

If You Lost Bermudagrass This Winter - Consider - Zoysia

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INTRODUCTION

As a New Englander, who just arrived in the hot, humid transition zone eleven years ago, I have just recently come to a full appreciation of zoysia. I was raised on Kentucky bluegrass and colonial and creeping bentgrass with more than ample amounts of *Poa annua* thrown in. Zoysia was just one of those tropical grasses Southerner's grew.

In my early years in Maryland bermuda not zoysia was selling like hot cakes to new homeowners. Their hydroseeded bluegrass-ryegrass lawns on Maryland subsoils had failed the first summer and they were finding bermuda a cheap, rapid covering turf species. My first experience with bermuda was with common bermuda in my weedy bluegrass lawn. It took awhile to comprehend just how fast that weed could grow. I had pulled a lot of bermuda out of only 800 sq. ft. before I gave up and decided to grow it instead. I still think of it as a nasty but useful weed. Winter kill, spring dead spot and a high nitrogen requirement make bermudagrass a questionable choice for most turf areas. On athletic fields where ability to recover rapidly from intense traffic is essential, bermudagrass overseeded to 'Manhattan' or 'Pennfine' perennial ryegrass is an excellent choice for the transition zone. But bermudagrass is not an excellent choice for homeowner lawns, golf course fairways or like areas receiving only moderate traffic.

After four or five years in Maryland, I learned that annual bluegrass truly should be considered an annual. Kentucky bluegrass would grow well only where protected from the afternoon sun. Colonial bentgrass didn't exist in Maryland. Fine fescues were fine for well drained shady areas. Creeping bentgrass survived on putting greens if you had lots of fungicides and water. Tall fescue was a coarse bladed weed which only gave decent turf if mowed 3 inches or higher but, zoysia survived in sun or shade, mowed or not, fertilized or not.

It really wasn't until two or three years ago that I became a full fledged zoysia fan. There was no one characteristic that converted me. Just years of hopeless disgust with everything else combined with a quietly growing respect for this grass of oriental origin. Let's look at its advantages.

Advantages of Zoysia for Transition Zone

Zoysia requires a minimal amount of nitrogen, water and mowing. The nitrogen requirements once fully established appears to be about 1 to 2 lb.N/1000 sq. ft. per year. This amount gives you a very nice dense turf. Only bermuda and tall fescue seem to need less water than this drought tolerant species. Mowing needs in the transition zone are highest in July and August. Although this grass is often advertized as needing only infrequent mowing, the fact is that more is needed for long term quality turf. If mowed infrequently with a light mower it will create 3 to 4 inch carpet in 5 years even if the mower is set for ½ inch, mowing should be 2 to 3 times per week in July and August. Only heavy reel type mowers should be used for best results.

Another advantage is resistance to scalping at least with the Meyer variety. This resistance to scalping is due to erect, stiff, very high fiber blades. The blades on the preferred variety, Meyer, are so stiff and dense that they tend to hold a mower up. They are also very difficult to cut off. Thus a heavy mower set too low will probably stall before it does serious damage.

The japonica strains of zoysia are much more winter hardy than even the most winter hardy bermudas. They are however, still brown from the first frost until spring.

Zoysias can withstand close mowing. The nine hole course at the Naval Ordnance Laboratory just north of the District of Columbia has had Meyer zoysia greens for the past 24 years. They don't begin to compare with creeping bentgrass greens in putting quality, but the point I would like to make is they have survived for 24 years with a minimum of maintenance at a cutting height of about 1/3 of an inch. There are two things I would like you to consider here. First, that zoysia is quite capable of surviving under low mowing. Secondly, zoysia may be at its best when managed at a low level of maintenance.

Time and time again I have seen zoysia persisting in quite acceptable conditions, where it received only minimal management. Dr. Strickling, Maryland's long time turf consultant for athletic fields, calls this "benevolent neglect." He claims turf often does better with this type of management. I'm not asking you to buy that but, you will find zoysia is capable of providing decent turf when managed with "benevolent neglect."

'Meyer' zoysia is not a weed problem like bermuda. It will only slowly invade sand traps and flower beds. I have never seen it growing up into shrubbery the way bermuda does. I'm told, though, that it will break up asphalt almost as fast as bermuda.

Last but not least, if you have to manage turf in or on the edge of a city, it is very tolerant of air pollution. Zoysia's ability to tolerate heat, air pollution and some shade make it an ideal grass for lawns in heavily populated urban areas of the transition zone.

Disadvantages of Zoysia for the Transition Zone

Establishment problems have to be the prime reason why zoysia is not more widely used than it presently is in the U.S. I would like to note here that all the reports I have read note it as the dominant turf species in Japan, its apparent origin. In Japan, Zoysia is the predominant forage species in pasture as well as the dominant turf species on golf courses.

To be useful, Zoysia must be established vegetatively from winter hardy varieties. Horizontal stem material is extremely slow to root. Meyer, the preferred variety, is a very slow spreader. Put these three factors together and you have the basis for understanding why zoysia sod is expensive. This explains the reason for primarily establishing zoysia by plugs or sod. Research is needed to find a way to cause zoysia stolons to root faster.

Mowing is difficult. Heavy reel-type mowers that are kept sharp will give best results. A complaint of bristle-like sponginess appears to be due to a combination of management practices. Excess nitrogen with or without too high mowing, results in a slightly unstable footing. The long stiff bristle-like growth isn't quite strong enough to hold one up firmly. Using a mower that is too light, or mowing too infrequently will produce the same results.

There are billbug and nematode problems that can't be ignored. They definitely are causing losses in the Maryland area. The conditions under which the turf becomes susceptible to damage by these two turf pests are not known. Both pests are difficult to diagnose and usually have caused much damage by the time a correct diagnosis is made. More research is needed on these two problems.

The brown winter color is disliked by many but it provides a better sports turf cushion than bermuda when dormant. Zoysia is also much more difficult to

overseed in the fall for winter-green color. It does appear, though, that if managed to favor Kentucky bluegrass a reasonably satisfactory combination turf can be managed without yearly reseeding. Such a combination turf does have the drawback of a patchy fall transition period though.

Warm-Cool Season Grass Combinations

My present research is with such combinations. I have found that a bermuda-creeping bentgrass combination properly managed provides one with an aggressive turf which will survive nicely under low mowing. Meyer zoysia and Kentucky bluegrass is another promising combination for the transition zone. Both of these I will look closely at in the years to come.

In my first study on combination turf, a warm season nitrogen fertilization program resulted in bermuda invading all combinations and in the death of the cool season grasses. Zoysia survived, but did no more than hold its own. The same combinations under a cool season nitrogen fertilization program resulted in creeping bentgrass and Kentucky bluegrass dominating the plots in spring and early summer. Bermudagrass would dominate by the end of summer and in early fall. Zoysia still did nothing more than hold its own. This research was conducted at moderately high nitrogen(N) level of 6lb of N/1000 sq. ft. Future work on zoysia will be conducted at varying N levels, emphasizing lower N rates which should favor zoysia.

Summary

In the transition zone zoysia is capable of handling the heat, humidity, and pollution with less tendency to be weedy than bermudagrasses. It is also more winter hardy and requires less management than bermuda.

Zoysia is however, difficult, slow, and expensive to establish. It does have pest problems, but these do not appear to be as serious as those of other turf species used in the transition zone.

I think a move from bermuda fairways to zoysia is in order.



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