

EDIBLE BEAN

AGRONOMY
AND
PEST MANAGEMENT
RESEARCH RESULTS

2016

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RIDGETOWN CAMPUS

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Agronomy and Pest Management Research Results for Dry Edible Beans 2016

This report is a compilation of agronomy and pest management research results in dry edible beans at Ridgetown College and the Huron Research Station for 2016. It has been produced as a reference for growers and industry personnel.

A number of the pesticides that are included in this report are not currently registered for use in dry edible beans in Ontario. Always follow label directions when applying pesticides.

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2016 Heat Unit and Precipitation Summary for Exeter and Ridgetown.

Ontario Corn Heat Units (OCHU)				
Month	Huron Research (Exeter)		Ridgetown Campus	
	2016	Norm (36 yr)	2016	Norm (41 yr)
May	280	363	441	376
June	645	657	643	684
July	817	775	788	795
August	841	748	794	767
September	666	558	645	677
October	53	69	376	212
Total	3301	3169	3687	3410

Precipitation (mm)

Month	Huron Research (Exeter)		Ridgetown Campus	
	2016	Norm (36 yr)	2016	Norm (41 yr)
May	62	82	26	79
June	63	81	51	71
July	90	82	79	83
August	166	68	65	87
September	41	107	97	88
October	87	94	46	64
Total	508	513	364	472

20% or more below average

20% or more above average

2016 Weather

Heat unit accumulation was above average in 2016, particularly in September/October. A killing frost occurred on October 28. Above average heat in September and dry conditions resulted in rapid maturity and early harvest of studies at the Huron Research Station.

The Ridgetown Campus site had below average precipitation for 2016 – particularly May, June August and October. The Huron Research Station had average precipitation for the growing season, but monthly distribution fluctuated. May, June and September were dry, while August was very wet. Planting progress was steady in May and June, with few delays. There was little noticeable drought stress at the Huron Research Station. At Auburn, rainfall totals were much lower, and drought stress was present in August and September.

EXECUTIVE SUMMARY

Variety Registration and Performance Trials (ongoing)

Four studies were seeded in 2016 - on schedule at Auburn (June 3) but delayed at Exeter (June 14). The Exeter site had minor damage from excess rainfall throughout the season, which increased the CV. Canopy growth was good at both sites. A very dry August reduced the yield of the early maturing cultivars at Auburn.

Summary of Registration/Performance Trials, Huron Research Station, 2016

Location	Market Class	Average Yield	C.V.	Notes
Auburn	White	2991	9.4	Early cultivars affected by August drought
Exeter	White	3081	9.0	Minor damage from excess rain
Exeter	Cran/Kidney	2893	11.6	Minor damage from excess rain
Exeter	Black/Pinto/SR	3360	10.5	Acceptable trial

Preliminary Yield Trials (ongoing)

Four studies were seeded in 2016 at Auburn, Exeter and Woodstock. A preliminary site was also seeded at Emo in northern Ontario. The Woodstock site was damaged by extreme drought, which resulted in a high CV (22.4).

A number of public and private breeding programs took part in the trials, including ADM, Agr. Canada/U of G, AmeriSeed (Co-op), Cooks, Cornell, Gen-Tec, HDC, Hyland, MSU, NDSU, Pro-Vita, Secan and Seminis. The primary site was at Exeter, and these trials were repeated at Auburn (narrow row) and Woodstock (wide row).

There were 59 entries tested. Entries by market class are as follows: navy (15 entries), DRK (4 entries), LRK (8 entries), WK (2 entries), Cran (7 entries), Black (12 entries), Otebo (3) Pinto (2) and Small Red (4). The food-type soybean and Pink classes had 1 entry each.

Summary of Preliminary Yield Trials, Huron Research Station, 2016

Location	Market Class	Average Yield	C.V.	Notes
Auburn	Navy/Black/Misc	3167	10.8	Early cultivars affected by August drought
Exeter	Navy/Black/Misc	2295	10.6	Minor damage from excess rain
Exeter	Cran/Kidney/Misc	2524	11.7	Minor damage from excess rain
Woodstock	Cran/Kidney/Misc	1126	22.4	Poor yield from severe drought
Total Entries				59 distinct entries at 4 sites

Black – Top yielding lines include Zorro, ADM B0040613 and ACUG 15-B4 .

Navy – Top yielding lines include Apex, AmeriSeed NA12062 and Mist.

Samurai (otebo), K11306 (DRK), Clouseau (LRK) and C1017332 (Cran) did well at both sites

Adzuki Variety Trial (Year 1 of 2)

The agronomic performance of Erimo adzuki bean was compared to two dry beans (Rexeter navy and Zorro black) and two food type soybeans (S03-W4 and S07-M8). Trials were planted in 2016 at Exeter, Woodstock and Winchester, but the Woodstock site was lost due to severe drought. Erimo had the lowest yield at Exeter and Winchester. However, Erimo suffered from an unidentified leaf blight at the Exeter site.

Evaluation of Marsh Spot in Dry Beans (Ongoing)

Background - Marsh spot is a physiological disorder found primarily in cranberry beans (occasionally in kidney beans). Cells in the centre of the cotyledons die and turn a gray/black colour (see Fig. 1). The damage is evident once the seed is split along the cotyledonary axis, and opened up to view the interior of the cotyledons. Marsh spot can create serious marketing issues for bean dealers. Marsh spot incidence was above average in 2016.

Registration/Performance Trials - Cranberry cultivars from trials at Exeter, Elora and St. Thomas locations were evaluated for marsh spot and compared to Etna (resistant check) and Messina (susceptible check). All of the lines tested were similar to the resistant check Etna except ACUG 15-C1 and Vero. This is the 2nd year that these two cultivars have tested high for marsh spot.

Preliminary Yield Trials – Cranberry cultivars from trials at Exeter and Woodstock were evaluated. All the lines tested were similar to the resistant check Etna except Vero.

Figure 1: Marsh Spot Severity Ratings



Anthraxnose Foliar Fungicide (ongoing)

This is an ongoing study to develop a long term data set on anthracnose fungicide efficacy and economic returns. A spore suspension was used to inoculate disease free plants at the end of July. Disease pressure following inoculation was well below average for the early planted study, and very low for the late planted study. Few treatment differences were recorded in the early planted study. Fluopyram and Vertisan had relatively high disease severity, but there were no treatment differences for % pick or yield.

White Mold Foliar Fungicide (ongoing)

This is an ongoing study to develop a long term data set on white mold fungicide efficacy and economic returns. Two trials were planted in 2016. Disease pressure was low in the early planted study and very low in the late planted study. There were no treatment differences for disease incidence and severity, % pick or yield.

White Mold Fungicide Time of Day (Year 3)

Two trials were planted in 2016. Allegro 500F was applied at 6:00 AM, 12:00 PM, 6:00 PM and 12:00 AM to determine if time of day impacted fungicide performance. Disease pressure was very low in both studies. Minor differences in disease incidence and severity were measured, but this did not result in differences in % pick or yield in either study.

White Mold Cultivar x RowWidth x Population (Year 1)

One trial was planted in 2016. Overall, disease pressure was low. Two cultivars (Merlot SRM and Beryl GN) were seeded in 2 row widths (38 and 76 cm) at four populations (100, 80, 60 and 40%, with 100% population target of 200,000 plants/ha in narrow rows and 175,000 plants/ha in wide rows). Narrow rows had almost twice as much disease versus wide rows. Merlot had higher disease severity than Beryl, but this was influenced by population, as Merlot had more disease than Beryl at 100, 80 and 60% populations but not at 40%. However, differences between treatments had no effect on % pick and yield.

Root Rot Seed Treatment (ongoing)

This is an ongoing study to evaluate Cruiser Maxx Bean (current standard) with and without Dynasty or Sedaxane. This treatment was compared to Rancona Summit and Evergol Energy. All plots received Cruiser to minimize any confounding effects from soil insects.

Fusarium - disease pressure was severe, with treatment differences evident for emergence and plant vigour for the first 22 days after planting. The best seed treatments had 100-200% higher yield than the inoculated control. Cruiser Maxx Bean had very weak emergence and vigour, and low yield. The addition of Dynasty or Sedaxane to Cruiser Maxx Bean had a neutral to negative effect. Rancona Summit and Evergol had the highest emergence and vigour – typically twice as high as Cruiser Maxx Bean. This resulted in yield increases of 500-800 kg/ha for Rancona Summit versus Cruiser Maxx Bean. The addition of Sedaxane to Rancona Summit increased emergence and vigour, but did not impact yield.

Rhizoctonia – disease pressure was severe in both studies. Treatment differences were evident for emergence and plant vigour for the first 22 days after planting. The best seed treatments had 1-2X higher yield than the inoculated control. Cruiser Maxx Bean had very weak emergence and vigour, and low yield. The addition of Dynasty or Sedaxane to Cruiser Maxx Bean had no effect on plant emergence and vigour, or seed yield. Rancona Summit and Evergol had the highest emergence and vigour – usually twice as high as Cruiser Maxx Bean. This resulted in yield increases of 400-600 kg/ha. The addition of Sedaxane to Rancona Summit increased emergence and vigour, but did not impact yield.

Common Bacterial Blight (CBB) Foliar Control

Four trials were planted in 2016, using two bean market classes (navy and kidney) and two disease inoculation methods (infected seed and foliar inoculum). Three experimental compounds (Copper I, Copper W and XX) were compared to Parasol and SaniDate. Two products (XX and Sanidate) showed promise in previous work done at the University of Nebraska.

The foliar inoculated trials had very low disease pressure and no differences in disease severity,

% pick or seed yield. The seed inoculated trials had low disease pressure which resulted in slight differences in disease severity – generally all treatments had less disease than the inoculated control. These treatment differences did not result in a yield response.

AgTiv/Myconate in Dry Bean (Year 1 of 2)

AgTiv is a mycorrhizae inoculant product produced by Premier Tech, while Myconate is a chemical stimulant for mycorrhizae produced by Plant Health Care. Both products were evaluated in a small plot agronomic study at the Huron Research Station, in a small plot root rot study at Harrow Research Station and in grower strip plots in Huron and Perth counties.

At the Huron Research Station, AgTiv and Myconate were evaluated at a 1X and 2X rate alone, and together at a 1x rate. All treatments were applied along with 2.5 l/ha of 6-24-6 fertilizer at planting. There were no treatment differences for plant emergence, vigour, height, stage of development or dry weight. At harvest, there were no treatment differences for plant maturity, lodging, yield, seed weight or % pick.

2016 Navy Bean Registration and Performance Trial - Auburn

No.	Name	Yield Rank	Yield (kg/ha)	Yield Index	Yield / Maturity	Seed		Lodging (1-5, 1=low)	Harvestability (1-5, 1=good)
						Weight (g/100)	Days to Maturity		
1	Apex	14	3012	101	29	26.2	104	1.5	1.5
2	Nautica	4	3561	119	35	20.2	102	1.7	1.6
3	Bolt	25	2435	81	25	24.1	97	1.3	1.4
4	Fathom	2	3570	119	34	24.7	105	2.1	2.1
5	Lightning	20	2780	93	28	23.8	101	1.8	1.9
6	Mist	12	3077	103	30	23.9	104	1.6	1.8
7	Rexeter	9	3137	105	30	21.6	104	1.8	1.9
8	ACUG14-1	18	2787	93	28	25.2	98	1.5	1.8
9	ACUG14-3	16	2903	97	28	26.5	105	2.1	1.8
10	Lighthouse	11	3090	103	30	23.4	103	1.5	1.5
11	Blizzard	1	3578	120	35	22.7	102	2.5	2.0
12	DS105W0	3	3567	119	35	23.8	103	2.6	2.6
13	T9905	7	3161	106	31	23.9	102	1.9	2.0
14	OAC Thunder	19	2786	93	27	25.0	103	1.8	2.0
15	Alpena	6	3320	111	32	21.7	104	2.0	1.9
16	ACUG15-2	5	3330	111	32	22.6	105	3.3	3.1
17	ACUG15-3	17	2831	95	27	20.4	103	1.6	1.4
18	ACUG15-4	13	3026	101	29	23.6	105	1.6	1.5
19	ACUG16-1	23	2527	84	26	25.6	98	1.4	1.6
20	ACUG16-2	26	2347	78	23	25.2	104	1.4	1.8
21	ACUG16-3	21	2713	91	27	20.2	99	1.1	1.6
22	ACUG16-4	24	2476	83	24	24.7	102	1.5	1.6
23	ACUG16-5	15	2918	98	29	22.6	102	2.3	2.4
24	ACUG16-6	8	3140	105	30	20.7	103	3.1	3.3
25	ACUG16-7	10	3111	104	30	23.9	104	1.6	1.4
26	IG-10M	22	2581	86	27	24.0	97	1.1	1.3
		Mean	2991	100	29	23.5	102.3	1.8	1.9
		C.V.	9.4			3.3	1.7	25.2	23.9
		PR > F	0.0001			0.0001	0.0001	0.0001	0.0001
		LSD(0.05)	397			1.1	2.5	0.7	0.6

Trial Summary

Design: RCBD
 Row Width: Narrow = 15 inch (38 cm)
 Number of Rows Per Plot: 6
 Number of Rows Harvested Per Plot: 4
 Plot Length: 6 m
 Harvest Length: 5 m.
 Seeding Rate: 17 seeds/m
 Seed Treatment: CruiserMaxxBean + Dynasty

Fertilizer: 19.3-15.8-17.5-3.9S-0.39Zn @ 285 lbs/ac (June 2)
 Herbicide: pç Dual II Magnum & Rival (June 2)
 post Reflex & Assure II (June 24)
 Valtera Desiccant (Sept 9)
 Planting Date: June 3
 Fungicide: Matador, Quadris, Serenade, Phi-K (July 20)
 Matador, Allegro, Headline, Releaf Mn (Aug 3)
 Matador, Allegro, Headline, Releaf Mn (Aug 15)
 Harvest Date: Sept 21

