



This was one of those summers where endophyte-enhanced varieties showed their importance. Parts of the country that saw excessive heat and drought at just the “right” time also experienced increased insect damage in non-endophyte enhanced lawns. Well, if you are one of those that suffered such losses as show here, or one who wants to avoid this disaster, then you need to know about endophyte!



The Way Endophytes Work is Very Cool!

While living off its grass plant host, endophytes produce defensive chemicals - alkaloids - that are toxic to enemy insects. One effect of these toxic alkaloids is that the plants taste bad. This causes insects to spend more time moving and less time feeding, thus making the insects more vulnerable to predators and pathogens. Newly hatched larvae and nymphs also are more prone to starve in endophytic lawns. Additionally, endophyte-infected plants produce lower amounts of aromatic compounds that are known to attract insect pests. In other words, in addition to tasting bad to the bad bugs, endophytes may actually “hide” their host from certain insect enemies. Is that cool or what?

Critters That Hate Endophyte

If you don't want these guys around, make sure you have endophytic grass on the menu! Annual bluegrass weevils, armyworms, bluegrass billbugs, chinch bugs, hairy chinch bugs (these must be the chinch bugs ugly cousins!), black and bronzed cutworms, greenbug aphids, bluegrass and larger sod webworms, cranberry girdlers, vagabond crambus, Japanese beetles, southern masked chafers, clover mites, winter grain mites, *Crionemiones sp.*, *Heliocotylencheus spp.*, *Hoplolaimus galeatus*, *Pratylenchus spp.*, *Longidorus sp.*, and *Xiphinema sp.*

Reasons to Love Endophyte

1. Effective against above ground insect pests, as well as below ground insects and plant-parasitic nematodes.
2. Increases summer performance and tolerance to drought and heat.
3. Helps plants better compete against common weeds and dicots (including crabgrass, dandelions, plantain, and clover).
4. Enhances disease resistance by maintaining plant health.
5. Increases the range of environmental adaptation.
6. Increases seed survival, germination, and establishment.
7. Improves performance in poor quality acidic soils and soils with low phosphorus content.
8. All natural and does not diminish over time; reduces the need for frequent pesticide treatments.

What you can do:

1. Plant varieties that have a high level of endophyte, like Titan Ltd.
2. In blends and mixes, make sure that at least one or more of the components has a high level of endophyte. Research has shown that even some endophyte in a turf stand reduces insect populations and damage.
3. As appropriate, promote overseeding of Kentucky bluegrass mono-stands with endophyte-enhanced perennial ryegrasses. Research has shown that even slice seeding 1-2 lbs/1000 sq. ft. of endophyte-enhanced perennial ryegrass into an existing Kentucky bluegrass stand reduces insect damage. Overseeding in the fall will help provide resistance to billbugs, chinch bugs and sod webworms the following year.

**Titan Ltd. is
PACKED
with Endophyte!**

In fact, Titan Ltd is one of the highest rated varieties for endophyte, have a 90% level!



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of your lawn depends on it!!**

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Endophyte Resources

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