BETTER LAWNS TO COME

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Are you proud of your lawn or has crabgrass taken over in spite of all you have done? Are you about ready to give up, or do you have enough faith to give it another try?

Don't give up just because your lawn is a failure this year. There is hope ahead for the millions of home gardeners who desperately want a good lawn that is easy to keep, requires minimum care, will stand the maximum of wear and tear, will still look good the year around and will battle crabgrass to a standstill. Yes, it sounds like Utopia. We are confident that you can have this kind of a lawn which we have just described. It will not come quickly and it will not be easy. It will require patience and labor on your part, but we are confident that the results will justify the means.

For more than 30 years the USGA Green Section has been studying the causes of poor turf on its golf courses all over the United States. We have been experimenting on ways of developing better turf for better golf. Great progress has been made. The summer of 1952 has brought out most of the weaknesses of all kinds of turf. The year of 1952 long will be remembered in many areas as the worst crabgrass year in history. Now the USGA Green Section, through the USGA JOURNAL, brings to you a blow-by-blow account of the battle with crabgrass and some of its findings in the direction of better lawns for the millions of golfers who play upon the courses of USGA Member Clubs. Also, we intend to reveal some of the reasons why we have crabgrass and some of the things that we can do about it.

Lawns are Universal

In all articles on lawns there is a tendency to dwell more heavily upon certain regions. This largely is the result of the experience of the various writers. We shall try sincerely to discuss lawn problems on the broadest possible basis, discussing principles more than specific individual problems. It is a big job to try to cover all lawn problems over the United States, but it becomes easier if we realize that certain basic principles govern all lawns and certainly all turf failures.

A good lawn can do several things. It raises property values. It helps the housewife to keep the home clean. It provides a safe, clean playground for the children. It protects the soil and helps to control erosion. Certainly a good lawn increases pride of ownership, and when it is attractive, it will rate many admiring glances.

Why Are So Many Lawns Failures?

The principal reason why so many lawns turn out to be failures and end up in nothing much but weed growth is because the grasses that have been planted are not adapted to the conditions under which they are expected to grow.

Now, let's analyze that statement and see what is behind it.

In the first place not all homeowners manage the grasses that they plant in the way those particular grasses should be managed.

Let's say that you planted common bluegrass. Let's go a step further and say that you want your lawn cut rather short so that it will be attractive. Immediately you see that the grass you planted is not adapted to the conditions under which it is supposed to grow. Common bluegrass will not tolerate close cutting. Also, it is extremely susceptible

to leafspot, which opens it to crabgrass invasion. Therefore, some other grass should have been selected in order to permit you to have a lawn that can be mowed closely.

Bentgrass can be mowed closely. However, during the heat of the season when diseases are rampant, as they have been this year, bentgrasses practically pass out of the picture unless they are very expertly handled. Even some of the most expert golf-course superintendents lost a lot of bentgrass this year because it was impossible to protect it from the diseases that attacked. Therefore, bentgrasses are rather difficult for the home gardener to grow successfully. Those who recommend bentgrasses in lawn mixtures must be prepared to tell the homeowner how to hold them through the bad spells of weather or be prepared to replace them with something better.

In the northeastern part of the nation, and particularly in the northern half of the country, mixtures of bluegrass, fescues and bents have been popular for many years. This year a great many lawns seeded to this kind of a mixture have given way to crabgrass. This is primarily because all of those grasses were susceptible to diseases that hit this summer, and they were not able to take it.

If one takes a look at the southern part of the United States, where bermudagrass, zoysia, centipedegrass, St. Augustinegrass and other warm-season grasses hold sway, we see a somewhat different picture. True, crabgrass and other weeds also plague this kind of turf, but by and large, the reasons for turf failure in the southern states is largely one of fertilization. Starved turf cannot compete with weeds. This, in a measure, is true among the cool-season grasses also but not quite to the same extent because diseases are much more of a factor among the cool-season grasses such as bluegrass, fescues and bentgrasses.

Without adequate fertilization grasses are not able to maintain vigor and sturdy growth and become thick enough to choke out the weeds. Actually, weeds can be driven out of turf simply through competition if the grasses forming the turf are properly adapted to their environment and are able to utilize fertilizer and develop high turf density.