2016 Navy Bean Registration and Performance Trial - Exeter

No.	Name	Yield Rank	Yield (kg/ha)	Yield Index	Yield / Maturity	Seed Weight (g/100)	Days to Maturity	CBB (%)	Lodging (1-5, 1=low)	Harvestability (1-5, 1=good)
1	Apex	20	2902	94	30	22.6	97.0	4.3	2.3	1.9
2	Nautica	16	3051	99	34	18.1	90.0	2.0	2.0	1.8
3	Bolt	14	3137	102	35	23.7	90.3	5.0	1.9	1.5
4	Fathom	23	2740	89	29	19.9	96.0	5.8	2.6	2.5
5	Lightning	22	2823	92	32	20.2	88.5	5.8	2.0	1.6
6	Mist	19	3024	98	32	21.0	96.0	4.5	2.1	1.9
7	Rexeter	1	3679	120	38	19.2	96.0	3.8	2.8	2.8
8	ACUG14-1	8	3235	105	36	23.0	91.0	12.0	2.4	2.1
9	ACUG14-3	4	3277	107	33	22.7	98.0	5.5	2.4	2.4
10	Lighthouse	10	3201	104	35	21.4	92.0	5.0	1.9	1.8
11	Blizzard	24	2579	84	27	17.0	95.0	4.5	2.3	2.1
12	DS105W0	6	3263	106	34	19.7	96.0	8.3	3.6	3.6
13	T9905	17	3038	99	33	21.2	92.0	4.5	2.5	2.4
14	OAC Thunder	15	3062	100	32	20.8	95.0	9.3	2.9	2.9
15	Alpena	25	2570	84	27	17.3	95.0	8.8	2.8	2.5
16	ACUG15-2	26	2542	83	26	17.7	97.0	10.0	3.3	3.3
17	ACUG15-3	18	3032	99	32	18.6	95.0	3.3	2.4	2.3
18	ACUG15-4	11	3177	103	32	20.6	98.0	6.8	1.8	1.6
19	ACUG16-1	5	3272	106	36	21.9	92.0	4.0	2.8	2.5
20	ACUG16-2	13	3146	102	33	21.3	96.0	6.3	2.0	1.9
21	ACUG16-3	2	3443	112	38	20.1	91.0	1.5	2.1	2.0
22	ACUG16-4	12	3158	103	35	19.5	91.0	6.8	3.1	3.1
23	ACUG16-5	9	3233	105	34	20.2	95.0	5.3	3.0	3.0
24	ACUG16-6	7	3261	106	34	17.7	96.0	4.0	3.1	3.1
25	ACUG16-7	3	3367	109	35	21.6	95.0	6.3	2.0	2.0
26	IG-10M	21	2887	94	32	23.6	91.3	7.0	1.9	1.5
Mean			3081	100	33	20.4	94.0	5.8	2.4	2.3
C.V.			9.0			4.1	2.3	60.6	16.6	18.6
PR > F			0.0001			0.0001	0.0001	0.0170	0.0001	0.0001
LSD(0.05)			392			1.2	3.1	4.9	0.6	0.6

Trial Summary

Design: RCBD

Row Width: Narrow = 15 inch (38 cm)

Number of Rows Per Plot: 6

Number of Rows Harvested Per Plot: 4

Plot Length: 6 m

Harvest Length: 5 m

Seeding Rate: 17 seeds/m

Seed Treatment: CruiserMaxx + Dynasty

Fertilizer: 0-0-100 lbs fall incorporated

15 gal/ac UAN (45lbs/ac) ppi (June 13)

Herbicide: ppi. Pursuit .25 L/ha, Frontier .74 L/ha (June 13)

Post Reflex (1.0 L/ha), Assure II (0.75 L/ha)(July 17)

Manual weed control as necessary

Planting Date: June 14

Fungicide/Insecticide:Matador (0.1 L/ha) (July 28)

Matador (0.1 L/ha), Lance (0.77 kg/ha), Quadris (0.5 L/ha) (July 28)

Matador (0.1 L/ha), Headline (0.4 L/ha), Allegro (0.88 L/ha) (August 9)

Matador (0.1 L/ha), Quadris (0.5 L/ha), Allegro (0.88 L/ha) (August 22)

Dessication: Eragon/ Merge (0.07 kg/ha, 1 L/ha) (September 17)

Harvest Date: September 22

2016 Cran and Kidney Bean Registration and Performance - Exeter

No.	Name	Market Class	Yield Rank	Yield (kg/ha)	Yield Index	Yield / Maturity	Seed Weight (g/100)	Days to Maturity	Seed Quality (1-5)
1	ACUG 14-C2	Cran	14	2865	99	32	59.0	90.0	2.8
2	ACUG 15-C2	Cran	13	2869	99	31	60.4	93.0	2.8
3	ACUG 16-C1	Cran	17	2770	96	30	61.2	93.3	3.0
4	ACUG 16-C2	Cran	6	3105	107	32	59.7	96.3	2.9
5	ACUG 16-C3	Cran	5	3110	108	33	61.6	94.5	2.4
6	ACUG 16-C4	Cran	15	2807	97	30	49.6	93.5	2.6
7	Etna	Cran	8	2971	103	34	56.1	87.3	2.6
8	McEarly	Cran	4	3153	109	37	61.6	86.3	2.1
9	Ponente	Cran	16	2790	96	33	63.9	83.8	2.6
10	Red Rider	Cran	3	3207	111	34	60.7	93.8	2.9
11	ACUG 15-D1	DRK	23	2629	91	29	62.6	90.0	1.6
12	ACUG 15-D2	DRK	11	2925	101	31	59.0	95.5	2.5
13	ACUG 16-D1	DRK	20	2732	94	30	56.9	91.5	2.5
14	ACUG 16-D2	DRK	1	3373	117	36	56.1	93.5	1.8
15	Dynasty	DRK	10	2940	102	31	59.0	93.8	2.1
16	GTS 104	DRK	12	2922	101	32	53.1	91.3	2.3
17	GTS 106	DRK	9	2958	102	32	51.1	92.8	1.5
18	Majesty	DRK	22	2637	91	30	63.4	89.0	1.8
19	Red Hawk	DRK	19	2737	95	31	49.2	87.0	2.3
20	ACUG 15-L1	LRK	2	3255	113	34	63.2	94.8	2.1
21	ACUG 16-L1	LRK	25	2452	85	25	50.2	97.0	3.3
22	Big Red	LRK	24	2622	91	32	54.8	83.0	2.3
23	OAC Inferno	LRK	7	3074	106	32	59.1	96.3	2.6
24	Pink Panther	LRK	18	2753	95	33	55.4	83.8	2.1
25	Yeti	WK	21	2672	92	28	53.3	95.5	2.3
Mean				2893	100	32	57.6	91.5	2.4
C.V.				11.6			3.5	2.2	17.9
PR > F				0.0280			0.0001	0.0001	0.0001
LSD(0.05)				474			2.9	2.9	0.6

Trial Summary

Design: RCBD

Row Width: Wide = 30 inch (76 cm)

Number of Rows Per Plot: 2

Number of Rows Harvested Per Plot: 2

Plot Length: 6 m

Harvest Length: 4m

Seeding Rate: 17 seeds/m

Seed Treatment: CruiserMaxx + Dynasty

Fertilizer: 0-0-100 lbs applied and ploughed in fall

15 gal/ac UAN (45lbs/ac) ppi (June 13)

Herbicide: ppi Pursuit .25 L/ha, Frontier .74 L/ha (June 13)

post Reflex (1.0L/ha), Assure II (0.75L/ha)(July 17)

Manual weed control as necessary

Planting Date: June 14th

Fungicide/Insecticide:

Matador (0.1 L/ha), Lance (0.77 kg/ha), Quadris (0.5 L/ha) (July 28)

Matador (0.1 L/ha), Headline (0.4 L/ha), Allegro (0.88L/ha) (August 9)

Matador (0.1 L/ha), Quadris (0.5 L/ha), Allegro (0.88L/ha) (August 22)

Dessication: Eragon/ Merge (71g/ha, 1L/ha) (September 13)

Harvest Dates: September 5-19

2016 Black, Pinto and SR Registration and Performance Trial - Exeter

No.	Name	Market Class	Yield Rank	Yield (kg/ha)	Yield Index	Seed		CBB (%)	Lodging (1-5, 1=low)	Harvestability (1-5, 1=good)	
						Yield / Maturity	Weight (g/100)				
1	ACUG 15-B4	Black	1	4319	129	45.0	23.2	96.0	1.0	2.8	2.5
2	ACUG 16-B1	Black	10	3235	96	34.1	22.0	95.0	1.5	2.5	2.5
3	ACUG 16-B2	Black	3	3824	114	40.3	25.6	95.0	2.0	2.5	2.5
4	ACUG 16-B3	Black	11	3230	96	33.6	23.1	96.0	2.3	2.6	2.6
5	ACUG 16-B4	Black	5	3500	104	36.8	25.4	95.0	2.0	2.5	2.4
6	Zenith	Black	14	2945	88	31.0	20.6	95.0	2.0	1.8	1.5
7	Zorro	Black	2	3860	115	40.6	22.1	95.0	2.3	1.8	1.6
8	ACUG 16-NDP1	Pinto	15	2298	68	24.5	35.8	94.0	3.3	2.9	2.6
9	ACUG 16-P1	Pinto	6	3375	100	37.8	38.1	89.3	2.3	2.6	2.4
10	ACUG 16-P2	Pinto	4	3637	108	37.9	39.4	96.0	3.0	2.6	2.6
11	La Paz	Pinto	12	3201	95	34.0	33.4	94.0	3.3	2.9	2.9
12	ACUG13-SR1	Small Red	7	3343	100	34.8	23.2	96.0	3.8	2.0	1.9
13	Merlot	Small Red	13	3033	90	32.3	36.5	94.0	3.3	3.5	3.5
14	Ruby	Small Red	8	3304	98	35.5	30.9	93.0	4.3	4.5	4.5
15	Viper (09303)	Small Red	9	3297	98	35.5	29.3	93.0	4.0	2.9	2.8
Mean			Mean	3360	100.0	35.6	28.6	94.4	2.7	2.7	2.6
C.V.			C.V.	503.7			4.1	2.2	40.5	14.9	16.7
PR>F			PR > F	10.5			1.7	3.0	1.7	0.6	0.6
LSD (0.05)			LSD(0.05)	0.0001			0.0001	0.0050	0.0020	0.0001	0.0001

Trial Summary

Design: RCBD

Row Width: Narrow = 15 inch (38 cm)

Number of Rows Per Plot: 6

Number of Rows Harvested Per Plot: 4

Plot Length: 6 m

Harvest Length: 5 m

Seeding Rate: 17 seeds/m

Seed Treatment: CruiserMaxx + Dynasty

Fertilizer: 0-0-100 lbs applied and ploughed in fall

15 gal/ac UAN (45lbs/ac) ppi (June 13th)

Herbicide: ppi. Pursuit .25 L/ha, Frontier .74 L/ha (June 13th)

Reflex (1.0L/ha), Assure II (0.75L/ha)(July 17th)

Manual weed control as necessary

Planting Date: June 14th

Fungicide/Insecticide:Matador (100mL/ha) (July 28th)

Matador (100mL/ha), Lance (770g/ha), Quadris (500mL/ha) (July 28th)

Matador (100mL/ha), Headline (400mL/ha), Allegro (0.88L/ha) (August 9th)

Matador (100mL/ha), Quadris (500mL/ha), Allegro (0.88L/ha) (August 22nd)

Dessication: Eragon/ Merge (71g/ha, 1L/ha) (September 17th)

Harvest Dates: September 22nd

2016 Narrow Row Dry Bean Preliminary Yield Trial (PYT) - Auburn

No.	Name	Market Class	Sponsor	Yield Rank	Yield (kg/ha)	Yield Index	Yield / Maturity	Seed			
								Weight (g/100)	Days to Maturity	Lodging (1-5, 1=low)	Harvestability (1-5, 1=good)
1	Apex	White	SECAN	28	2918	92	28	26.4	103	1.0	1.6
2	HMS Medalist	White	AmeriSeed	7	3568	113	34	22.8	104	2.0	1.8
3	Rexeter	White	HDC	19	3213	101	31	21.3	103	1.5	2.1
4	T9905	White	Thompsons	15	3351	106	33	25.6	103	1.8	1.8
5	Mist (ACUG 10-6)	White	HDC	11	3500	111	34	23.5	103	1.4	1.6
6	Bolt	White	Guelph	36	1983	63	20	24.5	99	1.1	1.9
7	Fathom (12-5)	White	Guelph	23	3068	97	29	26.0	105	2.1	2.4
8	ACUG 14-1	White	Guelph	33	2502	79	25	25.6	99	1.0	1.8
9	ACUG 14-2	White	Guelph	29	2855	90	27	25.5	106	1.6	1.5
10	SEM1200 (SV1893GH)	White	Seminis	17	3324	105	31	25.2	106	2.0	2.0
11	Alpena (N11283)	White	MSU	26	2958	93	28	21.2	104	1.6	1.8
12	NA12047	White	AmeriSeed	24	3060	97	30	19.5	101	1.0	1.4
13	NA12062	White	AmeriSeed	8	3561	112	35	21.1	103	1.8	1.6
14	NA12063	White	AmeriSeed	12	3441	109	33	23.2	103	1.5	1.1
15	NA13068	White	AmeriSeed	16	3348	106	33	25.1	103	1.4	1.6
16	Zorro	Black	MSU	18	3323	105	33	25.0	102	1.0	1.4
17	Shania	Black	ADM	3	3735	118	36	24.2	104	1.4	1.4
18	SEMB1312 (SV6894GB)	Black	Seminis	32	2535	80	26	26.4	98	1.0	1.6
19	Zenith (B10244)	Black	MSU	14	3397	107	33	25.4	104	1.3	1.5
20	BL13489	Black	Coop Elevator	13	3431	108	35	22.9	99	1.4	1.4
21	BL12576	Black	Coop Elevator	20	3209	101	32	21.8	100	1.3	1.5
22	BL14506	Black	Coop Elevator	2	3822	121	37	26.6	104	1.1	1.0
23	BL14497	Black	Coop Elevator	10	3508	111	33	24.3	105	1.3	1.6
24	B8006282	Black	ADM	25	3025	96	31	23.4	99	1.0	1.8
25	B1048276	Black	ADM	21	3198	101	33	23.1	97	1.5	2.0
26	B0040613	Black	ADM	4	3684	116	35	26.0	104	1.6	1.6
27	ACUG15-B4	Black	Guelph	9	3532	112	35	23.7	101	1.5	1.8
28	S03-W4	Soybean	Syngenta	1	4005	126	36	23.1	110	1.0	1.0
29	Fuji	Otebo	MSU	35	2194	69	21	35.6	106	4.0	4.0
30	Merlot	SR	MSU	30	2705	85	26	40.7	103	2.5	2.4
31	Viper (09303)	SR	ADM	5	3619	114	37	32.8	98	1.3	1.4
32	PROVR11511	SR	ProVita	6	3582	113	34	44.4	105	2.1	1.5
33	R12844	SR	MSU	22	3111	98	32	38.2	98	1.4	1.4
34	Rosetta	Pink	MSU	34	2232	70	23	34.0	97	1.3	1.8
35	Vibrant	Pinto	Ameriseed	31	2551	81	25	39.1	101	1.9	2.1
36	La Paz	Pinto	AmeriSeed	27	2955	93	30	45.6	99	1.8	1.9
Mean					3167	100	31	27.3	102.2	1.5	1.7
C.V.					10.8			4.3	1.9	22.0	16.4
PR>F					0.0001			0.0001	0.0001	0.0001	0.0001
LSD (0.05)					479			1.7	2.7	0.5	0.4

Trial Summary

Design: RCBD

Row Width: Narrow = 15 inch (38 cm)

Number of Rows Per Plot: 6

Number of Rows Harvested Per Plot: 4

Plot Length: 6 m

Harvest Length: 5 m.

