ANNUAL REPORT
ISCDA MULTI-LOCATION SWEET CORN SEED TREATMENT TRIAL – 2014

INTRODUCTION

The Seed Treatment Committee of the International Sweet Corn Development Association (ISCDA) organizes a trial every year to evaluate seed treatments for sweet corn across diverse planting environments. The committee decided to compare the same set of seed treatments on two supersweet (*sh2*) hybrids this year.

METHODS

A non-treated control and 14 seed treatments were evaluated at multiple locations using two sweet corn hybrids, Super Sweet Jubilee Plus (*sh2*) (warm and cold germination: 86% and 70%) and HMX0376S (*sh2*) (warm and cold germination: 96% and 83%). A seed lot of Megaton (*sh2*) was going to be used for the trial, but it was destroyed in a flood and the HMX0376S seed lot was used instead. Most of the seed treatments were mixtures of fungicide products, and some included seed enhancements and insecticides. They are listed in Table 1. Seed treatments were sponsored by Agriculture Solutions, Inc.; Nufarm Americas, Inc.; Syngenta Crop Protection, LLC; and Valent USA Corporation. Additionally, two standard seed treatment mixtures were selected by the committee. Treatments were applied to seeds by participating companies, or by one of the trial organizers, Mike Erickson (The McGregor Co.). Sets of treated seeds were packaged and sent to cooperating researchers at 16 locations in seven states (ID, IL, MN, NY, OR, WA, and WI) for planting and evaluation. A list of locations, planting dates, and cooperating researchers is on page 9 of this report. The experimental design at each location varied, but all sites established randomized plots with at least four replications of each treatment. Planting dates ranged from April to June. The OR-1 location evaluated only the SS Jubilee Plus seeds. Stand counts, weak plant counts, and vigor ratings were recorded in each plot, usually at the 5-6 leaf stage. The NY-2, WI-2, and WI-1 trials did not report weak plants counts. The NY-2 trials with both hybrids and the ID-5 and WI-1 trials with HMX0376S did not report vigor ratings. Weak plants were defined as plants that were two or more leaves behind the average seedlings in the plot, and are reported as the % slows, which was calculated by dividing the number of weak plants by the number of emerged plants. An adjusted % stand was also calculated by subtracting the number of weak plants from the number of emerged plants. Vigor ratings were on a qualitative visual scale of 1-5 (1=extremely weak, 2=weak, 3=fair, 4=vigorous, 5=very vigorous). Data from individual plots where the % stand results were less than or greater than 1.5 times the interquartile range were considered extreme outliers, and were excluded from the data set. Results for each hybrid at each location were subjected to analysis of variance (ANOVA) and a pairwise comparison of treatment means using the Fisher's protected least significant difference method, LSD (P=0.05). It is important to examine each location individually, but it can be difficult to draw conclusions from such a large data set. Therefore, data were combined in a summary across trial locations and analyzed with ANOVA. Data were analyzed using ARM 9 and ARM ST 8 software from Gylling Data Management, Inc.

RESULTS - % STAND

The treatment means for % stand at each location for both hybrids are shown in Table 2 a-d. Several groupings of % stand results across locations are shown in Table 3 along with results of the ANOVA. There are also box and whisker charts showing the distribution of treatment means for % stand across locations for both hybrids in Figures 1 and 2.

BOTH HYBRIDS: The ANOVA for the entire data set of % stand results (16 locations of SS Jubilee Plus + 15 locations of HMX0376S) indicated significant location and treatment effects, but there was also a significant location x treatment interaction that makes it difficult to draw general conclusions about the treatments.

In general, SS Jubilee Plus resulted in lower stand counts compared to HMX0376S, averaging 66% and 88% respectively for all locations. Most of the trials had relatively small variation in the data sets for % stand (i.e. coefficients of variation (CV) less than 15%). The trials with the most variable % stand results were the SS Jubilee Plus trials at OR-1, MN-1, ID-4 and WI-1. The ANOVA for individual locations indicated significant treatment effects for % stand of SS Jubilee Plus seeds at 11 of 16 locations, but only 4 of 15 locations for HMX0376S seeds. Four locations (ID-1, ID-2, ID-4, and MN-1) resulted in significant treatment effects for % stand with both SS Jubilee Plus and HMX0376S seeds, but none of these locations had significant treatment effects when the results for both hybrids were combined in an analysis. This suggests that SS Jubilee Plus and HMX0376S responded differently to the treatments despite being planted in the same location.

SS JUBILEE PLUS: Grand means for % stand at the 16 locations ranged from 37% (MN-1) to 83% (ID-5), and averaged 66%. The only locations that resulted in no significant differences in stand for any of the treatments applied to SS Jubilee Plus seed were IL-2, MN-2, WI-1, and WI-2.

The ANOVA for % stand results grouped for all 16 locations planted with SS Jubilee Plus showed significant location and treatment differences, but also a significant location x treatment interaction. However, grouping only the locations that had significant treatment effects for % stand (11 locations) showed significant location and treatment effects and no location x treatment interaction. This indicates that the treatments gave similar % stand results at all 11 locations. The non-treated control and Treatment 5 resulted in the smallest stand counts for SS Jubilee Plus when averaged across 11 locations, 45% and 49% respectively. Treatment 5 was the lowest ranking seed treatment for % stand at most locations, but it should be noted that this treatment was a seed enhancement without fungicides, therefore it would not be expected to control pathogens that cause seed rot or seedling blight. Treatment 11 resulted in the largest stand count (70%) in the summary across 11 locations. Treatments 15, 4, 8, 9 and 10 also resulted in some of the largest stand counts in the summary across 11 locations, 66% to 65%. The two standard treatments (Treatments 2 and 3) had combined treatment means of 63% and 64% in the summary across 11 locations and were not significantly different from each other. With the exception of Treatments 5 and 11, the rest of the seed treatments resulted in combined treatment means for % stand that were similar to the two standards.

HMX0376S: Grand means for % stand at the 15 locations ranged from 76% (MN-1) to 97% (IL-1), and averaged 88%. Only the ID-1, ID-2, ID-5 and MN-1 locations had significantly different stand counts for treatments applied to HMX0376S seeds.

The ANOVA for % stand results grouped for the 15 locations planted with HMX0376S showed significant location and treatment differences, but also a significant location x treatment interaction. Moreover, there were significant location differences and location x treatment interactions when only the four locations that had significant % stand results were grouped, but no differences among treatments. Seed treatments applied to the HMX0376S seed lot appeared to respond differently at different locations. At most of the locations, non-treated and treated HMX0376S seeds resulted in similar stand counts. Only the ID-2 and ID-4 trials planted with HMX0376S had significantly larger stand counts with the two standard seed treatments compared to non-treated seed. The MN-1 trial resulted in no differences between stands with standard seed treatments and non-treated seed. The ID-5 trial with HMX0376S had a significantly larger stand count with non-treated seed versus Standard 2, and similar stands with non-treated seed and Standard 1.

RESULTS - % SLOWS

Weak plant assessments were intended to account for plants that emerged, but probably would not produce useable ears. Table 4 a-d presents the treatment means for % slows at each location for both hybrids. Combined treatment means for % slows for several groupings of results across locations are shown in Table 5.

BOTH HYBRIDS: In general, SS Jubilee Plus resulted in a greater number of weak plants compared to HMX0376S, with grand means for % slows averaging 13% for SS Jubilee Plus and 4% for HMX0376S. All of the trials had a lot of variation within the data sets for % slows, which was indicated by CVs that were all ≥ 22%. The ANOVA for the entire data set of % slows results (14 locations of SS Jubilee Plus + 13 locations of HMX0376S) showed significant location and treatment effects, and a significant location x treatment interaction. Only four of 14 locations with SS Jubilee Plus and one of 13 locations with HMX0376S had significant treatment differences for % slows. The NY-1 location resulted in significant treatment effects for % slows with both SS Jubilee Plus and HMX0376S seeds, but there were no significant treatment effects when the results at NY-1 for both hybrids were combined and analyzed.

SS JUBILEE PLUS: Grand means for % slows at the 14 locations with SS Jubilee Plus ranged from 2% (WA-1) to 32% (NY-1), and averaged 13%. Only the ID-2, IL-1, IL-2, and NY-1 locations had significant treatment differences for % slows with the SS Jubilee seed lot. Combined results for % slows across 14 locations, or just the five locations that had significant treatment differences, resulted in significant location and treatment differences for % slows, but also location x treatment interactions. At most of the locations, non-treated and treated SS Jubilee Plus seeds resulted in similar % slows. The ID-2 and IL-1 trials planted with SS Jubilee Plus had significantly larger % slows with non-treated seed compared to the two standard

treatments. The IL-2 trial had numerically larger % slows with non-treated seed versus the standards, but the difference was not significant.

HMX0376S: Grand means for % slows at the 13 locations with HMX0376S ranged from 0% (IL-1) to 10% (NY-1), and averaged 4%. Only the NY-1 location had significant treatment differences for % slows with the HMX0376S seed lot. The ANOVA for % slows results grouped for the 14 locations planted with HMX0376S indicated no treatment differences.

RESULTS - ADJUSTED % STAND

The adjusted % stand in each plot was calculated to account for seeds that did not emerge and seedlings that were weak and not likely to produce usable ears. Table 6 a-d presents the treatment means for adjusted % stand for each treatment at each location for both hybrids. Combined treatment means for adjusted % stand in various groupings of the results across locations are shown in Table 7.

BOTH HYBRIDS: The ANOVA for the entire data set of % stand results (14 locations of SS Jubilee Plus + 13 locations of HMX0376S) indicated significant location and treatment effects, but there was also a significant location x treatment interaction.

