

Seed treatment fungicides labeled for use on winter wheat

Trade name Company	Common chemical name	% active ingredient	Rate	Additional label information
Allegiance Dry Chemtura (formerly Trace Seed Protection Products)	metalaxyl	12.50%	1.5 to 2.0 oz per 100 lb of seed	For Pythium damping-off control. Treat only those seeds needed for immediate use, minimizing the interval between treatment and planting. Do not carry over excess treated seed to next season. Do not use this product on seed that has been commercially treated with metalaxyl (Allegiance) fungicide. Hopper box seed treatment.
Allegiance-FL Bayer CropScience	metalaxyl	28.35%	0.75 fl oz per 100 lb of seed	Allegiance-FL is a systemic fungicide seed dressing specifically for control of downy mildews, <i>Pythium</i> and <i>Phytophthora</i> spp. For control of other soilborne diseases, combination of Bayer CropScience Captan registered formulations are compatible. Do not use with other seed treatment products unless previous experience assures compatibility. Reduced rates in combination with other fungicides: to aid in the control of seed decay and damping-off caused by <i>Pythium</i> , apply 0.10 to 0.375 fl oz per 100 lb of seed only in combination with EPA registered rates of Bayer CropScience broad-spectrum seed treatment fungicides. Allegiance-FL may be applied as a water-based slurry with other registered seed treatment insecticides and fungicides through standard slurry or mist-type commercial seed treatment equipment.
Allegiance LS Bayer CropScience	metalaxyl	17.70%	1.2 fl oz per 100 lb of seed	Allegiance LS is a systemic fungicide seed dressing specifically for control of downy mildews, <i>Pythium</i> and <i>Phytophthora</i> spp. For control of seedborne and other soilborne diseases, the combination of Bayer CropScience Captan and Thiram registered formulations are compatible. Do not use with other seed treatment products unless previous experience assures compatibility. Reduced rates in combination with other fungicides: to aid in the control of seed decay and damping-off caused by <i>Pythium</i> , apply 0.175 to 0.66 fl oz per 100 lb of seed only in combination with EPA-registered rates of Bayer CropScience broad-spectrum seed treatment fungicides. Allegiance LS may be applied as a water-based slurry with other registered seed treatment insecticides and fungicides through standard slurry or mist-type commercial seed treatment equipment. Allegiance LS may be applied at planting time by thoroughly mixing with seed in the planter box or by application through on-farm seed treatment equipment.
Apron XL LS Syngenta	mefenoxam	33.30%	0.32 to 0.64 fl oz per 100 lb of seed	Apron XL LS is a systemic fungicide seed dressing used specifically for protection against systemic downy mildews and diseases caused by soilborne <i>Pythium</i> and <i>Phytophthora</i> spp. When a rate range is specified, use higher rates of Apron XL LS when the disease pressure is expected to be high. For Pythium damping-off protection in wheat when applied in combination with Dividend or other seed treatment products labeled for disease control in this crop: apply Apron XL LS as a seed treatment at 0.0425 to 0.085 fl oz per 100 lb of seed. Apron XL LS may be applied as a water-based slurry with other registered seed treatment insecticides and fungicides through standard slurry- or mist-type commercial seed treatment equipment.

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Captan 400 Bayer CropScience	captan	37.40%	1.5 to 4.0 fl oz per 100 lb of seed	<p>Captan 400 and Captan 400-C Seed Protectants are flowable concentrates especially formulated for treatment of seed prior to storage and planting to protect seed from molds and other fungi causing storage loss and to protect seed from seedborne and soilborne fungi which cause seed decay, damping-off and seedling blights. Not for control of bunt and smut diseases of wheat.</p> <p>Thoroughly mix the recommended amount of Captan 400 or Captan 400-C Seed Protectant into the required amount of water for the slurry treater equipment and dilution rate to be used.</p>
Captan 400-C Bayer CropScience	captan	37.40%	1.5 to 4.0 fl oz per 100 lb of seed	
