

Compare costs & rates

As a lawn care operator or turf manager, you are not without various options. Newer fungicides may appear more expensive at first glance, but remember that the application rates are a lot less than the rates for older standard fungicides. For example, the rate for Compass (0.1 to 0.25 oz/1,000ft²) is approximately 90% less than that of Daconil Ultrex (1.8 to 7.8 oz/1,000ft²). Reduced rate fungicides equate to less active ingredients placed into the environment, less exposure to an active ingredient by the applicator and less storage space.

FUNGICIDE COST COMPARISONS

Product	Rate	Spray Interval (days)	Cost per application (\$/1000 ft ²)	Cost per treatment day (\$/1000 ft ²)
Daconil Ultrex 82.5WDG	3.67 oz	14	2.06	0.21
Compass 50WDG	0.2 oz	21-28	3.38	0.12-0.16
Banner MAXX 1.24MEC	2 fl oz	28	3.82	0.13
Banner MAXX 1.24MEC + Compass 50WDG	1.0 oz 0.15 oz	21-28	3.60	0.13-0.17
Heritage 50WG	0.4 oz	28	8.62	0.31
Cleary's 3336 50WP	6 oz	28	7.44	0.27

Test it yourself

If you want to be sure a product will fit your needs, test it. Wendy Gelernter, Ph.D., of PACE Consulting in San Diego, CA, says, "The only way to gain more confidence that a management system is the best for your site is to start a testing program."

Self-tests can ensure that the products and practices you choose fit your specific circumstances, conditions, site variations, equipment and management style.

- Plan your test before you begin; map out your plans
- Identify and record:

1. Objectives — "What rate will result in good pest control without damaging the foliage?" or, "How does the new product compare to a product that I have been using?"
2. Materials — products, rates, application equipment, etc.
3. Methods — dates of application and evaluation, how the evaluations were conducted, etc.
4. Observations — descriptions of visual characteristics, numerical ratings (e.g. the weight of clippings) or relative ratings (e.g. assigning estimates of performance on a scale).
5. Summary — of the answers to you questions.

Do not omit any of these components or it will be difficult to determine what happened during the test or why it happened.

► For each test, maintain an area that receives no treatment. Make sure the untreated (control) area is the same size and managed in the same way. Try to have the untreated area and testing plot next to each other, so the sites have similar conditions. And, the two areas should look the same at the start of the test, so you can easily compare the effect of the treatment.

► Size it properly. The smallest test plot recommended by Gelernter is 4 x 4 ft. For most small plot work, however, a 5-ft. by 10-ft. plot is convenient for a sprayer that applies a 5-foot-swath width. Or simply divide an area in half, leaving one half untreated and the other half treated.

Finally, once your tests are completed, don't take off your research hat. Follow an unwritten rule of grassroots product and practice testing — share your results with others.

TURF & ORNAMENTALS

Know your diseases

The majority of lawn care companies do not treat for infectious diseases unless they are chronic problems. But if the disease infection becomes chronic, the first step is to identify it before making a fungicide application. For disease damage to occur, three factors must be present:

- ▶ a suitable host plant,
- ▶ environmental conditions conducive to disease development and
- ▶ a virulent pathogen.

These chronic diseases in lawn care are closely associated with the host:

— Brown patch and gray leaf spot are destructive diseases of tall fescue, perennial ryegrass and St. Augustinegrass.

— Necrotic ring spot, summer patch and dollar spot are diseases that damage Kentucky bluegrass and fine leaf fescue. These diseases are best controlled by preventive fungicide applications.

— Some diseases, such as leaf spot on Kentucky bluegrass and fine leaf fescues and red thread in perennial ryegrass, can be effectively controlled with curative fungicide applications. To reduce the number of fungicide applications, make the first application when the symptoms first appear.

Think Springs.



Ferris revolutionized mowing with patented rear wheel IS® Independent Suspension, which enables Ferris' tough machines to run faster and longer. And now Ferris, the innovation leader, has taken independent suspension to a whole new level with the introduction of four-wheel IS® Independent Suspension. See all that's new for 2001 including the latest in independent suspension technology and the complete new line-up of reliable Ferris Z's featuring 48" to 72" decks. Call 1-800-933-6175 or tap into our "Contact Ferris" page on the web at www.ferrisindustries.com. We'll answer your questions, send you the latest in new product literature and match you up with your nearest Ferris dealer.



*First with
Independent Suspension*

Announcing four-wheel IS® Independent Suspension.

Ferris Industries • 5375 N. Main St. • Munnsville, NY 13409 • www.ferrisindustries.com • 1-800-933-6175

TABLE 1. ALTERNATIVE MEDICINES FOR YOUR TURF

Though these products don't guarantee the 99% effectiveness we've come to expect from chemical pesticides, they do offer alternative control solutions when pests are not at their max.