There is no point in attempting to outline fertilization practices for every area of the United States because that would be utterly impossible in an article such as this. There is one source of information to whom every home gardener can turn, and that is the County Agent. Nearly every county in the United States has a County Agent whose business it is to have or to develop information for the taxpayers in his county, regardless of their problem, so long as it is in the agricultural field. True, your County Agent may not have the answers to your particular problems, but he is the representative of the experiment station and can either get the answers for you or can refer you to one of the specialists at the college who does have the answers. The USGA Green Section cooperates with over half of the state experiment stations in the United States in the matter of developing sound turf information. We can help the home gardeners most by working on a technical basis through the state experiment stations, which serve all of the taxpayers in the state. It has been our pleasure to distribute our improved turf grasses to all of the state experiment stations that have set up turf research programs. That is our contribution to the lawn problems of the United States, in addition to developing answers to the golf-course turf problems.

Watering the Lawn

The USGA Green Section has spent many thousands of dollars to learn how to water turf properly. The way in which we can sum up many years of work on this problem is to say, "Water only sufficiently to keep the grass alive." We know, of course, that a great deal of turf is overwatered. In fact, we have made

this statement many times, and we shall use it again many times in the future: "The greatest enemy of good turf is water." By that we mean that good turf needs a limited amount of water, and more than that only invites weeds and failure. Now, if more water is used than the present grasses can utilize, it is only natural that the weeds and crabgrass will take advantage of the water. Therefore, watering during the heat of the summer when the grasses, such as bluegrass and fescue and bent, tend to be dormant only invites trouble. It would be far better to limit the use of water during that period. Certainly, water tends to help diseases to develop. Diseases can develop only in the presence of adequate moisture. Therefore, to limit the amount of water applied to the lawn also helps to reduce diseases.

Watering to encourage crabgrass is favored by some because they say, "At least the crabgrass is green." They say that while it is green but they forget momentarily that it is going to be brown and dead after the first frost and nothing but mud will result until the crabgrass grows again the following spring. What we are really looking for is a type of perennial crabgrass that will not die out each year when the frost comes but will stay as a perfectly solid, dense turf year in and year out.

Crabgrass Killers

There are a number of good crabgrass killers on the market. Before you decide to go into large-scale use of crabgrass killers, ask yourself, "What am I going to plant in order to keep the crabgrass out in the years to come?" Certainly, you can eradicate the crabgrass with almost any of the materials now on the market, but this will not prevent crabgrass from coming back in another year. We are looking for the kind of turf that we can establish after using a crabgrass killer, which then will give us protection against crabgrass in the future.

Here is just a word or two about some of the crabgrass killers. The preparations containing potassium cyanate are given a very high rating from the standpoint of effectiveness and safety. They are less likely to damage the turf grasses and the operators than some of the other products. Materials containing mercury are most effective in the early part of the season before the crabgrass has germinated or while it is germinating. We have had a number of reports that it is advisable, according to our present knowledge, to limit the application of crabgrass killers containing mercury where Merion bluegrass has been used or is intended to be used. We do not know all of the answers behind this warning, but they have come to us from so many sources that we can no longer ignore the warning. Sodium arsenite is an effective crabgrass killer but not in the hands of the amateur home gardener. It is material to be used only by the professional superintendent. In our work we have found that as the season progresses and crabgrass approaches maturity and starts to throw seedheads, then potassium cyanate is most effective. It is effective in not only killing the plant but also in preventing seed production, and this is a vital point in preventing crabgrass in future years.

Seed Mixtures

Before you go to buy a seed mixture to replant in your lawn where you have removed crabgrass by one means or another, ask your dealer, "How effective is this mixture going to be in preventing crabgrass next year?" This question must be asked of every dealer in the country because there is little use in planting the same kind of grass that has resulted in failure in the past. Here, again, we must draw heavily upon the experience and results of each individual experiment station, especially those that have well-established turf research programs. As the improved turf grasses are developed further, more and more the home gardener will come to use only the improved turf grasses because they have

Plugs of Meyer (Z-52) zoysia being prepared for planting in bluegrass lawn at the Plant Industry Station, Beltsville, Md. Sod was cut into two-inch squares with an edger. Plugs were molded and spot-sodded into aerator holes at 24-inch intervals.

a greater ability to fight crabgrass than the common types of grasses that have been used for turf in the past.

