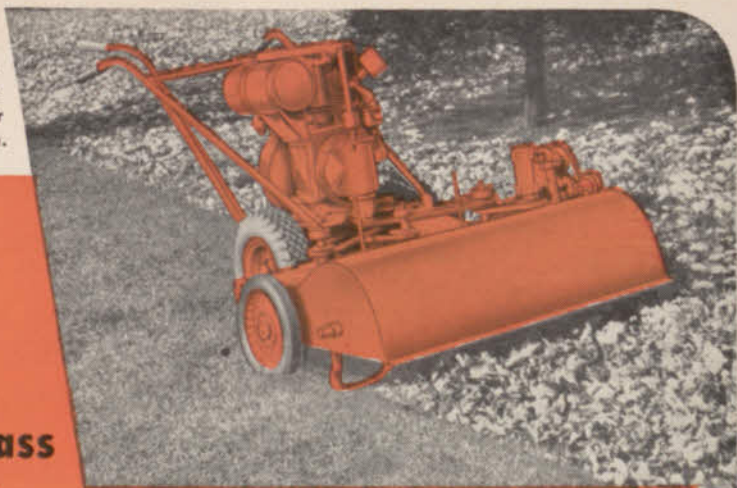
The Green Section repeatedly has found that the underlying causes of most turf disorders are improper drainage and aeration. This subject was discussed in detail at every turf conference in the country and turf superintendents and architects were made more conscious of the glaring lack of these important principles, especially in putting greens and other highly-specialized turf areas.

Taylor Boyd, in his paper presented before the American Society of Agronomy

Notice how completely free of leaves this lawn is after the Standard Leaf Pulverizer goes into action.

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entitled "Building a Practical Putting Green," said, "Over-sand the topsoil and over-drain the base and you will have a good green." It is so discouraging to see a new golf course being constructed and to see the troubles and headaches built into the course that could be avoided. The valuable lessons to be learned from the Green Section are not available to a new club because the club has not had access to the literature. In most cases the existence of the Green Section is not known. Later, when troubles begin and when the club is a USGA member, calls for help will begin. How much better it would be to prevent the troubles at their source.

On the way home from the Agronomy Meetings at Fort Collins, the writer stopped to look at a new course under construction in Western Iowa. The greens had been shaped and were ready to be planted. The stolons were to be delivered that afternoon. After examining the soil there was only one recommendation possible. "Add sand and more sand and work it in well before planting." The soil was from good Iowa corn land that would grow 150 bushels of corn to the acre. Peat had been added to lighten it but it was obvious that, after two years of watering and traffic, the compaction would be such that roots could not breathe. The quantity of sand required for 9 greens was about 375 tons or 10 carloads—more than a carload to a green.

We cite here the unpublished results of a research project financed by the Green Section and conducted by Dr. Roger Humbert of Saratoga Laboratories, Saratoga Springs, N.Y. Mechanical analyses of soil cores from the "best" greens and from the "worst" greens on 22 golf courses indicated that the "best" greens were those which had the highest proportion of sand. The organic matter content seemed to be of little significance. Conclusions drawn were that the mineral fraction of a putting green soil should contain a minimum of 65% sand of various sizes and a maximum of 25% silt and clay combined. The complete report and the supporting data with conclusions will be published soon and will be available from the Green Section office to every USGA Member Club.

### Rebuilding Greens

There is a greatly reduced tendency for golf clubs to spend their money in rebuilding greens simply because the turf is poor. Many must (or should be) rebuilt because of poor architectural features but turf quality can be maintained today even where the soil is extremely unfavorable. This is true because, for the cost of rebuilding one green, a golf club can own a machine which will do the job. Several hundred aerifier owners will attest to this statement. The aerifier will remove plugs

of poor soil and will leave holes in the green of sufficient size and depth so that porous sandy material can be worked into the green to greatly increase water absorption and root growth. Lime and fertilizer material are carried into the root zone by water action where they feed the plant from below. Layered greens are renovated so that water movement and proper root growth are restored. All of this is accomplished without taking the green out of play and without interfering with good putting which is impossible when a green is rebuilt by removing the sod and incorporating new materials. New grasses can be planted in the aerifier holes at the same time.

### Topdressing

On many golf courses topdressing the greens is remembered by only a few of the old-timers. It is destined to become less and less of a major operation on bent greens and on Bermuda greens alike. Many superintendents found that by close frequent mowing, it was not necessary to topdress. Some greens have had no topdressing in 15 years and they rate A+ in our book. Topdressing is very costly. Several clubs estimate that it costs \$500 for each topdressing on 18 greens. Many clubs actually cannot afford this expense. Certainly the expense cannot be justified where the system of daily close mowing and frequent brushing has not been tried.

It is known that a green that has good subdrainage and a porous sandy topsoil under it does not need topdressing to the same extent as a poorly-drained green on heavy soil. Some strains of grass appear to require more topdressing than others because they have a tendency to produce surface runners. It has been discovered that close daily mowing greatly discourages these runners and reduces the need for topdressing. Here again we are forced to recognize the aerifier. Its action brings soil to the surface which acts as a topdressing and reduces or eliminates the need for additional material.

Where topdressing is used, the well known 1-1-1 mix of sand, soil, and humus gradually is being modified to a 2-1-1 mix which contains more sand. The sand being used is coarser which promotes better drainage and aeration.