Seeding Rate: 17 seeds/m

Seed Treatment: CruiserMaxx Bean + Dynasty

Fertilizer: 19.3-15.8-17.5-3.9S-0.39Zn @ 285 lbs/ac (June 2)

Herbicide: PPI. Dual II Magnum & Rival (June 2)

Post Reflex (1L/ha) & Assure II (June 24)

Valtera Desiccant (105 g/ha) (Sept 9)

Planting Date: June 3

Fungicide: Matador (0.083 L/ha), Quadris (0.5 L/ha), Serenade (4 L/ha), Phi-K (1 L/ha) (July 20)

Matador (0.083 L/ha), Allegro (1 L/ha), Headline (0.4 L/ha), Releaf Mn (1 L/ha)(Aug 3)

Matador (0.083 L/ha), Allegro (1 L/ha), Headline (0.4 L/ha), Releaf Mn (1 L/ha)(Aug 15)

Harvest Date: Sept 21

2016 Narrow Row Dry Bean Preliminary Yield Trial (PYT) - Exeter

No.	Name	Market Class	Sponsor	Yield Rank	Yield (kg/ha)	Yield Index	Yield / Maturity	Seed Weight (g/100)	Days to Maturity	Lodging (1-5, 1=low)	Harvestability (1-5, 1=good)
1	Apex	White	SECAN	18	3507	102	38	25.1	93.0	1.5	1.6
2	HMS Medalist	White	AmeriSeed	27	3317	97	37	17.6	88.5	2.1	2.3
3	Rexeter	White	HDC	8	3757	110	42	19.4	90.3	1.8	2.1
4	T9905	White	Thompsons	23	3423	100	37	22.1	91.3	2.1	1.9
5	Mist (ACUG 10-6)	White	HDC	9	3686	107	42	21.6	88.5	1.5	1.6
6	Bolt	White	Guelph	26	3322	97	37	24.7	89.5	1.5	1.9
7	Fathom (12-5)	White	Guelph	33	2798	82	32	19.8	88.5	2.1	2.6
8	ACUG 14-1	White	Guelph	14	3596	105	42	24.0	84.8	1.5	1.8
9	ACUG 14-2	White	Guelph	13	3619	106	40	24.0	91.0	1.8	1.5
10	SEMNI1200 (SV1893GH)	White	Seminis	34	2679	78	29	21.8	93.0	2.3	2.1
11	Alpena (N11283)	White	MSU	10	3683	107	40	19.5	91.0	1.8	1.8
12	NA12047	White	AmeriSeed	35	2664	78	30	17.0	88.5	1.5	1.5
13	NA12062	White	AmeriSeed	36	2157	63	24	14.4	88.5	2.3	1.9
14	NA12063	White	AmeriSeed	16	3515	102	38	19.0	93.0	1.6	1.5
15	NA13068	White	AmeriSeed	12	3651	106	40	21.6	91.0	1.5	1.6
16	Zorro	Black	MSU	6	3786	110	42	21.3	89.3	1.5	1.5
17	Shania	Black	ADM	24	3391	99	38	20.6	88.5	1.5	1.5
18	SEMB1312 (SV6894GB)	Black	Seminis	4	3903	114	46	24.0	85.5	1.5	1.6
19	Zenith (B10244)	Black	MSU	25	3388	99	36	21.6	93.0	1.5	1.5
20	BL13489	Black	Coop Elevator	17	3511	102	40	21.0	87.8	1.8	1.5
21	BL12576	Black	Coop Elevator	19	3495	102	40	19.8	86.3	1.5	1.5
22	BL14506	Black	Coop Elevator	21	3438	100	37	21.4	93.0	1.5	1.5
23	BL14497	Black	Coop Elevator	15	3589	105	38	21.3	94.0	1.6	1.8
24	B8006282	Black	ADM	3	3975	116	46	21.7	85.5	1.5	1.8
25	B1048276	Black	ADM	7	3768	110	44	22.3	84.8	1.8	2.1
26	B0040613	Black	ADM	1	4079	119	44	22.7	92.0	1.5	1.6
27	ACUG15-B4	Black	Guelph	2	4062	118	46	22.8	88.5	1.8	1.8
28	S03-W4	Soybean	Syngenta	22	3426	100	35	24.2	98.0	1.5	1.5
29	Fuji	Otebo	MSU	32	2874	84	30	29.1	95.0	3.5	3.3
30	Merlot	SR	MSU	28	3155	92	34	40.0	94.0	2.6	2.3
31	Viper (09303)	SR	ADM	20	3463	101	41	30.6	84.0	1.5	1.5
32	PROVR11511	SR	ProVita	31	3031	88	32	38.4	94.0	2.1	1.9
33	R12844	SR	MSU	5	3874	113	43	38.5	90.3	1.6	1.6
34	Rosetta	Pink	MSU	29	3132	91	37	34.3	84.0	1.5	1.8
35	Vibrant	Pinto	Ameriseed	30	3091	90	33	36.4	94.0	2.0	2.1
36	La Paz	Pinto	AmeriSeed	11	3682	107	41	37.4	90.3	1.9	1.8
Mean					3430	100	38	24.5	90.1	1.8	1.8
C.V.					10.6			6.0	2.5	18.9	14.5
PR>F					0.0001			0.0001	0.0001	0.0001	0.0001
LSD (0.05)					339			2.1	3.1	0.5	0.4

Trial Summary

Design: RCBD
 Row Width: Wide = 15 inch (38 cm)
 Number of Rows Per Plot: 6
 Number of Rows Harvested Per Plot: 4
 Plot Length: 6 m
 Harvest Length: 4m
 Seeding Rate: 17 seeds/m
 Seed Treatment: CruiserMaxx Bean + Dynasty

Fertilizer: 0-0-100 lbs applied and ploughed in fall
 15 gal/ac UAN (45lbs/ac) ppi (June 13)
 Herbicide:PPI Pursuit 0.25 L/ha, Frontier 0.74 L/ha (June 13)
 Post Reflex (1.0L/ha), Assure II (0.75L/ha)(July 17)
 Manual weed control as necessary
 Planting Date: June 14
 Fungicide/Insecticide:
 Matador (0.1 L/ha), Lance (0.77 kg/ha), Quadris (0.5 L/ha) (July 28)
 Matador (0.1 L/ha), Headline (0.4 L/ha), Allegro (0.88L/ha) (August 9)
 Matador (0.1 L/ha), Quadris (0.5 L/ha), Allegro (0.88L/ha) (August 22)
 Dessication: Eragon/ Merge (0.071 kg/ha, 1 L/ha) (September 17)
 Harvest Dates: September 22

2016 Wide Row Dry Bean Preliminary Yield Trial (PYT) - Exeter

No.	Name	Market Class	Yield Rank	Yield (kg/ha)	Yield Index	Yield / Maturity	Seed Weight (g/100)	Days to Maturity
1	Inferno	LRK	24	2246	89	24	54.9	94.0
2	Clouseau (SEM07146)	LRK	13	2538	101	30	54.0	85.5
3	Pink Panther	LRK	25	2226	88	26	52.9	84.8
4	Big Red (09351)	LRK	15	2510	99	30	54.0	83.0
5	09378	LRK	23	2267	90	27	54.4	84.8
6	09357	LRK	22	2317	92	28	52.3	83.0
7	09363	LRK	27	2191	87	26	53.9	83.0
8	Rosie	LRK	11	2560	101	27	51.8	94.0
9	Dynasty (OAC 07-6D1)	DRK	12	2542	101	27	57.7	93.0
10	Red Rover	DRK	26	2214	88	26	48.6	85.5
11	Talon	DRK	20	2402	95	27	50.7	90.5
12	K11306	DRK	7	3018	120	33	48.6	91.3
13	Bellagio	CRAN	16	2475	98	27	60.6	93.3
14	Etna	CRAN	5	3145	125	35	56.4	88.8
15	Chianti	CRAN	8	2767	110	31	59.7	89.0
16	C13413	CRAN	17	2466	98	27	51.5	91.3
17	C1018320	CRAN	28	1696	67	18	50.7	94.8
18	C1017332	CRAN	19	2403	95	27	58.1	88.5
19	Vero	CRAN	10	2692	107	31	55.2	88.0
20	La Paz	Pinto	2	3712	147	42	34.7	89.0
21	Fuji	Otebo	18	2448	97	28	25.4	87.0
22	Hime	Otebo	9	2698	107	30	28.9	89.0
23	Samurai (G12901)	Otebo	4	3155	125	35	25.8	90.3
24	Apex	Navy	1	3804	151	41	25.2	93.8
25	Viper	SRM	6	3098	123	34	28.2	91.8
26	Zorro	Black	3	3634	144	40	21.1	91.0
27	Yeti (ACUG 10-W1)	WK	14	2536	100	27	52.2	94.0
28	Snowdon	WK	21	2366	94	28	56.5	84.8
Mean				2524	100	28	50.7	88.7
C.V.				11.7			4.7	2.3
PR > F				0.0001			0.0001	0.0001
LSD(0.05)				437			3.2	2.9

Trial Summary

Design: RCBD
 Row Width: Wide = 30 inch (76 cm)
 Number of Rows Per Plot: 2
 Number of Rows Harvested Per Plot: 2
 Plot Length: 6 m
 Harvest Length: 4m
 Seeding Rate: 17 seeds/m
 Seed Treatment: CruiserMaxx Bean + Dynasty

Fertilizer: 0-0-100 lbs applied and ploughed in fall
 15 gal/ac UAN (45lbs/ac) ppi (June 13)
 Herbicide: ppi. Pursuit 0.25 L/ha, Frontier 0.74 L/ha (June 13)
 Post Reflex (1.0L/ha), Assure II (0.75L/ha)(July 17)
 Manual weed control as necessary
 Planting Date: June 14
 Fungicide/Insecticide:
 Matador (0.1 L/ha), Lance (0.77 kg/ha), Quadris (0.5 L/ha) (July 28)
 Matador (0.1 L/ha), Headline (0.4 L/ha), Allegro (0.88L/ha) (August 9)
 Matador (0.1 L/ha), Quadris (0.5 L/ha), Allegro (0.88L/ha) (August 22)
 Dessication: Eragon/ Merge (0.071 kg/ha, 1 L/ha) (September 13)
 Harvest Dates: September 5-19

2016 Wide Row Dry Bean Preliminary Yield Trial (PYT) - Woodstock

No.	Name	Market Class	Yield Rank	Yield (kg/ha)	Yield Index	Yield / Maturity	Days to Maturity
1	Inferno	LRK	10	1233	110	15	84.8
2	Clouseau (SEM07146)	LRK	5	1382	123	17	82.0
3	Pink Panther	LRK	11	1214	108	15	81.5
4	Big Red (09351)	LRK	27	794	71	10	81.5
5	09378	LRK	19	985	87	12	81.3
6	09357	LRK	6	1358	121	17	81.0
7	09363	LRK	25	876	78	11	80.5
8	Rosie	LRK	12	1213	108	15	83.0
9	Dynasty (OAC 07-6D1)	DRK	7	1352	120	16	84.0
10	Red Rover	DRK	24	899	80	11	83.3
11	Talon	DRK	21	912	81	11	85.3
12	K11306	DRK	4	1443	128	17	84.5
13	Bellagio	CRAN	22	906	80	10	95.3
14	Etna	CRAN	28	758	67	9	82.3
15	Chianti	CRAN	16	1128	100	13	89.3
16	C13413	CRAN	9	1296	115	16	83.3
17	C1018320	CRAN	23	899	80	11	84.5
18	C1017332	CRAN	14	1197	106	14	84.8
19	Vero	CRAN	20	950	84	12	81.8
20	La Paz	Pinto	1	2051	182	24	86.3
21	Fuji	Otebo	26	809	72	10	82.3
22	Hime	Otebo	17	1124	100	14	81.8
23	Samurai (G12901)	Otebo	3	1473	131	17	86.3
24	Apex	Navy	8	1309	116	13	101.0
25	Viper	SRM	13	1202	107	14	84.0
26	Zorro	Black	2	1732	154	18	94.5
27	Yeti (ACUG 10-W1)	WK	15	1184	105	14	84.3
28	Snowdon	WK	18	1095	97	13	82.0
		Mean		1126	100	13	83.8
		C.V.		22.4			2.9
		PR > F		0.0001			0.0001
		LSD(0.05)		370			3.5

Trial Summary

Design: RCBD

Row Width: Narrow = 30 inch (76 cm)

Number of Rows Per Plot: 2

Number of Rows Harvested Per Plot: 2

Plot Length: 6 m

Harvest Length: 4m

Seeding Rate: 20 seeds/m

Seed Treatment: CruiserMaxx + Dynasty

Fertilizer: 10-40-40 actual kg/ha applied in spring

Herbicide: ppi: Pursuit 0.2 L/ha, Frontier 0.9 L/ha

post: Basagran 2.25 L/ha, Excel Super 0.67 L/ha

Planting Date: June

Fungicide: Allegro 1 L/ha, Quadris 0.5L/ha

July , Aug

Harvest Dates: September

2016 Wide Row Dry Bean Preliminary Yield Trial (PYT) - Emo

No.	Name	Market Class	Yield Rank	Yield (kg/ha)
1	Zorro	Black	6	1645
2	Mist	Navy	9	1355
3	Indy	Navy	3	1953
4	T9905	Navy	1	2752
5	AC Compass	Navy	4	1916
6	Hime	Otebo	7	1588
7	Erimo	Adzuki	2	2044
8	Inferno	LRK	8	1370
9	Red Hawk	DRK	14	759
10	Red Rover	DRK	15	603
11	Majesty	DRK	11	1171
12	Etna	Cran	13	1004
13	Chianti	Cran	10	1181
14	Merlot	SRM	5	1863
15	Messina	Cran	12	1012
	Mean			1515
	C.V.			34.3
	LSD(0.05)			723.8

Trial Summary

Design: RCBD

Row Width: Wide = 30 inch (76 cm)