In general, SS Jubilee Plus resulted in more weak plants and lower stand counts (a.k.a. lower adjusted stands) compared to HMX0376S with grand means for adjusted % stand of 57% and 85% respectively. The ANOVA for individual locations indicated significant treatment effects for adjusted % stand at ten of 14 locations with SS Jubilee Plus, and five of 13 locations with HMX0376S seeds. Four locations (ID-2, IL-2, MN-1, and NY-1) resulted in significant treatment effects for adjusted % stand with both SS Jubilee Plus and HMX0376S seeds, but none of these locations had significant treatment effects when the results for both hybrids were combined and analyzed. As was noted above for the % stand results, it appears that SS Jubilee Plus and HMX0376S responded differently to the treatments despite being planted in the same general location.

Some trials that did not exhibit treatment differences for % stand did have significant treatment differences for adjusted % stand, and vice versa. The SS Jubilee trial at IL-2 and the HMX0376S trials at IL-2 and NY-1 had treatment differences for adjusted % stand, but not for % stand. These were among the few trials that showed significant differences for % slows. On the other hand, the SS Jubilee trial at ID-5 and the HMX0376S trials at ID-1 and ID-4 had % stand results that were significantly different, but adjusted % stand counts that were similar or too variable to compare.

SS JUBILEE PLUS: Grand means for adjusted % stand at the 14 locations ranged from 32% (MN-1) to 79% (ID-5), and averaged 58%. Accounting for weak plants decreased the grand means for adjusted % stand of SS Jubilee at different locations from 1% to 22%, and by an average of 8%. The only locations that resulted in no significant differences in adjusted % stand for any of the treatments using SS Jubilee Plus seed were ID-5, MN-2, OR-1, and WI-1.

The ANOVA for adjusted % stand results grouped for the 14 locations with SS Jubilee Plus showed significant location and treatment differences, but also a significant location x treatment interaction. However, grouping only the locations that had significant treatment effects for adjusted % stand (10 locations) indicated significant location and treatment effects and no location x treatment interaction in the ANOVA. This indicates that the treatments gave similar adjusted % stand results at all 10 locations planted with SS Jubilee Plus. The non-treated control resulted in the smallest adjusted % stand (37%) for SS Jubilee Plus when averaged across 10 locations. Treatment 5 (seed enhancement, no fungicide) was the lowest ranking seed treatment for adjusted % stand (42%) at most locations, but was an improvement over the non-treated control. Treatments 4 and 11 resulted in the largest adjusted stand counts in the summary across locations (60% for both). Treatment 11 was also the highest ranking treatment for % stand on SS Jubilee seed. Treatment 4 resulted in a significantly larger adjusted stand count compared to Treatment 2 in the summary across locations; these treatments were the same except that Treatment 4 added a seed enhancement. Interestingly, the addition of the seed enhancement, Ignite S^2, improved adjusted stand counts for both treatments they were added to (Treatments 4 and 5), though they did not generally result in larger stands (not accounting for weak plants). Treatments 8, 3, 9, 15, 10 and 13 also resulted in some of the largest adjusted stand counts in the summary across 10 locations. The two standard treatments (Treatments 2 and 3) had combined treatment means for adjusted stand counts of 55% and 58% in the summary across 10 locations and were not significantly different from each other. With the exception of Treatment 5, the rest of the seed treatments resulted in combined treatment means for adjusted % stand that were similar to one or both of the standards.

HMX0376S: Grand means for adjusted % stand at the 13 locations ranged from 71% (MN-1) to 96% (IL-1), and averaged 85%. Accounting for weak plants decreased the grand means for adjusted % stand of HMX0376S at different locations from 0.1% to 9%, and by an average of 3%. Only the ID-2, ID-4, IL-2, NY-1 and MN-1 locations had significantly different adjusted % stands with treatments that were applied to HMX0376S seeds.

The ANOVA for adjusted % stand results grouped for the 13 locations, or just the five locations with significant treatment differences with HMX0376S, showed significant location and treatment differences, but also significant location x treatment interactions. Similar to the % stand results, only the ID-2 and ID-4 trials planted with HMX0376S had significantly larger adjusted % stands with the two standard seed treatments compared to non-treated seed. The IL-2, MN-1 and NY-1 trials resulted in no differences between adjusted % stands with standard seed treatments and non-treated seed.

RESULTS – VIGOR

The treatment means for vigor at each location for each hybrid are shown in Table 8 a-d. Combined treatment means for vigor in several groupings of results across locations are presented in Table 9.

BOTH HYBRIDS: The ANOVA for the entire data set of vigor results (15 locations of SS Jubilee Plus + 13 locations of HMX0376S) indicated significant location and treatment effects, but there was also a significant location x treatment interaction.

In general, SS Jubilee Plus seedlings were rated as less vigorous than HMX0376S seedlings, with grand means for vigor of 3.47 and 4.26 respectively. The ANOVA for individual locations indicated significant treatment effects for vigor at four of 15 locations with SS Jubilee Plus, and only one of 13 locations with HMX0376S seeds. None of the locations had significantly different vigor results with both hybrids.

SS JUBILEE PLUS: Grand means for vigor at the 15 locations with SS Jubilee Plus ranged from 2.0 (ID-4) to 4.4 (IL-2), and averaged 3.5. Only the ID-2, IL-1, IL-2, and NY-1 locations had treatment differences for vigor with the SS Jubilee seed lot. Combined results for vigor across 15 locations resulted in significant location and treatment differences, and no location x treatment interaction. This indicates that there was a general trend in the vigor ratings for treatments across locations. The non-treated control and Treatment 5 resulted in the lowest vigor ratings in the summary across 15 locations for SS Jubilee Plus (both with ratings of about 3.0). The best vigor ratings in the summary across locations were given to Treatments 14, 2, 4, and 3 (vigor ratings of 3.7, 3.6, 3.6, and 3.5 respectively), which were significantly better than Treatments 5 and 6 and the non-treated control, but not significantly different from the rest of the treatments.

HMX0376S: Grand means for vigor at the 13 locations with HMX0376S ranged from 4.9 (MN-1) to 3.3 (IL-1), and averaged 4.3. Only the IL-1 location had treatment differences for vigor with the HMX0376S seed lot. As for SS Jubilee Plus, combined results for vigor across 13 locations with HMX0376S resulted in significant location and treatment differences, and no location x treatment interaction. This means there was a trend in vigor ratings given to treatments across locations for the HMX0376S seed lot. The non-treated control and Treatment 5 had the lowest vigor ratings in the summary across 13 locations (both 4.1), but they were not significantly different from nine other treatments on HMX0376S seed. The best vigor rating in the summary across locations for HMX0376S was given to Treatment 15 (4.5), which was significantly higher than ratings given to all of the treatments except for Treatments 2, 9, and 10 (4.3 to 4.4).

SUMMARY

- BOTH HYBRIDS: The ANOVA for the entire data set of results grouped across locations and for both hybrids indicated significant location and treatment differences, but significant location x treatment interactions that make it difficult to draw general conclusions about the treatments.

- SS JUBILEE PLUS vs. HMX0376S: In general, SS Jubilee Plus resulted in lower stand counts, more weak plants, and lower vigor ratings compared to HMX0376S

- SS JUBILEE PLUS vs. HMX0376S: Some locations resulted in significant treatment effects for % stand, % slows, or adjusted % stand with both the SS Jubilee Plus and HMX0376S seed lots, but none of them showed significant treatment effects when the results for both hybrids were combined and analyzed. This indicates that SS Jubilee Plus and HMX0376S did not respond similarly to seed treatments despite being planted in the same general location. The differences may be explained by hybrid differences in susceptibility to pathogens, and may also be due to the presence of different pathogens in and on the seed. A bioassay of the SS Jubilee Plus and HMX0376S seed lots might provide some insight.

- % STAND: The ANOVA indicated significant location x treatment interactions for % stand in the summary across locations planted with SS Jubilee Plus or HMX0376S seed lots. While not all locations had treatment differences, some trends were apparent when locations that did have significant treatment differences for SS Jubilee Plus were grouped and analyzed. The non-treated control and Treatment 5 resulted in the smallest stand counts for SS Jubilee Plus when averaged across 11 of 16 locations, and Treatment 11 resulted in the largest stand count. With the exception of Treatments 5 and 11, the rest of the seed treatments resulted in combined treatment means for % stand that were similar to the two standards.

- ADJUSTED % STAND: Accounting for slows reduced adjusted stand counts for SS Jubilee Plus by 1-22%, or 8% on average. They reduced adjusted stand counts for HMX0376S by only 0-9%, or 3% on average. The non-treated control resulted in the smallest adjusted % stand for SS Jubilee Plus when averaged across 10 of 14 locations that had significant treatment effects when analyzed separately. Treatment 5 had the smallest adjusted % stand at most locations, but was an improvement over the non-treated control. Treatments 4 and 11 resulted in the largest adjusted stand counts in the summary across 10 locations for SS Jubilee Plus.

- VIGOR: The non-treated control and Treatments 5 and 6 had lower vigor ratings compared to the other seed treatments in the summary across all locations for SS Jubilee Plus, while Treatments 14, 2, 4, and then 3 had the highest vigor ratings. The best vigor rating in the summary across locations for HMX0376S was given to Treatment 15, which was significantly higher than ratings given to all of the treatments except for Treatments 2, 9, and 10.

- This trial includes a number of seed treatments that either substituted products, added products, and/or increased rates of products in the mixtures. These were not discussed in this report, but the data are presented in the tables. A close inspection of the results should provide significant information to seed treatment formulators and other sweet corn industry personnel.

- For more information about the 2014 ISCDA Seed Treatment Trial, or about participation in future trials contact Carrie Wohleb at cwohleb@wsu.edu or (509) 754-2011 x.4367.

DISCLAIMER

Not all compounds mentioned in this report are currently registered by the EPA for use as seed treatments on sweet corn. Do not use unregistered compounds. Application of a pesticide to a crop or site that is not on the label is a violation of pesticide law and may subject the applicator to civil penalties. In addition, such an application may also result in illegal residues that could subject the crop to seizure or embargo action by the U.S. Food and Drug Administration or by your State's agriculture agency. It is your responsibility to check the label before using the product to ensure lawful use and obtain all necessary permits in advance.