PRODUCT

MINERAL REMEDIES

Silica Soluble forms of silica such as potassium silicate, calcium silicate, or silicate (SiO₂) can be sprayed at a rate of 7 lb. per 1000 ft². Dick Schmidt used Kasil #1 at 20 to 40 fl. oz. per 1000 ft². (information on the product can be found at www.pqcorp.com/Lines/PS.htm.)

Sulfur Sulfur is an inexpensive yellow powder available through many horticulture supply houses. It can be sprayed or dusted on the foliage at a rate of 1 to 2 lbs. per 1000 ft² for control of fungal pests.

Manganese Microelements like manganese (not to be confused with magnesium) are usually applied as a spray solution in either the mineral or chelate form.

Iron Iron chelate is a safer but more expensive alternative to iron sulfate. Both forms are generally applied as a spray because of the small quantities required.

Nitrogen Fast-release nitrogen fertilizer can be used to grow a turf out of many pest problems. N can be sprayed as a liquid or applied as a dry granular and irrigated to activate. A rate of 1 lb. per 1000 ft² solves many problems; a half rate is recommended for delicate turf areas.

Phosphorus Most phosphate products take far too long to dissolve and activate to aid in pest control. Quickly soluble sources like diammonium phosphate (DAP) can be dissolved and sprayed for faster action and medicinal effects.

Corn gluten This livestock feed product exhibits pre-emergence activity on crabgrass and other annual weeds. It also functions as a slow-release, natural fertilizer, containing 10% N.

HOW TO APPLY IT / WHAT IT CONTROLS

Lawrence Datnoff found silica fights gray leaf spot, Marty Petrovic found activity against pythium blight, and Schmidt found it works against dollar spot. In other studies, silica applications reduced brown patch disease by 10 to 20%, and also had activity on powdery mildew.

Roy Goss found that sulfur controls Microdochium patch. Pete Dernoeden found good control of take-all patch. Bruce Clark and Jim Murphy found a 23% to 42% reduction in take-all patch from using ammonium sulfate fertilizer. Sulfur is also used to treat powdery mildew. Goss concocted a sulfur regiment for *poa annua* control in creeping bentgrass turf, though Vargas admits, "it might do the job, but God help the patient."

Charles Peacock and his associates discovered that foliar applications of manganese reduce brown patch disease and even bentgrass summer decline.

Tara McLeod, agronomist for the New Zealand Turf Institute, discovered that monthly applications of iron sulfate at 1.7 lbs. per 1000 ft² effectively eliminated clover, slender speedwell, dandelion, and daisy from sports turf. Iron applications also control moss and cow grass and can mask the symptoms of fairy ring and yellow tuft.

Dollar spot, rust, red thread, pink patch, anthracnose, necrotic ring spot, summer patch, melting out and leaf spot can be reduced by nitrogen applications, according to Vargas. Nitrogen even benefits so-called "high-nitrogen diseases" like pythium and stripe smut, when applied after the disease has run its course, aiding recovery. Nitrogen can similarly help repair damage from insect outbreaks. Daniel Potter and his colleagues found it vital in promoting recovery from grubs. Legume weeds, like clover and black medic, can be reduced or eliminated by periodic nitrogen treatments.

Regular phosphate applications reduced crabgrass and dandelion populations to 5% from 26%, according to work by Wayne Huffine. Foliar sprays of soluble phosphate have also been shown to have a mild curative effect on brown patch disease.

Nick Christians discovered the herbicidal side-effects accidentally and has gone on to patent it for turf. Rates of 100 lbs. per 1000 ft² are needed for 95% crabgrass control. Work by Tom Turner has found mixed results of gluten, depending on the year, rate, and weather.

HERBAL REMEDIES

Salicylic acid — Salicylic acid is the white dusting you find on the surface of many plants, most notably on the bark of aspen trees. Aspirin is a derivative of salicylic acid. It is a natural protectant in plants that shields against oxidation and stimulates healing.

Xanthomonas — Suspensions of Xanthomonas bacteria can be sprayed on the turf on weekly intervals or injected through the sprinkling system for control of *poa annua* (annual bluegrass).

Schmidt has used salicylic acid to improve fitness against disease and even to enhance frost and cold tolerance. "We buy salicylic acid by the 10-lb. bag and it's cheap," he says. His recent studies have had more success with root applications — rather than foliar.

