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A System for Winter Overseeding Warm-Season Turfs

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The following is a summary of findings generated from an 8-year turfgrass research program at Texas A&M University. Primary emphasis was on winter overseeding cool-season turfgrasses onto bermudagrass (*Cynodon* spp.) under putting green conditions. Twenty-eight distinct field experiments have been conducted, mostly in College Station, Texas at the TAMU Turfgrass Field Research Laboratory, with some studies located in Corpus Christi, Dallas, Denton, Houston, and San Antonio.

Late Summer-Early Autumn Preparation. The cultural system should involve a season-long vertical cutting program as needed to control thatch and turf cultivation to correct soil compaction. Late-season coring and fertilization should be completed at least 30 days prior to the overseeding date. Thus, the actual overseeding and topdressing can be done on a relatively undisturbed turf surface. Play may be withheld from the turf for only 1 to 2 days during the actual overseeding, although a longer period is beneficial for full establishment.

Annual Bluegrass Control. Fenarimal (Rubigan®) has been identified as the first herbicide that will provide selective, preemergence control of annual bluegrass (*Poa annua*) in winter overseeded perennial ryegrass and rough bluegrass (*Poa trivialis*) turfs. The applications should be completed at least 4 weeks prior to the winter overseeding date.

Seeding Date Prediction. A biological indicator of the optimum winter overseeding dates has been established via our detailed research. It is the period when the soil temperature at a 4-inch (100-mm) depth, is between 72° and 78°F (22–26°C). This approach is far superior to using a historical calendar date.

Species/Cultivar Selection. The preferred turfgrass community for winter overseeding involves either a blend of 3 to 4 perennial ryegrass (*Lolium perenne*) cultivars, or a mixture involving 80% by weight of 2 to 3 perennial ryegrass cultivars and 20% by weight of a rough bluegrass (*Poa trivialis*) cultivar. In the case of certain newer very-high density hybrid bermudagrass (*Cynodon dactylon* x *C. transvaalensis*) cultivars that tolerate cutting heights of 1/8 to 1/10 inch (3.2 to 2.5 mm), the suggested winter overseeding mixture consists of 80% rough bluegrass and 20% creeping bentgrass (*Agrostis stolonifera*) by weight, with 20% of the rough bluegrass applied 4 weeks after the initial winter overseeding. The seed may be treated to protect against seedling disease problems, especially on wet sites.

Seeding Rates. The preferred seeding rate for greens has been established in the range of 30 to 35 lb/1,000 ft^2 (15.0–17.5 kg•100 m^{-2}) for perennial ryegrass blends; whereas for sports fields, fairways, and race tracks, where rapid cover and initial wear tolerance are desired, a minimum seeding rate of 20 lb/1,000 ft^2 (10 kg•100 m^{-2}) is suggested for perennial ryegrass blends. For certain very-high density hybrid bermudagrass cultivars a rate of 10 lb/1,000 ft^2 (5 kg•100 m^{-2}) of rough bluegrass plus 2 lb/1,000 ft^2 (1 kg•100 m^{-2}) of creeping bentgrass is suggested.

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Research Summary

Health Risks from Exposure to Feces of Canada Geese

Giant Canada geese (*Branta canadensis maxima*), which are nesting locally in Northwest Ohio and other parts of the state, are commonly perceived as a public nuisance when they inhabit urban areas. The feces of giant Canada geese litter both grass and pavement in many occupational and recreational sites in the Toledo area. The purpose of this study was to identify sites with fecal droppings of giant Canada geese that test positive for *Cryptosporidium, Giardia,* and *Campylobacter,* qualitatively assess the occupational risks of infections, and recommend protective measures. The fecal droppings of giant Canada geese were tested for *Cryptosporidium, Giardia,* and *Campylobacter,* using sensitive monoclonal enzyme immunoassay (EIA) methods. Fourteen out of sixteen sites tested positive for at least one pathogen. None tested positive for all three. ***Cryptosporidium* was the most common infectious organism found in the fecal droppings. It was detected in 14 out of 18 (77.8%) samples.** *Campylobacter* was found in 7 out of 18 (38.9%) samples, and 3 out of 18 (16.7%) samples tested positive for *Giardia.* Since fecal droppings of giant Canada geese are dense in many sites, occupational exposure to *Cryptosporidium* is very plausible. In addition, fecal droppings from other carrier vertebrates are likely to be present in the same sites occupied by giant Canada geese, thereby increasing the likelihood of occupational exposure to one or more of these pathogens. It has also been suggested that houseflies and dung beetles may be mechanical carriers of *Cryptosporidium.* **We recommend that work environments in close proximity to the nesting sites of giant Canada geese be maintained in a sanitary condition. Workers at risk for exposure should wear protective gloves while working, wash their hands after performing applicable activities and before touching their mouths, launder work clothes daily, and, ideally, shower at the end of the workday. We further recommend that potentially exposed workers who develop gastrointestinal infections have their stools tested for *Cryptosporidium, Giardia,* and *Campylobacter.***

Comment. Also, at risk of disease exposure are individuals involved in recreational activities, especially at parks, recreational areas, and golf courses.

Source. Hailu Kassa, Brian Harrington, and Michael S. Bisesi. Risk of Occupational Exposure to *Cryptosporidium, Giardia,* and *Campylobacter* Associated with the Feces of Giant Canada Geese. *Applied Occupational and Environmental Hygiene,* 16(9): 905–909.

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Seeding Method. Cease mowing or raise the cutting height on greens to allow the leaf extension to reach 5/16 inch (8 mm) in order to trap and hold the seeds in place. Divide the seed into two lots and apply in two opposite directions. Then apply topdressing using a soil mix comparable to the underlying root zone, if in the proper textural range. Higher-cut turfs may not need to be topdressed. Next, drag the area with a heavy, inverted carpet, possibly with multiple passes. With higher-cut turfs, it is especially critical to work the seed down through the turf canopy into close contact with the soil to provide favorable moisture needed for seed germination. Finally, irrigate the seeding immediately and keep the surface moist for three weeks by light irrigation or syringing applied as many times daily as needed. Be sure to lower the cutting height on greens to its original level after two-to-three weeks. It is essential that the first mowings are accomplished with a properly adjusted, sharpened mower.

Spring Transition. Based on detailed studies, the preferred procedure for proper spring transition back to the warm-season turfgrass is achieved by manipulating the cultural system. This involves (a) lowering the mowing height substantially, (b) increasing the nitrogen fertility level by 50 to 100%, and (c) weekly vertical cutting. This combination ensures sunlight penetration through the winter-overseeded canopy to the bermudagrass, thereby stimulating spring greenup. These cultural practices should be initiated before the soil temperature at a 4-inch (100 mm) depth reaches 64°F (18°C). Transition techniques such as withholding water are ineffective and can enhance death of the bermudagrass, especially if spring root decline occurs.