Charter BASF	triticonazole	2.40%	3.1 fl oz per 100 lb of seed	<p>Charter Fungicide is a liquid seed treatment used for the control of loose smut and common bunt in wheat; will generally increase emergence and plant stands by controlling seedling blights and will also suppress early-season infections caused by <i>Fusarium</i> crown and root rot and control seed rot and seedborne seedling blight caused by <i>Fusarium</i> sp.</p> <p>Do not store treated seed for more than 18 months.</p> <p>Charter Fungicide may be applied using standard commercial seed treatment equipment or on-farm seed treatment equipment, but is not intended for direct application into a planter box.</p>
Charter PB BASF	triticonazole thiram	1.25% 12.50%	5.5 fl oz per 100 lb of seed	<p>Charter PB is a liquid seed treatment used for the control of loose smut and common bunt in wheat. It will increase emergence and plant stands by reducing seed and soilborne seed rots (<i>Cochliobolus</i> spp.) seedling blights (<i>Fusarium</i> spp.) and damping-off (<i>Pythium</i> spp.).</p> <p>Charter PB may be applied using standard commercial seed treatment equipment (such as, but not limited to, slurry or mist-type equipment) or on-farm seed treatment equipment including "On the Go" type air seeder treatment systems. This product is not intended for direct application into a planter box.</p>
CruiserMaxx Cereals Syngenta	thiamethoxam mefenoxam difenoconazole	2.80% 0.56% 3.36%	5.0 fl oz per 100 lb of seed	<p>For winter wheat: diseases controlled include general seed rots, seedling blight, root rot and damping-off caused by seedborne and soilborne <i>Fusarium</i> and soilborne <i>Pythium</i>, common and dwarf bunt and loose smut. Diseases suppressed include common root rot, <i>Fusarium</i> crown and foot rot and take-all.</p> <p>For additional <i>Pythium</i> protection, add 0.0425 fl oz of Apron XL LS per 100 lb of seed.</p> <p>CruiserMaxx Cereals is a ready-to-use water-based formulation for use in commercial seed treatment facilities utilizing closed-system application techniques. In addition, CruiserMaxx Cereals may also be applied by on-site/on-farm applications.</p>
Dithane DF Rainshield Dow AgroSciences	mancozeb	75.00%	2.3 to 3.5 oz. per 100 lb of seed	<p>For control of bunt, damping-off, seed rots and seedling blights.</p> <p>May be applied to dry seed with conventional slurry or mist seed treating equipment or as a planter box application.</p>
Dithane M45 Dow AgroSciences	mancozeb	80.00%	2.2 to 3.3 oz. per 100 lb of seed	
Dividend XL Syngenta	difenoconazole mefenoxam	16.50% 1.38%	1.0 fl oz per 100 lb of seed or 2.0 fl oz per 100 lb of seed	<p>Dividend XL is a combination of Dividend and Apron XL LS. The Apron XL LS provides <i>Pythium</i> damping-off activity and the Dividend provides activity on the remaining diseases claimed on the label.</p> <p>The 1.0 fl oz rate of Dividend Extreme and the 2.5 fl oz rate of Dividend XL RTA are for control of common bunt and loose smut.</p> <p>The 1.0 fl oz rate of Dividend XL is for control of common bunt,</p>
Dividend XL RTA	difenoconazole	3.21%		

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Syngenta Dividend Extreme Syngenta	mefenoxam difenoconazole mefenoxam	0.27% 7.73% 1.93%	2.5 fl oz per 100 lb of seed 1.0 fl oz per 100 lb of seed	dwarf bunt, flag smut, seedborne Septoria, loose smut, general seed rots, Fusarium seed scab and Pythium damping-off and for early-season control of common root rot and Rhizoctonia root rot. The 2.0 fl oz rate of Dividend XL is for control of common bunt, dwarf bunt, flag smut, seedborne Septoria, loose smut, general seed rots, Fusarium seed scab and Pythium damping-off and for early-season control of common root rot, Fusarium root rot, Fusarium crown rot, take-all and Rhizoctonia root rot as well as fall season powdery mildew, leaf rust and Septoria leaf blotch. Dividend XL provides control of the fall season foliage diseases for the first six weeks after planting. Green wheat forage may not be grazed until 55 days after planting. Apply Dividend XL or Dividend Extreme as a water-based slurry through standard slurry or mist-type seed treatment equipment. Dividend XL RTA is especially formulated for on-farm treatment, using standard mechanical slurry- or mist-type seed treatment equipment.
Dynasty Syngenta	azoxystrobin	9.60%	0.153 to 0.382 fl oz per 100 lb of seed	Target diseases: seedborne and soilborne fungi causing decay, damping-off and seedling blight; seedling damping-off caused by <i>Rhizoctonia solani</i> , dwarf bunt and common bunt. Where appropriate use Dynasty in combination with Dividend Extreme and/or Maxim seed treatment products. Apply as a water-based slurry using seed treatment application equipment that will provide uniform coverage on the seed surface.