2014 ISCDA Seed Treatment Committee

Mike Erickson, Co-Chair, The McGregor Company, Filer, ID
Ron Baker, Co-Chair, HM Clause Inc., Nampa, ID
Carrie Wohleb, Research Coordinator, Washington State University, Moses Lake, WA

Trial	Locations	Planting Dates	Participating Researchers
ID-1	Nampa, ID	Apr. 10, 2014	Justin Minor, Syngenta Seeds Inc., Nampa, ID
ID-2	Huston, ID	Apr. 12, 2014	Don Ogawa, Crookham Company, Caldwell, ID
ID-3	Nampa, ID	May 15, 2014	Ron Baker, HM Clause Inc., Nampa, ID
ID-4	Jerome, ID	May 8, 2014	Steve Hines, University of Idaho Extension, Kimberly, ID
ID-5	Nampa, ID	Jun. 20, 2014	Justin Minor, Syngenta Seeds Inc., Nampa, ID
IL-1	Mendota, IL	May 7, 2014	Steve Otto, Del Monte Foods, Rochelle, IL
IL-2	Tolono, IL	June 1, 2014	Charlie Thompson, Illinois Foundation Seeds, Champaign,IL and Selena Virden, Illinois Foundation Seeds, Meridian, ID
MN-1	Stanton, MN	May 5, 2014	Justin Minor, Syngenta Seeds Inc., Nampa, ID
MN-2	Stanton, MN	June 23, 2014	Justin Minor, Syngenta Seeds Inc., Nampa, ID
NY-1	Geneva, NY	June 2, 2014	Stephen Reiners, Cornell University, Geneva, NY and James Ballerstein, Cornell University, Geneva, NY
NY-2	Aurora, WA	June 14, 2014	Margaret Smith, Cornell University, Ithaca, NY and Sherrie Norman, Cornell University, Ithaca, NY
OR-1	Monroe, OR	May 23, 2014	Ed Peachey, Oregon State University, Corvallis, OR
WA-1	Quincy, WA	Apr. 9, 2014	Carrie Wohleb, Washington State University, Moses Lake, WA
WI-1	Plainfield, WI	May 5, 2014	Justin Minor, Syngenta Seeds Inc., Nampa, ID
WI-2	Deforest, WI	May 21, 2014	Tim Gustafson, Monsanto Vegetable Seeds, Deforest, WI
WI-3	Plover, WI	May 25, 2014	Emily Wegner, Illinois Foundation Seeds Inc., Plover, WI and Selena Virden, Illinois Foundation Seeds, Meridian, ID

TABLE 1: 2014 ISCDA Seed Treatments			
No.		**Treatment**	**Rate**
1	Control	No Treatment	
2	Standard 1	Dividend Extreme Apron XL LS Maxim 4FS Vitavax 34	2.00 oz/cwt 0.38 oz/cwt 0.08 oz/cwt 3.50 oz/cwt
3	Standard 2	Captan 4 Flowable Thiram 42S Dividend Extreme Apron XL Vitavax 34	2.50 oz/cwt 2.50 oz/cwt 5.00 oz/cwt 0.32 oz/cwt 3.50 oz/cwt
4	Agri-Gro 1	Dividend Extreme Apron XL LS Maxim 4FS Vitavax 34 Ignite S[2]	2.00 oz/cwt 0.38 oz/cwt 0.08 oz/cwt 3.50 oz/cwt 16.0 oz/cwt
5	Agri-Gro 2	Ignite S[2]	16.0 oz/cwt
6	Nufarm 1	Spirato 480 FS Signet 480 FS Sebring 318 FS Senator 600 FS	0.08 oz/cwt 2.50 oz/cwt 0.75 oz/cwt 6.00 oz/cwt
7	Nufarm 2	Spirato 480 FS Signet 480 FS Sativa 309 FS Sebring 318 FS Senator 600 FS	0.08 oz/cwt 2.50 oz/cwt 0.74 oz/cwt 0.75 oz/cwt 6.00 oz/cwt
8	Syngenta 1	Dividend Extreme Apron XL LS Maxim 4FS Vitavax 34 Cruiser 5 FS	2.00 oz/cwt 0.38 oz/cwt 0.08 oz/cwt 3.50 oz/cwt 0.30 mg ai/seed
9	Syngenta 2	Dividend Extreme Apron XL LS Maxim 4FS Mertect 340 Vibrance Cruiser 5 FS	2.00 oz/cwt 0.38 oz/cwt 0.08 oz/cwt 1.50 oz/cwt 0.0063 mg ai/seed 0.30 mg ai/seed

TABLE 1: 2014 ISCDA Seed Treatments continued			
No.		**Treatment**	**Rate**
10	Syngenta 3	Dividend Extreme Apron XL LS Maxim 4FS Mertect 340 Vibrance Cruiser 5 FS	5.00 oz/cwt 0.38 oz/cwt 0.08 oz/cwt 1.50 oz/cwt 0.0125 mg ai/seed 0.30 mg ai/seed
11	Syngenta 4	Dividend Extreme Apron XL Maxim Quatro Vibrance Cruiser 5 FS	2.00 oz/cwt 2.00 g ai/100 kg 0.64 mg ai/seed 5.00 mg ai/seed 0.30 mg ai/seed
12	Valent 1	Metlock Sebring 318 Ethaboxam 3.2FS Rizolex Flowable	0.052 oz/cwt 0.750 oz/cwt 0.300 oz/cwt 0.300 oz/cwt
13	Valent 2	Metlock Sebring 318 Ethaboxam 3.2 FS Rizolex Flowable Compound A	0.052 oz/cwt 0.750 oz/cwt 0.300 oz/cwt 0.300 oz/cwt 0.240 oz/cwt
14	Valent 3	Metlock Sebring 318 Ethaboxam 3.2 FS Rizolex Flowable Signet 480 Captan 4 Flowable	0.052 oz/cwt 0.375 oz/cwt 0.300 oz/cwt 0.300 oz/cwt 2.500 oz/cwt 2.500 oz/cwt
15	Valent 4	Metlock Sebring 318 Ethaboxam 3.2 FS Rizolex Flowable Signet 480 Captan 4 Flowable Nipsit Inside	0.052 oz/cwt 0.375 oz/cwt 0.300 oz/cwt 0.300 oz/cwt 2.500 oz/cwt 2.500 oz/cwt 0.250 mg ai/seed

TABLE 2a. 2014 ISCDA Seed Treatment Trial - % STAND – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded.

TREATMENT NO.	ID-1 *Apr-10-14*		ID-2 *Apr-12-14*		ID-3 *May-15-14*		ID-4 *May-8-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	62.0* e	**93.8 ab**	50.0 g	91.8 d	49.3 e	86.8	22.8 g	67.3 h
2	**75.8 a-d**	91.0 bc	**76.5 a-d**	**97.2 ab**	64.3 bcd	83.8	42.0 def	75.0 d-g
3	**75.8 a-d**	89.4 c	**81.5 a**	**96.8 ab**	**70.8 ab**	89.3	37.5 f	79.3 bcd
4	71.3* cd	**93.6 ab**	**79.1* abc**	**96.0 ab**	**68.0 abc**	87.3	47.0 c-f	69.8 gh
5	58.0 e	92.3 bc	51.5 g	92.8 cd	49.0 e	87.0	24.0 g	67.3 h
6	72.2 bcd	**96.7 a**	70.5 def	95.3 bc	63.8 bcd	85.3	49.4* b-e	72.0 e-h
7	**77.1 abc**	**93.1 abc**	66.5 f	**97.3 ab**	59.0 d	92.3	42.3 def	**84.8 ab**
8	**79.7 a**	**94.3 ab**	74.0 b-e	95.8 b	**73.8 a**	91.5	**54.3 abc**	**82.7 abc**
9	**77.6 ab**	**94.3 ab**	74.1* b-e	**96.3 ab**	**69.8 ab**	87.3	**52.8 a-d**	**87.2 a**
10	**77.8 ab**	**93.0 abc**	73.5 b-e	**96.0 ab**	**67.3 abc**	91.5	**60.5 ab**	**85.3 ab**
11	**77.1* abc**	91.5 bc	**79.8 ab**	95.0 bc	**74.3 a**	90.3	**62.8 a**	**86.3 a**
12	71.9 bcd	91.0 bc	68.8 ef	95.3 bc	**66.2* a-d**	90.8	41.3 ef	70.2 fgh
13	70.9 d	**94.6 ab**	71.8 def	**96.8 ab**	60.3 cd	87.3	43.8 c-f	74.8 d-g
14	**74.0 a-d**	**96.9 a**	**77.3 a-d**	**96.8 ab**	**68.3* abc**	86.3	43.3 c-f	77.0 c-f
15	**76.3 a-d**	**94.3 ab**	72.8 c-f	**98.8 a**	64.0 bcd	85.3	51.5 b-e	77.8 cde
GRAND MEAN	**73.2**	**93.3**	**71.2**	**95.8**	**64.5**	**88.1**	**45.0**	**77.1**
ANOVA: TRT	0.0001	0.0001	0.0001	0.0001	0.0001	NS	0.0001	0.0001
LSD (P=0.05)	*6.2*	*3.9*	*6.8*	*2.8*	*8.2*	*8.0*	*11.1*	*7.0*
CV	5.9	2.9	6.7	2.1	8.9	6.4	17.3	6.3

TABLE 2b. 2014 ISCDA Seed Treatment Trial - % STAND – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded. (continued)