Improved Turf Grasses

Let's take a look at some of the improved turf grasses and see where we stand. There is not going to be enough of any of the improved turf grasses to satisfy every home gardener in the United States. Those who read the USGA JOURNAL and other magazines carrying the accounts of improved turf grasses naturally will be the first to use these improved turf grasses.

Research sponsored and encouraged by the USGA Green Section at the Southeastern Turf Research Center at Tifton, Ga., under the direction of Dr. G. W. Burton, brings out the fact that there are a number of improved turf grasses for the south and southeast. One of them is Tifton 57 bermuda. This disease-resistant and drought-resistant improved bermuda is excellent for lawns, golf-course tees and fairways and similar turf areas. It is not recommended today for putting greens.

Zoysia matrella and improved strains of *Zoysia japonica* are extremely popular in the southeast by virtue of the fact that they are able to develop good looking lawns at a low level of maintenance and with very little irrigation. A number of nurseries in the southeast sell sod of *Zoysia matrella* and improved strains of *Zoysia japonica* for home-gardener consumption. Sources of supply of these grasses always are available at the USGA Green Section, Plant Industry Station, Beltsville, Md., upon receipt of a request for such a list accompanied by a self-addressed, stamped envelope.

Another turf grass for the southeast that is gaining in popularity, especially for city lawns, is centipedegrass. Centi-

pedegrass can be planted either as sprigs or as seed.

Bitter blue St. Augustine is one of the better turf grasses, especially for the shade, along the Gulf Coast states, by virtue of its resistance to chinch bug.

This by no means exhausts the list of improved turf grasses for the south and southeast, but at least it will give homeowners in that area something to start on.

For the northeast there are several improved turf grasses. Among the cool-season group we have Merion bluegrass, still in extremely short supply and bringing an exorbitantly high price. We shall not encourage home gardeners to seed down entire lawns to Merion bluegrass, because the high price at the present time seems to be unjustified. But we do encourage homeowners to get a small quantity to plant on a small area to test it for adaptation under their conditions.

Meyer (Z-52) zoysia is an improved type of *Zoysia japonica* which has been reported in the USGA JOURNAL and other magazines and is available on the market to turf lovers all over the United States. It is widely adapted from New England to Miami and from Southern California practically to the Canadian border, except in the Pacific Northwest. It does not seem to do well there. Sources of supply of this grass and others will be available at this office upon receipt of a self-addressed, stamped envelope.

U-3 bermudagrass is another improved turf grass which is finding favor on many lawns especially in the South Central Plains and in Southern California. In Oklahoma, Kansas, Missouri and surrounding territories, U-3 bermudagrass is outstanding in its performance. Properly maintained and fertilized U-3 bermudagrass lawns are free of crabgrass. The same thing is true of Meyer zoysia. Properly fertilized and with no irrigation some turf nurseries have guaranteed Meyer zoysia lawns to develop free of crabgrass. I doubt if this has ever been done before with any other turf grass.

The creeping red fescues and Chewings red fescues now on the market are considered to be standard forms of fescues. They are not sufficiently improved to say that they will be highly successful in fighting crabgrass. Some of them are better than common types of fescues, but through research new fescues are being developed and soon will be on the market. By the same token, there are no improved bentgrasses on the market that are particularly suitable for home lawns.

Topsoil

The term "topsoil" is a sort of myth in which a great many homeowners believe. In the USGA Green Section we have been able to develop turf on raw subsoil which is superior to most of the turf developed on so-called "topsoil." What we are trying to say is that with the proper turf grasses adapted to the conditions, properly fertilized and watered, only the minimum topsoil, as such, is required. The best grasses will grow on practically any type of soil that is handy, even the kinds of soil that come from sub-basements. This is rather a drastic statement in face of all of the recommendations for six inches or more of rich topsoil, which, if you will examine the record, has not in any way helped to keep a lawn free of crabgrass.

The basis of good turf is an adapted grass properly managed. The management of most lawns has not been too bad. However, there is a tremendous need for a more foolproof turf grass that will give the homeowner the kind of a lawn he wants without constant care such as the golf-course superintendent must give his golf course. We believe that that day is not too far distant. Already, through our research, we have developed fertilizers that are nearly foolproof. When the better grasses and the better fertilizers are brought together in an intelligent manner and given the minimum quantity of water necessary to keep the grass alive, then and only then will we begin to achieve success in the face of the constantly growing threat of crabgrass.