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Interim report on Wheat Saw fly Kimball County NE.

This trial was a probe/exploratory trial to evaluate SPE/SBb dry seed treatment on winter wheat and impact on wheat sawfly. Wheat was planted in October of 2018 and samples taken of the wheat for sawfly evaluation July 16, 2019.

Sawflies lay their eggs in late May through June on average into the stems of the plant. The larvae develop in the stem and normally complete development prior to the wheat maturing. When the larvae are mature they migrate from the upper end of the stalks to the crown of the plant where they create a pupal cell. During the construction of this pupal cell, the larvae damage the stem and weaken the plant to the point that with any wind event the wheat breaks off making harvest difficult.

The SPE/SBb treatment of the seed allows the endophyte (beauveria) to grow in the plant. Past research has shown plant health improvements which allow the plants to function with a better immune system and a higher level of plant health.

Endophyte beauveria appears to impact insects by decreasing the active feeding of larvae. We still see insects, but their development seems stunted and the overall damage that they may cause be less. With an insect like the sawfly, oviposition continues as normal, and when the plants are evaluated we still should see some evidence of the larvae in the stem, but damage should be reduced and the larvae should not reach maturity and the subsequent migration to the crown of the plant where the final damage takes place that may lead to breakoff of stems and down wheat.

This trial was comprised of 400 acres of treated wheat along with untreated wheat. Random samples were taken in both treated and untreated portions of the field and stems evaluated. The stems were characterized as clean – no evidence of infection or infected where at least some evidence of the sawfly larvae were observed. A total of 251 samples were taken in the treated area and 254 in the untreated.

The data are summarized in the table below. 73.7% of samples from the treated field were considered clean with no evidence of any sawfly infection. The samples from the untreated fields showed 59.0% clean, no evidence of infection. Based on further examination of what was placed into the clean or infected stems in the treated areas of the field, very few stems actually contained larvae, rather they had evidence that there was some larval development, but the larvae were no longer present so we feel the % clean was actually higher and in future evaluations an attempt will be made to collect this data. Yield data and how the crop is standing will be added at harvest.

SBb Trial on Winter Wheat - Kimball County, Nebraska - 2019

Wheat Stem Sawfly - Larva-infected Stem Count

Data Collected 16 July 2019

Sample Identification	Infected	Clean	Total
Treated			
T1	13	37	50
T2	22	28	50
T3	11	40	51
T4	11	39	50
T5	9	41	50
Total	66	185	251
Per Cent	26.29	73.71	
Control			
C1	28	26	54
C2	20	30	50
C3	16	34	50
C4	22	28	50
C5	18	32	50
Total	104	150	254
Per Cent	40.94	59.06	