Number of Rows Per Plot: 2

Number of Rows Harvested Per Plot: 2

Plot Length: 6 m

Harvest Length: 4m

Seeding Rate: 17 seeds/m

Seed Treatment: CruiserMaxx Bean + Dynasty

Planting Date: June 14

Harvest Dates: September 5-19

2016 Adzuki Variety Trial - Exeter

No.	Name	Market Class	Yield (kg/ha)	Seed Weight (g/100)	Plant Maturity (DAP)	Lodging (1-5; 1=erect)	Harvestability (1-5; 5=good)
1	Erimo	Adzuki	827 c*	7.6 d	87.3 a	2.6 a	3.3 b
2	Rexeter	Navy	2837 b	20.5 c	87.5 a	1.0 b	5.0 a
3	Zorro	Black	2682 b	20.1 c	87.5 a	1.0 b	5.0 a
4	S03-W4	Soy	3026 a	23.2 b	80.0 b	1.0 b	5.0 a
5	S07-M8	Soy	3261 a	24.7 a	80.0 b	1.0 b	5.0 a
	Mean		2526.6	19.2	84.5	1.3	4.7
	C.V.		13.5	5.1	0.5	21.2	8.3
	PR>F		0.001	0.001	0.001	0.001	0.001
	LSD (0.05)		395.6	1.5	0.6	0.4	0.6

* - adzuki yield was impacted by leaf and stem blight

2016 Adzuki Variety Trial - Winchester

No.	Name	Market Class	Yield (kg/ha)	Seed Weight (g/100)	Harvestability (1-5, 1=best)
1	Erimo	Adzuki	2385 d	14.2 b	1.6 b
2	Rexeter	Navy	2659 d	19.6 a	3.4 a
3	Zorro	Black	3232 c	20.1 a	2.9 a
4	S03-W4	Soybean	4023 b	20.2 a	1.0 c
5	S07-M8	Soybean	4552 a	20.6 a	1.0 c
	Mean		3370	18.9	2.0
	C.V.		5.5	3.8	18.1
	PR>F		0.0001	0.0001	0.0001
	LSD (0.05)		0.5	1.1	0.5

Marsh Spot Analysis - Cranberry Entries to Major Coloured Bean Performance Test 2016

Trt No	Treatment Name	Exeter			Elora			St. Thomas			Woodstock			2016 Average			2015-2016 Average		
		Incidence %	Severity (0-5)	Incid X Sev (0-5)	Incidence %	Severity (0-5)	Incid X Sev (0-5)	Incidence %	Severity (0-5)	Incid X Sev (0-5)	Incidence %	Severity (0-5)	Incid X Sev (0-5)	Incidence %	Severity (0-5)	Incid X Sev (0-5)	Incidence %	Severity (0-5)	Incid X Sev (0-5)
1	Red Rider	0.0 c	0.0	0.00 c	0.3 b	0.3 b	0.00 b	1.0 b	1.1 a	0.02 b	0.5 b	0.6 b	0.01 b	0.5	0.50	0.01	1.0	0.6	0.02
2	ACUG 14-C2	1.8 c	1.1	0.03 bc	0.5 b	0.3 b	0.01 b	13.3 a	2.3 a	0.32 a	1.3 b	0.8 b	0.02 b	4.2	1.13	0.10	3.8	1.1	0.08
3	Etna (Check)	0.8 c	1.1	0.02 c	0.0 b	0.0 b	0.00 b	5.0 b	1.6 a	0.11 b	0.0 b	0.0 b	0.00 b	1.5	0.68	0.03	1.1	0.6	0.02
4	Ponente	4.3 b	1.7	0.06 b	0.3 b	0.3 b	0.00 b	4.5 b	1.6 a	0.08 b	0.0 b	0.0 b	0.00 b	2.3	0.90	0.04			
5	McEarly	0.5 c	0.3	0.01 c	0.3 b	0.3 b	0.00 b	1.3 b	0.8 a	0.01 b	0.3 b	0.5 b	0.01 b	0.6	0.48	0.01			
6	ACUG 15-C2	0.5 c	0.5	0.01 c	0.0 b	0.0 b	0.00 b	0.8 b	1.4 a	0.02 b	0.0 b	0.0 b	0.00 b	0.3	0.48	0.01	0.9	0.6	0.03
7	ACUG 16-C1	1.5 c	0.9	0.02 c	1.8 a	1.3 a	0.03 a	4.0 b	2.3 a	0.11 b	0.3 b	0.5 b	0.01 b	1.9	1.25	0.04			
8	ACUG 16-C2	0.5 c	0.5	0.01 c	0.0 b	0.0 b	0.00 b	0.8 b	1.4 a	0.02 b	0.0 b	0.0 b	0.00 b	0.3	0.48	0.01			
9	ACUG 16-C3	0.8 c	1.3	0.02 c	0.3 b	0.3 b	0.00 b	2.5 b	1.6 a	0.04 b	1.0 b	0.5 b	0.02 b	1.2	0.93	0.02			
10	ACUG 16-C4	0.0 c	0.0	0.00 c	0.0 b	0.0 b	0.00 b	3.5 b	2.0 a	0.07 b	0.0 b	0.0 b	0.00 b	0.9	0.50	0.02			
11	Messina (Susc. Check)	11.8 a	1.6	0.18 a				14.5 a	2.0 a	0.30 a	27.5 a	2.4 a	0.67 a	17.9	2.00	0.38	19.2	2.0	0.41
	Mean	2.0	0.8	0.03	0.3	0.25	0.00	4.6	1.6	0.10	2.8	0.5	0.07	2.4	1.5	0.2	5.2	1.0	0.11
	CV	77.3	111.6	87.6	161.9	146.0	182.6	64.7	61.5	80.1	97.0	152.5	131.6						
	PR>F (0.05)	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.52	0.00	0.00	0.00	0.00						
	LSD (0.05)	2.3	N/A	0.04	0.8	0.5	0.01	4.3	N/A	0.12	3.9	1.1	0.13						

Marsh Spot Analysis - Cranberry Entries to Major Coloured Bean Performance Test 2015

Trt No	Treatment Name	Exeter			Elora			St. Thomas			Average		
		Incidence %	Severity (0-5)	Incid X Sev (0-5)	Incidence %	Severity (0-5)	Incid X Sev (0-5)	Incidence %	Severity (0-5)	Incid X Sev (0-5)	Incidence %	Severity (0-5)	Incid X Sev (0-5)
1	Red Rider	2.3 bc	1.1	0.06 bc	2.0 b	0.80 c	0.02 c	0.0 c	0.00 b	0.00 c	1.4	0.6	0.03
2	ACUG 13-C1	3.5 bc	1.5	0.05 bc	9.5 a	1.90 bc	0.20 bc	1.0 bc	0.80 ab	0.01 c	4.7	1.4	0.09
3	Etna (Check)	0.3 c	0.5	0.01 c	1.8 b	1.00 c	0.02 c	0.0 c	0.00 b	0.00 c	0.7	0.5	0.01
4	ACUG 14-C2	2.5 bc	1.7	0.04 bc	7.5 ab	1.60 c	0.13 c	0.0 c	0.00 b	0.00 c	3.3	1.1	0.06
5	ACUG 15-C1	1.5 bc	2.6	0.04 bc	11.5 a	3.00 a	0.35 ab	5.8 b	1.70 ab	0.12 b	6.3	2.4	0.17
6	ACUG 15-C2	0.0 c	0.0	0.00 c	2.5 b	1.40 c	0.05 c	1.8 bc	0.80 ab	0.06 c	1.4	0.7	0.04
7	Vero	5.5 bc	1.7	0.13 bc	13.8 a	2.80 ab	0.38 a	0.5 c	0.30 b	0.01 c	6.6	1.6	0.17
8	Messina (Susc. Check)	24.0 a	2.2	0.54 a				16.8 a	1.80 a	0.32 a	20.4	2.0	0.43
	Mean	4.9	1.4	0.11	6.9	1.79	0.16	3.2	0.67	0.06	5.0	1.3	0.11
	CV	58.2	82.8	75.5	65.8	40.2	72.1	103.8	120.7	128.7			
	PR>F (0.05)	0.00	0.08	0.00	0.01	0.00	0.00	0.00	0.01	0.00			
	LSD (0.05)	4.2	NA	0.12	6.8	1.1	0.2	4.9	1.19	0.12			

Marsh Spot Analysis of Cranberry Bean - Preliminary Yield Trials 2012

Trt No	Treatment Name	Kippen			Woodstock			Average		
		Incidence %	Severity (0-5)	Incid X Sev (0-5)	Incidence %	Severity (0-5)	Incid X Sev (0-5)	Incidence %	Severity (0-5)	Incid X Sev (0-5)
1	Red Rider	0.3 b	0.75 b	0.01 b	7.5 c	1.64 abc	0.16 bc	3.9	1.20	0.09
2	Bellagio	0.8 b	0.75 b	0.01 b	3.3 cd	2.10 ab	0.07 c	2.1	1.43	0.04
3	Messina (Susc Check)	21.0 a	1.93 a	0.40 a	27.8 a	2.14 ab	0.61 a	24.4	2.04	0.51
4	Etna (Check)	0.0 b	0.00 b	0.00 b	2.3 cd	0.63 def	0.03 c	1.2	0.32	0.02
5	HR202	0.3 b	0.25 b	0.00 b	1.4 cd	1.54 bc	0.03 c	0.9	0.90	0.02
6	SEMC0929	0.3 b	0.50 b	0.01 b	1.9 cd	1.15 cde	0.02 c	1.1	0.83	0.02
7	SEMC1031	0.0 b	0.00 b	0.00 b	0.8 d	0.50 ef	0.01 c	0.4	0.25	0.01
8	SEMC0926	0.0 b	0.00 b	0.00 b	0.1 d	0.00 f	0.00 c	0.1	0.00	0.00
9	SEMC0928	0.3 b	0.75 b	0.01 b	15.0 b	1.69 abc	0.25 b	7.7	1.22	0.13
10	SEMC1016	0.8 b	0.63 b	0.01 b	6.8 c	2.48 a	0.16 bc	3.8	1.56	0.09
11	Chianti	0.0 b	0.00 b	0.00 b	2.0 cd	1.50 bcd	0.03 c	1.0	0.75	0.02
12	UC0801	0.0 b	0.00 b	0.00 b	0.0 d	0.00 f	0.00 c	0.0	0.00	0.00
	Mean	2.0	0.46	0.04	5.7	1.28	0.11	3.9	0.87	0.08
	CV	72.0	151.4	49.0	73.2	48.0	100.4			
	PR>F (0.05)	0.00	0.02	0.00	0.00	0.00	0.00			
	LSD (0.05)	2.0	1.01	0.03	6.1	0.89	0.17			

Marsh Spot Analysis of Cranberry Bean - Preliminary Yield Trials 2013

Trt No	Treatment Name	Kippen			Woodstock			Average			2 Year Average		
		Incidence %	Severity (0-5)	Incid X Sev (0-5)	Incidence %	Severity (0-5)	Incid X Sev (0-5)	Incidence %	Severity (0-5)	Incid X Sev (0-5)	Incidence %	Severity (0-5)	Incid X Sev (0-5)
1	Red Rider	0.7 cd	0.33 e	0.01 c	1.0 e	0.75 cd	0.02 e	0.9	0.54	0.02	2.4	0.87	0.05
2	Bellagio	0.0 d	0.00 e	0.00 c	0.0 e	0.00 d	0.00 e	0.0	0.00	0.00	1.0	0.71	0.02
3	ADMC259	3.3 cd	1.86 a-d	0.09 c	11.5 c	3.57 a	0.42 c	7.4	2.72	0.26			
4	Etna (Check)	0.3 d	0.33 e	0.00 c	3.0 e	0.71 d	0.09 e	1.7	0.52	0.05	1.4	0.42	0.03
5	HR202	0.0 d	0.00 e	0.00 c	0.3 e	0.50 d	0.01 e	0.2	0.25	0.01	0.5	0.57	0.01
6	ACUG 12-C2	0.0 d	0.00 e	0.00 c	0.0 e	0.00 d	0.00 e	0.0	0.00	0.00			
7	SEMC0929	2.7 cd	1.33 b-e	0.04 c	4.5 de	3.45 a	0.14 de	3.6	2.39	0.09	2.4	1.61	0.05
8	SEMC1031	0.7 cd	0.67 de	0.01 c	4.8 de	2.03 bc	0.11 e	2.8	1.35	0.06	1.6	0.80	0.03
9	SEMC1261	0.7 cd	0.67 de	0.01 c	0.5 e	1.00 cd	0.02 e	0.6	0.84	0.02			
10	HDC C1	0.0 d	0.00 e	0.00 c	0.0 e	0.00 d	0.00 e	0.0	0.00	0.00			
11	HDC C2	0.3 d	0.33 e	0.00 c	0.3 e	0.50 d	0.01 e	0.3	0.42	0.01			
12	Chianti	1.3 cd	1.50 a-e	0.03 c	0.3 e	1.00 cd	0.01 e	0.8	1.25	0.02	0.9	1.00	0.02
13	MSUC11260	36.3 a	2.83 ab	1.05 a	39.0 a	3.25 ab	1.26 a	37.7	3.04	1.16			
14	MSUC11266	7.3 c	2.28 abc	0.19 c	9.5 cd	3.59 a	0.33 cd	8.4	2.94	0.26			
15	MSUC11273	1.3 cd	1.25 cde	0.05 c	14.0 c	3.75 a	0.52 c	7.7	2.50	0.29			
16	Messina (Susc Check)	25.0 b	2.85 a	0.71 b	26.8 b	2.94 ab	0.80 b	25.9	2.90	0.76	25.2	2.47	0.63
	Mean	5.0	1.01	0.14	7.2	1.69	0.23	6.1	1.35	0.19	5.0	1.11	0.13
	CV	83.6	89.4	104.3	56.9	54.6	59.6						
	PR>F (0.05)	0.00	0.00	0.00	0.00	0.00	0.00						
	LSD (0.05)	7.0	1.51	0.24	5.9	1.32	0.20						

