

Factors Contributing to Major Problems in St. Augustinegrass Lawns 2006-2007

By

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Loss of St. Augustinegrass in lawns throughout Texas was observed during the summer and fall months of 2006, with the problems continuing into the spring months of 2007. While other turfgrasses growing in home lawns have also been affected during this same time period, the St. Augustinegrass lawns appear to have been hit the hardest.

Listed below are some of the major problems we are currently observing in the St. Augustinegrass lawns (spring 2007).

1. Dead areas of St. Augustinegrass. These areas can be anywhere from small, irregular dead spots to the entire lawn area.
2. Yellow St. Augustinegrass. Application of iron in most cases does not correct the problem of chlorosis (yellowing) in the lawn.
3. Brown patch. Normally this disease is a problem in the fall months. However, this disease has been reported in St. Augustinegrass lawns throughout Texas this spring.
4. Slow spring transition. Due to cooler than normal temperatures (especially nighttime temperatures) and cloudy days, the warm season turfgrasses have been very slow to transition from dormant state (brown) to green, actively growing turfgrass. Once the weather warms up and we get more sunshine, many of these affected areas in the lawn should start growing and form a dense stand of turfgrass.
5. Heavy infestation of winter weeds. Due to the drought conditions of 2006, many of the lawns, including St. Augustinegrass, were thinned out going into the winter months. Then, the above average rainfall throughout fall, winter and spring months encouraged the germination and growth of many winter annual weeds. Weeds such as rescuegrass, poa annua and winter annual thistle have especially been a problem.

Below is a list of potential problems that could have contributed to the loss of St. Augustinegrass during the 2006 season and continuing into spring of 2007. In some cases, loss of the St. Augustinegrass could have been from more than one factor.

A. Major contributors to loss of St. Augustinegrass in 2006 through spring of 2007:

1. Extended drought conditions in 2006, followed by several days of freezing temperatures during the winter months of 2006 – 2007.
2. Take-All Root Rot
3. Nigrospora Stolon Rot

B. Minor problems observed in St. Augustinegrass lawns in 2006 through spring of 2007. While these are minor problems, they could cause loss of turfgrass plants in some St. Augustinegrass lawns.

1. Brown patch
2. Gray Leaf Spot
3. Downey Mildew
4. St. Augustinegrass Decline (SAD)
5. Chinch bugs
6. Grubs
7. Rhodesgrass Scale

Drought Conditions/Freezing Winter Temperatures

For many areas of Texas, 2006 was one of the driest years on record. The drought conditions along with the high summer temperatures placed a tremendous stress on all grasses, but especially turfgrasses such as St. Augustinegrass and centipedegrass. Also, in many areas of the state, cities implemented water restrictions that limited the number of days homeowners could water as well as the time homeowners could water their lawns. Due to these restrictions, many homeowners were unable to either properly water their lawns or in some cases just gave up watering. Most St. Augustinegrass lawns and especially lawns not properly watered during the drought conditions went into the winter months in a stressed condition.

During the winter months of 2006-2007, most areas of Texas received several days of freezing temperatures. Depending on which area of the state you live in, nighttime temperatures dropped down into the low teens to high twenties on several occasions. A healthy St. Augustinegrass plant can normally survive temperatures well into the low twenties without any problem. However, because many of these lawns were stressed from the drought conditions of 2006 and/or disease problems, they were more susceptible to the freezing temperatures.

Stress from drought conditions followed by freezing temperatures was a major contributor to loss of St. Augustinegrass in some lawns, especially in the northern areas of the state where St. Augustinegrass is grown.

Take-All Root Rot : fungus *Gaeumannomyces graminis* var. *graminis*

Take-All Root Rot (TARR) has been a major disease problem in Texas for many years now. This disease was very active during 2006 and caused major problems in St. Augustinegrass lawns. From early observations, it looks like the TARR will be a major problem in the spring of 2007. Note, Take-All Root Rot has been observed attacking all the major warm season turfgrasses used in home lawns, but it is particularly a problem in St. Augustinegrass lawns.

The fungus causing TARR attacks the plants root system primarily in the fall and spring months when soil temperatures are in the 60 to 65° F range. Any factor that causes the St. Augustinegrass to become weakened or stressed will enhance the potential for TARR to become active. The drought/heat conditions of 2006 definitely placed a stress on all lawns. The disease weakens the root system or if severe enough will kill the entire root system thus causing loss of the St. Augustinegrass. TARR can usually be identified by small to large irregular patches of dead St. Augustinegrass (see picture 1 and 2) or in severe cases loss of the entire lawn. In many cases, there are yellow (chlorotic) leaves in or around the affected areas of the lawn. Close observation of the affected areas reveal St. Augustinegrass plants with brown leaf blades that are

firmly attached, brown stolons (runners) and a shortened root system that is dark brown to black in color.