TREATMENT NO.	ID-5 *Jun-20-14*		IL-1 *May-7-14*		IL-2 *Jun-1-14*		MN-1 *May-5-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	81.1* bcd	88.3	55.3 c	95.5	64.3	84.0	19.8 d	74.0 c-f
2	**85.8 ab**	93.1	**72.3 ab**	95.8	69.0	76.8	33.3 c	74.0 c-f
3	**87.7* a**	86.6	**76.8 a**	98.0	75.8	83.8	**38.0 abc**	70.6 f
4	**86.6 ab**	91.0	**79.3 a**	95.3	77.0	76.5	**36.5 abc**	70.2 f
5	79.0 d	93.1	64.0 bc	95.3	64.9*	86.5	19.0 d	72.1 ef
6	**82.6* a-d**	92.1	**75.3* a**	96.5	64.5	89.3	36.3 bc	73.5 def
7	**85.3 abc**	96.8	**78.3 a**	97.5	79.6*	92.8	**46.3 a**	**79.8 a-e**
8	81.5 bcd	93.5	**74.5 ab**	97.0	72.3	88.8	**38.8 abc**	**77.5 a-f**
9	80.1* cd	92.6	**75.5 a**	96.0	67.5	95.1	**40.5 abc**	76.3 b-f
10	**83.8 a-d**	76.6	**74.5 ab**	98.3	72.4*	84.0	**38.3 abc**	**80.3 a-d**
11	80.0* cd	93.9	**80.0 a**	96.3	65.8	79.0	**40.0 abc**	**82.8 ab**
12	**83.3 a-d**	88.8	**71.3 ab**	97.3	64.0	87.8	33.5 c	**81.5 abc**
13	**86.0 ab**	90.6	**72.6* ab**	96.3	73.3	90.8	**36.5 abc**	**84.8 a**
14	79.5 d	95.8	**73.3 ab**	96.3	62.8	90.3	**45.5 ab**	76.8 b-f
15	**82.2 a-d**	91.1	**75.3 a**	95.8	69.8	84.0	**45.0 ab**	72.5 def
GRAND MEAN	**82.9**	**90.9**	**73.2**	**96.5**	**69.5**	**85.9**	**36.5**	**76.4**
ANOVA: TRT	0.0315	NS	0.0089	NS	NS	NS	0.0001	0.0145
LSD (P=0.05)	*5.5*	*10.7*	*11.1*	*2.7*	*11.2*	*11.9*	*9.9*	*7.9*
CV	4.6	8.2	10.6	2.0	11.3	9.7	19.0	7.3

TABLE 2c. 2014 ISCDA Seed Treatment Trial - % STAND – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded. (continued)

TREATMENT NO.	MN-2 *Jun-23-14*		NY-1 *Jun-2-14*		NY-2 *Jun-14-14*		OR-1 *May-23-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	61.0	90.8	54.3 f	86.3	63.8 cd	89.8	42.8* c	
2	70.8*	92.0	**71.3 a-d**	86.5	65.3 bcd	79.5	**74.8* a**	
3	70.3	90.0	**74.8 a-d**	86.1	60.8* d	86.5	**58.0 abc**	
4	72.3	90.5	67.8 cde	87.0	60.3 d	79.8	**73.0 ab**	
5	66.3	87.3	56.5 f	85.8	60.2* d	84.8	43.3 c	
6	71.5*	96.3	66.3 de	88.8	61.1* d	88.8	55.3 bc	
7	70.3	95.0	**73.5 a-d**	89.5	**72.8 a**	82.5	**57.0 abc**	
8	74.8	87.8	**74.3 a-d**	87.3	64.0 cd	80.5	**59.5 abc**	
9	75.5	85.8	70.3 bcd	89.0	**73.5 a**	88.5	**58.5 abc**	
10	80.0	91.8	**77.5 ab**	91.0	**71.3 ab**	85.3	**60.0 abc**	
11	73.4*	89.0	**80.3 a**	87.3	**68.8 abc**	88.0	**69.0 ab**	
12	70.0	93.3	**74.5* a-d**	88.3	**63.4* cd**	83.3	**56.5 abc**	
13	77.5	93.3	**75.5* abc**	89.0	**68.5 abc**	86.0	**65.3 ab**	
14	73.5*	89.0	58.8 ef	85.5	72.0 a	86.8	**70.3 ab**	
15	78.5	92.3	**74.0 a-d**	89.3	**72.1* a**	89.5	**62.8 ab**	
GRAND MEAN	**72.4**	**90.9**	**70.0**	**87.8**	**66.5**	**85.3**	**60.4**	
ANOVA: TRT	NS	NS	0.0001	NS	0.0001	NS	0.0334	
LSD (P=0.05)	*11.4*	*7.6*	*9.1*	*4.4*	*6.0*	*7.8*	*18.5*	
CV	11.0	5.9	9.1	3.5	6.3	6.4	21.4	

TABLE 2d. 2014 ISCDA Seed Treatment Trial - % STAND – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded. (continued)

TREATMENT NO.	WA-1 *Apr-9-14*		WI-1 *May-5-14*		WI-2 *May-21-14*		WI-3 *May-25-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	32.0* f	91.3	70.3	90.8	74.3	84.0	46.6* c	78.8
2	**64.1 a-e**	93.8	73.8	92.8	73.0	80.5	60.2 bc	88.3
3	**75.3 a**	84.4	75.3	88.4	72.2*	80.3	55.8 bc	87.3
4	**67.2 a-d**	91.9	69.3	84.3	75.0	82.5	**85.7* a**	80.1
5	54.7 de	87.8	69.8	86.5	66.5	82.7	66.1 b	80.6
6	61.9 b-e	93.8	75.0	91.3	71.0	82.0	60.4 bc	89.4
7	62.5 b-e	92.2	72.5	90.5	71.3	82.5	55.8 bc	88.3
8	**69.7 abc**	93.2	67.8	85.8	70.8	84.1	63.6 b	91.7
9	**63.2 a-e**	89.4	63.5	94.8	69.8	82.3	64.8 b	90.4
10	58.2* cde	93.4	75.0*	88.3	78.8	83.5	54.9* bc	93.1
11	54.1 e	92.9	77.8	88.8	76.3	83.8	**81.3 a**	88.3
12	**66.0 a-e**	92.2	69.5*	95.0	66.4	86.8	57.7* bc	88.1
13	**71.9 ab**	95.1	73.5	93.8	70.8	87.3	57.5 bc	87.1
14	**73.5 ab**	91.9	72.8	91.8	**73.3**	82.5	54.6 bc	81.8
15	**71.0 ab**	93.4	75.5	83.9	70.5	81.8	66.0 b	90.9
GRAND MEAN	**63.0**	**91.8**	**72.1**	**89.8**	**71.7**	**83.1**	**62.1**	**86.9**
ANOVA: TRT	0.0001	NS	NS	NS	NS	NS	0.0003	NS
LSD (P=0.05)	*12.7*	*7.1*	*9.2*	*8.7*	*6.7*	*4.9*	*14.5*	*11.4*
CV	*14.1*	*5.4*	*9.0*	*6.8*	*6.6*	*4.1*	*16.3*	*9.1*

TABLE 3. 2014 ISCDA Seed Treatment Trial - % STAND – SUMMARY ACROSS LOCATIONS.
Treatment means in columns followed by the same letter are not significantly different (P=0.05).

TREATMENT NO.	16 + 15 LOCATIONS	16 LOCATIONS	11 LOCATIONS with significant differences	15 LOCATIONS	4 LOCATIONS with significant differences
	BOTH HYBRIDS	JUBILEE	JUBILEE	HMX0376S	HMX0376S
1	69.6 c	53.0 d	45.2 e	86.1 def	81.7
2	76.5 b	66.9 bc	63.4 bcd	86.5 c-f	83.5
3	76.8 b	67.6 abc	64.1 bcd	86.9 b-f	84.8
4	77.0 b	69.3 ab	**66.0 abc**	85.3 f	83.1
5	70.1 c	55.5 d	49.4 e	85.7 ef	81.7
6	76.4 b	64.4 c	61.0 cd	88.6 abc	84.4
7	78.1 ab	66.7 bc	62.8 bcd	90.2 a	88.7
8	78.0 ab	68.3 ab	**66.0 abc**	89.0 ab	88.0
9	78.0 ab	67.0 bc	**65.3 a-d**	89.7 a	88.6
10	78.8 ab	69.1 ab	**65.3 a-d**	88.9 abc	88.6
11	79.7 a	71.0 a	**69.5 a**	88.9 abc	89.3
12	76.4 b	64.0 c	60.6 d	88.9 abc	85.5
13	78.1 ab	67.1 bc	62.8 bcd	89.7 a	87.7
14	77.2 ab	66.8 bc	64.5 bcd	88.3 a-d	86.9
15	78.1 ab	69.1 ab	**66.3 ab**	88.0 a-e	85.8
GRAND MEAN	76.6	65.7	62.1	88.0	85.9
ANOVA					
LOCATION	0.0001	0.0001	0.0001	0.0001	0.0001
TREATMENT	0.0001	0.0001	0.0001	0.0002	NS
TRT X LOC	0.0001	0.0001	**NS**	0.0001	0.0001
LSD (P=0.05)	*2.5*	*3.8*	*4.9*	*2.4*	*5.7*

