

Devonshire Take All Root Rot

What It Is, Where It Lives & How to Respond



Irregular yellow-green thinning and brown patches are typical canopy symptoms. Educational illustration based on UF/IFAS descriptions.

Take-all root rot (TARR) is a fungal disease of warm-season turf caused by *Gaeumannomyces graminis* var. *graminis*. It is especially damaging to St. Augustine grass, but bermudagrass, centipede grass, and zoysia grass can also be affected. By the time the lawn looks yellow or thin, root injury may have been developing for weeks.

Where Does the Disease Live?

- The pathogen naturally lives on and around the **roots, stolons, and rhizomes** of warm-season turf.
- Its presence alone does not guarantee visible disease. A susceptible host, the pathogen, and favorable conditions must occur together.

- UF/IFAS notes that TARR is favored by **high rainfall, warm weather, and stressed turf**—conditions common during Florida summer and early fall.
- Poor drainage, frequent irrigation, compaction, scalping, drought stress, root injury, and excessive nitrogen can increase disease pressure.

UF/IFAS takeaway: *Managing the turf environment is the best way to prevent the pathogen from becoming a damaging disease.*

How Infection Develops

The fungus colonizes the outer root surface and can move into root and stolon tissues. It reduces the turf's ability to absorb water and nutrients, so the canopy may look drought-stressed even when soil is moist. Disease severity rises when roots are weakened by saturated soil, compaction, improper mowing, nutritional imbalance, drought followed by heavy rain, or chemical injury.

Because the organism may be present without causing obvious symptoms, a positive laboratory detection must be interpreted together with field symptoms, root condition, and site history.

Know the Signs

Above and below ground

- Irregular light-green or yellow patches that are thin, brown, and may expose bare soil.
- Roots become short, dark, and rotted; severe cases may show black lesions on stolons or rhizomes.
- Weak turf may pull up easily because the root system can no longer support the canopy.



Healthy pale roots compared with dark, shortened, rotted roots. Educational illustrations based on UF/IFAS symptom descriptions.

Before treating sample from the edge of an active patch, compare roots with nearby healthy turf, and rule out irrigation problems and insects such as chinch bugs. Contact UF/IFAS Extension or a turf diagnostic laboratory when the cause is uncertain.

Collecting a Useful Sample

1. Choose turf from the **transition zone** where green grass meets active yellowing—not the completely dead center.
2. Collect several pieces that include leaves, stolons, roots, and attached soil.
3. Keep the sample cool and dry; do not seal wet turf in a hot vehicle.
4. Include photographs of the entire patch, irrigation layout, and nearby healthy turf.
5. Provide recent fertilizer, herbicide, irrigation, and fungicide history to the diagnostic laboratory or Extension agent.

Common Look-Alikes

Problem	Clue that helps separate it from TARR
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Drought or irrigation failure	Pattern follows sprinkler coverage; roots may remain firm rather than black and rotted.
Chinch bugs	Insects may be found at the edge of damaged St. Augustinegrass; damage often occurs in hot, sunny areas.
Pythium root rot	Associated with persistently wet soil; roots may be thin and discolored but are not characteristically black and rotted.
Nutrient or pH problems	Discoloration may be more uniform and should be evaluated with soil or tissue testing.

Treatment Starts with Better Growing Conditions

Management area	UF/IFAS-aligned action	Why it matters
Irrigation	Water only when 30–50% of turf shows wilt; apply about ½–¾ inch per event where locally permitted, preferably early morning.	Chronic wetness favors root disease and shallow rooting.
Drainage	Correct low spots, runoff, compacted soil, and broken or overlapping irrigation zones.	Roots need oxygen; saturated soil increases stress.
Mowing	For most St. Augustine grass, maintain about 3½–4 inches; mow often enough to remove no more than one-third of the blade.	Scalping reduces leaf area and root growth.
Fertility	Avoid heavy soluble nitrogen during active disease; use soil and tissue information to guide nutrients.	Lush growth can outpace a damaged root system.
Soil pH	Test first. Do not add sulfur, manganese, or acidifying fertilizer without a site-specific recommendation.	Uninformed amendments can injure turf or create nutrient imbalance.
Traffic and chemicals	Limit compaction and avoid unnecessary herbicide or mechanical stress during recovery.	Additional injury slows root regeneration.