Picture 1. St. Augustinegrass lawn damaged by Take-All Root Rot. Note the yellow St. Augustinegrass throughout the affected area of the lawn.

Achieving successful control of this particular disease can be difficult at best. Applications of approved fungicides may help, but are not always successful. See table 1 for a list of fungicides approved for control of TARR. The fungicides are generally most effective when applied in the fall and/or spring when the disease is most active. Another treatment for TARR that has shown some success is topdressing affected areas with Sphagnum Peat Moss. Apply two bales of the 3.8 cu.ft. bales of Sphagnum Peat Moss per 1,000 sq.ft. The acidic affect of this peat moss is thought to provide an improved growing medium for the St. Augustinegrass stolons to grow in and recover. The Sphagnum peat moss works best when applied in the spring and fall when the disease is most active. However, it has also been shown to be effective in some cases when used in the summer months. For the peat moss to be effective, it is important to thoroughly water in the peat moss once it is spread out over the lawn. If the peat moss is not watered in properly, it will not work. Like the fungicide treatments, topdressing with Sphagnum peat moss does not always provide control of the TARR.



Picture 2: Take-All Root Rot in St. Augustinegrass lawn. Note extensive chlorosis of St. Augustinegrass in affected areas.

Nigrospora Stolon Rot: fungus *Nigrospora sphaerica*

Nigrospora Stolon Rot was first identified in St. Augustinegrass lawns during the summer of 1980. This disease attacks the stolon area of the plant, usually next to a node (see pictures 3 and 4). *Nigrospora Stolon Rot* will eventually girdle the stolon, which stops the movement of water and nutrients to the leaves of the plant. The leaves soon wilt, turn yellow and then die. Until the summer of 2006, *Nigrospora* activity had not been identified as a major problem. However, it was observed in numerous lawns in 2006 and has been seen in a couple of lawns already in 2007.

Nigrospora Stolon Rot generally appears as irregular dead spots throughout the lawn and will often exhibit chlorosis (yellowing) of leaf blades in the affected areas. Close observation of the affected plants reveal lesions on the stolons, brown leaf blades that are firmly attached, brown stolons next to lesion, and roots that are brown in color. Note, unlike TARR, roots of plants affected by *Nigrospora* are not shortened and do not turn dark brown to black in color. The fungus causing *Nigrospora Stolon Rot* is associated with high temperatures and drought conditions, both which occurred in many areas of the state in 2006. At this time there is no fungicide that is labeled for the control of *Nigrospora Stolon Rot*. In 1980, Daconil was the only fungicide that demonstrated good activity on this fungus. However, Daconil is no longer labeled for use on turfgrasses in residential lawns. It can be used on St. Augustinegrass growing in lawns in commercial sites.



Picture 3: St. Augustinegrass lawn damaged by Nigrospora Stolon Rot.



Picture 4: Lesion on St. Augustinegrass stolon caused by Nigrospora Stolon Rot.

Brown patch: fungus *Rhizoctonia solani*

Brown patch can be a problem in most warm season and some cool season turfgrasses, but is especially a problem in St. Augustinegrass and centipedegrass lawns (see picture 5). The fungus is primarily a problem in warm season turfgrasses in the fall and early winter months when nighttime temperatures are below 70° F and daytime temperatures are in the 75 to 85° F range. Brown patch can be active in the spring and it has been reported to be a problem in several areas of Texas in the spring of 2007. The above rainfall conditions and mild temperatures have most likely resulted in brown patch being active in the spring of 2007.



Picture 5: St. Augustinegrass growing on sod farm with brown patch activity.

While brown patch doesn't normally kill the affected turfgrass plants, it can weaken the affected areas and thus make them more susceptible to other stress problems such as freezing temperatures and drought conditions. Close observations of the affected area reveal leaves with rotted leaf sheaths (see picture 6), stolons that are still green to white in color and roots that still maintain a white to light brown color. Note, due to the rotting of the leaf sheath, the leaf blade can easily be pulled away from the stolon. This is very characteristic for brown patch activity in grasses such as St. Augustinegrass and Centipedegrass.

See table 1 for list of fungicides recommended for the control of brown patch in St. Augustinegrass lawns.



Picture 6: Rotted leaf sheath on St. Augustinegrass leaf blade caused by brown patch.

Gray Leaf Spot: fungus *Pyricularia grisea*

While gray leaf spot has been active in St. Augustinegrass lawns for many years, it is not considered a major contributor to the loss of St. Augustinegrass in lawns in 2006-2007.