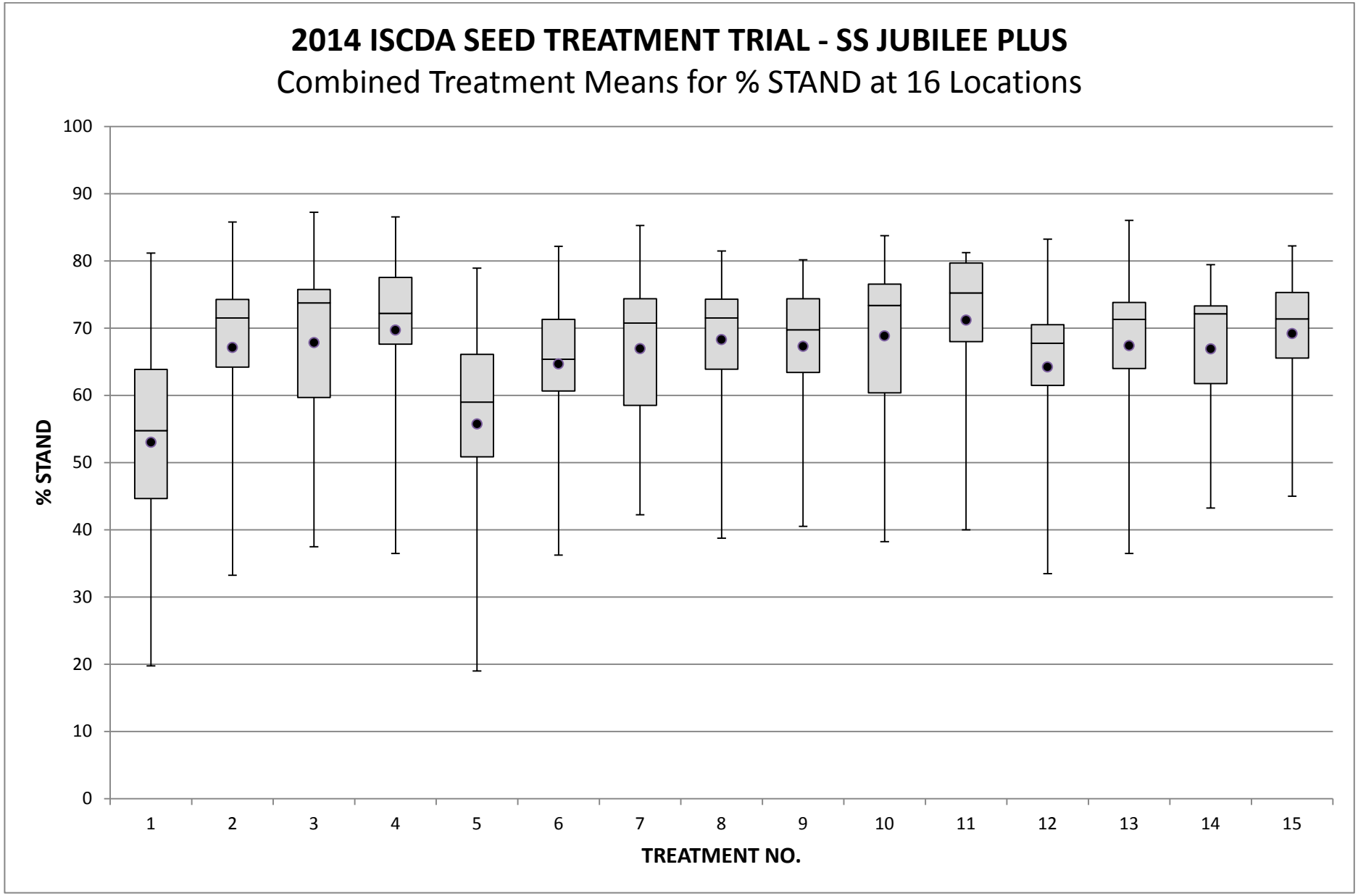

FIGURE 1. 2014 ISCDA Seed Treatment Trial – Box and whisker plot of combined treatment means for % STAND for SS JUBILEE PLUS at 16 locations. The mean for each treatment is indicated by • . The box indicates the interquartile range for results (divided by the median), and the whiskers span to the minimum and maximum results for each treatment.

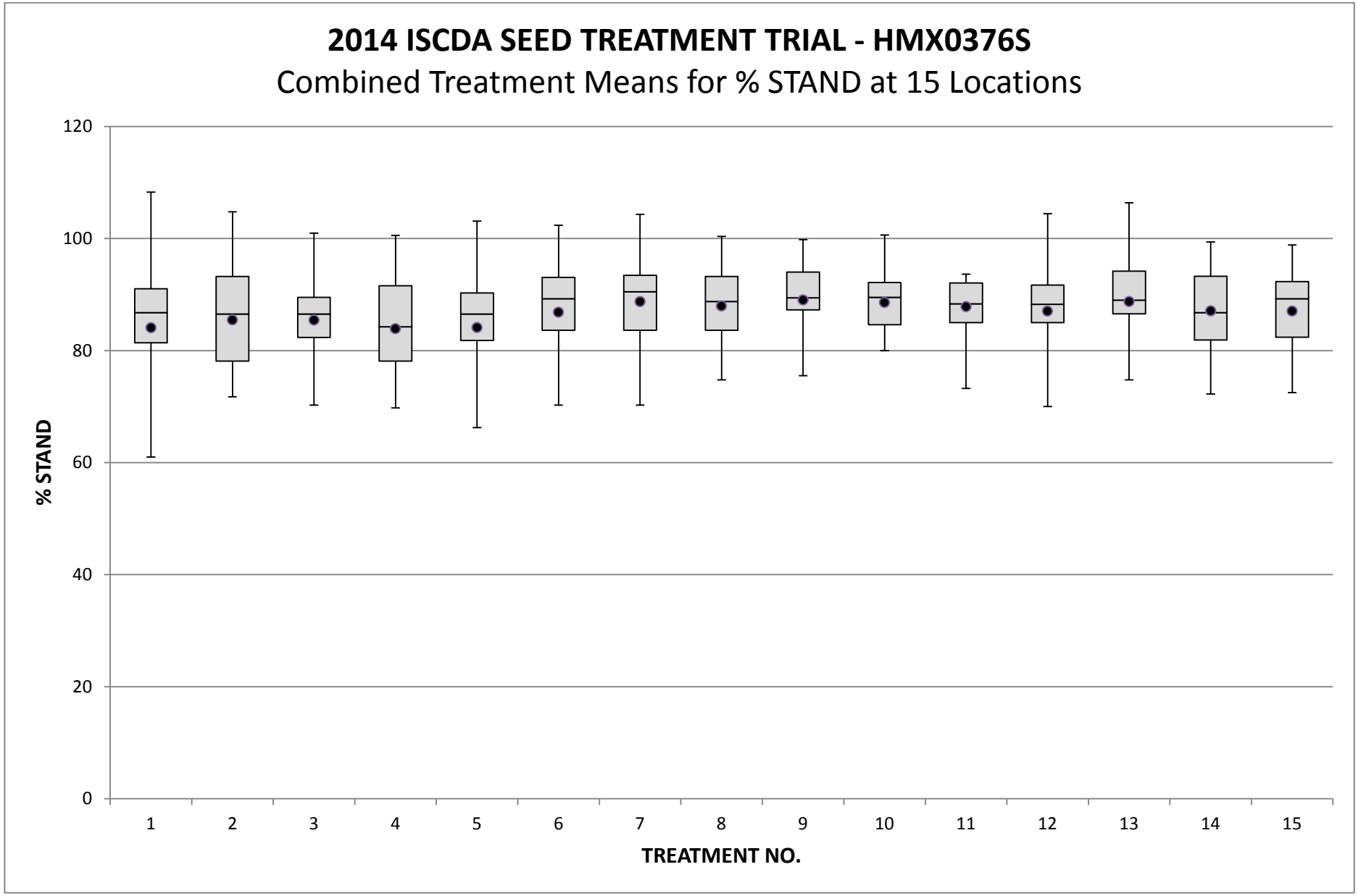

FIGURE 2. 2014 ISCDA Seed Treatment Trial – Box and whisker plot of combined treatment means for % STAND for HMX0376S at 15 locations. The mean for each treatment is indicated by • . The box indicates the interquartile range for results (divided by the median), and the whiskers span to the minimum and maximum results for each treatment

TABLE 4a. 2014 ISCDA Seed Treatment Trial - % SLOWS – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded.

TREATMENT NO.	ID-1 *Apr-10-14*		ID-2 *Apr-12-14*		ID-3 *May-15-14*		ID-4 *May-8-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	14.5	0.6	21.5 ab	5.8	12.2	3.8	20.8	11.7
2	5.9	0.6	**14.3 cde**	4.9	11.2	5.4	18.8	7.4
3	6.2	0.3	**11.3 e**	4.3	8.3	2.8	21.5	8.4
4	8.9	0.8	**11.3 e**	4.8	10.9	0.9	15.1	11.1
5	9.3	0.8	**16.8 b-e**	4.5	13.7	2.3	23.4	8.4
6	7.2	1.1	19.3 abc	5.3	9.4	2.8	27.4	12.2
7	7.3	0.3	22.8 a	4.5	15.0	3.0	27.7	8.4
8	6.0	0.6	**15.0 cde**	5.5	10.4	1.9	19.3	10.8
9	6.5	0.8	**13.6 cde**	5.3	10.9	1.4	12.2	6.7
10	6.5	0.6	**12.3 de**	4.0	12.9	3.3	21.6	6.2
11	5.1	0.0	**16.0 b-e**	6.0	12.4	5.7	14.5	6.3
12	11.2	0.6	17.3 a-d	3.5	15.1	4.1	12.6	8.6
13	6.8	0.3	**14.3 cde**	3.3	11.5	4.6	15.0	8.7
14	5.7	0.6	**15.5 cde**	4.5	11.0	5.7	19.5	7.2
15	7.4	0.3	18.3 abc	5.0	17.7	5.5	21.6	8.1
GRAND MEAN	**7.6**	**0.5**	**15.9**	**4.9**	**12.2**	**3.5**	**19.4**	**8.7**
ANOVA: TRT	NS	NS	0.0055	NS	NS	NS	NS	NS
LSD (P=0.05)	*5.4*	*0.9*	*5.9*	*2.5*	*9.8*	*3.9*	*11.9*	*6.6*
CV	49.2	111.7	25.8	36.6	56.3	76.3	43.0	53.2

TABLE 4b. 2014 ISCDA Seed Treatment Trial - % SLOWS – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded. (continued)

