

Volunteer Corn In Soybeans And Corn Insect Management

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Maybe it was the weather, or possibly the increasing level of herbicide tolerant corn, but last year the amount of volunteer corn in soybeans fields across our state was notable. While there are reasons to eliminate the volunteer corn

in soybeans from a soybean agronomic point of view, there are also some compelling reasons to eliminate the volunteer corn from the soybeans from a corn agronomic point of view, particularly in Kentucky. Our typical corn-wheat-soybean or corn-soybean rotations have done a very effective job of managing western and northern corn rootworms at tolerable levels. Substantial amounts of volunteer corn in soybean in our rotations can undermine that management strategy in a few different ways.

First let's review the biology of western and northern corn rootworms in Kentucky. With both of these pests, the female beetles lay their eggs in midsummer at the bases of corn plants (to date we don't have evidence of the soybean variant in Kentucky!), the eggs hatch in mid to late spring the following year. The larvae can only move a short distance in the soil after hatching, generally less than one meter or so, to find a corn root on which to feed. We don't have the 'delayed diapause' in Kentucky, so in the past rotation has been a very effective control. If and when the soybean variant of the

western corn rootworm reaches Kentucky, a corn-soybean rotation as a means of controlling western corn rootworm will begin to fail.

Volunteer corn in soybeans begins to wreck havoc on our management as it provides food for the newly hatched rootworm larvae that would normally starve in field that would otherwise have only soybeans. While in itself, this would not cause harm to the soybeans and not directly hurt the corn that would be planted the following year, it would allow for an increasing populations of rootworm beetles. However, later in the summer, those same volunteer corn plants in the soybean field may attract emerging corn rootworm adults for egg laying. This would serve to help to negate the corn-soybean rotation as a management tool for corn rootworms. Eggs would be laid at the bases of the volunteer corn which would hatch the following year when the field would be planted to corn.

The other effect that the volunteer corn could affect insect management would have to do with resistance management and Bt corn. If the volunteer corn is the result of Bt corn parentage, there could possibly be a mixture Bt and non-Bt expressing volunteers which could potentially lead to sublethal exposure of primary or secondary pests to the Bt toxins. This could thwart resistance management efforts with our structured refuge strategies.

So, from a corn pest management perspective, it makes sense to eliminate the volunteer corn from soybeans in a timely manner. Δ

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