Best results come from prevention. UF/IFAS emphasizes that environmental and cultural management is generally more effective than relying on chemicals alone.

What Recovery Looks Like

Improvement is gradual. Existing dead turf will not turn green again; recovery appears as new roots, firmer attachment to soil, and lateral growth from surviving stolons. Severely thinned areas may need plugging or resodding only after drainage, irrigation, mowing, and soil problems have been corrected. Otherwise, new turf may decline for the same reason.

Evaluate progress every two to four weeks from the same marked locations. Avoid judging a treatment only by rapid leaf color, because extra nitrogen can temporarily green the canopy without repairing the root system.

Fungicide Options

UF/IFAS lists the following active ingredients for preventive TARR programs. Applications are most useful before symptoms or very early in disease development. Confirm diagnosis first and follow the current product label.

Active ingredient	FRAC group	Use note
Azoxystrobin	11	Preventive or very early use; rotate away from Group 11.
Pyraclostrobin	11	Same mode-of-action group as azoxystrobin.
Myclobutanil	3	Rotate away from Group 3 products.
Propiconazole	3	Use only where the turf species and site appear on the label.
Triadimefon	3	Do not alternate only with another Group 3 product.
Thiophanate-methyl	1	Use only where currently registered and labeled.

Timing, Placement & Resistance

- **Preventive timing:** products generally perform better before extensive root loss. A fungicide applied after large areas are dead cannot restore those roots.
- **Root-zone delivery:** follow label directions for application volume and watering-in; foliar-only placement may not reach the infection site.
- **FRAC rotation:** change the numbered mode-of-action group, not merely the brand name. UF/IFAS Pinellas County recommends rotating modes of action to reduce resistance risk.
- **Reapplication:** use only the labeled interval and seasonal maximum. More products are not better.
- **Professional help:** consider a licensed applicator for large, recurring, or difficult-to-diagnose sites.

Quick Action Checklist

1. **First symptoms:** photograph the area, check irrigation output, inspect roots, and scout for insects.

2. **Within one week:** correct wet spots, mowing errors, and obvious stress; submit a transition-zone sample if diagnosis is uncertain.
3. **During active recovery:** avoid high nitrogen and unnecessary herbicides; maintain proper mowing and irrigation.
4. **If TARR is confirmed:** choose a currently labeled fungicide, record its FRAC group, and follow root-zone application directions.
5. **Over the season:** rotate FRAC groups, keep treatment records, and compare photographs from fixed points.
6. **Before replanting:** correct the original site problem so any replacement sod is not exposed to the same stress.

Information to Record

- Date symptoms first appeared and recent rainfall or irrigation changes
 - Turf species and cultivar, mowing height, and fertilizer history
 - Soil test results, drainage observations, and irrigation output
 - Product name, active ingredient, FRAC group, rate, and application date
 - Photographs from the same locations before and after management changes
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UF/IFAS Resources

- **UF/IFAS EDIS LH079 / SS-PLP-16, *Take-All Root Rot of Turfgrass*:** disease biology, symptoms, cultural management, and preventive fungicide guidance.
- **UF/IFAS Extension Orange County, “Take-all Root Rot, Whether You Like It Or Not!” (2021):** Florida conditions, stress reduction, and homeowner management.
- **UF/IFAS Extension Pinellas County, “Take-all Root Rot Fungicide Options and Their Modes of Action” (2023):** active ingredients and FRAC resistance groups.
- **Your local UF/IFAS Extension office or Florida turf diagnostic service:** sample evaluation and site-specific recommendations.

Photo note: Images are AI-generated educational illustrations based on UF/IFAS descriptions; they are not official UF/IFAS photographs and do not replace diagnosis.

Pesticide safety: The label is the law. Verify that the product is labeled for the turf species and use site, and follow all rate, timing, watering-in, protective-equipment, and applicator requirements.