

Companies are capable of doing this. heubach is a standard piece of equipment that can be regulated and taking it a step farther to extract the seed.

Where there pieces of material in the bottom of planter boxes already? Were planters cleaned prior to start of season.

HW - In 2014 they were very thorough with cleaning. In 2015 they were less conscious about it.

JD – Photos of chips and flakes would be helpful so we could all see what that is.

HW – Dust shows up in many forms and talc can also show up

RR – Photographs of before would be good for comparison and to have a baseline. Also maybe controlled study with non-frozen seeds could be useful. SEM (spectra electro microscope).

HW – Seeds were moved quickly to the freezer and stored for 6 or 7 months.

AB– Before comparison is important.

JD – Did you do any pictures of larger sample sizes of seeds?

HW – Yes. There is a range of damage when looking at a group of seeds, which they tried to capture in the photos. But they did not find any perfect seeds.

JG – Perfect seeds, like the coating of an M&M, are difficult to find.

JD – Did other researchers take photos like this? No. Dust gathered under planter seems to be the goal, so is that really a negative if it's hitting the ground directly?

RJ – It can be a negative when there are flowering plants under the planters which is common in many corn fields in Ohio.

JH – In trying to understand how this could have happened, it seems that this one photo (picture 2. B-F) was an extreme scenario so it may not be the best to include in a report.

Final Words

JO – controlled follow-up study is needed

All other concurred with JO

KK – Pioneer is interested in being involved in further discussions and a follow-up study.

JD – CDRC discussion will be a good follow-up.

JH – real world conditions are always helpful to industry.

RJ – 1% of active ingredient on seed is landing on the ground.

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CDRC Seed Treatment Conference Call 11/14/16

Participants: Laurie Davies Adams, Kelly Rourke, David Fischer, Jay Overmeyer, Jane DeMarchi, Reed Johnson, Pat McCain, Jim Herr, Jennifer Greminger, Keri Carstens, Jeff Daniels, Ravi Ramachandran, Harold Watters, Aster Beyene

Agenda

Welcome/Background

For the last 3 years the Corn Dust Research Consortium (CDRC) has looked at the effects of dust from treated corn seeds on honey bees (*Apis mellifera*). A variety of players have sponsored this research. CDRC was formed at the request of Bayer and Syngenta to explore issues around corn planting. They wanted research to be unbiased so they asked P2 to administer and distributed the grants. P2 engaged many companies and organizations to create a broad group with as many stakeholders at the table. We will talk today with The Ohio State University, but Iowa State, Bee Alert Technology (Montana) and the University of Guelph also conducted research. The objectives of the study focused on:

- 1) What are the foraging conditions around corn planting for honey bees
- 2) What is the efficacy of the Bayer fluency agent

Individual studies will publish their own results. Please check out <http://www.pollinator.org/CDRC.htm> for a compilation of results and recommendations from all research teams and all years.

Some photography from the final report out of OSU (Johnson and Watters) spurred some discussion on our last CDRC call. The CDRC found that the efficacy of keeping treatment on the seed is very important in limiting dust.

Reed Johnson and Harold Watters, Ohio State University

The team tested farmer equipment (smallest was 12 row john deer) to see what dust is present. They set up targets downwind of planting. Low levels of dust on targets. They also set up targets under planter (sticky trap severed slides). Then analyzed slides for neonicotinoid levels. Three replications repeated and got similar results. Finger pick-up planters on one site – could lose as much dust.

Used broad mix of planters. Didn't see a strong pattern to reduce dust in terms of Bayer fluency agent. Visually they found that many chips came off of seeds.

Not measuring dust, but measuring neonic levels. It did look like there may have been less dust, but the levels of neonics were the same.

Pictures – Took photos to document the chips of seed treatment that came off. Photos were taken from 15 mins up to about an hour of the seeds riding around in the hoppers during

planting. Saw one report out of Europe that saw similar things in relation to the brittleness and breaking of seed coatings. Before pictures were taken they froze the seeds. Freezing could have caused some damages. But they still saw breakage in the field before freezing.

Pioneer and Monsanto were the most used seeds. Had a large group of researchers to consider this project and it always came back to the breakage.

JH – Are seed picture titles correlated to the sites?

HW – not sure

HW – Also wondered how much neonics are in the field before planting

LDA – ██████████ (OSU) remarks found seed coating sticks to itself but does not really stick to the seed very well (based on SEMs)

PM – Are there any photos of the seeds before they went into the hopper? Before and after can be helpful especially when taking pictures so close-up.

HW in 2014 it was an afterthought. Discussion of moving it through the heubach meter. Pictures were taken after they saw what the levels were. In some cases, the targets were only out there for the length of field. Believe the samples are still in storage and there is potential to run them through the heubach. Looks like there was less dust coming out of exhaust. There was no seed held back just straight out of the bag.

DF – Took photos before and after being in a John Dear hopper in a lab. They did not find much difference in seed appearance before and after. Chart 3 – field 2 and 8 fluency agent is much lower. And field 3 is an anomaly.

HW - they found there was little difference in farmer practices.

LDA – Was the magnification of the Bayer photographs used similar to OSU's

DF – Don't think the magnification explains the severely degraded seeds in the OSU project. Chunks coming off seeds do not affect the bees as much as the pollen sized seed coating that comes off.

LDA – Yes but when just looking at seed treatment, the size of seed coating that comes off can still affect water etc.

JG – Would we be interesting in looking at this in a more controlled study. Having a bit more standardization across the study could be useful. Closely comparing before and after seed coatings. Are there plans to do that?

LDA – That would be helpful.

KC – Intriguing whether we have any actual extraction of the seed, before and after. Are the insecticide numbers on table 1 after or before the seeds have been planted, in the hopper etc.