Gray leaf spot first appears as brown to ash colored spots on the leaf blade (see picture 7) with purple to brown margins. As the lesions grow in size, they can become diamond shaped. Areas heavily affected with gray leaf spot will have a burned to scorched appearance. Gray leaf spot likes shade areas, high humidity and areas with poor air circulation. Application of Nitrogen can greatly enhance the activity of this particular disease. If gray leaf spot is active in the lawn, then avoid making nitrogen applications until the disease has ceased activity or has been brought under control with a fungicide application. Gray leaf spot is generally a problem in late spring, summer and early fall months.

Table 1 contains a list of fungicides recommended for the control of Gray Leaf Spot.



Picture 7: Gray Leaf Spot lesions on St. Augustinegrass leaf blade.

Downey Mildew: fungus *Sclerophthora macrospora*

This disease is often mistaken for St. Augustinegrass Decline. However, the Downey Mildew fungus produces white to yellowish streaks (see picture 8) in the leaf blade that run parallel with the leaf blade veins. Also, the affected veins in the leaf blade will be raised, thus giving a rough feel to the surface of the St. Augustinegrass leaf blade. SAD will not produce the raised areas in the leaf blade. Downey Mildew is associated with excess moisture in the spring months. Generally, once the temperatures warm up and the grass dries out, the disease will cease to be a problem.

Downey Mildew had not been considered a major cause for loss of St. Augustinegrass in lawns during the 2006 growing season and through spring of 2007. Since the disease normally ceases to be active once the area dries out, applying a fungicide for treatment is not normally required.



Picture 8: Downey Mildew in St. Augustinegrass leaf blade.

St. Augustinegrass Decline: panicum mosaic virus

St. Augustinegrass Decline is caused by a virus attacking the St. Augustinegrass plants. This virus produces a chlorotic mottling or stippling affect in the leaf blades (see picture 9) that is often mistaken for iron chlorosis. As the virus advances in the cells of the St. Augustinegrass plants, it weakens the plant and thus makes it more vulnerable to other diseases and environmental stress problems. Dr. Phil Colbaugh, retired research Plant Pathologists at the Texas A&M University Research and Extension Center at Dallas, noted in his work with the Take-All Root Rot fungus, that lawns affected with the SAD virus were generally more heavily damaged by the Take-All Root Rot fungus than lawns that did not contain the SAD virus.



Picture 9: SAD lesions on left leaf blade of St. Augustinegrass (left) and iron chlorosis on leaf blade of St. Augustinegrass (right).

Being a virus problem, there are no chemical controls available to treat SAD. The best recommendation is to plant varieties of St. Augustinegrass that have known resistance to this viral disease problem. St. Augustinegrass varieties with known resistance to SAD include: Floratam, Raleigh, Seville, Delmar and AmeriShade. Note, varieties such as Floratam and AmeriShade should not be planted north of the Austin/San Antonio area due to poor cold tolerance.

Southern Chinch Bug: *Blissus insularis*

While the southern chinch bug can be found in other turfgrasses such as bermudagrass, centipedegrass and zoysiagrass, it is primarily a problem in St. Augustinegrass lawns. Also, while the southern chinch bug is found mostly in the coastal areas of the state, damage from chinch bugs can be found any where in the state that St. Augustinegrass is grown.

Symptoms of chinch bug damage is characterized by expanding irregular patches of dying or stunted St. Augustinegrass (see picture 10). In some cases, a halo of yellowing to orange St. Augustinegrass will be observed at the outer edges of the dying grass. Chinch bugs prefer lush, actively growing St. Augustinegrass that is found in hot spots of the lawn such as next to driveways and sidewalks.



Picture 10: Chinch bug damage to a St. Augustinegrass lawn.

Adult chinch bugs have small, black bodies with white wings (see picture 11). The adult chinch bugs do not feed on the St. Augustinegrass. The nymph (immature) stage of the chinch bug is wingless, yellow to pinkish-red in color with a light colored band across the back. Depending on the area of the state, chinch bugs can produce anywhere from 2 to 5 generations per year.



Picture 11. Nymph and adult stage of southern chinch bug.

The nymph stage of the chinch bug can be found feeding underneath the leaf sheath of the turfgrass plant. While feeding on the grass, the chinch bug injects a salivary fluid into the turfgrass plant that disrupts the water conducting system of the plant, causing it to wilt, turn yellow, then turn brown and die. It normally takes 22 to 25 chinch bugs per 1,000 sq.ft. to cause damage to the St. Augustinegrass. Generally, if there are enough chinch bugs to cause damage, they can easily be found moving around in the St. Augustinegrass.

