



PROTECTING POLLINATORS THROUGH TECHNOLOGY AND STEWARDSHIP

BACKGROUND

Exposure to neonicotinoids via abraded dust exhausted from pneumatic planters that use vacuum to meter the seed during planting of treated corn seeds has been cited as a potential risk to honey bees. Recent scientific publications on this topic have triggered a debate as to the relationship between the exposure of dust from these planters and potential acute effects on bees. To address this concern, Bayer CropScience has been evaluating technologies that would reduce the dust emitted from the planter exhaust.

PRIMARY PURPOSE

Develop a new lubricant to reduce dust levels from treated seeds during planting so as to mitigate potential exposure to bees while promoting best management practices for seed treatment applicators, growers and beekeepers.

PRIMARY OBJECTIVES

1. Evaluate “low-dust” alternative to replace talc and graphite lubricants used in corn seed planting.
2. Perform testing with the support and collaboration of major planter manufacturers.
3. Initiate pilot testing in southern hemisphere (e.g., New Zealand) to establish proof of concept.
4. Conduct large-scale field testing using a wide range of planters and geographies across the U.S. and Canada to evaluate real-world applicability.

MATERIALS & METHODS

- Experimental Fluency Powder (EFP) developed from a polyethylene wax substrate and compared to standard talc and graphite corn seed lubricants.
- Field tests were conducted using major manufacturer pneumatic planters (AGCO White, Case New Holland, Great Plains, John Deere and Kinze).
- EFP to cover 200,000 acres submitted to cooperators for large-scale field program in North America (Midwest, Mid-South, Southwest and Canada).
- Comparative laboratory evaluations were made using a MeterMax test stand, modified to capture the exhaust dust in a filter.



RESULTS & CONCLUSIONS

- There was a significant decrease in both dust and active ingredient dust emissions*:
 - 90 percent reduction in total dust vs. talc
 - 60 percent reduction in total dust vs. graphite
 - 65 percent reduction in active ingredient collected from already low levels vs. talc
 - 50 percent reduction in active ingredient collected from already low levels vs. graphite
- Evaluations in the lab on planting uniformity showed equivalent results at significantly lower use rates than talc.
- Based on initial grower feedback, rates of 0.56 and 0.75 oz./cwt. performed equal to or slightly better than talc applied at 2.0 to 4.0 oz./cwt. (4 oz./cwt. is the higher recommended rate, some is used at 2 oz./cwt.).
- Most cooperators thought EFP was better or equal to the compared lubricant, it was less dusty in application and easier to avoid exposure when checking bins.
- Since EFP has a lower bulk density, stirring is recommended to better distribute the lubricant on the seed.
- Major planter manufacturer equipment companies are supportive of the program and are conducting internal testing to confirm performance in their planter designs. All feedback to date has been positive.

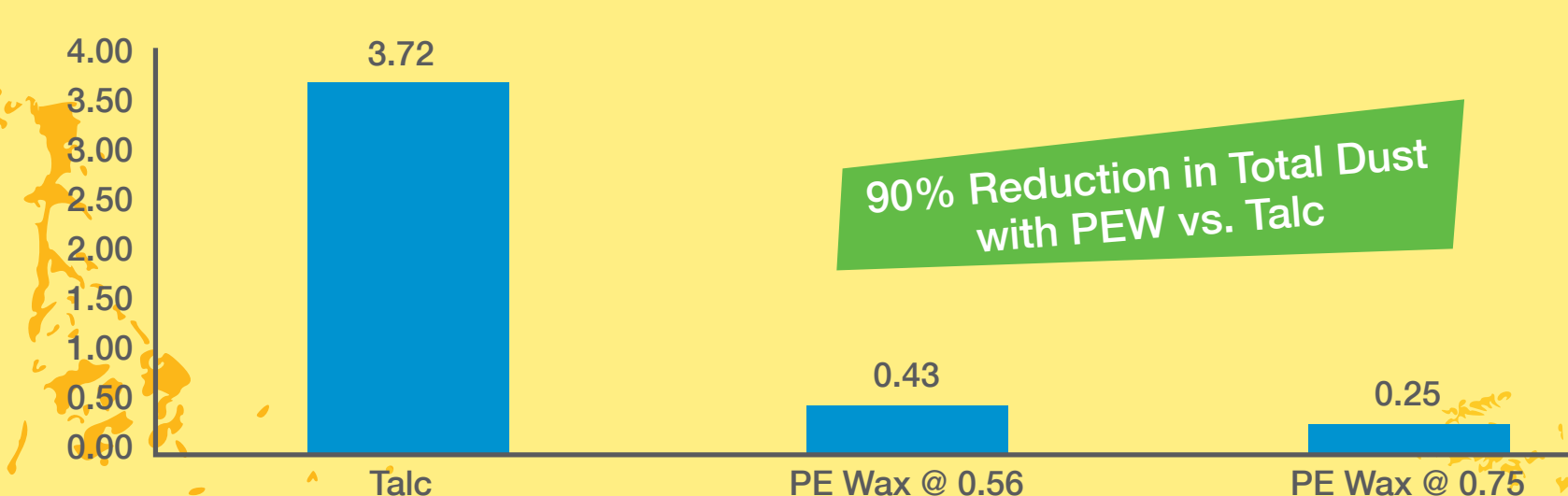
**Results based on average reductions using Poncho/VOTIVO and Poncho 1250, including commercial corn fungicide seed treatments and recommended seed coatings and colors. Seed coatings used at commercial rates for each seed applied insecticide.*

Project Objective

Develop a new lubricant to reduce dust levels from treated seeds during planting so as to mitigate bee's potential exposure to pesticide

LABORATORY EVALUATION

Talc versus Experimental Fluency Powder – Gms Total Dust / 100K Seed



* Poncho / VOTIVO and Poncho 1250 + VOTIVO in John Deere Vacuum Meter

LABORATORY EVALUATION

Talc versus Experimental Fluency Powder – Gms Insecticide Active ingredient Dust Per 100K Seed