TREATMENT NO.	ID-5 *Jun-20-14*		IL-1 *May-7-14*		IL-2 *Jun-1-14*		MN-1 *May-5-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	2.8	2.3	14.0 a	0.0	**7.8 b-e**	1.5	15.2	5.1
2	2.8	1.7	**6.3 b**	0.0	**7.5 b-e**	2.0	14.3	4.1
3	5.6	2.4	**5.3 b**	0.0	**6.8 cde**	2.2	12.5	4.3
4	1.8	1.7	**4.3 b**	0.0	**6.3 cde**	3.5	3.9	2.4
5	5.9	1.7	**6.8 b**	0.0	13.8 ab	2.3	9.7	3.9
6	3.9	1.3	**5.4 b**	0.0	19.8 a	0.5	14.1	2.4
7	4.3	0.6	**7.0 b**	0.0	10.1 bcd	1.3	8.5	2.6
8	3.5	0.0	**6.3 b**	0.0	**5.3 cde**	2.8	14.2	4.2
9	5.7	2.2	**5.8 b**	0.0	**2.8 e**	1.6	9.7	1.6
10	4.3	3.5	**8.0 b**	0.0	**6.1 cde**	1.0	9.2	4.1
11	7.1	0.6	**4.5 b**	0.0	**6.0 cde**	0.8	9.2	4.1
12	3.6	2.4	**5.3 b**	0.0	10.0 bcd	1.5	13.6	3.7
13	5.3	3.1	**5.7 b**	0.3	**5.8 cde**	1.3	16.0	2.4
14	2.9	2.4	**3.3 b**	0.0	10.5 bc	1.5	9.3	2.3
15	4.4	1.4	**4.0 b**	0.0	**3.5 de**	0.3	9.6	2.9
GRAND MEAN	**4.2**	**1.8**	**6.1**	**0.0**	**8.1**	**1.6**	**11.3**	**3.3**
ANOVA: TRT	NS	NS	0.0273	NS	0.0019	NS	NS	NS
LSD (P=0.05)	*3.7*	*2.8*	*4.9*	*0.2*	*6.8*	*2.5*	*7.3*	*2.2*
CV	60.5	109.9	55.6	774.6	59.0	111.8	45.6	45.9

TABLE 4c. 2014 ISCDA Seed Treatment Trial - % SLOWS – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded. (continued)

TREATMENT NO.	MN-2 *Jun-23-14*		NY-1 *Jun-2-14*		NY-2 *Jun-14-14*		OR-1 *May-23-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	7.4	2.8	37.3 abc	**8.5 b-e**			21.1	
2	5.0	1.6	**28.8 cde**	**7.8 cde**			7.2	
3	4.1	3.1	**30.3 cde**	12.8 abc			10.8	
4	2.4	1.6	**24.0 e**	**7.0 de**			17.3	
5	6.9	1.4	41.8 a	9.8 a-d			11.7	
6	8.6	1.8	40.5 ab	14.8 a			20.4	
7	4.9	2.4	**31.5 b-e**	12.0 a-d			22.2	
8	4.0	1.5	**29.0 cde**	10.3 a-d			29.6	
9	6.6	2.3	**26.5 de**	10.5 a-d			19.1	
10	5.4	1.6	**31.8 b-e**	**3.3 e**			26.1	
11	4.4	1.7	35.5 a-d	14.0 ab			53.8	
12	5.2	1.3	**30.3 cde**	**7.0 de**			25.7	
13	6.5	2.4	**29.8 cde**	**7.5 cde**			9.7	
14	4.7	1.7	**31.0 b-e**	12.5 a-d			5.7	
15	4.5	1.7	**29.0 cde**	9.0 bcd			27.3	
GRAND MEAN	**5.4**	**1.9**	**31.8**	**9.8**			**20.5**	
ANOVA: TRT	NS	NS	0.0470	0.0154			NS	
LSD (P=0.05)	*3.8*	*2.2*	*10.1*	*5.7*			*27.4*	
CV	49.7	79.5	22.2	41.0			93.7	

TABLE 4d. 2014 ISCDA Seed Treatment Trial - % SLOWS – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded. (continued)

TREATMENT NO.	WA-1 *Apr-9-14*		WI-1 *May-5-14*		WI-2 *May-21-14*		WI-3 *May-25-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	3.6	3.5	1.8	1.2			47.4	22.0
2	1.8	2.5	5.5	0.6			30.4	6.3
3	1.3	2.8	4.1	0.4			34.3	8.8
4	2.0	0.5	3.5	1.7			**23.0**	12.6
5	1.3	2.5	5.2	1.8			26.7	9.5
6	1.5	1.0	4.6	0.4			35.3	8.4
7	2.8	0.8	3.1	0.6			30.9	9.1
8	1.8	1.3	4.1	1.2			25.6	6.1
9	0.5	1.5	4.8	0.8			30.9	7.9
10	2.2	1.3	6.8	0.9			39.5	4.7
11	4.8	1.7	4.0	1.2			**24.7**	8.3
12	2.8	0.8	3.9	0.8			33.8	9.6
13	1.0	1.3	4.7	0.0			33.1	9.6
14	1.5	1.3	4.4	1.4			38.1	12.8
15	0.0	1.3	5.2	2.0			27.8	4.6
GRAND MEAN	**1.9**	**1.6**	**4.4**	**1.0**			**32.1**	**9.3**
ANOVA: TRT	NS	NS	NS	NS			NS	NS
LSD (P=0.05)	*2.8*	*2.4*	*3.8*	*1.7*			*17.8*	*10.5*
CV	*102.3*	*106.4*	*61.3*	*120.4*			*38.8*	*78.8*

TABLE 5. 2014 ISCDA Seed Treatment Trial - % SLOWS – SUMMARY ACROSS LOCATIONS.
Treatment means in columns followed by the same letter are not significantly different (P=0.05).

TREATMENT NO.	14 + 13 LOCATIONS	14 LOCATIONS	4 LOCATIONS	13 LOCATIONS	1 LOCATION (NY-1)
	BOTH HYBRIDS	JUBILEE	JUBILEE	HMX0376S	HMX0376S
1	10.5 a	15.8 a	20.1 a	5.3	8.5 b-e
2	7.5 de	11.3 cd	14.2 cd	3.4	7.8 cde
3	8.1 cde	11.6 cd	13.4 cd	4.1	12.8 abc
4	6.5 d	9.2 d	11.5 d	3.6	7.0 de
5	8.8 bcd	13.4 abc	20.0 ab	3.8	9.8 a-d
6	10.0 ab	15.7 ab	22.3 a	4.1	14.8 a
7	9.0 bcd	14.1 abc	18.3 abc	3.6	12.0 a-d
8	8.1 b-e	12.3 bcd	13.9 cd	3.5	10.3 a-d
9	7.3 de	11.1 cd	12.1 d	3.3	10.5 a-d
10	8.3 b-e	13.7 abc	15.3 cd	2.7	3.3 e
11	9.5 abc	14.8 abc	15.5 bcd	3.9	14.0 ab
12	8.1 b-e	12.6 abc	14.1 cd	3.4	7.0 de
13	7.5 cde	11.1 cd	12.0 d	3.6	7.5 cde
14	8.0 cde	11.7 cd	15.1 cd	4.0	12.5 a-d
15	8.3 b-e	12.7 abc	13.7 cd	3.3	9.0 bcd
GRAND MEAN	**8.4**	**12.7**	**15.4**	**3.7**	**9.8**
ANOVA					
LOCATION	0.0001	0.0001	0.0001	0.0001	
TREATMENT	0.0022	0.0079	0.0006	NS	0.0154
TRT X LOC	0.0001	0.0001	0.0052	0.0001	
LSD (P=0.05)	*1.8*	*3.3*	*4.5*	*1.3*	*5.7*

TABLE 6a. 2014 ISCDA Seed Treatment Trial - ADJUSTED % STAND – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded.

TREATMENT NO.	ID-1 *Apr-10-14*		ID-2 *Apr-12-14*		ID-3 *May-15-14*		ID-4 *May-8-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	56.4 e	93.3	39.3 g	86.5 e	43.3 de	83.5	18.5 e	59.3 h
2	**72.4 abc**	90.5	**65.8 abc**	**92.3 abc**	**57.0 abc**	79.5	34.0 cd	69.5 c-g
3	**72.2 a-d**	89.2	**72.5 a**	**92.5 ab**	**65.0 a**	86.8	29.8 de	**72.5 a-e**
4	66.7 cd	92.8	**70.1 ab**	**91.3 a-d**	**61.0 ab**	86.5	40.0 bcd	62.0 gh
5	54.9 e	91.5	43.0 g	88.3 de	42.3 e	85.0	18.5 e	62.0 gh
6	68.6 bcd	95.6	57.0 def	90.0 bcd	**57.8 abc**	83.0	36.0 bcd	63.3 fgh
7	**72.9 abc**	92.8	51.3 f	**92.8 ab**	50.3 cde	89.5	30.3 de	**77.8 abc**
8	**76.0 a**	93.8	63.0 b-e	90.3 bcd	**66.0 a**	89.8	**43.8 abc**	**73.8 a-d**
9	**73.7 ab**	93.6	64.1 b-e	**91.0 a-d**	**62.3 ab**	86.0	**46.5 abc**	**81.2 a**
10	**74.0 ab**	92.5	64.5 bcd	**92.0 abc**	**58.5 abc**	88.5	**47.5 ab**	**80.0 ab**
11	**74.0 ab**	91.5	**67.0 abc**	89.0 cde	**65.0 a**	85.0	**54.5 a**	**80.8 a**
12	66.0 d	90.5	56.8 ef	**91.8 abc**	**56.2 abc**	87.0	36.3 bcd	64.2 e-h
13	67.3 cd	94.3	61.8 cde	**91.5 a-d**	53.3 bcd	83.3	37.5 bcd	68.3 d-g
14	**70.6 a-d**	96.4	**65.3 abc**	**92.3 abc**	**60.8 ab**	81.3	34.5 cd	71.5 b-f
15	**71.9 a-d**	94.1	59.5 cde	**93.8 a**	52.8 bcd	80.5	40.8 bcd	71.5 b-f
GRAND MEAN	**69.2**	**92.8**	**60.0**	**91.0**	**56.8**	**85.0**	**36.6**	**70.5**
ANOVA: TRT	0.0001	NS	0.0001	0.0086	0.0002	NS	0.0001	0.0001
LSD (P=0.05)	*6.3*	*4.0*	*7.6*	*3.4*	*10.3*	*8.8*	*12.7*	*9.0*
CV	6.4	3.1	8.8	2.6	12.7	7.4	24.4	8.9