See Table 2 for insecticides recommended for the control of chinch bugs.

White Grubs: May/June beetles

White grubs are the larval stage of insects commonly known as May or June beetles. The creamy white, C-shaped larvae (see picture 12) feed on the turfgrass root system, thus destroying the roots ability to take in water and nutrients from the soil. If damage is severe enough, the turfgrass plants will start to wilt, turn brown and eventually die (see picture 13). Note, it normally takes at least 4 to 5 grubs per square foot to cause damage to turfgrasses. Turfgrasses killed by white grubs can easily be lifted from the ground since the root system of the plant has been destroyed.

In Texas, the most common white grubs found feeding on the warm season turfgrasses are the June beetle, *Phyllophaga crinita* and the Southern Masked Chafer, *Cyclocephala lurida*. Note, for the cool season turfgrasses, the most commonly found white grub feeding on the root system is the May beetle, *Phyllophaga congrua*. Damage from the May beetle can start to show up in the cool season turfgrasses as early as late spring to early summer months, while the damage from the June and Southern Masked Chafer larvae will start to show up in the warm season turfgrasses in late summer to early fall months.

Preventive insecticide applications for the June and Southern Masked Chafer grubs should be applied in late spring to early summer months while the preventive applications for the May beetle should be applied in early spring months.

See Table 2 for a list of insecticides labeled for the control of the white grubs.



Picture 12: Larval stage of the white grub. Note the creamy white color with C-shape. Also, note that the larval stage has three pairs of legs.



Picture 13: Damage to lawn caused by feeding of the white grub.

Rhodesgrass Scale (Rhodesgrass Mealybug): *Antonina graminis*

Rhodesgrass Scale was a major pest problem on St. Augustinegrass lawns back in the 1950's. However, with the release of a parasitic fly, this problem was pretty much wiped out by the late 1950's. In 2006, this pest problem was observed in not only several St. Augustinegrass lawns, but also in some bermudagrass lawns (see picture 14). While this is not recognized as a major pest problem at this time, individuals should be aware of its activity.

At this time, there is not a recommended control for this pest.



Picture 14: Rhodesgrass scale on St. Augustinegrass stolon. Scale is usually found at the node area of the stolon.

Recommended Cultural Practices for St. Augustinegrass Lawns:

Using best management practices for maintenance of St. Augustinegrass lawns is one of the best things homeowners can do to prevent stress to their lawns. Remember, many of the problems associated with loss of turfgrass in St. Augustinegrass lawns in 2006 – 2007 were associated with stress to the lawns. While we can't do anything about the weather, managing the St. Augustinegrass lawn properly will help to reduce the loss of turfgrass plants during weather related stress conditions.

Fertilization Program:

The recommended rate of nitrogen for St. Augustinegrass growing in full sun is 3 to 4 pounds of actual nitrogen per 1,000 sq.ft. per year. For shade areas, the recommended rate of nitrogen is 1 to 2 pounds of actual nitrogen per 1,000 sq.ft. per year. The rate of phosphorus and potassium should be determined by soil testing.

Apply the first fertilizer application after the lawn has been mowed a couple of times in the spring. Then for St. Augustinegrass growing in full sun, fertilize once in the summer and again in the fall. For St. Augustinegrass lawns growing in the shade, fertilize once in the spring and once in the fall for best results.

For more detailed information on fertilization of all warm season turfgrasses, refer to bulletin E-437: Lawn Fertilization for Texas Warm Season Grasses. This bulletin can be located at the TCE book store: <http://tcebookstore.org/tmppdfs/11787454-2254.pdf>

Mowing Program:

For St. Augustinegrass growing in full sun, mow at a 2.5 to 3.5 inch mowing height. For shade lawns, mow at a 3.0 to 3.5 inch mowing height. Mow often enough so that you never remove more than 30 to 40% of the St. Augustinegrass leaf blade. Keep mower blades sharpened to prevent shredding or tearing of leaf tips. Grass clippings should be returned to the soil and not bagged.

Irrigation Program:

A general recommendation is to apply approximately 1.0 inch of supplemental irrigation water per week in the spring and fall months when adequate rainfall does not occur. In the heat of summer, apply approximately 1.5 to 1.75 inches of supplemental irrigation per week if adequate rainfall does not occur. Note, St. Augustinegrass can actually survive on less than this amount of irrigation, but will not be as dense and green a stand of turfgrass.

Water conservation is a major problem in most areas of Texas. Make sure only the required amount of water is being applied to the lawn. Note, even with the drought conditions, many homeowners still continue to over water their lawns, thus not only wasting water, but causing some of the major disease problems such as brown patch. Homeowners should conduct an irrigation audit of their irrigation system to make sure water is being applied as uniformly as possible.

