

Seed Treatments on Soybeans – Assessing Risks

Understanding the factors that influence soil insect populations can assist growers in identifying where insecticide seed treatments are most likely to be of benefit. The targeted use of insecticide seed treatments supports an integrated pest management approach, which takes into consideration both economic and environmental factors.

For each field, consider the conditions and factors that may put it at a higher risk of early-season insect pests. If a field does not meet these risk factors, consider ordering and planting fungicide-only or bare seed in those lower risk fields.

- ▶ Current seed treatments in soybeans will be fungicide-only, or combined with a neonicotinoid insecticide that will provide protection from some early-season insects. Use the risk factors in Table 1 to determine if a seed treatment containing a neonicotinoid insecticide would be of benefit to a particular field. If none of the risk factors in Table 1 apply to a field, then seed treatments with a fungicide-only or bare seed may be the most practical and economical.
- ▶ Fungicide seed treatments can help provide control over seedling blight/root rot pathogens in soybeans including *Rhizoctonia solani*,

Fusarium spp., *Pythium spp.* and *Phytophthora sojae* (the causal agent of Phytophthora root rot in soybeans). It is important to remember that seed treatments can only provide protection for **two to three weeks after planting** (not emergence!) and these diseases can also cause issues later in the season if conditions are conducive for infection, therefore seed treatment is not a complete solution.

- ▶ Fungicide seed treatments can be of higher benefit if there is a history of seedling disease or root rot or if conditions are cool and wet at planting. Overall, it is important to get the plant off to the best start possible so planting into warm, well-drained soils at the proper depth will allow the plant to quickly emerge and have vigorous plant growth. A strong, healthy plant is better equipped to defend itself against disease if conditions become less than ideal later in the growing season.
- ▶ Crop rotation is important to reduce seedling blight/root rot from *Phytophthora sojae* (the causal agent of Phytophthora root rot in soybeans) because soybean is the only host plant. The other pathogens that cause seedling blight/root rot have a wide host range.

TABLE 1 – POTENTIAL INSECT RISKS IN SOYBEANS THAT INSECTICIDE SEED TREATMENTS MAY REDUCE



Insect risks in soybeans that are not likely to be reduced by using a seed treatment



WIREWORMS ¹	
Risk Factors	Things to Consider
<ul style="list-style-type: none"> • History of wireworm infestations. • Seeding into cold soils. • Some species of wireworms may potentially be more common in fields following conversion from grasslands. 	<ul style="list-style-type: none"> • Can be present in field from previous year. • Current seed treatments result in low mortality of wireworms but reduce feeding early in the season. • Economic levels sporadic; generally at economic levels in small percentage of fields.
SEEDCORN MAGGOT	
Risk Factors	Things to Consider
<ul style="list-style-type: none"> • Tillage incorporating live plants (cover crops, heavy weed growth, etc.) into the soil prior to seeding. • Recent application of manure in the spring. • Seeding into cool, wet soil. 	<ul style="list-style-type: none"> • Sporadic pests of soybeans. Usually only at damaging levels when conditions in soybean fields make them good egg-laying sites.
SOYBEAN APHID	
Risk Factors	Things to Consider
<ul style="list-style-type: none"> • Soybean aphids are not known to overwinter in Manitoba.² The probability of seed treatments enhancing the level of control of soybean aphids in Manitoba is low. Soybean aphids do not occur in Manitoba every year, and when they do, arrival is generally in July/August. 	<ul style="list-style-type: none"> • The recommended method of control by entomologists across North America is the use of foliar insecticides when threshold has been reached during the R-1 to R-5 crop stages. Seed treatments only provide protection for the very early V-stages of soybeans³, when soybean aphids have historically not been present on soybeans in Manitoba.



BEAN LEAF BEETLE

- Although bean leaf beetle is on the label of some seed treatments for soybeans, established populations of bean leaf beetle are NOT known to occur in Manitoba.



CUTWORMS

- Current insecticide-based seed treatments on soybeans do not provide effective control of cutworms. Cutworm populations should be monitored regardless of seed treatment choice.

TABLE 2 – LIST OF REGISTERED SEED TREATMENTS AVAILABLE FOR SOYBEANS IN MANITOBA⁴

TRADE NAME	INSECTICIDE COMPONENT [Active ingredient (insecticide group)]	FUNGICIDE COMPONENT [Active ingredient (fungicide group)]
Seed treatments with fungicide component only		
Agrox FL	–	Captan (phthalimide)
Allegiance FL /Belmont 2.7 FS	–	Metalaxyl (acylananine)
Apron Maxx RTA/RFC	–	Fludioxonil (phenylpyrrole) Metalaxyl (acylananine) Thiabendazole (benzimidazole)
EverGol Energy	–	Penflufen (carboxamide) Metalaxyl (acylananine)
Heads Up Plant Protectant	–	Biological plant source
Thiram 75WP	–	Dithiocarbamate
Trilex AL	–	Trifloxystrobin Metalaxyl (acylananine)
Vitaflo 280, Vitaflo 220, Vitaflo Fungicide, and Vitaflo SP Fungicide	–	Carbathiin (carboxamide) Thiram (dithiocarbamate)
Seed treatments with insecticide component		
Cruiser 5FS	Thiamethoxam (neonicotinoid)	–
Cruiser Maxx Beans	Thiamethoxam (neonicotinoid)	Fludioxonil (phenylpyrrole), Metalaxyl (acylananine)
Cruiser Maxx Vibrance Beans	Thiamethoxam (neonicotinoid)	Fludioxonil (phenylpyrrole), Metalaxyl (acylananine) Sedaxane (carboxamide)
Stress Shield 600	Imidacloprid (neonicotinoid)	–

Resources and References

¹ Wireworms on Crops in the Canadian Prairies.

<http://www.gov.mb.ca/agriculture/crops/insects/wireworms.html>

² McCornack et. al. 2005. Physiological constraints on the overwintering potential of the soybean aphid (Homoptera: Aphididae). Environmental Entomology. 34: 235–240.

³ McCornack, B.P. and Ragsdale, D.W. 2006. Efficacy of thiamethoxam to suppress soybean aphid populations in Minnesota soybeans. Crop Management. doi: 10.1094/CM-2006-0915-01-RS.

⁴ Guide to Field Crop Protection 2015.



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