Marsh Spot Analysis of Cranberry Bean - Preliminary Yield Trials 2014

Trt No	Treatment Name	Woodstock			3 Year Average		
		Incidence	Severity	Incid X Sev	Incidence	Severity	Incid X Sev
		%	(0-5)	(0-5)	%	(0-5)	(0-5)
1	Red Rider	3.3 bc	1.00	0.03 bc	2.7	0.91	0.04
2	Bellagio	0.5 c	0.25	0.01 c	0.8	0.56	0.03
3	ADMC259	6.0 b	2.44	0.13 b	6.7 *	2.58 *	0.20 *
4	Etna (Check)	2.8 bc	1.05	0.04 bc	1.9	0.61	0.03
5	ACUG 12-C2	0.5 c	0.50	0.01 c	0.3 *	0.25 *	0.01 *
6	SEMC0929	3.8 bc	1.27	0.08 bc	2.9	1.50	0.06
7	SEMC1031	1.5 bc	0.85	0.03 bc	1.6	0.82	0.03
8	SEMC1261	0.5 c	0.50	0.01 c	0.6 *	0.45 *	0.02 *
9	Chianti	2.0 bc	1.75	0.04 bc	1.3	1.25	0.03
10	Messina (Susc Check)	14.8 a	1.73	0.25 a	21.7	2.22	0.50
	Mean	3.6	1.14	0.06	4.0	1.1	0.1
	CV	91.8	88.0	116.0			
	PR>F (0.05)	0.00	0.11	0.00			
	LSD (0.05)	4.7	N/A	0.105			

* Two year average (2013-14)

Marsh Spot Analysis of Cranberry Bean - Preliminary Yield Trials 2015

Trt No	Treatment Name	Exeter			Woodstock			Average			4 Year Average		
		Incidence	Severity	Incid X Sev	Incidence	Severity	Incid X Sev	Incidence	Severity	Incid X Sev	Incidence	Severity	Incid X Sev
		%	(0-5)	(0-5)	%	(0-5)	(0-5)	%	(0-5)	(0-5)	%	(0-5)	(0-5)
1	Bellagio	1.0 b	1.00 cd	0.04 b	0.0 b	0.00 b	0.00 b	0.5	0.50	0.02	0.7	0.54	0.03
2	Etna (Check)	2.0 b	0.90 b	0.04 b	0.0 b	0.00 b	0.00 b	1.0	0.45	0.02	1.5	0.55	0.03
3	ACUG 13-C1	3.8 b	2.50 abc	0.08 b	0.0 b	0.00 b	0.00 b	1.9	1.25	0.04			
4	ACUG 14-C2	0.5 b	0.30 d	0.01 b	0.0 b	0.00 b	0.00 b	0.3	0.15	0.01			
5	Chianti	4.5 b	1.40 bcd	0.06 b	0.0 b	0.00 b	0.00 b	2.3	0.70	0.03	1.7	1.03	0.03
6	Messina (Susc Check)	23.5 a	2.70 abc	0.68 a	6.0 a	2.70 a	0.18 a	14.8	2.70	0.43	18.9	2.41	0.47
	Mean	5.9	1.46	0.15	1.0	0.4	0.0	3.5	0.95	0.09	5.7	1.1	0.1
	CV	74.8	66.5	108.8	179.5	116.0	180.4						
	PR>F (0.05)	0.00	0.02	0.00	0.00	0.00	0.00						
	LSD (0.05)	6.6	1.46	0.247	2.7	0.77	0.08						

Marsh Spot Analysis of Cranberry Bean - Preliminary Yield Trials 2016

Trt No	Treatment Name	Exeter			Woodstock			Average			5 Year Average		
		Incidence	Severity	Incid X Sev	Incidence	Severity	Incid X Sev	Incidence	Severity	Incid X Sev	Incidence	Severity	Incid X Sev
		%	(0-5)	(0-5)	%	(0-5)	(0-5)	%	(0-5)	(0-5)	%	(0-5)	(0-5)
1	Bellagio	0.8 bc	1.0 ab	0.01 b	0.8 bc	0.8 cd	0.01 b	0.8	0.90	0.01	0.7	0.61	0.02
2	Etna (Check)	1.3 bc	0.8 bc	0.02 b	0.3 bc	0.3 cd	0.00 b	0.8	0.55	0.01	1.4	0.55	0.02
3	Chianti	0.3 c	0.3 bc	0.00 b	1.8 bc	2.0 ab	0.04 b	1.1	1.15	0.02	1.6	1.05	0.03
4	C13413	0.8 bc	0.8 bc	0.01 b	2.5 bc	1.3 bc	0.05 b	1.7	1.05	0.03			
5	C1018320	0.0 c	0.0 c	0.00 b	0.0 c	0.0 d	0.00 b	0.0	0.00	0.00			
6	C1017332	0.0 c	0.0 c	0.00 b	0.0 c	0.0 d	0.00 b	0.0	0.00	0.00			
7	Vero	3.5 b	1.1 ab	0.05 b	5.3 b	2.5 a	0.15 b	4.4	1.80	0.10			
8	Messina (Susc Check)	9.0 a	1.8 a	0.17 a	27.5 a	2.4 ab	0.67 a	18.3	2.10	0.42	18.8	2.35	0.46
	Mean	1.9	0.7	0.03	4.8	1.1	0.11	3.3	0.92	0.07	4.8	1.1	0.1
	CV	105.9	83.5	111.6	74.5	66.0	97.3						
	PR>F (0.05)	0.00	0.00	0.00	0.00	0.00	0.00						
	LSD (0.05)	3.0	0.9	0.05	5.2	1.1	0.16						

2016 Anthracnose Foliar Head to Head T9905 Early Plant

Trt No.	Treatment Name	Rate	Rate Unit	Disease Infection			Seed Wt. (g/100)	Seed Pick (%)	Yield (kg/ha)	Yield-Pick (kg/ha)
				Leaf Vein	Pod (%)					
				17 DAA	17 DAA	29 DAA				
1	Inoculated Check			5.2 a	6.7 a	8.1 a	23.1 def	10.0 a	2342 a	2109 a
2	Uninoculated Check			0.2 g	0.2 f	0.6 f	22.8 f	7.4 a	2277 a	2108 a
3	Quadris	500 ml/ha		0.9 d-g	0.9 def	1.1 f	25.0 a	6.6 a	2568 a	2398 a
4	Allegro (Low)	600 ml/ha		0.6 efg	0.4 f	0.6 f	24.3 a-d	6.5 a	2603 a	2439 a
5	Allegro (High)	1000 ml/ha		0.7 d-g	1.1 def	1.2 ef	23.8 a-f	7.1 a	2466 a	2290 a
6	Allegro Low + Quadris	600+500 ml/ha		1.1 d-g	1.4 def	1.6 ef	24.1 a-e	9.0 a	2428 a	2211 a
7	Quadris Top + Agral 90 (0.2% v/v)	625 ml/ha		0.9 d-g	0.9 def	1.6 ef	24.4 abc	7.1 a	2579 a	2399 a
8	Senator (Low)	1.75 kg/ha		0.5 fg	0.5 f	0.8 f	24.0 a-f	8.7 a	2578 a	2354 a
9	Senator (High)	2.25 kg/ha		0.8 d-g	1.2 def	1.4 ef	24.5 abc	7.7 a	2364 a	2182 a
10	Fluopyram 500SC	500 ml/ha		3.5 b	3.7 bc	4.2 bc	23.6 b-f	9.4 a	2461 a	2231 a
11	Luna Propulse (Low)	500 ml/ha		2.0 cd	3.2 bc	3.6 bcd	23.8 a-f	8.9 a	2455 a	2249 a
12	Luna Propulse (High)	750 ml/ha		1.8 c-f	2.2 cd	2.9 cde	22.8 ef	9.4 a	2459 a	2235 a
13	Vertisan 200EC	1250 ml/ha		2.8 bc	3.9 b	4.3 bc	23.6 b-f	10.5 a	2236 a	2004 a
14	Acapela (200EC)	880 ml/ha		3.3 b	4.2 b	4.8 b	23.9 a-f	10.0 a	2557 a	2301 a
15	Priaxor (500F) + Merge (0.125% v/v)	450 ml/ha		0.4 g	0.5 ef	0.9 f	24.8 ab	7.1 a	2521 a	2343 a
16	Headline	400 ml/ha		0.5 fg	0.3 f	0.7 f	24.2 a-d	6.1 a	2486 a	2334 a
17	Quash (metconazole)	280 g/ha		1.9 cde	2.2 cde	2.0 def	23.5 c-f	6.8 a	2407 a	2244 a
18	EAC 1407	2450 ml/ha		0.7 d-g	0.6 def	1.1 f	23.9 a-f	8.1 a	2461 a	2262 a
19	EAC 1407	3150 ml/ha		0.8 d-g	1.0 def	1.2 ef	25.0 a	6.5 a	2614 a	2446 a
20	Fludioxonil (Scholar)	1090 ml/ha		1.5 c-g	1.4 def	2.0 def	24.2 a-d	7.2 a	2541 a	2361 a
LSD (P=.05)				1.3	1.7	1.8	1.2	3.0	289.5	304.1
CV				61.8	64.1	56.3	3.7	26.7	8.3	9.5
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0194	0.0747	0.4024	0.3187

Means followed by same letter do not significantly differ (P=.05, LSD)

Trial Summary

Design: RCBD

Row Width: 15 inch (38 cm)

Number of Rows Per Plot: 4

Number of Rows Harvested Per Plot: 4

Plot Length: 6m

Harvest Length: 4m

Seeding Rate: 20 seeds/m

Cultivar: T9905 Navy

Planting Date: May 25th

Herbicide: May 14-Pursuit (170ml/ha) and Dual 2 Magnum (1.7L/ha) PPI

Inoculation Date: July 26

Treatment Date: July 26, Aug 8

Harvest Date: September 1

Conclusions:

* leaf and pod disease severity in the infected control was much below average

* most treatments had low disease severity for leaf and pod ratings

* Fluopyram (Trt 10), Vertisan (trt 13) and Acapela (Trt 14) had higher leaf and pod disease severity compared to the other treatments

* there were no differences between treatments for pick, yield or yield-pick

2016 White Mold Registered Products Dry Bean 1st Planting - HRS

University of Guelph, Ridgetown Campus

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Disease Severity (%)		Disease Incidence (0-1)		Disease Incidence x Severity (%)		100 Seed Weight (g)	Pick (%)	Yield (kg/ha)	Yield - Pick (kg/ha)
					29 DAA	41 DAA	29 DAA	41 DAA	29 DAA	41 DAA				
1	Untreated Control				12.6 a	15.5 a	0.5 a	0.9 a	9.8 a	10.8 a	31.9 a	4.8 ab	3371 a	3211 a
2	Lance	540	g ai/ha	AB	0.5 a	4.5 a	0.1 a	0.7 a	0.0 a	3.3 a	32.0 a	3.7 b-f	3600 a	3467 a
3	Allegro 500F	300	g ai/ha	AB	4.8 a	9.8 a	0.4 a	0.9 a	3.0 a	5.3 a	31.9 a	4.3 a-d	3389 a	3245 a
4	Allegro 500F	500	g ai/ha	A	2.3 a	7.6 a	0.3 a	0.9 a	0.0 a	4.4 a	32.2 a	4.2 a-e	3531 a	3384 a
5	Allegro 500F	500	g ai/ha	AB	4.4 a	9.0 a	0.4 a	0.8 a	1.1 a	11.1 a	32.1 a	3.1 ef	3396 a	3291 a
6	Propulse	200	g ai/ha	AB	3.1 a	6.4 a	0.3 a	0.8 a	1.6 a	4.0 a	33.1 a	4.1 a-e	3594 a	3446 a
7	Propulse	300	g ai/ha	A	4.4 a	9.1 a	0.4 a	0.8 a	0.1 a	9.1 a	32.4 a	3.8 b-e	3387 a	3259 a
8	Propulse	300	g ai/ha	AB	1.6 a	5.5 a	0.2 a	0.7 a	0.0 a	1.0 a	33.1 a	3.5 c-f	3445 a	3325 a
9	Acapela	220	g ai/ha	AB	0.6 a	5.5 a	0.1 a	0.8 a	1.0 a	4.1 a	33.7 a	2.6 f	3643 a	3546 a
10	Priaxor+Lance	150+392	g ai/ha	AB	4.1 a	6.1 a	0.3 a	0.6 a	2.3 a	3.4 a	33.4 a	3.3 def	3580 a	3463 a
11	Fludioxonil	250	g ai/ha	AB	6.0 a	11.6 a	0.4 a	0.8 a	2.5 a	5.4 a	32.2 a	4.1 a-e	3285 a	3151 a
12	Astound Granular	610	g ai/ha	AB	1.3 a	7.5 a	0.2 a	0.8 a	1.3 a	8.5 a	33.1 a	3.2 def	3507 a	3394 a
13	Senator	1575	g ai/ha	AB	2.4 a	7.5 a	0.2 a	0.8 a	0.0 a	2.0 a	33.0 a	4.3 a-d	3500 a	3348 a
14	EAC 1407	1210	g ai/ha	AB	1.8 a	7.1 a	0.3 a	0.8 a	0.9 a	5.1 a	32.8 a	4.4 abc	3681 a	3518 a
15	EAC 1407	1575	g ai/ha	AB	0.5 a	4.8 a	0.1 a	0.7 a	0.0 a	4.5 a	32.7 a	5.1 a	3628 a	3445 a
16	EAC 1407	1575	g ai/ha	A	2.3 a	7.0 a	0.3 a	0.9 a	0.0 a	6.3 a	33.1 a	3.9 b-e	3640 a	3498 a
17	Double Nickel LC	2450	g ai/ha	AB	2.8 a	8.1 a	0.4 a	0.8 a	2.1 a	3.1 a	32.1 a	4.1 a-e	3454 a	3313 a
18	Double Nickel LC	4850	g ai/ha	AB	4.0 a	9.1 a	0.3 a	0.8 a	2.6 a	4.1 a	31.8 a	3.6 c-f	3307 a	3189 a
LSD (P=.05)					NA	NA	NA	NA	NA	NA	NA	1.1	NA	NA
CV					91.4	20.0	142.4	62.6	258.9	91.0	3.0	20.6	9.7	9.9
Treatment Prob(F)					0.6241	0.3340	0.1522	0.3317	0.2438	0.1811	0.1669	0.0105	0.9296	0.9287

Means followed by same letter do not significantly differ (P=.05, LSD)

Planted: June 10th 6 rows @ 38 cm and 6 meter length.

Harvested: September 9th 4 rows @ 38 cm and 4 meter length.

Design: RCBD with 4 replications.

Inoculum: White mold inoculum applied foliarly

Treatments: 1st application on July 27th at 6:00 AM, temperature=17.5 C, RH=93%, Wind=1 kph S, dew present, soil damp

Treatments: 2nd application on August 9th at 6:30 AM, temperature=16 C, RH=75%, Wind=3.5 kph SE, dew present, soil damp

Herbicide : Pursuit @ 200 ml/ha Dual 2 Magnum @ 1.7 L/ha (May 23rd)

Irrigation: July 26th, 29th, August 4th, 8th, 10th, 24th, September 2nd.

Conclusions:

*no phytotoxicity was measured from fungicide application

* disease severity in the untreated check was very low, compared to past work.