TABLE 6b. 2014 ISCDA Seed Treatment Trial - ADJUSTED % STAND – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded. (continued)

TREATMENT NO.	ID-5 *Jun-20-14*		IL-1 *May-7-14*		IL-2 *Jun-1-14*		MN-1 *May-5-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	77.9	86.3	48.3 c	95.5	59.3 b-f	**82.8 a-e**	16.7 c	70.3 def
2	83.5	91.6	**67.8 ab**	95.8	**63.8 a-f**	75.0 de	28.5 b	71.0 c-f
3	82.9	54.5	**72.8 a**	98.0	**70.5 ab**	81.9 b-e	**33.3 ab**	67.6 f
4	85.0	80.2	**76.0 a**	95.3	**72.3 a**	73.5 e	**35.0 ab**	68.6 f
5	74.4	91.6	59.8 bc	95.3	55.9 ef	**84.3 a-e**	16.9 c	69.4 ef
6	79.5	88.9	**71.2 ab**	96.5	52.5 f	**88.8 abc**	31.0 b	71.8 b-f
7	81.7	94.7	**72.8 a**	97.5	**71.7 a**	**91.5 ab**	**42.0 a**	**77.8 a-d**
8	78.7	90.6	**70.3 ab**	97.0	**68.3 a-d**	**86.3 a-d**	**33.3 ab**	74.3 b-f
9	75.4	90.9	**71.0 ab**	96.0	**65.5 a-e**	**93.5 a**	**36.5 ab**	**75.0 a-f**
10	80.2	77.9	**68.5 ab**	98.3	**68.0 a-d**	**83.0 a-e**	**34.8 ab**	**77.0 a-d**
11	74.2	93.4	**76.8 a**	96.3	**61.8 a-f**	78.3 cde	**36.3 ab**	**79.4 ab**
12	80.5	86.8	**67.8 ab**	97.3	57.5 c-f	**86.5 a-d**	29.0 b	**78.5 abc**
13	81.5	87.9	**68.4 ab**	96.0	**69.3 abc**	**89.5 abc**	30.8 b	**82.8 a**
14	77.2	90.1	**70.8 ab**	96.3	56.5 def	**88.8 abc**	**41.5 a**	**75.0 a-f**
15	78.7	89.9	**72.3 a**	95.8	**67.3 a-e**	**83.8 a-e**	**40.5 a**	70.5 def
GRAND MEAN	**79.4**	**88.3**	**68.9**	**96.4**	**64.0**	**84.5**	**32.4**	**73.9**
ANOVA: TRT	NS	NS	0.0074	NS	0.0199	0.0426	0.0001	0.0082
LSD (P=0.05)	*7.2*	*13.6*	*12.2*	*2.8*	*12.0*	*11.6*	*9.1*	*7.9*
CV	6.4	10.8	12.4	2.0	13.1	9.6	19.5	7.5

TABLE 6c. 2014 ISCDA Seed Treatment Trial - % ADJUSTED STAND – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded. (continued)

TREATMENT NO.	MN-2 *Jun-23-14*		NY-1 *Jun-2-14*		NY-2 *Jun-14-14*		OR-1 *May-23-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	56.5	88.3	34.0 c	79.3 bcd			34.3	
2	67.2	90.5	**50.8 ab**	80.0 bcd			69.9	
3	67.5	87.3	**52.3 a**	75.2 d			52.3	
4	70.5	89.0	**51.5 a**	**81.3 a-d**			61.5	
5	61.8	86.0	33.0 c	77.3 bcd			38.3	
6	65.4	94.5	39.5 c	75.5 cd			43.3	
7	66.8	92.8	**50.3 ab**	78.8 bcd			46.3	
8	71.8	86.5	**53.0 a**	78.3 bcd			46.3	
9	70.5	83.6	**52.3 a**	79.8 bcd			48.3	
10	75.8	90.3	**53.3 a**	**87.8 a**			47.0	
11	70.1	87.5	**51.5 a**	75.0 d			34.5	
12	66.8	92.0	**53.4 a**	**82.0 abc**			44.5	
13	72.8	91.0	**56.7 a**	**82.3 ab**			59.0	
14	70.1	87.5	40.8 bc	74.8 d			66.3	
15	75.0	90.8	**52.8 a**	**81.3 a-d**			48.0	
GRAND MEAN	**68.6**	**89.2**	**48.3**	**79.2**			**39.8**	
ANOVA: TRT	NS	NS	0.0002	0.0219			NS	
LSD (P=0.05)	*12.2*	*7.9*	*10.6*	*6.7*			*28.0*	
CV	12.4	6.2	15.4	5.9			39.8	

TABLE 6d. 2014 ISCDA Seed Treatment Trial - ADJUSTED % STAND – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded. (continued)

TREATMENT NO.	WA-1 *Apr-9-14*		WI-1 *May-5-14*		WI-2 *May-21-14*		WI-3 *May-25-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	30.8 f	88.1	69.0	89.8			24.6 d	63.3
2	**63.2 a-e**	91.3	69.8	92.3			44.0 bcd	82.9
3	**74.4 a**	82.2	72.3	88.1			37.3 cd	80.2
4	**66.0 a-d**	91.3	66.8	83.0			**65.9 a**	70.1
5	54.1 de	85.6	66.3	85.0			49.4 abc	72.9
6	61.0 b-e	92.9	71.5	88.3			40.0 cd	82.1
7	61.0 b-e	91.3	70.3	90.0			39.0 cd	80.6
8	**68.5 abc**	91.9	65.0	84.8			47.7 abc	86.5
9	**62.9 a-e**	88.2	60.5	94.0			46.1 bc	83.6
10	56.8 cde	92.2	69.9	87.5			33.5 cd	89.0
11	51.6 e	91.2	74.8	87.8			**61.3 ab**	81.5
12	**64.4 a-e**	91.3	66.9	94.3			38.2 cd	79.8
13	**71.3 ab**	93.9	70.0	93.8			39.6 cd	78.7
14	**72.2 ab**	90.7	69.5	90.5			34.4 cd	71.6
15	**71.0 ab**	92.2	71.5	82.1			48.8 abc	86.5
GRAND MEAN	**61.9**	**90.3**	**68.9**	**88.7**			**43.3**	**79.3**
ANOVA: TRT	0.0001	NS	NS	NS			0.0176	NS
LSD (P=0.05)	*13.1*	*7.8*	*9.4*	*9.5*			*19.6*	*17.8*
CV	*14.8*	*6.0*	*9.6*	*7.5*			*31.7*	*15.7*

TABLE 7. 2014 ISCDA Seed Treatment Trial - ADJUSTED % STAND – SUMMARY ACROSS LOCATIONS.
Treatment means in columns followed by the same letter are not significantly different (P=0.05).

TREATMENT NO.	14 + 13 LOCATIONS	14 LOCATIONS	10 LOCATIONS	13 LOCATIONS	5 LOCATIONS
	BOTH HYBRIDS	JUBILEE	JUBILEE	HMX0376S	HMX0376S
1	62.8 c	43.3 e	37.2 f	82.0 ef	75.6 c
2	71.8 abc	59.7 abc	54.7 bcd	84.6 b-f	76.8 bc
3	71.5 ab	60.6 ab	**58.0 ab**	84.1 c-f	78.5 bc
4	72.5 ab	63.3 a	**59.9 a**	82.4 f	75.6 c
5	64.6 c	47.6 e	42.4 e	82.9 def	76.5 c
6	70.0 b	54.6 d	51.3 d	85.5 a-d	77.9 bc
7	72.4 ab	57.4 bcd	53.8 bcd	88.3 a	83.7 a
8	73.2 a	60.8 ab	**59.0 ab**	86.7 abc	81.0 abc
9	72.8 a	59.3 a-d	**57.9 ab**	87.4 ab	83.8 a
10	73.3 a	59.6 a-d	**56.3 a-d**	87.3 ab	84.0 a
11	72.7 a	60.3 ab	**59.6 a**	85.9 abc	80.6 abc
12	71.2 ab	56.3 cd	52.9 cd	86.6 abc	81.4 abc
13	73.1 a	60.0 abc	**55.5 a-d**	87.0 ab	82.9 ab
14	71.8 ab	59.0 a-d	54.5 bcd	85.4 b-e	80.5 abc
15	72.4 ab	60.8 ab	**57.7 abc**	85.5 a-d	80.2 abc
GRAND MEAN	**71.1**	**57.5**	**54.0**	**85.4**	**79.9**
ANOVA					
LOCATION	0.0001	0.0001	0.0001	0.0001	0.0001
TREATMENT	0.0001	0.0001	0.0001	0.0001	0.0156
TRT X LOC	0.0001	0.0073	**NS**	0.0001	0.0128
LSD (P=0.05)	*3.0*	*4.5*	*5.1*	*3.1*	*5.7*

TABLE 8a. 2014 ISCDA Seed Treatment Trial - VIGOR – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded.

