EXILVA THE NATURAL PERFORMANCE ENHANCER

APPLICATION BULLETIN

SUSTAINABLE SEED TREATMENT

BETTER DUST CONTROL OF COATED SEEDS WITH EXILVA CELLULOSE FIBRILS

Seed treatment is an essential part of today's agriculture. Applying plant protection products directly on the seeds before planting is regarded as an effective technique to apply the necessary crop protection products. Exilva cellulose fibrils are a natural product that can be used for improving the quality of the coating. Upon drying Exilva's three dimensional network of fibrils forms a strong and durable film. In addition, Exilva can improve the rheology and stability of your formulation, increasing your formulation efficiency.

By using Exilva in a seed treatment formulation, you can reduce the dusting of the seeds during handling and improve plantability. Exilva was tested in a seed formulation for soybean.

REDUCED DUST-OFF

The dusting of the seeds after coating was tested with a Heubach Dustmeter using 4 repetitions of 100 g. The seeds are agitated as a vacuum forces air through the seed and across a 50 mm Whatman Glass Fiber Filter which collects the dust. After two minutes' agitation, the final weight of the dust and filter is recorded less the original filter weight.

Figure 1 shows the amount of dust collected on the filter in the test. Exilva was able to reduce the dusting of the seeds approximately 60% when used with a commercial treatment package compared to the commercial treatment package without Exilva.

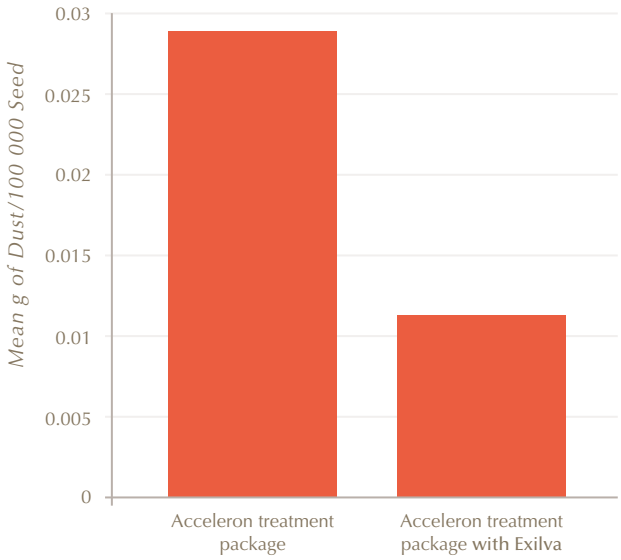

FIGURE 1. *Average mass of the dust gathered on the filter in a dusting test for soybeans treated either with Acceleron treatment package or Acceleron treatment package and Exilva.*

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A product by Borregaard

GOOD FLOWABILITY

The flowability testing was performed using a Fairbank and Morse Brass Funnel. Samples were separated into 4 repetitions of 300 g each. Each repetition was run through the funnel and the length of time it takes for the seed to flow through the funnel was measured. During the flow, the seeds were observed for any stopped movement or bridging.

The flowing time remained approximately the same for the commercial treatment package without and with Exilva. No bridging or stopped movement was observed for any of the samples.

IMPROVED PLANTABILITY WITH EXILVA

Plantability testing was performed using a Meter Max Ultra Precision Planting Unit Tester. One thousand seeds each were run on three soybean samples. The John Deere planting unit was set to 16,000 seeds/acre count, a speed of 3 mph, rotating at 60 cells per revolution, and a vacuum rate of 18.

Adding Exilva to the commercial seed treatment package reduced skips where the planting spot is left empty and doubles meaning that two seed are planted at the same spot. In addition, singulation – how equally the seeds drop from the planting disc – was improved with Exilva addition.

Treatment	Skips	Double	Misplaced severe	Population planted	Singulation
Acceleron	194	5	0	12 992	80
Acceleron with Exilva F 01-L	152	3	1	13 616	85

TABLE 1. *Plantability of soybean seeds coated with Acceleron treatment package alone or Acceleron with Exilva.*

CONCLUSIONS

Exilva offers a sustainable way to reduce the dust emissions of the coated seeds.
At the same time, it can improve the plantability of the seeds.

SEED PREPARATION

One lot of soybeans was utilized for the study. Two treatments were evaluated utilizing three testing procedures: dust off, flow and plantability. The soybean treatment package was applied at a total slurry volume of 7 fl oz/100 lbs seeds. The treatments contained a commercial seed treatment package Acceleron (Monsanto, containing pyraclostrobin, metalaxyl, imidacloprid) with or without Exilva F 01-L. The exact compositions are given in Table 2. All ingredients were mixed together with the water placed in the jar first and mixed with a stir bar and a stir plate. The treatment was applied on the seeds in a Hege batch treater bowl. The treated samples were acclimated to the testing environment for 48 hours.

Formulation	Acceleron (fl oz)	Exilva F 01-L (fl oz)	Water (fl oz)
Acceleron treatment package	4.3	0	2.7
Acceleron treatment package with Exilva F 01-L	4.3	1.2[1)]	1.5

TABLE 2. *Seed treatment formulations coated on soybean seeds. The dosage of Exilva is given as 2% suspension.*

[1)]0.3% dry Exilva of the total formulation volume.