Japanese researchers, led by S. Imaizumi, found reductions in annual bluegrass populations of up to 75% from certain strains of Xanthomonas. Kentucky bluegrass, bentgrass, and zoysia were unharmed. Recent work by Vargas confirmed these findings. He found additional Poa control by mixing PGR (plant growth regulator) with the bacterial suspension. Work at the University of Massachusetts found that Xanthomonas works better against the annual strain of Poa annua than the perennial strain.

LIVE BIOLOGICAL REMEDIES

Pseudomonas — Michigan State University's TX-1 strain of Pseudomonas can be injected via a BioJect appliance into the irrigation system for disease suppression.

Nematodes — Seven different strains of beneficial nematodes are available for control of insect pests. Nematodes are microscopic pinworms, applied alive, that parasitize certain insect pests. However, when sprayed on, most will dry out and die. Granular applications are preferable. (A list of suppliers can be found online at

<http://edis.ifas.ufl.edu/pdf/IN/IN09600.pdf>)

Pseudomonas bacteria has shown activity against dollar spot, brown patch, and pythium diseases. It also shows minor activity against anthracnose, leaf spot, take-all patch, bermudagrass decline, necrotic ring spot, summer patch, pink snow mold, and gray leaf spot, according to Vargas. However, under severe disease pressure, fungicides are still required. Graham Davis reported a 27 to 33% reduction in dollar spot severity from TX-1, when tallied across an entire growing season.

Nematodes are effective against grubs, mole crickets, caterpillars, and soil inhabiting larva. Beneficial nemas are particularly "host specific," meaning that a given strain of nematode is picky, preferring certain insect pests over others. Be sure to get the right strain for your intended critter.

Find Out Why TifSport's Dark Green Color, Improved Cold Tolerance, & Impressive Leaf Texture Make It So Perfect For Residential & Commercial Lawns

www.tifsp[@]rt.com

CERTIFIED BERMUDAGRASS FOR LAWNS, GOLF COURSES & ATHLETIC FIELDS

FUNGICIDES

Table 1. Fungicides labeled for residential lawns

Pathogen	Fungicides	Rates (oz/1,000 ft ²)
Brown Patch	Azoxystrobin (Heritage 50WG)	0.2 — 0.4
	Flutolanil (ProStar 70WP)	1.5 — 3.0
	Thiophanate-methyl (Cleary's 3336 50WP)	2.0
	Trifloxystrobin (Compass 50WG)	0.1 — 0.25
Dollar Spot	Fenarimol (Rubigan 1AS)	0.75
	Myclobutanil (Eagle 40WP)	0.5 — 1.2
	Propiconazole (Banner MAXX 1.3 MEC)	1.0 - 2.0
	Thiophanate-methyl (Cleary's 3336 50WP)	2.0
	Triadimefon (Bayleton 50WP)	0.5
Gray Leaf Spot	Azoxystrobin (Heritage 50WG)	0.2 — 0.4
	Thiophanate-methyl (Cleary's 3336 50WP)	4.0 — 8.0
	Trifloxystrobin (Compass 50WG)	0.15 — 0.25
Leaf Spot (Melting out)	Azoxystrobin (Heritage 50WG)	0.2 — 0.4
	Thiophanate-methyl (Cleary's 3336 50WP)	4.0 — 8.0
	Trifloxystrobin (Compass 50WG)	0.1 — 0.2
Necrotic Ring Spot	Azoxystrobin (Heritage 50WG)	0.4
	Fenarimol (Rubigan 1AS)	4.0 — 8.0
	Myclobutanil (Eagle 40WP)	1.2
	Thiophanate-methyl (Cleary's 3336 50WP)	4.0 — 8.0
	Propiconazole (Banner MAXX 1.3 MEC)	4.0
Red Thread	Azoxystrobin (Heritage 50WG)	0.2 — 0.4
	Fenarimol (Rubigan 1AS)	8.0
	Myclobutanil (Eagle 40WP)	0.6 — 1.2
	Triadimefon (Bayleton 50WP)	0.5 — 1.0
	Thiophanate-methyl (Cleary's 3336 50WP)	2.0
	Propiconazole (Banner MAXX 1.3 MEC)	1.0 — 2.0
	Trifloxystrobin (Compass 50WG)	0.1 — 0.2
Summer Patch	Azoxystrobin (Heritage 50WG)	0.4
	Fenarimol (Rubigan 1AS)	4.0 — 8.0
	Myclobutanil (Eagle 40WP)	1.2
	Triadimefon (Bayleton 50WP)	2.0
	Thiophanate-methyl (Cleary's 3336 50WP)	4.0 — 8.0
	Propiconazole (Banner MAXX 1.3 MEC)	4.0
	Trifloxystrobin (Compass 50WG)	0.2 — 0.25