### Weeds

Top honors for the worst weed in turf still go to crabgrass. It is still the unsolved problem so far as the rank and file are concerned. A few have resolved their crabgrass difficulties by intelligent use of fertilizer and herbicides. Sodium arsenite as a spray or in combination with a good turf fertilizer is a favorite in many sections of the country where crabgrass is difficult

to control. Phenyl-mercury compounds have done a good job where crabgrass is not particularly severe. Some newer materials which showed promise in the northern crabgrass limits have not been successful in the heart of the crabgrass region.

Cultural and mechanical methods continue to show the greatest promise at lowest cost. It is within reason to expect that the final solution of crabgrass control will lie in the agronomic and the mechanical field rather than in the chemical field. Our chief reason for making this statement is the fact that, at the Beltsville Turf Gardens, crabgrass has been entirely absent in closely-clipped turf of certain grasses and combinations of grasses under ordinary care. The same thing has been observed on golf courses and lawns all over the country where these grasses are being tested. The only reason why we cannot come out with definite recommendations on this phase of work at present is because it is too new and because seed and planting material of these new grasses and combinations are not as yet available to the general public. Research programs which must operate on shoestring budgets necessarily must consume more time in the development of sound usable recommendations. When only one-fifth of the nation's golf courses support the USGA and its Green Section program, it will take five times as long to get the work done.

#### **Progress in Cooperative Decentralized Research**

A great deal of the turf research work in the country was discontinued during World War II. Lessons learned during the war have proven that a sound coordinated turf research program will not only be of tremendous saving to taxpayers but actually is a military necessity. The studies under way by the Turf Committee of the American Society of Agronomy, although incomplete, have shown the real need for additional research work on the specialized (non-agricultural) uses of grass. Golf and the golf course superintendents, as usual, have pioneered and have headed the procession. Virtually all other turf interests now are joining hands and are supporting the various coordinated research stations scattered over the country.

At this time we wish to extend thanks and deep appreciation to those experiment stations and to their faithful workers in this specialized field who have made this splendid progress in turf research possible. Similarly, in the USGA Journal, we have recognized the various groups which actively have supported the program financially. We can do little more here than to name the stations and the workers who actively are prosecuting the work. Future publications will describe in detail the various phases of the work.

#### **Beltsville Turf Gardens, Plant Industry Station, Beltsville, Maryland**

##### **U. S. Golf Association Green Section**

Fred V. Grau, Director  
Marvin H. Ferguson, Agronomist  
Charles G. Wilson, Student Assistant  
Alexander M. Radko, Student Assistant  
James M. Wilfong, Maintenance Foreman

#### **U.S.D.A., Bureau of Plant Industry, Division of Forage Crops & Diseases, Beltsville, Maryland**

O. S. Aamodt, Head Agronomist  
Ian Forbes, Jr., Assistant Agronomist

#### **Florida Agricultural Experiment Station, Gainesville, Florida**

Harold A. Mowry, Director

#### **Everglades Experiment Station, Belle Glade, Florida**

R. V. Allison, Director  
Roy A. Bair, Agronomist

#### **Georgia Coastal Plain Experiment Station, Tifton, Georgia**

George H. King, Director  
Glenn W. Burton, Agronomist, U. S. D. A.  
Burdette Robinson, Graduate Assistant

#### **Pennsylvania Experiment Station, State College, Pa.**

F. W. Liniger, Director  
H. R. Albrecht, Head, Department of Agronomy  
H. B. Musser, Agronomist  
A. E. Cooper, Extension Agronomist  
James R. Watson, Graduate Assistant  
John Stanford, Graduate Assistant  
L. Neal Wright, Graduate Assistant

#### **New Jersey Experiment Station, New Brunswick, New Jersey**

W. H. Martin, Director  
G. H. Ahlgren, Head, Agronomy Department  
Ralph W. Engel, Agronomist

#### **Rhode Island Experiment Station, Kingston, Rhode Island**

M. H. Campbell, Director  
J. A. DeFrance, Agronomist  
Frank Howard, Pathologist  
T. W. Kerr, Entomologist  
J. B. Rowell, Pathologist  
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#### **Connecticut Experiment Station, New Haven, Connecticut**

John C. Schread, Entomologist

"Aye,



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Eugene G. Nutter, Assistant

**Purdue University,  
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G. O. Mott, Agronomist  
Willis Skrdla, Graduate Assistant  
Richard Davis, Graduate Assistant  
Kenneth Payne, Graduate Assistant  
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**Iowa Experiment Station, Ames, Iowa**

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**University of California,  
Los Angeles, California**

V. T. Stoutemyer, Horticulturist

This is virtually a complete listing of active work in progress at the present time. Interest recently has been expressed for cooperative work in Colorado, Utah, Nebraska, North Carolina, and Tennessee. When these programs are in progress it will mean that over half of the states will be participating actively in the coordinated program. It is plain to see that the Green Section staff (two men) can do little more than to visit cooperating experiment stations, attend turf conferences, and to carry on correspondence relative to coordination of the work and compilation and distribution of results. More and more the educational features of the work will be carried by the states and by local associations so far as individual requests are concerned. Extension agronomists, working closely with the research men, will carry the lessons to the turf groups through meetings of the local associations.

Without a doubt, the secret of strength and harmony in any state program rests in two factors:

1. Strong local associations.
2. A representative Turf Advisory committee recognized by the college administration.

Green Section service today is best accomplished through cooperative work with the experiment stations and through active participation at turf conference and at Turf Field Days. With only two staff members it is impossible to make more than a few individual visits to golf courses during the year. It is unfortunate that, as there is more service developed in a state, there is a tendency for golf clubs to say "Why should we support the Green Section—they don't even come around and do anything for us." Greenkeepers don't feel that way but uninformed club officers often do.

*(Continued on page 84)*