Enhance Enhance AM Chemtura (formerly Trace Seed Protection Products)	captan carboxin	19.55% 2 0.00%	4.0 oz per 100 lb of seed	Enhance Seed Protectant and Enhance AM are formulations specifically designed for treatment of wheat on the farm at planting time. They control covered smut (<i>Tilletia caries</i> and <i>Tilletia foetida</i>) and loose smut (<i>Ustilago nuda</i>) on wheat. Apply as a planter box treatment (including air and vacuum planters), mixing thoroughly with the seed before planting. For best results, follow application directions on label. Do not graze or feed livestock on treated areas for 45 days after planting.
FLO-PRO IMZ Bayer CropScience	imazalil	31.00%	0.25 to 0.5 fl oz per 100 lb of seed	For the control of common root rot. It is recommended for use in combination with Vitavax-200 or other flowable suspension seed treatments to provide additional protection against diseases. Apply using commercial slurry or on-farm seed treating equipment.
Gaucho XT Bayer CropScience	imidacloprid metalaxyl tebuconazole	12.70% 0.82% 0.62%	3.4 fl oz per 100 lb of seed	Early-season disease control of Pythium damping-off, stinking smut, flag smut, loose smut, early-season Septoria disease complex, early-season Rhizoctonia root rot, early-season common root rot, early-season Fusarium root rot, early-season suppression of powdery mildew and early-season suppression of leaf rust as well as control of certain insects. Do not graze or feed livestock on treated areas for 45 days after planting. See label for rotational crop restrictions. Apply as a slurry treatment prior to planting.

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Grain Guard Chemtura (formerly Trace Seed Protection Products)	mancozeb	50.00%	2.0 oz per bushel of seed	For control of bunt of wheat, and damping-off and seedling blights. Treat only those seeds needed for immediate use, minimizing the interval between treatment and planting. Do not store excess treated seeds beyond planting time. Apply as a drill box treatment mixing thoroughly so all seeds are covered.
Incentive RTA Winfield Solutions LLC	difenoconazole mefenoxam	3.21% 0.27%	2.5 fl oz per 100 lb of seed or 5.0 fl oz per 100 lb of seed or 10.0 fl oz per 100 lb of seed	Incentive RTA is a combination of Incentive and Apron XL LS. The Apron XL LS provides Pythium damping-off activity and the Incentive provides activity on the remaining diseases claimed on the label. The 2.5 fl oz rate of Incentive RTA is for control of common bunt and loose smut. The 5.0 fl oz rate of Incentive RTA is for control of common bunt, dwarf bunt, flag smut, seedborne Septoria, loose smut, general seed rots, Fusarium seed scab and Pythium damping-off and for partial control of common root rot and Rhizoctonia root rot. The 10.0 fl oz rate of Incentive RTA is for control of common bunt, dwarf bunt, flag smut, seedborne Septoria, loose smut, general seed rots, Fusarium seed scab and Pythium damping-off and for partial control of common root rot, Fusarium root rot, Fusarium crown rot, take-all and Rhizoctonia root rot as well as fall season powdery mildew, leaf rust and Septoria leaf blotch. Incentive RTA provides control of the fall season foliage diseases for the first six weeks after planting. Green wheat forage may not be grazed until 55 days after planting. Incentive RTA is especially formulated for on-farm treatment, using standard mechanical slurry- or mist-type seed treatment equipment.
Kodiak HB Chemtura (formerly Trace Seed Protection Products)	<i>Bacillus subtilis</i>	0.30%	4.0 to 8.0 oz per 100 lb of seed	For suppression of root diseases caused by <i>Fusarium</i> and <i>Pythium</i> . Contains bacteria that colonize the developing root system, suppressing disease organisms such as <i>Fusarium</i> and <i>Pythium</i> that attack root systems. When used with a chemical seed treatment, the combination of chemicals and Kodiak provides protection to the root for a much longer time than with chemicals alone. Kodiak HB is a hopper box seed treatment.
LSP Bayer CropScience	thiabendazole	30.00%	2.0 to 4.0 fl oz per 100 lb of seed	For control of seedborne and soilborne common bunt (stinking smut). For ready mix or slurry seed treaters, disperse 2.0 fl oz of Bayer CropScience LSP for seedborne common bunt or 4.0 fl oz per 100 lb of seed for soilborne common bunt. For wheat seed having high infection levels of seedborne Fusarium scab, a lower rate of 0.25 fl oz per 100 lb of seed is recommended. Bayer CropScience LSP should be used as a co-fungicide combined with Raxil or broad-spectrum fungicides to include seed and seedling protection against the broad spectrum of diseases associated with the wheat crop. For use only by commercial seed treaters.

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Manex DuPont	maneb	37.00%	3.5 to 5.2 fl oz per 100 lb of seed	For protection against bunt, damping-off, seed rots and seedling blights. Manex may be applied to dry seed with conventional slurry or mist seed treating equipment or as a planter box application.
