

Adapted from “Anon. 2005. Turfgrass Management Recommendations. Ontario Ministry of Agriculture and Food Publication Number 384. Queen’s Printer. Toronto. 72 pages”  
<http://www.omafra.gov.on.ca/english/crops/pub384/p384order.htm> (\$20)

Table 5-3. Disease control

Disease and cultural control	Chemical control	Rate / 100 m <sup>2</sup>	Interval (days)	Use enough water for thorough coverage. Follow label directions.
Algae Improve fertility and drainage. Alleviate compaction				
Anthracnose blight ( <i>Colletotrichum graminicola</i> ) Occurs June to September under humid and warm conditions. Avoid nitrogen deficiency, drought stress, soil compaction, poor drainage and excessive thatch, especially on annual bluegrass.	Daconil 2787F	170-190 mL	7-10	Recommended rates are for preventing disease establishment; use lower rate when disease conditions are light to moderate, higher rates when conditions are severe.
	* Heritage	6-12 g	14-28	Use preventively. Begin applications when conditions are favourable for disease infection, prior to disease symptom development.
	* Banner MAXX	26-51 mL	21	Apply when warm humid weather conditions occur. Do not apply more than 3 times a season.
Brown patch, Rhizoctonia blight <i>Rhizoctonia solani</i> Occurs under humid, warm conditions and extended periods of leaf wetness in June to Sept. Avoid excess nitrogen and night watering.	Daconil 2787 F	95-190 mL (fairways)	7-14	Recommended rates are for preventing establishment; use lower rate when disease conditions are light to moderate, higher rates when conditions are severe.
		95-190 mL preventive (tees and greens)	7-10	
		190-350 mL curative (tees and greens)	7-10	
	*ProTurf DSB with thiophanate-methyl	0.86 kg	14-21	Apply to moist or dry foliage.
	* Senator 70 WP	30-60 g	5-7	Apply after mowing or avoid mowing for 12 hours after application. Begin ground applications when diseases first appear. When disease pressure is severe, apply at the higher recommendations.
	ProTurf Granular Fungicide X	2.34-3.52 kg	14	To prevent disease, apply at the normal to heavy rate to moist or dry turf when disease activity is anticipated and repeat at 2-week intervals. If disease pressures are heavy, apply at the heavy rate to moist or dry foliage. When diseases are brought under control, revert back to bi-weekly normal rate applications. To control disease apply to moist or dry foliage at the heavy rate as soon as disease activity is noticed. Repeat bi-weekly until disease is under control, then revert to the normal or heavy rate applications bi-weekly.
	Compass 50 WG	4.6-6.1 g	14-21	Apply when conditions are favourable for disease development. Under low pressure, apply at 21 -day intervals at the low rate and under high pressure apply at the higher rate and shorter interval.
	Eagle WSP	18g	14	Apply a maximum of 4 times a year.
	* Heritage	eg	14-28	Begin applications before disease is present (usually late May to June) when conditions favour disease development. During prolonged periods of favourable