* there were no treatment differences for disease incidence or severity, seed weight or seed yield.

* Allegro, Acapela, Priaxor+Lance, and Double Nickel LC had less pick than the Untreated Control.

2016 Soybean White Mold Fungicide Efficacy Early Planting

University of Guelph, Ridgetown Campus

Trt No.	Treatment Name	Rate	Unit	Appl Code	Phytotoxicity		Disease Severity (%)			100 Seed Weight (g)	Yield (kg/ha)
					7 DAA1	7 DAA2	23 DAA	31 DAA	58 DAA		
1	Untreated Control			A	0.0 a	0.0 a	2.5 a	19.3 ab	7.8 a	17.0 a	3616 d
2	Acapela	0.88	l/ha	AB	0.0 a	0.0 a	0.3 a	3.1 c	1.6 a	17.7 a	4014 ab
3	Allegro	0.88	l/ha	A	0.0 a	0.0 a	0.8 a	9.1 bc	5.0 a	17.2 a	3731 a-d
4	Allegro	0.44	l/ha	A	0.0 a	0.0 a	2.3 a	12.0 abc	3.3 a	17.8 a	3637 cd
5	Stratego Pro	0.57	l/ha	A	0.0 a	0.0 a	0.0 a	7.5 c	0.4 a	17.2 a	3964 abc
6	Stratego Pro	0.57	l/ha	AB	0.0 a	0.0 a	0.5 a	4.5 c	0.4 a	17.7 a	4074 a
7	Priaxor	0.45	l/ha	A	0.0 a	0.0 a	3.4 a	19.8 a	3.5 a	17.5 a	3687 bcd
8	BAS793F	0.6	l/ha	A	0.0 a	0.0 a	2.5 a	8.9 c	1.1 a	17.0 a	3984 ab
9	Priaxor + BAS 793F	0.45+0.6	l/ha	A	0.0 a	0.0 a	0.4 a	6.1 c	2.0 a	17.7 a	4077 a
LSD (P=.05)					0.0	0.0	3.9	10.4	4.9	0.7	346.3
CV					0.0	0.0	194.2	70.7	120.4	2.9	6.1
Treatment Prob(F)					1.0000	1.0000	0.5572	0.0228	0.0788	0.1673	0.0307

Means followed by same letter do not significantly differ (P=.05, LSD)

Planted: May 25 2016 6 rows @ 38 cm and 6 meter length.

Harvested: October 5 4 rows @ 38 cm and 4 meter length.

Design: RCBD with 4 replications.

Inoculum: White mold inoculum applied foliarly

Treatments: 1st application on July 27 at 8:30 AM, temperature=20 C, RH=89%, Wind=4 kph S, dew present, soil damp

Treatments: 2nd application on August 9 at 8:00 AM, temperature=19 C, RH=72%, Wind=3.5 kph E, dew present, soil damp

Herbicide : Pursuit @ 170 ml/ha Dual 2 Magnum @ 1.7 L/ha May 23

Irrigation: July 26, August 4, 8, 10, 24, September 2.

Conclusions:

* no phytotoxicity was measured from fungicide application

* disease severity in the untreated check was moderate.

* top treatments were #2 (Acapela) #6 (Stratego Pro) #9 (BAS793F) and #10 (Priaxor +BAS793F)

* two applications of Stratego Pro (trt 6) did not impact on disease severity, compared to one application (trt 5)

* Allegro and Priaxor had similar yield as the untreated control

2016 White Mold Time of Day Fungicide Application in Dry Beans - 1st Planting

Trt No.	Treatment Name	Rate	Unit	Appl Code	Disease Severity (%)		Disease Incidence (0-1)		Seed Wt. (g/100)	Pick (%)	Yield (kg/ha)	Yield - Pick (kg/ha)
					29 DAA	42 DAA	29 DAA	42 DAA				
1	Untreated Check				3.3 a	9.0 a	0.4 a	0.8 a	32.6 a	3.2 a	3422 a	3312 a
2	Allegro 500F - 6:00	1000	ml/ha	AE	0.0 b	4.4 b	0.0 b	0.7 a	32.3 a	3.4 a	3411 a	3293 a
3	Allegro 500F - 12:00	1000	ml/ha	BF	0.1 b	3.8 b	0.0 b	0.6 a	32.0 a	3.0 a	3347 a	3247 a
4	Allegro 500F - 18:00	1000	ml/ha	CG	0.9 b	3.1 b	0.1 b	0.6 a	33.0 a	3.4 a	3474 a	3356 a
5	Allegro 500F - 24:00	1000	ml/ha	DH	0.0 b	3.4 b	0.0 b	0.6 a	32.5 a	3.0 a	3391 a	3289 a
LSD (P=.05)					1.6	2.5	0.2	0.2	1.5	0.6	300.5	283.1
CV					123.3	34.6	108.8	23.8	3.0	13.0	5.72	5.57
Treatment Prob(F)					0.0037	0.0014	0.0012	0.2019	0.6525	0.408	0.9184	0.9427

2016 White Mold Time of Day Fungicide Application in Dry Beans - 2nd Planting

Trt No.	Treatment Name	Rate	Unit	Appl Code	Disease Severity (%)		Disease Incidence (0-1)		Seed Wt. (g/100)	Pick (%)	Yield (kg/ha)	Yield - Pick (kg/ha)
					36 DAA	45 DAA	36 DAA	45 DAA				
1	Untreated Check				5.9 a	12.4 a	0.7 a	1.0 a	32.5 a	4.0 a	3283 a	3148 a
2	Allegro 500F - 6:00	1000	ml/ha	AD	4.1 ab	9.4 a	0.6 a	1.0 a	32.7 a	4.4 a	3345 a	3195 a
3	Allegro 500F - 12:00	1000	ml/ha	BD	2.1 b	9.8 a	0.4 a	0.9 a	32.3 a	6.3 a	3124 a	2933 a
4	Allegro 500F - 18:00	1000	ml/ha	CD	3.5 b	10.8 a	0.5 a	0.9 a	31.7 a	5.9 a	3119 a	2944 a
5	Allegro 500F - 24:00	1000	ml/ha	DE	3.0 b	12.9 a	0.5 a	0.9 a	31.6 a	4.8 a	2954 a	2821 a
LSD (P=.05)					2.3	4.8	0.2	0.2	2.8	2.0	674.9	664.7
CV					40.0	28.5	26.7	10.1	5.7	25.6	13.8	14.3
Treatment Prob(F)					0.0386	0.4549	0.1593	0.6485	0.8894	0.1272	0.7416	0.7139

Means followed by same letter do not significantly differ (P=.05, LSD)

Planted: June 10/24 6 rows @ 38 cm and 6 meter length.

Harvested: September 9/28 4 rows @ 38 cm and 4 meter length.

Design: RCBD with 4 replications.

Inoculum: White mold inoculum applied foliarly

Treatments: 1st application on July 27/August 9

Treatments: 2nd application on August 9/23

Herbicide : Pursuit @ 200 ml/ha Dual 2 Magnum @ 1.7 L/ha (May 23rd)

Irrigation: July 26th, 29th, August 4th, 8th, 10th, 24th, September 2nd.

Conclusions:

* disease incidence and severity was very low for both studies

* no treatment differences were measured for disease incidence and severity, seed weight, pick or yield

2016 Fusarium Root Rot Seed Treatment Head-to-Head Dry Bean 1st Planting (5 g/m of row)
University of Guelph, Ridgetown Campus

Trt No.	Treatment Name	Rate (ml/100 kg)	Appl Code	% Emergence						Vigour 1-10 (1=worse)					100 Seed Wt (g)	Yield (kg/ha)	
				10 DAP	11 DAP	13 DAP	15 DAP	18 DAP	20 DAP	22 DAP	13 DAP	15 DAP	18 DAP	20 DAP			22 DAP
1	Uninoculated Control + Cruiser	50	A	15.4 c	25.0 c	29.2 cd	31.9 cd	35.6 cd	35.4 cd	35.6 de	3.8 c	4.5 b	3.7 cd	5.0 bc	5.5 b	23.5	1655 b
2	Inoculated Control + Cruiser	50	A	2.3 e	6.7 e	9.2 e	11.3 e	13.5 e	14.6 e	14.8 f	1.3 e	1.8 d	1.7 f	2.0 e	2.0 d	23.6	1087 c
3	Cruiser Maxx Bean	56.25	A	10.2 cd	24.6 c	33.3 c	36.5 c	39.6 c	40.6 c	40.8 d	3.3 cd	4.5 b	4.0 c	5.5 b	6.0 b	23.5	1619 b
4	Cruiser Maxx Bean + Dynasty	56.25+1	A	7.9 de	17.1 d	24.8 d	26.9 d	29.8 d	30.6 d	31.0 e	2.5 d	3.0 c	2.7 e	3.7 d	4.2 c	23.1	1654 b
5	Cruiser Maxx Bean + Sedaxane	56.25+2.5	A	9.2 d	17.9 d	24.0 d	27.9 d	31.0 d	31.7 d	32.1 e	3.3 cd	4.0 bc	3.2 cde	4.5 bcd	5.3 b	23.0	1430 bc
6	Cruiser Maxx Bean + Sedaxane	56.25+5.0	A	11.3 cd	19.8 cd	25.6 d	29.0 d	31.0 d	32.5 d	33.8 e	3.0 cd	3.5 bc	3.0 de	4.2 cd	4.2 c	22.7	1399 bc
7	Rancona Summit + Cruiser	4.06+50	A	38.5 b	53.3 b	62.5 b	69.0 b	71.5 b	72.7 b	73.8 bc	7.0 b	8.7 a	7.8 ab	9.0 a	9.0 a	23.1	2107 a
8	Rancona Summit + Cruiser + Sedaxane	4.06+50+2.5	A	51.9 a	65.0 a	74.6 a	77.5 a	79.4 a	80.2 a	78.8 ab	8.3 a	9.7 a	8.7 a	9.8 a	9.8 a	22.7	2356 a
9	Rancona Summit + Cruiser + Sedaxane	4.06+50+5.0	A	47.7 a	63.5 a	72.5 a	76.3 a	79.6 a	80.0 a	80.0 a	8.2 a	9.7 a	8.3 a	9.0 a	9.7 a	22.9	2210 a
10	Evergol Energy + Cruiser	11.5 + 50	A	37.5 b	54.8 b	62.9 b	67.1 b	70.6 b	71.9 b	72.1 c	6.8 b	8.8 a	7.2 b	8.8 a	9.0 a	23.6	2344 a
LSD (P=.05)				5.8	6.1	6.5	6.4	5.8	6.1	6.1	0.9	1.1	1.0	1.0	1.0	NA	423.8
CV				21.5	15.1	13.3	12.1	10.4	10.7	10.6	16.0	16.5	16.8	14.4	13.3	3.6	20.3
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.3824	0.0001

Planted: June 2 2 rows @ 76 cm and 2 meter length.

Harvested: September 12 2 rows @ 76 cm and 2 meter length.

Design: RCBD with 4 replications.

Inoculum: Fusarium solani applied in the seed furrow at planting, at a rate of 5 grams per meter of row

Herbicide : Pursuit @ 200 ml/ha (May 23) Bonanza @ 1.5 L/ha (May 23) Glyphosate 2L/ha (September 2)

Insecticide: Matador @ 83 ml/ha (July 19, August 3)

Fungicide: Allegro @ 1 L/ha (Aug 3)

Conclusions:

- * differences in emergence and vigour between the two control trts were measured for 22 days after planting, which suggests that the inoculum gave some disease pressure
- * Cruiser Maxx Bean (trt 3,4,5,6) had weaker emergence, vigour and yield than all other seed treatments tested
- * Rancona Summit + Sedaxane (trts 8 and 9) had the highest emergence and vigour and were better than most other treatments for the first 22 days after planting.
- * the addition of Dynasty (trt 4) to Cruiser Maxx Bean (trt 3) reduced emergence and vigour
- * the addition of Sedaxane (trt 5 and 6) to Cruiser Maxx Bean (trt 3) reduced emergence but had no effect on vigour
- * the addition of a Sedaxane (trts 8 and 9) to Rancona Summit (trt 7) increased emergence but had little effect on vigour
- * Emergence, vigour or yield were not influenced by a high rate of Sedaxane (trt 6 and 9) versus a low rate of Sedaxane (trts 5 and 8)
- * no treatment differences in seed weight were measured
- * Rancona Summit (trt 7,8,9) and Evergol (trt 10) had the highest yield
- * Cruiser Maxx Bean (trt 3,4,5,6) yield was similar to the uninoculated control

2016 Fusarium Root Rot Seed Treatment Head-to-Head Dry Bean 2nd Planting (10 g/m of row)
University of Guelph, Ridgetown Campus

Trt No.	Treatment Name	Rate (ml/100 kg)	Appl Code	% Emergence						Vigour 1-10 (1=worse)					100 Seed Wt (g)	Yield (kg/ha)	
				10 DAP	11 DAP	13 DAP	15 DAP	18 DAP	20 DAP	22 DAP	13 DAP	15 DAP	18 DAP	20 DAP			22 DAP
1	Uninoculated Control + Cruiser	50	A	12.7 c	21.3 c	29.4 c	31.9 cd	32.5 de	33.3 d	34.2 de	3.3 c	3.5 c	4.2 c	4.5 c	4.7 c	23.4	1834 bc
2	Inoculated Control + Cruiser	50	A	1.0 d	4.0 d	5.6 d	6.9 e	9.6 f	10.0 e	10.2 f	1.0 d	1.0 e	1.0 d	1.2 d	1.2 d	23.9	697 d
3	Cruiser Maxx Bean	56.25	A	9.0 c	21.0 c	29.2 c	35.6 c	37.9 d	40.0 c	40.8 c	3.0 c	3.7 c	4.2 c	4.5 c	4.5 c	23.2	1795 bc
4	Cruiser Maxx Bean + Dynasty	56.25+1	A	6.3 cd	16.7 c	23.1 c	29.6 cd	32.3 de	33.5 d	34.6 cde	2.7 c	3.0 cd	3.8 c	4.3 c	4.5 c	22.9	1566 c
5	Cruiser Maxx Bean + Sedaxane	56.25+2.5	A	8.7 c	18.5 c	24.2 c	29.0 d	30.7 e	31.7 d	31.5 e	2.7 c	2.6 d	3.4 c	4.1 c	4.1 c	22.7	1963 ab
6	Cruiser Maxx Bean + Sedaxane	56.25+5.0	A	9.8 c	20.8 c	27.7 c	33.3 cd	36.0 de	37.1 cd	38.3 cd	3.0 c	3.5 c	4.0 c	4.7 c	4.7 c	23.7	1703 bc
7	Rancona Summit + Cruiser	4.06+50	A	25.4 b	43.3 b	55.6 b	63.1 b	66.5 c	69.0 b	69.0 b	6.3 ab	6.5 b	7.5 b	8.0 b	8.3 b	22.9	2298 a
8	Rancona Summit + Cruiser + Sedaxane	4.06+50+2.5	A	31.3 ab	58.4 a	68.7 a	75.5 a	77.6 a	78.0 a	78.4 a	7.0 a	7.3 ab	8.9 a	9.5 a	9.5 a	23.4	1957 ab
9	Rancona Summit + Cruiser + Sedaxane	4.06+50+5.0	A	33.1 a	55.4 a	65.4 a	73.3 a	75.4 ab	77.5 a	77.9 a	7.2 a	7.5 a	8.7 a	9.0 ab	9.2 ab	22.6	1950 b
10	Evergol Energy + Cruiser	11.5 + 50	A	26.3 b	47.1 b	58.3 b	66.3 b	71.0 bc	71.7 ab	72.9 ab	5.7 b	6.5 b	6.8 b	8.2 b	8.3 b	23.1	1978 ab
LSD (P=.05)				6.5	6.5	6.3	6.2	6.3	6.4	6.4	1.0	0.8	1.0	1.0	1.0	NA	342.2
CV				34.2	18.2	14.0	12.0	11.4	11.4	11.3	20.4	16.1	16.2	15.0	14.7	3.6	16.5
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.1806	0.0001

Planted: June 2 2 rows @ 76 cm and 2 meter length.