ManKocide Griffin L.L.C.	mancozeb copper hydroxide	15.00% 46.10%	4.0 oz per 100 lb of seed	Target diseases: <i>Pseudomonas syringae</i> , <i>Xanthomonas translucens</i> and <i>Tilletia caries</i> . ManKocide may be applied to dry seed with conventional slurry or mist seed treating equipment or as a planter box application.
Manzate Pro-Stick DuPont Manzate Flowable Griffin L.L.C.	mancozeb mancozeb	75.00% 37.00%	2.2 to 3.3 oz per 100 lb of seed 3.5 to 5.2 fl oz per 100 lb of seed	For protection against bunt, covered smut, damping-off, seed rots and seedling blights. For commercial seed treatments, seeds should be clean and well-cured before treatment. Apply to dry seed with conventional slurry or mist seed treating equipment. Manzate Pro-Stick may also be applied as planter box applications.
Maxim XL Syngenta	fludioxonil mefenoxam	21.00% 8.40%	0.167 to 0.334 fl oz per 100 lb of seed	For protection against damping-off caused by <i>Fusarium</i> spp., <i>Rhizoctonia</i> spp. and <i>Pythium</i> spp. and general seed rots caused by <i>Aspergillus</i> spp. and <i>Penicillium</i> spp. and for protection against <i>Tilletia</i> (common bunt). Maxim XL at the 0.084 fl oz may be combined with labeled rates of Dividend XL for a broader spectrum of seedling disease protection. Apply Maxim XL as a water-based slurry using standard slurry seed treatment equipment that provides uniform coverage.
Maxim 4FS Syngenta	fludioxonil	40.30%	0.08 to 0.16 fl oz per 100 lb of seed	For protection against seedborne and soilborne fungi that cause seed decay, damping-off and seedling blight. Cereal forage may not be grazed until 30 days after planting. Apply Maxim 4FS as a water-based slurry using standard slurry seed treatment equipment.
MetaStar ST Chemtura (formerly Trace Seed Protection Products)	metalaxyl	28.35%	0.75 fl oz per 100 lb of seed	For <i>Pythium</i> damping-off control. MetaStar ST is a systemic fungicide seed dressing specifically for control of systemic downy mildews, <i>Pythium</i> and <i>Phytophthora</i> spp. For control of other soilborne diseases, combination of Captan and Vitavax registered formulations are compatible. Do not use with other seed treatment products unless previous experience assures compatibility. MetaStar ST may be applied as a water-based slurry with other registered seed treatment insecticides and fungicides through standard slurry or mist-type commercial seed treatment equipment.
Penncozeb 75DF Cerexagri Penncozeb 80WP Cerexagri	mancozeb mancozeb	75.00% 80.00%	2.3 to 3.5 oz per 100 lb of seed 2.2 to 3.3 oz per 100 lb of seed	For control of bunt, damping off, seed rots and seedling blights. For planter box treatment only.

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Prevail Chemtura (formerly Trace Seed Protection Products)	carboxin PCNB metalaxyl	15.00% 15.00% 3.12%	1.5 to 3.0 oz. per bushel of seed	For protection against Pythium and Rhizoctonia seedling disease complex and loose smut and common bunt or stinking smut. Do not graze or feed livestock on treated areas for six weeks after planting. Prevail may be applied at planting time, using an on-farm mechanical treater to maximize seed coverage.
Raxil MD Bayer CropScience	tebuconazole metalaxyl	0.48% 0.64%	5.0 to 6.5 fl oz per 100 lb of seed	Aids in the control or suppression of the following seed, seedling and soilborne diseases of wheat: stinking smut, flag smut, loose smut, early-season Septoria disease complex, general seed rots, Pythium damping-off, early-season Rhizoctonia root rot, early-season common root rot, seedborne Fusarium scab, early-season Fusarium foot rot, early-season suppression of powdery mildew and rust. Wheat green forage may be grazed or harvested for hay 31 days after seeding. Applications should be made using standard slurry or mist-type seed treatment equipment. This product is for commercial or on-farm application. This product is not intended for direct application into a planter box.
Raxil-Thiram Bayer CropScience	tebuconazole thiram	0.60% 20.00%	3.5 to 4.6 fl oz per 100 lb of seed	Targeted diseases: stinking smut, flag smut, loose smut early-season Septoria complex, general seed rots, Pythium damping-off, early-season Rhizoctonia root rot, early-season common root rot, seedborne Fusarium scab, early-season Fusarium foot rot, early-season suppression of powdery mildew, early-season suppression of wheat leaf rust. Wheat green forage may be grazed or harvested for hay 31 days after seeding. Application should be made using standard slurry or mist-type seed treatment equipment.