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				conditions apply using the shorter interval.
	* ProTurf Granular Systemic Fungicide	0.66-1.32 kg	14-21	For prevention apply to moist or dry foliage at normal rate when disease activity is noted or suspected. May require more frequent treatments under conditions that favour the disease. To arrest the disease, apply at double the rate.
	Rovral Green GT	125-250 mL	14-21	Apply at the first signs. Under severe pressure use the higher rate and the shorter interval. Rotate with other fungicides to reduce the possibility of developing resistance.
	Terraclor FF	135-185 mL	7-10	Apply at first sign of disease. Repeat during warm, damp weather. Water area lightly with 6 mm of irrigation or rainfall.
	* Banner MAXX	51-103 mL	14	Apply preventively when conditions favour disease development. Use the higher rate under severe disease pressure. Do not apply if disease symptoms are present. Do not apply more than 6 times a season.
Cool season brown patch, yellow patch ( <i>Rhizoctonia cerealis</i> ) Occurs spring & fall	* Banner MAXX	77-103 mL		Apply once in late fall before snow cover. Do not apply on top of snow. Do not apply more than once a season.
Dollar spot ( <i>Sclerotinia homoeocarpa</i> ) Occurs June to September under humid and warm conditions.	Daconil 2787F	48-95 mL (fairways)	7-14	Preventive rates are for preventing disease establishment; use lower rate when disease conditions are light to moderate, higher rates when conditions are severe. Heritage can be tank mixed with Daconil at 190mL/100m <sup>2</sup> . Read the Daconil and Heritage labels.
Begins when iris and peony are in full bloom.		95-190 mL (greens and tees preventive)	7-14	
Avoid nitrogen deficiency, drought stress, soil compaction and excessive thatch, especially on annual blue-grass.		190-350 mL (greens and tees curative)	7-14	
Light frequent application of foliar-applied nitrogen will decrease the severity.	* ProTurf Granular Systemic Fungicide	0.66-1.32 kg	14-21	For prevention, apply to moist or dry foliage at normal rate when disease activity is noted or suspected.
	* Senator 70 WP	25-30 g	10-14	Apply after mowing or avoid mowing for 12 hours after application. Begin ground applications when diseases first appear. When disease pressure is severe, apply at the higher recommendations.
	* ProTurf DSB with thiophanate-methyl	0.86 kg	14-21	Apply to moist or dry foliage. If dollar spot is not effectively controlled a thiophanate-methyl or benomyl-tolerant strain of fungi may be present.
	Cadence 70 WDG	3.2 - 4.0 g	14	Should be applied prior to or in the early stages of disease development. Apply in 5-15 L of water/100m <sup>2</sup> . Do not exceed 2 consecutive applications before using another mode of action for at least one application. Do not apply more than 6 times a season.
	* ProTurf Granular Fungicide X	2.34-3.52 kg	14	To prevent disease, apply at the normal to heavy rate to moist or dry turf when disease activity is anticipated and repeat at 2-week intervals. If heavy disease pressures, apply at the heavy rate to moist or dry foliage. When diseases are brought under control, revert back to bi-weekly normal rate applications. To control disease, apply to moist or dry foliage at the heavy rate as soon as disease activity is noticed. Repeat bi-weekly until disease is under

Disease and cultural control	Chemical control	Rate / 100 m <sup>2</sup>	Interval (days)	Use enough water for thorough coverage. Follow label directions.
				control, then revert to the normal or heavy rate applications biweekly.
	Rovral Green GT	62 mL	21	Apply at the first signs. Repeat as required. Alternate with other fungicides to reduce possibility of developing resistance.
	* Eagle 40 WSP	15-20g	14-21	Start applications before or immediately after the first signs. Do not apply more than 4 times a year. Under conditions optimum for severe disease development the spray interval between fungicide applications should be shortest and at the highest rate.
	* Banner MAXX	26-51 mL	21-28	Apply during periods of humid, warm days and cool nights that favour heavy dew formation. Rotate with fungicides that have a different mode of action. Do not apply more than 6 times a season. Banner MAXX can be tank mixed with * Heritage at 26-51 mL or with either Daconil or Primo MAXX. Read the Banner MAXX and Daconil labels.
Fairy ring	* Heritage	12	28	Apply as soon as symptoms develop. May take 2-3 weeks to disappear. Severely damaged turf may need reseeding.
Fusarium patch ( <i>Microdochium nivale</i> )	* Heritage	eg	14-28	Apply when conditions are favourable for disease development, i.e., extended period of cool (<15.5°C) and wet weather in spring and fall.
Avoid excess nitrogen and remove dew.	* Compass 50 WG	3.8 g	14	Apply in early spring and fall when conditions are favourable for disease development or when disease is present after snow melt. For curative applications apply on a 14-day interval, 2-3 times. Do not apply more than twice in a row. Do not apply more than 2.5 kg of Compass per hectare per year.
	Rovral Green GT	185 mL	21-28	Apply in spring and fall for prevention when cool and wet conditions exist.
	Par-Ex 12-2-12 (with quintozone)	1.5 kg		An application in early spring may be required if cold, wet weather persists.
	* Banner MAXX	51-103 mL	30	Apply in the fall or early spring during cool, wet weather. Use the high rate only under high disease pressure. Do not apply more than twice a season.
Grey snow mould, Typhula blight ( <i>Typhula spp.</i> )				Control with a single application late in fall before permanent snow cover, early to late November in southern Ontario, mid-late October in northern Ontario.
Avoid succulent turf growth in late fall. Keep turf mowed until leaf growth ceases.	Arrest 75 W	250-375 g in a dry mixture with 2-5 kg of organic carrier		One application. Reapply if it rains after treatment or if thaws occur during winter.
Use snow fencing or other methods to prevent excessive snow accumulation.	Daconil 2787 F	240-500 mL		Repeat in early spring if conditions for snow mould persist. Apply at 250-500 mL or apply 240 mL as a tank mix with 125-250 mL of Rovral Green GT.
Minimize thatch as this is a perfect environment for dormant sclerotia	Eagle WSP	30 g		Apply only once a year.
	* Heritage	18-24 g		Do not apply on top of snow. Use the higher rate if there is a history of severe snow mould infection. ( <i>Typhula incarnata</i> control only)
	ProTurf Granular Fungicide X	1.17-2.34 kg (light rate) 2.34-3.52 kg (heavy rate)	14-21	To prevent disease, apply at the light or normal rate to dry foliage when disease activity is anticipated. For suppression of disease, apply to dry foliage at the normal or heavy rate prior to the first snow. Repeat in mid-winter when turf is free of snow and again immediately after the final snow melt in the spring.
	Rovral Green	375 g		Apply as a preventive treatment in late fall or early winter

