

Are Seed Treatments Enough Control On Corn?

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Well over 90 percent of the field corn may have one of several seed treatments pre-applied. The most common treatments are those that are applied at concentrations to control 'secondary' pests of corn including wireworms, white grub, seedcorn maggot, flea beetles, and seedcorn beetle.

Personally, I don't like the term 'secondary' pest as when these pests are at high levels and occur in some fields on a regular basis, they are really primary pests.

We have two leading seed treatment active ingredients in corn, clothianidin and thiamethoxan, they are combined with fungicides and sold as Poncho and Cruiser and ordered on the seed. Both of these are in the same chemical class and have the same mode of action. Both a systemic and are rapidly absorbed by the seed as it imbibes water during germination and later through the roots. Once inside the seedling they move throughout the plant providing insect protection above and below ground. While these seed treatments are similar in many ways there are also some subtle differences that can affect performance.

The differences that I'm aware include substantial differences in solubility in water and some difference in the spectrum of insects that they manage. Each of these come in two loading rates on the seed, a 0.25 mg active ingredient per kernel and a 1.25 mg active ingredient per kernel. The higher rate is primarily intended for the corn rootworm market, the lower rate for the secondary pests. Research at UK and other universities has shown that these seed treatments are able to prevent stand loss and can help to maintain more uniform vigor during early growth stages in fields where secondary soil insect pests are present.

Now the question I ask is, are these seed treatments providing the level of control that we need? That is a difficult question to answer as it depends on the level of particular pests in a given field. In the vast majority of fields, the secondary

pest is sufficient to control light to moderate levels of soil insect (excluding corn rootworm). However, there are certain fields where secondary pests are found at very high levels and the secondary rates are not providing enough control. Our research has shown us that moving to higher rates of these seed treatments when there has been a history of high levels of secondary pests have shown improved levels of control as measured by improved stands. In a few of these problematic fields, growers have also combined seed treatments with low rates of soil applied insecticides with some success.

There seed treatments are usually found on Bt corn, CB or RW, or on stacked hybrids. So these hybrids could have protection from corn borers (European and southwestern), corn rootworms, fall armyworm, black cutworm, and those pests listed at secondary pests.

Can we walk away from these fields and let the seed treatments and biotech traits manage all of the insect pests for us? These have been excellent tools in Kentucky, but I don't think we should forget about insect pests during the season. First, while corn prices remain strong, input prices have increased dramatically as well. It would be a huge mistake to let an insect pest get out of control. The other reason is that we can see insect pests levels on some occasions that can overwhelm control tactics. So my recommendation would be to use seed treatments and biotech traits as needed based on field history, planting dates, and other factors that may predispose fields to higher risk, but do not discontinue to regularly monitor fields for performance and insect pests. With high investments and possibly higher returns on corn, it would be too expensive to make a mistake by letting a pest problem get out of control.

The future of seed treatments looks quite promising with additional active ingredients to control other pests such as nematodes or even to relieve stress and improve vigor in certain situations.

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