Raxil XT Wettable Powder Bayer CropScience	tebuconazole metalaxyl	15.00% 20.00%	0.16 to 0.20 oz per 100 lb of seed	Targeted diseases: stinking smut, flag smut, loose smut, early-season Septoria disease complex, early-season Rhizoctonia root rot, early-season common root rot, early-season Fusarium foot rot, early-season suppression of powdery mildew, early-season suppression of wheat leaf rust, seedborne Fusarium scab, general seed rots and Pythium damping-off Wheat green forage may be grazed or harvested for hay 31 days after seeding. The pouches of Raxil XT are water soluble. Applications should be made using standard slurry or mist-type seed treatment equipment.
Raxil 2.6F Bayer CropScience	tebuconazole	28.30%	0.1 fl oz per 100 lb of seed	On wheat for stinking smut, flag smut, loose smut, early-season Septoria disease complex, early-season Rhizoctonia root rot, early-season common root rot, early-season Fusarium root rot, early-season suppression of powdery mildew and early-season suppression of leaf rust. Apply Raxil 2.6F as a water-based slurry through standard slurry or mist-type commercial seed treatment equipment. Prepare a slurry by mixing the specified dosage in 9.0 to 20.0 fl oz of water per 100 lb of seed. Add dye to the resulting slurry. Mix the slurry thoroughly with the seeds to provide uniform coverage. Wheat may be grazed or harvested for hay 31 days after seedling.

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RTU-Baytan-Thiram Bayer CropScience	triadimenol thiram	5.00% 15.30%	4.5 to 9.0 fl oz per 100 lb of seed	<p>Target diseases: scab, stinking smut, flag smut, loose smut, glume blotch, foot rot, take-all, Pythium rot; as well as early-season powdery mildew, leaf rust and stripe rust.</p> <p>Apply the 4.5 fl oz rate for control of smuts and the 9.0 fl oz rate for control or suppression of the other diseases.</p> <p>Green forage may be grazed 40 days after seeding.</p> <p>Ready-to-use seed treatment and application should be made using standard slurry or mist-type commercial seed treatment equipment. Not for use on agricultural establishments in hopper box, planter box, slurry box or other seed treatment applications at or immediately before planting.</p>
42-S Thiram Bayer CropScience	thiram	42.00%	2.0 fl oz per bushel of seed	<p>Used according to directions, Bayer CropScience 42-S Thiram will usually increase stands and yields by reducing losses from seed decay, damping-off and seedling blights caused by many seedborne and soilborne organisms. It will usually control covered smuts or bunt of wheat.</p> <p>42-S Thiram should be applied with water as a suspension in the slurry-type treated specifically designed and approved for this use.</p>
VITAFLO-280 Chemtura (formerly Trace Seed Protection Products)	carboxin thiram	14.90% 13.20%	3.5 to 5.0 fl oz per 100 lb of seed	<p>Combination of a systemic fungicide (carboxin) and a contact fungicide (thiram) providing plant protection against seedborne and soilborne seedling diseases including damping-off and seed decay as well as loose smut and common bunt. The 3.5 fl oz rate will give partial control of true loose smut. Use the 5.0 fl oz rate for control of true loose smut.</p> <p>Do not graze or feed livestock on treated areas for six weeks after planting.</p> <p>For use only by commercial seed treaters.</p> <p>VITAFLO-280 can be diluted with water for use in slurry treaters. Use closed loading system. For use only by commercial seed treaters. Not for use on agricultural establishments in hopper box, planter box, slurry box or other seed treatment applications at or immediately prior to planting.</p>
Vitavax CT Helena Chemical Corporation	carboxin thiram	5.70% 5.70%	9.0 to 12.0 fl oz per 100 lb of seed	<p>Provides control of loose smut and common bunt. Use the higher rate under conditions of expected heavy disease pressure.</p> <p>Do not graze or feed livestock on treated area for six weeks after planting.</p> <p>Ready-to-use seed treatment for hopper box application.</p>
Vitavax M Helena Chemical Corporation	carboxin thiram	5.70% 5.70%	9.0 to 12.0 fl oz per 100 lb of seed	<p>Provides control of loose smut and common bunt. Use the higher rate under conditions of expected heavy disease pressure. Also contains the micronutrient molybdenum.</p> <p>Do not graze or feed livestock on treated area for six weeks after planting.</p> <p>Ready-to-use seed treatment for hopper box application.</p>