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	GT			just before ground freezes or before the first snow fall.	
	Terraneb SP	175-275 g		Apply as late in the fall as possible.	
	ProTurf Fungicide V	1.4-2.9kg		Apply to dry or moist foliage prior to first heavy snow fall. Repeat in mid-winter if turf is free of snow. A final treatment in late winter as the snow melts extends protection. In areas where snow cover is present the entire winter apply the highest rate.	
	Par-Ex 12-2-12 with quintozone	1.5 kg		Apply as late in fall as possible.	
	ProTurf FF II	1.55-3.1 kg		In areas where snow cover is present the entire winter use the high rate.	
	Quintozone 75WP	250 g		After treatment, water area lightly. Do not feed clippings or treated grass to livestock. Do not use on pasture grass.	
	Turf Pride 7-3-12 with 15.4% quintozone	1.5 kg		Use as part of a complete fertilizer program. Where snow cover is present the entire winter, use double the recommended rate. A slight, temporary discolouration may occur following application. Do not feed clippings of treated grass to livestock. Do not use on pasture grass. Do not get product on operator or use on a windy day.	
	UAP 0-0-6 with 15% quintozone	1.5-1.6 kg			
	Terraclor FF	370 mL		With applications made in less than 20L of water per 100m <sup>2</sup> , the area should receive at least 6mm of irrigation or rainfall prior to snow cover. Natural precipitation is usually enough.	
	* Banner MAXX	206 mL		Do not apply on top of snow or when the temperature is below 0°C. Do not apply more than once a season.	
Helminthosporium Leaf spot Melting Out <i>(Drechslera spp.)</i>  Avoid early spring applications of nitrogen. Raise mowing height.	Daconil 2787 F	95-190 mL (preventive, greens, tees)	7-10	For prevention, spray 2 or 3 times, beginning when first spots appear in early spring.	
		190-350 mL (curative, greens, tees)	7-10		
		95-190 mL (fairways)	7-14		
	Compass 50WG	3.1	14-21	Apply when conditions are favourable for disease development. Use short interval under high disease pressure.	
	* Heritage	6-12g	14-28	Apply when conditions are favourable for disease development.	
	Rovral Green GT	125 mL	14-21	Apply at the first sign of leaf spot. Repeat 2-3 times in early spring. Under severe disease pressure use the shorter spray interval. Alternate with other fungicides to reduce possibility of developing disease resistance.	
	ProTurf Granular Fungicide X	1.17kg(light rate) 2.34-3.52 kg (normal to heavy)	21-28	Apply to moist or dry turf at the preventive rate when disease activity anticipated. Repeat if needed. Apply to moist or dry foliage at the normal to heavy rate when disease activity is first noticed. Repeat as needed at intervals not closer than 2 weeks.	
	* Banner MAXX	51-103 mL	14	Under light to moderate disease pressure, apply to reduce severity. Do not apply more than 3 times per season.	
	Low-temperature Basidiomycetes	Arrest 75 W	250 - 375 g as a spray in 15-50 L of water or in a dry mixture with		These diseases require snow cover for activity. Control with a single application late in fall before permanent snow cover, early to late November in southern Ontario, mid-late October in northern Ontario.