Harvested: September 12 2 rows @ 76 cm and 2 meter length.

Design: RCBD with 4 replications.

Inoculum: Fusarium solani applied in the seed furrow at planting, at a rate of 10 grams per meter of row

Herbicide : Pursuit @ 200 ml/ha (May 23) Bonanza @ 1.5 L/ha (May 23) Glyphosate 2L/ha (September 2)

Insecticide: Matador @ 83 ml/ha (July 19, August 3)

Fungicide: Allegro @ 1 L/ha (Aug 3)

Conclusions:

- * differences in emergence and vigour between the two control trts were measured for 22 days after planting, which suggests that the inoculum gave a high level of disease pressure
- * Cruiser Maxx Bean (trt 3,4,5,6) had weaker emergence and vigour than all other seed treatments tested
- * Rancona Summit + Sedaxane (trts 8 and 9) had the highest emergence and vigour for the first 22 days after planting.
- * the addition of Dynasty (trt 4) to Cruiser Maxx Bean (trt 3) did not affect emergence or vigour
- * the addition of Sedaxane (trt 5 and 6) to Cruiser Maxx Bean (trt 3) did not affect emergence or vigour
- * the addition of a Sedaxane (trts 8 and 9) to Rancona Summit (trt 7) increased emergence and vigour
- * Emergence, vigour or yield were not influenced by a high rate of Sedaxane (trt 6 and 9) versus a low rate of Sedaxane (trts 5 and 8)
- * no treatment differences in seed weight were measured
- * Rancona Summit (trt 7,8) and Evergol (trt 10) had the highest yield
- * Most of the Cruiser Maxx Bean (trt 3,4,6) treatments had yield that was similar to the uninoculated control

2016 Rhizoctonia Root Rot Seed Treatment Head-to-Head Dry Bean 1st Planting (5 g/m of row)
University of Guelph, Ridgetown Campus

Trt No.	Treatment Name	Rate (ml/100 kg)	Appl Code	% Emergence							Vigour 1-10 (1=worse)					100 Seed Wt (g)	Yield (kg/ha)
				10 DAP	11 DAP	13 DAP	15 DAP	18 DAP	20 DAP	22 DAP	13 DAP	15 DAP	18 DAP	20 DAP	22 DAP		
1	Uninoculated Control + Cruiser	50	A	8.1 d	14.4 c	20.8 c	25.0 c	28.5 d	29.6 d	30.0 d	3.3 c	3.8 c	4.0 d	4.0 d	4.0 d	23.2	1173 cd
2	Inoculated Control + Cruiser	50	A	0.6 g	2.3 e	6.5 d	10.0 d	14.0 e	14.6 e	15.2 e	1.8 d	2.3 d	3.0 e	3.0 e	3.0 e	23.8	856 d
3	Cruiser Maxx Bean	56.25	A	4.0 efg	10.0 cd	20.2 c	29.2 c	34.0 c	35.2 cd	35.6 cd	3.5 c	4.2 c	4.7 cd	5.0 c	5.0 c	23.0	1262 bc
4	Cruiser Maxx Bean + Dynasty	56.25+1	A	1.9 fg	9.6 d	21.9 c	29.1 c	34.1 c	34.9 cd	35.5 cd	3.5 c	4.1 c	5.0 c	5.0 c	5.0 c	22.3	1265 bc
5	Cruiser Maxx Bean + Sedaxane	56.25+2.5	A	5.6 def	13.5 cd	20.8 c	26.9 c	32.5 cd	33.1 cd	33.8 cd	3.3 c	3.8 c	4.8 c	4.8 c	4.8 c	22.4	1261 bc
6	Cruiser Maxx Bean + Sedaxane	56.25+5.0	A	6.3 de	14.2 cd	24.6 c	29.2 c	35.2 c	36.0 c	36.5 c	3.3 c	3.8 c	4.8 c	4.8 c	4.8 c	23.3	1292 bc
7	Rancona Summit + Cruiser	4.06+50	A	14.2 c	33.3 b	51.0 b	63.8 b	69.2 b	70.4 b	70.4 b	6.5 b	7.5 b	8.3 b	8.3 b	8.3 b	22.4	1397 abc
8	Rancona Summit + Cruiser + Sedaxane	4.06+50+2.5	A	29.6 a	51.7 a	65.6 a	72.9 a	76.7 a	77.3 a	77.7 a	8.2 a	8.7 a	9.2 a	9.3 a	9.3 a	23.5	1702 a
9	Rancona Summit + Cruiser + Sedaxane	4.06+50+5.0	A	24.2 b	47.8 a	66.9 a	73.9 a	79.6 a	81.1 a	82.0 a	8.1 a	8.7 a	9.6 a	9.6 a	9.6 a	22.6	1532 ab
10	Evergol Energy + Cruiser	11.5 + 50	A	29.0 a	50.4 a	66.3 a	74.0 a	76.7 a	78.1 a	78.5 a	8.3 a	9.3 a	9.3 a	9.3 a	9.3 a	22.6	1545 ab
LSD (P=.05)				3.9	4.8	5.5	5.6	5.4	5.7	5.8	0.8	0.8	0.7	0.7	0.7	NA	331.2
CV				27.0	16.5	12.9	11.0	9.6	9.9	10.0	14.4	11.6	10.1	9.7	9.7	4.7	21.4
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.2035	0.0007

Planted: June 2 2 rows @ 76 cm and 2 meter length.

Harvested: September 12 2 rows @ 76 cm and 2 meter length.

Design: RCBD with 4 replications.

Inoculum: Rhizoctonia solani applied in the seed furrow at planting, at a rate of 5 grams per meter of row

Herbicide : Pursuit @ 200 ml/ha (May 23) Bonanza @ 1.5 L/ha (May 23) Glyphosate 2L/ha (September 2)

Insecticide: Matador @ 83 ml/ha (July 19, August 3)

Fungicide: Allegro @ 1 L/ha (Aug 3)

Conclusions:

- * differences in emergence and vigour between the two control trts were measured for 22 days after planting, which suggests that the inoculum gave some disease pressure
- * Cruiser Maxx Bean (trt 3,4,5,6) had weaker emergence but similar vigour and yield to the other seed treatments tested
- * Rancona Summit + Sedaxane (trts 8 and 9) and Evergol Energy had the highest emergence and vigour and were better than most other treatments for the first 22 days after planting.
- * the addition of Dynasty (trt 4) to Cruiser Maxx Bean (trt 3) did not improve emergence and vigour
- * the addition of Sedaxane (trt 5 and 6) to Cruiser Maxx Bean (trt 3) had no effect on emergence or vigour
- * the addition of a Sedaxane (trts 8 and 9) to Rancona Summit (trt 7) increased emergence and vigour
- * Emergence, vigour or yield were not influenced by a high rate of Sedaxane (trt 6 and 9) versus a low rate of Sedaxane (trts 5 and 8)
- * no treatment differences in seed weight were measured
- * Rancona Summit (trt 7,8,9) and Evergol (trt 10) had the highest yield but were similar to most of the other seed treatments

2016 Rhizoctonia Root Rot Seed Treatment Head-to-Head Dry Bean 2nd Planting (10 g/m of row)
University of Guelph, Ridgetown Campus

Trt No.	Treatment Name	Rate (ml/100 kg)	Appl Code	% Emergence						Vigour 1-10 (1=worse)					100 Seed Wt (g)	Yield (kg/ha)	
				10 DAP	11 DAP	13 DAP	15 DAP	18 DAP	20 DAP	22 DAP	13 DAP	15 DAP	18 DAP	20 DAP			22 DAP
1	Uninoculated Control + Cruiser	50	A	13.5 b	18.8 c	27.1 c	30.4 de	33.1 c	33.3 cd	29.8 d	4.5 c	4.7 d	4.7 c	4.7 c	4.5 c	23.8	1591 cd
2	Inoculated Control + Cruiser	50	A	0.2 c	1.7 f	2.5 e	5.6 f	9.2 d	9.6 e	10.0 e	1.3 e	2.2 e	2.3 d	2.3 d	2.3 d	24.5	615 e
3	Cruiser Maxx Bean	56.25	A	5.0 c	14.6 cde	24.2 c	30.8 de	38.3 c	38.3 cd	38.8 c	4.2 c	4.3 d	5.2 c	5.2 c	5.2 c	23.1	1682 bcd
4	Cruiser Maxx Bean + Dynasty	56.25+1	A	1.9 c	8.1 ef	16.7 d	25.2 e	31.5 c	32.3 d	32.5 cd	3.2 d	4.0 d	4.5 c	4.7 c	4.7 c	24.1	1422 d
5	Cruiser Maxx Bean + Sedaxane	56.25+2.5	A	5.0 c	16.3 cd	25.7 c	33.2 d	38.1 c	39.2 c	39.4 c	3.9 c	4.4 d	5.0 c	5.2 c	5.2 c	23.4	1431 d
6	Cruiser Maxx Bean + Sedaxane	56.25+5.0	A	2.5 c	10.8 de	23.1 c	29.6 de	35.6 c	35.8 cd	35.8 cd	3.8 cd	4.2 d	4.8 c	4.8 c	4.8 c	24.0	1439 d
7	Rancona Summit + Cruiser	4.06+50	A	11.7 b	28.1 b	48.5 b	59.0 c	68.1 b	68.3 b	69.0 b	6.5 b	7.2 c	7.8 b	7.8 b	7.8 b	23.5	1796 a-d
8	Rancona Summit + Cruiser + Sedaxane	4.06+50+2.5	A	24.4 a	45.4 a	61.3 a	70.6 b	76.0 a	77.5 a	77.5 a	7.5 a	8.5 b	9.3 a	9.5 a	9.5 a	23.3	2159 a
9	Rancona Summit + Cruiser + Sedaxane	4.06+50+5.0	A	24.0 a	48.1 a	64.6 a	74.0 ab	76.9 a	77.5 a	78.3 a	8.2 a	9.0 ab	9.3 a	9.3 a	9.3 a	23.4	2027 ab
10	Evergol Energy + Cruiser	11.5 + 50	A	24.3 a	47.3 a	66.7 a	78.2 a	82.6 a	82.5 a	82.6 a	8.1 a	9.4 a	9.8 a	9.8 a	9.8 a	23.1	1931 abc
LSD (P=.05)				5.7	7.5	6.1	6.2	6.9	6.7	8.0	0.7	0.9	0.8	0.8	0.7	NA	376.8
CV				43.6	26.8	14.4	12.1	12.2	11.5	13.9	12.0	12.9	11.1	10.1	9.7	4.1	20.1
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.2623	0.0001

Planted: June 2 2 rows @ 76 cm and 2 meter length.

Harvested: September 12 2 rows @ 76 cm and 2 meter length.

Design: RCBD with 4 replications.

Inoculum: Rhizoctonia solani applied in the seed furrow at planting, at a rate of 5 grams per meter of row

Herbicide : Pursuit @ 200 ml/ha (May 23) Bonanza @ 1.5 L/ha (May 23) Glyphosate 2L/ha (September 2)

Insecticide: Matador @ 83 ml/ha (July 19, August 3)

Fungicide: Allegro @ 1 L/ha (Aug 3)

Conclusions:

- * differences in emergence and vigour between the two control trts were measured for 22 days after planting, which suggests that the inoculum gave a high level of disease pressure
- * Cruiser Maxx Bean (trt 3,4,5,6) had weaker emergence, vigour and yield compared to the other seed treatments tested
- * Rancona Summit + Sedaxane (trts 8 and 9) and Evergol Energy had the highest emergence and vigour and were better than all other treatments for the first 22 days after planting.
- * the addition of Dynasty (trt 4) to Cruiser Maxx Bean (trt 3) did not improve emergence and vigour
- * the addition of Sedaxane (trt 5 and 6) to Cruiser Maxx Bean (trt 3) had no effect on emergence or vigour
- * the addition of a Sedaxane (trts 8 and 9) to Rancona Summit (trt 7) improved emergence and vigour
- * Emergence, vigour or yield were not influenced by a high rate of Sedaxane (trt 6 and 9) versus a low rate of Sedaxane (trts 5 and 8)
- * no treatment differences in seed weight were measured
- * Rancona Summit (trt 7,8,9) and Evergol (trt 10) had the highest yield but were similar to most of the other seed treatments

University of Guelph, Ridgetown Campus
 2016 Common Bacterial Blight Control in Dry Beans (Navy) Foliar Inoculum