TREATMENT NO.	ID-1 *Apr-10-14*		ID-2 *Apr-12-14*		ID-3 *May-15-14*		ID-4 *May-8-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	3.25 d	4.75	2.56 e	4.63	3.00	4.25	1.5	3.5
2	4.25 abc	4.75	3.63 ab	4.85	3.56	4.31	2.3	3.5
3	4.50 ab	4.75	3.56 abc	4.88	3.50	4.19	2.0	4.0
4	4.42 ab	5.00	3.81 a	4.69	3.31	4.38	2.8	3.5
5	3.38 d	5.00	2.62 e	4.50	2.88	4.13	1.0	3.3
6	3.75 cd	5.00	3.19 cd	4.75	3.06	4.00	2.0	3.8
7	4.38 ab	5.00	3.13 d	4.81	3.50	4.31	1.5	4.3
8	4.00 bc	5.00	3.38 a-d	4.88	3.31	4.19	2.3	3.3
9	4.13 abc	4.75	3.49 a-d	4.75	3.50	4.13	2.0	4.4
10	4.00 bc	5.00	3.31 bcd	4.75	3.31	4.13	2.0	4.3
11	4.63 a	4.88	3.50 a-d	4.81	3.24	3.75	2.8	4.3
12	4.13 abc	4.75	3.38 a-d	4.88	3.45	3.75	1.8	3.4
13	4.50 ab	4.75	3.63 ab	4.94	3.75	3.69	1.8	3.8
14	4.00 bc	5.00	3.56 abc	4.75	3.24	3.75	2.0	4.0
15	4.50 ab	5.00	3.31 bcd	4.94	3.38	4.13	2.3	3.8
GRAND MEAN	**4.12**	**4.89**	**3.34**	**4.84**	**3.33**	**4.07**	**2.0**	**3.8**
ANOVA: TRT	0.0002	NS	0.0001	NS	NS	NS	NS	NS
LSD (P=0.05)	*0.58*	*0.44*	*0.44*	*0.33*	*0.65*	*0.59*	*1.0*	*1.0*
CV	9.8	6.2	9.2	4.84	13.6	10.1	36.0	18.6

TABLE 8b. 2014 ISCDA Seed Treatment Trial - VIGOR – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded. (continued)

TREATMENT NO.	ID-5 *Jun-20-14*		IL-1 *May-7-14*		IL-2 *Jun-1-14*		MN-1 *May-5-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	4.19		2.00	3.0 c	4.8	4.8	3.25	4.5
2	4.63		2.88	3.3 bc	4.5	4.5	4.00	5.0
3	4.47		3.00	3.8 ab	4.0	4.2	4.25	4.6
4	4.75		3.25	3.0 c	4.0	4.0	3.88	5.0
5	4.25		2.50	3.0 c	4.3	4.3	3.00	4.7
6	4.97		2.98	3.5 abc	4.3	4.3	3.75	5.0
7	4.25		3.00	3.0 c	4.6	4.8	3.75	4.8
8	4.00		2.75	3.5 abc	4.0	4.0	4.00	5.0
9	4.36		3.00	3.3 bc	4.8	4.6	3.75	5.0
10	4.25		2.75	4.0 a	4.5	4.5	3.75	5.0
11	4.58		3.00	3.5 abc	4.3	4.3	3.75	5.0
12	4.50		3.25	3.0 c	4.8	4.8	4.00	4.8
13	4.13		3.01	3.0 c	4.3	4.3	4.00	5.0
14	5.00		3.38	3.3 bc	4.8	4.8	4.25	5.0
15	3.88		3.25	3.8 ab	5.0	5.0	3.75	5.0
GRAND MEAN	**4.41**		**2.93**	**3.3**	**4.4**	**4.5**	**3.81**	**4.9**
ANOVA: TRT	NS		NS	0.0009	NS	NS	NS	NS
LSD (P=0.05)	*0.70*		*0.71*	*0.5*	*0.8*	*0.8*	*0.72*	*0.4*
CV	11.0		16.9	10.8	12.9	12.6	13.2	6.2

TABLE 8c. 2014 ISCDA Seed Treatment Trial - VIGOR – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded. (continued)

TREATMENT NO.	MN-2 *Jun-23-14*		NY-1 *Jun-2-14*		NY-2 *Jun-14-14*		OR-1 *May-23-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	4.0	4.0	2.3 c	4.3			2.5	
2	4.0	4.0	**3.0 ab**	4.5			**4.8**	
3	4.0	4.0	**2.8 bc**	4.0			**3.5**	
4	4.0	4.0	**3.3 ab**	4.0			**3.5**	
5	4.0	4.0	2.3 c	4.0			3.3	
6	4.0	4.0	**3.0 ab**	4.3			3.3	
7	3.8	4.0	**3.3 ab**	4.0			**3.3**	
8	4.3	4.0	**3.5 a**	4.3			**3.3**	
9	4.0	4.0	**3.5 a**	4.0			**3.0**	
10	4.0	4.0	**3.5 a**	4.5			**3.5**	
11	4.0	4.0	**3.3 ab**	3.8			**2.0**	
12	3.8	4.3	**2.9 abc**	4.3			**2.8**	
13	4.0	4.0	**2.9 abc**	4.3			**3.5**	
14	4.0	4.0	2.8 bc	4.3			**4.5**	
15	4.0	4.0	**3.0 ab**	4.3			**2.5**	
GRAND MEAN	**4.0**	**4.0**	**3.0**	**4.2**			**3.3**	
ANOVA: TRT	NS	NS	0.0144	NS			NS	
LSD (P=0.05)	*0.3*	*0.2*	*0.7*	*0.7*			*1.8*	
CV	5.6	3.2	17.1	11.4			37.4	

TABLE 8d. 2014 ISCDA Seed Treatment Trial - VIGOR – SS JUBILEE PLUS and HMX0376S.
Planting date in italics. Means in columns followed by the same letter are not significantly different (P=0.05). Means in columns followed by * indicate that an outlier was excluded. (continued)

TREATMENT NO.	WA-1 *Apr-9-14*		WI-1 *May-5-14*		WI-2 *May-21-14*		WI-3 *May-25-14*	
	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S	JUBILEE	HMX0376S
1	3.02 d	4.3	4.25		2.3	4.0	1.6	3.8
2	**4.50 abc**	5.0	4.38		2.0	4.0	2.8	4.0
3	**4.88 a**	4.8	4.50		1.8	4.3	2.3	4.3
4	**4.50 abc**	5.0	4.13		2.3	4.3	**2.6**	3.4
5	3.88 c	4.8	3.88		2.0	4.3	2.5	3.8
6	**4.25 abc**	4.8	4.00		2.3	3.8	2.3	3.5
7	**4.50 abc**	4.5	4.38		2.3	4.0	2.5	3.5
8	**4.75 ab**	4.8	4.38		2.3	3.7	2.3	4.5
9	**4.25 abc**	4.8	4.00		2.0	4.5	2.8	4.0
10	**4.37 abc**	4.7	4.75		2.6	3.8	1.9	4.3
11	4.00 bc	4.5	3.63		2.5	4.0	**2.8**	3.5
12	**4.50 abc**	5.0	4.41		2.3	4.5	2.6	4.0
13	**4.63 abc**	5.0	4.13		2.0	4.8	2.3	3.5
14	**4.75 ab**	5.0	4.38		**2.5**	4.0	2.0	3.4
15	**4.88 a**	5.0	4.13		2.0	4.5	2.5	4.3
GRAND MEAN	**4.38**	**4.8**	**4.22**		**2.2**	**4.2**	**2.4**	**3.8**
ANOVA: TRT	0.0040	NS	NS		NS	NS	NS	NS
LSD (P=0.05)	*0.80*	*0.6*	*0.81*		*0.6*	*0.9*	*0.9*	*1.0*
CV	*14.1*	*8.4*	*13.4*		*19.7*	*14.8*	*25.8*	*18.6*

TABLE 9. 2014 ISCDA Seed Treatment Trial - VIGOR – SUMMARY ACROSS LOCATIONS.
Treatment means in columns followed by the same letter are not significantly different (P=0.05).

TREATMENT NO.	15 + 13 LOCATIONS	15 LOCATIONS	4 LOCATIONS	13 LOCATIONS	1 LOCATIONS (IL-1)
	BOTH HYBRIDS	JUBILEE	JUBILEE	HMX0376S	HMX0376S
1	3.53 d	2.98 c	2.73 c	4.13 c	3.0 c
2	3.94 a	**3.64 a**	**3.84 ab**	**4.30 ab**	3.3 bc
3	3.85 abc	**3.51 a**	**3.92 a**	4.29 bc	**3.8 ab**
4	3.89 abc	**3.64 a**	**4.02 a**	4.19 bc	3.0 c
5	3.51 d	3.03 c	3.03 c	4.12 c	3.0 c
6	3.77 c	3.39 b	3.55 b	4.20 bc	**3.5 abc**
7	3.81 abc	**3.45 ab**	**3.81 ab**	4.25 bc	3.0 c
8	3.84 abc	**3.49 ab**	**3.91 a**	4.28 bc	**3.5 abc**
9	3.87 abc	**3.75 ab**	**3.83 ab**	**4.34 ab**	3.3 bc
10	3.90 abc	**3.48 ab**	**3.75 ab**	**4.39 ab**	4.0 a
11	3.76 bc	**3.40 ab**	**3.77 ab**	4.17 bc	**3.5 abc**
12	3.87 abc	**3.54 ab**	**3.80 ab**	4.27 bc	3.0 c
13	3.84 abc	**3.52 ab**	**4.00 a**	4.23 bc	3.0 c
14	3.95 ab	**3.67 a**	**3.77 ab**	4.28 bc	3.3 bc
15	3.92 a	**3.49 ab**	**3.92 a**	**4.47 a**	**3.8 ab**
GRAND MEAN	**3.82**	**3.47**	**3.71**	**4.26**	**3.3**
ANOVA					
LOCATION	0.0001	0.0001	0.0001	0.0001	
TREATMENT	0.0001	0.0001	0.0001	0.0288	0.0009
TRT X LOC	0.0283	**NS**	**NS**	**NS**	
LSD (P=0.05)	*0.2*	*0.2*	*0.4*	*0.2*	*0.5*