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		2-5 kg of organic carrier		
Pink Snow Mould ( <i>Microdochium nivale</i> )	Arrest 75 W	250-375 g as a spray in 15-50 L of water or in a dry mixture with 2-5 kg of organic carrier		One application. Reapply if it rains after treatment or it thaws during winter.
Avoid succulent turf growth in late fall.	Daconil 2787	250-500 g		Apply prior to snow cover and repeat in early spring if conditions for snow mould persist. Apply at 250-500 mL or apply 240 mL as a tank mix with 125-250 mL of Rovral Green GT.
Keep turf mowed until leaf growth ceases.	* Heritage	18-24g		Apply once before snow cover. Do not apply on top of snow. Use the higher rate if there is a history of severe snow mould infection.
Use snow fencing or other methods to prevent excessive snow accumulation. Minimize thatch.	* ProTurf DSB with thiophanate-methyl	860 g		Apply when disease activity is expected.
	* Senator 70 WP	125-175g		Apply after mowing or avoid mowing for 12 hours after application. Begin ground applications when diseases first appear. When disease pressure is severe, apply at the higher recommendations. Repeat when needed.
	Par-Ex 12-2-12 with quitozene	1.5 kg		Apply as late in fall as possible but before permanent snowfall.
	ProTurf FF II	1.55-3.1 kg		Apply before the first heavy snow fall. Where snow cover is present the entire winter use the high rate.
	Quitozene 75WP	250 g		Following treatment, water lightly. Do not feed clippings or treated grass to livestock. Do not use on pasture grass.
	Turf Pride 7-3-12 with 15.4% quitozene	1.5 kg		Use as part of a complete fertilizer program. Where snow cover is present the entire winter, use double the recommended rate. A slight, temporary discolouration may occur following application. Do not feed clippings of treated grass to livestock. Do not use on pasture grass. Do not get product on operator or use on a windy day.
	UAP 0-0-6 with 15% quitozene	1.5-1.6 kg		
	Terraclor FF	370 mL		Apply before snowfall. With applications made in less than 20L of water per 100m <sup>2</sup> , the area should receive at least 6mm of irrigation or rainfall prior to snow cover. Natural precipitation is usually enough.
	ProTurf Granular Fungicide X	1.17-2.34 kg (light rate) 2.34-3.52 kg (heavy rate)	14-21	To prevent disease, apply at the light or normal rate to dry foliage when disease activity is anticipated. For suppression, apply to dry foliage at the normal or heavy rate prior to the first snow. Repeat in mid-winter when turf is free of snow and immediately after the final snow melt.
	Rovral Green GT	250-375 mL		Apply prior to snow cover and repeat in early spring if conditions for snow mould persist. Use higher rates where severe disease pressure is anticipated or if disease is present at the time of application. Apply at 500 mL or apply 240 mL as a tank mix with 125-250 mL of Rovral Green GT.
	*Banner MAXX	206 mL		Apply once before snow cover. Do not apply on top of snow or when the temperature is below 0°C. Do not apply more