Herbicide Program:

St. Augustinegrass is not as tolerant to herbicides as most of the other warm season turfgrasses. Over application or misapplication of herbicides to the St. Augustinegrass lawn can cause stress to the lawn, thus making it more susceptible to problems such as TARR.

A. Preemergent herbicides:

1. I generally recommend to skip the spring application of preemergent herbicides. While a healthy St. Augustinegrass lawn can tolerate this application, in many springs the St. Augustinegrass has been injured by freezing temperatures and/or disease problems. If the St. Augustinegrass has been weakened, then the application of a spring preemergent application can cause injury or loss of grass in St. Augustinegrass lawns. The fall application of a preemergent herbicide should not cause a problem and is generally recommended.
2. Avoid the application of an herbicide in shade areas of a St. Augustinegrass lawns.
3. Use postemergent herbicides with caution on St. Augustinegrass lawns. One of the most critical times to use postemergent herbicides with caution is in the spring transition period. The St. Augustinegrass is generally most susceptible to herbicide injury at this time of the year.

Table 1. Fungicides labeled for Control of Diseases in Home Lawns.

| Disease | Trade Names | Common Name |
|--|---|--------------------|
| I. Brown Patch (<i>Rhizoctonia solani</i>) | Turfcide 10 G | PCNB |
| | Ortho Lawn Disease Control | propiconazole |
| | Spectracide Immunox | myclobutanil |
| | Ferti-lome Systemic Fungicide | propiconazole |
| | Hi-Yield Lawn Fungicide Granules | PCNB |
| | Green Light Fung-Away Systemic Granules | thiophanate-methyl |
| | Green Light Systemic Fungicide | triadimefon |
| Dragon Systemic Fungicide 3336WP | thiophanate-methyl | |
| II. Take-All Root Rot* (<i>Gaeumannomyces graminis</i> var. <i>graminis</i>) | Ferti-lome Systemic Fungicide | propiconazole |
| | Spectracide Immunox | myclobutanil |
| | Ortho Lawn Disease Control | propiconazole |
| | Green Light Fung-Away Systemic Granules | myclobutanil |
| | Ferti-lome F Stop | myclobutanil |
| III. Gray Leaf Spot (<i>Pyricularia grisea</i>) | Ferti-lome Systemic Fungicide | propiconazole |
| | Ortho Lawn Disease Control | propiconazole |
| | Spectracide Immunox | myclobutanil |
| | Green Light Fung-Away Systemic Granules | myclobutanil |
| | | myclobutanil |

* Preventing stress to turfgrass and topdressing with peat moss has been shown to be one of the best methods for controlling this disease problem in home lawns.

** Both Heritage and ProStar are not available in garden stores at this time.

*** Note, the fungicide Chlorothalonil which is sold under the trade names of Daconil 2787, Daconil Ultrex, Daconil WeatherStix, etc. is not registered for use on turfgrass in home landscapes.

Note, always read the label before purchasing any fungicide to make sure it is still labeled for the disease you are trying to control.

Table 2. Insecticides labeled for the control of white grubs and chinch bugs in home lawns.

| Insect | Trade Names | Common Name |
|---------------|--|-----------------------------------|
| White grub | Merit ImidiPro Bayer Advanced Season Long Grub Control Scotts Grub-Ex | imidacloprid |
| | Mach 2 Spectracide Grub Stop Hi-Yield Kill-a-Grub | halofenozide |
| | Bayer Advanced 24 hr. Grub Control Hi-Yield Dylox 6.2 Granules Dylox | trichlorofon |
| | Sevin Garden Tech Sevin Lawn Insect Granules Bonide Eight Insect Control Yard and Garden Granules Ortho Bug-B-Gon Lawn and Soil Insect Killer | carbaryl |
| Chinch bugs | Orthene T/O Ortho Systemic Insect Killer | acephate |
| | Talstar Lawn and Turf Ortho Bug-B-Gon Max Insect Killer for Lawns Basic Solutions Lawn and Garden Insect Killer TotalKill Lawn & Garden Insect Killer (granules) | bifenthrin |
| | Spectracide Triazicide Once and Done Insect Killer (granules) | lambda-cyhalothrin |
| | Bayer Advanced Complete Insect Killer | imidacloprid + Beta-cyfluthrin |

While this is not a complete list of insecticides labeled for white grubs and chinch bugs, it does contain some of the more commonly found insecticides found in garden/retail stores.

Note: Always read the insecticide label before purchasing to make sure it is still labeled for the insect you are trying to control.