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				than once a season.
Powdery mildew ( <i>Erysiphe graminis</i> ) Avoid excess nitrogen and shade. Increase air circulation.	* Senator 70 WP	125-250g	14-21	Apply in a minimum of 24 L and wash into root zone with 2.5 cm of water immediately after application. Apply after mowing or avoid mowing for 12 hours after application. Begin ground applications when diseases first appear. When disease pressure is severe, apply at the higher recommendations.
Pythium blight, Cottony blight, Greasy spot ( <i>Pythium aphanidermatum</i> )	* Heritage	12g	10-14	Begin application before disease is present (usually late May or June) when environmental conditions favour disease development, i.e., relative humidity greater than 90% for at least 9 hours, maximum daily temperature of 27.7°C and low temperature of 20°C.
Avoid excess nitrogen and watering.	Terraneb SP	125 g	5-7	Apply as preventive during periods of high temperature and high humidity. Repeat if conditions remain favourable.
	ProTurf Fungicide V	1.45-2.9 kg	5-7	Apply at the recommended rate to moist foliage when high temperatures and humidity favour disease development for prevention or cure.
	Subdue MAXX	16-32 mL	10-21	Apply as a preventive. During periods of prolonged conditions favourable for disease use the lower rate for the shortest interval listed and the higher rate for the longest interval. Under severe disease conditions, use the highest rate and shortest interval specified. Do not make more than 3 applications a season.
	Aliette WDG	200 g		Apply only once when symptoms appear. Use as part of a season-long spray program with other registered pesticides.
Pythium crown and root rot (many <i>Pythium spp.</i> )	Supra Cap-tan WDG	60 g		Do not apply more than 120 g/100m <sup>2</sup> per year. Apply in sufficient water for thorough coverage. Apply before infection occurs.
	Terraneb SP	125 g	7-10	Apply immediately after seeding. Repeat if conditions remain favourable for disease development.
	ProTurf Fungicide V	1.49 kg	7-10	Apply at recommended rate after sowing seed at first sign of disease. Apply to moist foliage of newly seeded grass and repeat if disease persists.
	Subdue MAXX	16-32 mL	7-14	Apply immediately after seeding. Irrigate with 1-2 cm of water. Repeat if conditions are favourable. For long-term control when using seed treated with metalaxyl apply 7-10 days after seeding.
	Aliette WDG	200 g		Apply when symptoms appear. Use as part of a season-long spray program with other registered pesticides. Apply only once a season
	Truban	190 g	7-10	Maximum of 2 applications a year. Apply when symptoms first appear. Use for golf course greens and commercial production.
Moss Commonly associated with low fertility, poor drainage, soil compaction, heavy shade, poor air circulation and poorly adapted grasses.	Safer's de-moss for lawns (soaps)		28	Wet moss and grass before spraying. Water area ½ hour after spraying.
	Moss out	10 kg	21-28	Moisten affected area. Water thoroughly after application.
	Greenleaf moss control	8 kg	21-28	Moisten affected area. Water thoroughly after application.
Necrotic ring spot ( <i>Leptosphaeria korrae</i> ) "Frog-eye" symptoms visible all year. Reduce excess thatch. Attacks Kentucky bluegrass and fine fescues. Provide bal-	No chemical control registered			

Disease and cultural control	Chemical control	Rate / 100 m <sup>2</sup>	Interval (days)	Use enough water for thorough coverage. Follow label directions.
anced fertility. Avoid drought stress.				
Red thread ( <i>Laetisaria fuciformis</i> ) Avoid nitrogen deficiency, especially on perennial ryegrass and fine fescues.	* Banner MAXX	51 mL		Apply when cool, wet conditions occur. Prolonged periods of high humidity favour disease development. Do not apply more than 3 times a season.
Rust ( <i>Puccinia spp.</i> ) Use resistant varieties of Kentucky bluegrass and perennial ryegrass. Provide adequate levels of fertility. Mow frequently.	No chemical control registered.			
Slime Moulds Remove spore masses by raking or hosing off the turf.	No chemical control registered.			
Summer patch ( <i>Magnaporthe poae</i> ) Symptoms usually occur during July to August. Attacks annual bluegrass and Kentucky bluegrass. Avoid nitrogen deficiency. Light frequent watering to reduce heat stress.	* Eagle WSP	18g	30	Will control only low to moderate disease severity.
	* Banner MAXX	103 mL	30	Apply as a preventive. Apply first when soil temperature greater than 16°C at a 5-cm depth for 4 consecutive days, with a second application 30 days later. A third application may be required if hot, humid weather occurs. Apply with 13-21 L of water per 100m <sup>2</sup> . Do not apply more than 3 times a season.
Take-all patch ( <i>Gaeumannomyces graminis</i> ) Attacks bentgrasses. Use acidifying (ammonium) fertilizers to reduce thatch pH. Avoid drought stress.	No chemical control registered.			

\* Systemic. Alternate or tank mix with one of the other products with different fungicide classification to minimize potential of fungicide resistance developing.