Trt No.	Treatment Name	Rate	Unit	Appl Code	Leaf	Leaf	Leaf	Leaf	Pod	Pod	Pod	Seed	Seed	Pick (%)	Yield-Pick (kg/ha)
					Severity (%)	Severity (%)	Severity (%)	Severity (%)	Severity (%)	Severity (%)	Severity (%)	Wt (g)	Yield (kg/ha)		
					-1 DAA	7 DAA	14 DAA	28 DAA	28 DAA	35 DAA	35 DAA				
1	Uninoculated Control				0 a	1 a	1 a	2 a	0 a	0 b	1 a	24.4 a	2092 a	3.6 a	2017 ab
2	Inoculated Control				0 a	3 a	2 a	2 a	0 a	0 a	1 a	24.0 a	1886 a	3.7 a	1819 bc
3	Copper I	790	g ai/ha	ABC	0 a	3 a	2 a	2 a	0 a	1 a	1 a	24.0 a	2164 a	2.9 a	2101 a
4	Copper W	1125	g ai/ha	ABC	0 a	1 a	1 a	2 a	0 a	0 a	1 a	24.7 a	2181 a	4.2 a	2088 a
5	Parasol	1500	g ai/ha	ABC	0 a	2 a	2 a	2 a	0 a	0 a	1 a	24.4 a	1843 a	4.2 a	1765 c
6	SaniDate	0.333	% v/v	ABC	0 a	2 a	2 a	2 a	0 a	0 a	1 a	24.7 a	2169 a	3.7 a	2089 a
7	XX	0.333	% v/v	ABC	0 a	1 a	1 a	2 a	0 a	0 a	1 a	24.5 a	2045 a	4.2 a	1959 abc
LSD (P=.05)					0.2	2.2	1.0	0.9	0.0	0.3	0.6	1.4	254.8	1.3	244.6
CV					181.4	80.4	42.7	29.1	0.0	58.4	43.5	4.0	8.4	22.8	8.3
Treatment Prob(F)					0.6943	0.2715	0.1541	0.2935	1.0000	0.0390	0.3387	0.8496	0.0529	0.3388	0.0439

Means followed by same letter do not significantly differ (P=.05, LSD)

Notes:

* Uninoculated control was treated with Parasol (1500 g ai/ha) every 2 weeks

Planting Date: Mary 24, 2016

Harvest Date: September 1, 2016

Cultivar: T9905 (navy)

Inoculation Dates: July 20 and 21

Conclusions:

- * disease development was poor, compared to past experiments
- * there were no treatment differences for disease severity of leaf or pod tissue
- * there were no treatment differences for seed weight, seed yield or pick
- * treatment differences occurred for yield-pick, but could not be substantiated by differences in disease scores

University of Guelph, Ridgetown Campus
 2016 Common Bacterial Blight Control in Dry Beans (Kidney) Foliar Inoculum

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Leaf Severity	Leaf Severity	Leaf Severity	Leaf Severity	Pod Severity	Pod Severity	Seed Wt	Seed Yield	Pick	Yield-Pick
					(%)	(%)	(%)	(%)	(%)	(%)	(g)	(kg/ha)	(%)	(kg/ha)
					-1 DAA	7 DAA	14 DAA	28 DAA	28 DAA	35 DAA				
1	Uninoculated Control				0 a	1 a	2 a	4 a	1 a	1 a	54.9 b	1342 a	5.0 a	1275 a
2	Inoculated Control				0 a	2 a	3 a	4 a	1 a	2 a	55.5 b	1518 a	6.2 a	1420 a
3	Copper I	790	g ai/ha	ABC	0 a	2 a	3 a	4 a	1 a	2 a	54.8 b	1368 a	5.1 a	1296 a
4	Copper W	1125	g ai/ha	ABC	0 a	2 a	2 a	3 a	1 a	1 a	54.4 b	1433 a	6.2 a	1345 a
5	Parasol	1500	g ai/ha	ABC	0 a	4 a	2 a	4 a	1 a	2 a	54.5 b	1305 a	7.5 a	1214 a
6	SaniDate	0.333	% v/v	ABC	0 a	2 a	2 a	4 a	1 a	2 a	55.0 b	1443 a	8.4 a	1321 a
7	XX	0.333	% v/v	ABC	0 a	2 a	2 a	4 a	1 a	2 a	58.3 a	1546 a	5.7 a	1463 a
LSD (P=.05)					0.3	2.9	1.4	1.8	0.3	0.8	2.3	314.6	3.2	303.9
CV					529.2	92.7	41.7	33.0	40.1	33.6	2.8	14.9	34.1	15.3
Treatment Prob(F)					0.4552	0.4177	0.5066	0.5879	0.9928	0.1127	0.0273	0.6391	0.2928	0.6559

Means followed by same letter do not significantly differ (P=.05, LSD)

Notes:

* Uninoculated control was treated with Parasol (1500 g ai/ha) every 2 weeks

Planting Date: May 24, 2016

Harvest Date: September 1, 2016

Cultivar: Red Rover (dark red kidney)

Innocation Dates: July 20 and 21

Conclusions:

* disease development was poor, compared to past experiments

* there were no treatment differences for disease severity of leaf or pod tissue

* there were no treatment differences for seed yield or pick

* treatment differences occurred for seed weight, but could not be substantiated by differences in disease scores

University of Guelph, Ridgetown Campus
 2016 Common Bacterial Blight Control in Dry Beans (Navy) Infected Seed Inoculum

Trt No.	Treatment Name	Rate	Unit	Appl Code	Leaf Severity	Leaf Severity	Leaf Severity	Leaf Severity	Stem Severity	Pod Severity	Pod Severity	Pod Severity	Seed Wt	Seed Yield	Pick	Yield-Pick
					(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(g)	(kg/ha)	(%)
		Rate	Unit	Code	-1 DAA	7 DAA	14 DAA	28 DAA	21 DAA	21 DAA	28 DAA	35 DAA				
1	Uninoculated Control				0 c	1 c	3 c	3 b	0 a	0 c	1 b	1 b	24.7 a	1991 a	3.9 c	1914 a
2	Inoculated Control				1 b	8 a	9 a	10 a	1 a	1 b	2 a	3 a	22.9 b	1850 a	7.8 ab	1706 ab
3	Copper I	790	g ai/ha	ADE	1 ab	6 b	7 ab	8 a	1 a	2 a	2 a	3 a	22.3 b	1617 a	8.2 ab	1485 b
4	Copper W	1125	g ai/ha	ADE	1 ab	4 b	6 b	7 a	1 a	2 ab	2 a	3 a	22.5 b	1579 a	9.9 ab	1434 b
5	Parasol	1500	g ai/ha	ADE	1 ab	5 b	6 b	7 a	1 a	2 ab	2 a	3 a	22.7 b	1724 a	11.0 a	1529 b
6	SaniDate	0.333	% v/v	ADE	1 a	6 b	7 ab	7 a	1 a	1 b	2 a	3 a	22.2 b	1541 a	6.8 bc	1440 b
7	XX	0.333	% v/v	ADE	1 a	6 b	6 ab	7 a	1 a	2 ab	2 a	3 a	22.5 b	1757 a	6.6 bc	1642 ab
LSD (P=.05)					0.4	2.2	2.5	2.7	0.6	0.6	0.7	0.8	1.2	326.2	3.6	309.9
CV					32.0	29.3	27.8	26.0	67.8	30.2	26.2	19.0	3.6	12.8	31.7	13.1
Treatment Prob(F)					0.0005	0.0002	0.0047	0.0049	0.1203	0.0021	0.0134	0.0009	0.0063	0.0995	0.0174	0.0418

Means followed by same letter do not significantly differ (P=.05, LSD)

Notes:

* Uninoculated control was treated with Parasol (1500 g ai/ha) every 2 weeks

Planting Date: May 24, 2016

Harvest Date: September 1, 2016

Cultivar: T9905 (navy)

Conclusions:

- * disease development was below average, compared to past experiments
- * the inoculated control typically had the highest disease scores, while the uninoculated control had the lowest disease scores
- * there was little consistency in treatment efficacy for disease severity.
- * there were no treatment differences for seed yield
- * all of the treatments had lower seed weight than the uninoculated control
- * treatment differences occurred for pick and yield-pick, but the best treatments were not different than the inoculated control

University of Guelph, Ridgetown Campus

2016 Common Bacterial Blight Control in Dry Beans (Kidney) Infected Seed Inoculum

Trt No.	Treatment Name	Rate	Unit	Appl Code	Leaf	Leaf	Leaf	Leaf	Stem	Pod	Pod	Pod	Seed	Seed	Pick (%)	Yield-Pick (kg/ha)
					Severity (%)	Severity (%)	Severity (%)	Severity (%)	Severity (%)	Severity (%)	Severity (%)	Severity (%)	Severity (%)	Wt (g)		
					-1 DAA	7 DAA	14 DAA	28 DAA	21 DAA	21 DAA	28 DAA	35 DAA				
1	Uninoculated Control				0 b	1 c	6 a	6 c	3 c	3 a	3 d	5 d	50.5 a	1007 a	9.8 a	914 a
2	Inoculated Control				4 a	7 a	13 a	14 a	5 ab	6 a	9 a	10 a	47.9 a	672 a	11.8 a	593 b
3	Copper I	790 g ai/ha		ADE	2 a	5 ab	12 a	13 ab	6 a	5 a	7 abc	7 bc	46.6 a	698 a	12.6 a	613 b
4	Copper W	1125 g ai/ha		ADE	2 a	4 ab	12 a	12 ab	6 ab	5 a	7 abc	8 abc	47.0 a	757 a	13.8 a	656 b
5	Parasol	1500 g ai/ha		ADE	2 a	4 b	12 a	12 ab	5 ab	4 a	5 bcd	6 cd	47.1 a	749 a	12.5 a	656 b
6	SaniDate	0.333 % v/v		ADE	3 a	5 ab	10 a	10 bc	4 bc	4 a	5 cd	6 cd	47.7 a	718 a	10.7 a	642 b
7	XX	0.333 % v/v		ADE	2 a	5 ab	11 a	12 ab	6 ab	4 a	8 ab	8 ab	46.5 a	656 a	12.8 a	572 b
LSD (P=.05)					1.8	2.6	4.3	4.1	2.1	3.0	2.8	2.2	2.9	224.6	3.4	209.0
CV					50.7	39.8	27.4	24.1	29.0	47.2	28.7	20.6	4.1	20.1	18.8	21.2
Treatment Prob(F)					0.0215	0.0083	0.0666	0.0099	0.0182	0.4658	0.0065	0.0013	0.1248	0.0641	0.2665	0.0497

Means followed by same letter do not significantly differ (P=.05, LSD)

Notes:

* Uninoculated control was treated with Parasol (1500 g ai/ha) every 2 weeks

Planting Date: Mary 24, 2016

Harvest Date: September 1, 2016

Cultivar: Red Rover (dark red kidney)

Conclusions:

* disease development was average, compared to past experiments

* there were a few treatment differences for disease severity of leaf or pod tissue. Sanidate (trt 6) had the lower disease scores for later rating dates.

* there were no treatment differences for seed weight, seed yield or pick

* the uninoculated control had higher yield-pick values than all other treatments

University of Guelph, Ridgetown Campus
 2016 Dry Bean Mycorrizal Trial HRS (AgTiv/Myconate)

Trt No.	Treatment Name	Rate	Unit	Plant Emergence		Plant Vigour (1-10)		Plant Height (cm)	Plant Stage (BBCH)	Plant Dry Wt (g)	Maturity Date (DAP)	Plant Lodging (1-5)	Seed Yield (kg/ha)	Seed Weight (g)	Seed Pick (%)
				17 DAP	25 DAP	17 DAP	25 DAP	49 DAP	49 DAP	54 DAP					
1	Untreated Control			83.3 a	88.8 a	7.0 a	8.0 a	29.5 a	71.1 a	67.4 a	88.0 a	2.1 a	1907 a	51.6 a	2.1 a
2	6-24-6	2.5	l/ha	81.0 a	84.5 a	7.1 a	8.0 a	30.9 a	71.5 a	74.0 a	88.0 a	2.4 a	1791 a	49.9 a	2.6 a
3	AgTiv + 6-24-6	250	g/100 kg	83.8 a	90.3 a	7.5 a	8.0 a	30.8 a	71.4 a	67.3 a	88.0 a	2.0 a	1787 a	48.7 a	2.1 a
4	AgTiv + 6-24-6	500	g/100 kg	76.3 a	80.3 a	7.5 a	8.0 a	30.2 a	70.8 a	71.9 a	87.5 a	2.3 a	1747 a	50.8 a	2.3 a
5	Myconate HB + 6-24-6	50	g/100 kg	77.8 a	84.0 a	7.0 a	8.0 a	29.6 a	71.8 a	75.1 a	87.3 a	2.4 a	1924 a	51.6 a	2.1 a
6	Myconate HB + 6-24-6	100	g/100 kg	69.6 a	72.6 a	7.2 a	8.0 a	30.9 a	71.4 a	83.5 a	87.4 a	2.4 a	1980 a	53.4 a	2.0 a
7	AgTiv + Myconate HB + 6-24-6	50	g/100 kg	75.8 a	79.8 a	7.3 a	8.0 a	30.1 a	71.7 a	68.6 a	85.5 a	2.0 a	1782 a	51.4 a	2.5 a
LSD (P=.05)				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CV				11.3	10.3	6.5	0.0	5.3	1.0	23.9	1.7	14.3	14.9	4.3	16.9
Treatment Prob(F)				0.3214	0.1259	0.5895	1.0000	0.7565	0.4003	0.8399	0.2691	0.3809	0.8541	0.1549	0.2465

Means followed by same letter do not significantly differ (P=.05, LSD)

Notes:

Planting Date: June 3 2016
 Cultivar: Red Hawk, DRK
 Harvest Date: September 1 2016

Conclusions:

- * there were no differences between treatments for early emergence and vigour, or mid season plant height or dry weight
- * treatments did not affect plant maturity or lodging, or seed yield, seed weight or pick at harvest

Response of Four Dry Bean Market Classes to Pre-Emergence Applications of Pyroxasulfone, Sulfentrazone and Pyroxasulfone plus Sulfentrazone

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Abstract

Only one herbicide mode of action (ALS inhibitor) is currently available to Ontario dry bean producers for soil-applied broadleaf weed control. Four field studies were conducted over two years (2014, 2015) to examine the tolerance of four market classes of dry beans to sulfentrazone (210 and 420 g·ai·ha⁻¹) and pyroxasulfone (100 and 200 g·ai·ha⁻¹) applied alone and in combination. The registration of these two herbicides would provide Ontario dry bean producers with two additional modes of action for broadleaf weed control. Pyroxasulfone caused up to 23%, 6%, 7% and 10% injury in adzuki, kidney, small red Mexican and white bean, respectively; sulfentrazone caused up to 51%, 12%, 15% and 44% injury and the combination caused up to 90%, 23%, 29% and 62% injury, respectively. Kidney and small red Mexican bean density, height, seed moisture content and yield were not affected. Pyroxasulfone (200 g·ai·ha⁻¹) + sulfentrazone (420 g·ai·ha⁻¹) reduced adzuki and white bean density, shoot dry weight, height and yield. This study concludes that pyroxasulfone (100 g·ai·ha⁻¹) + sulfentrazone (210 g·ai·ha⁻¹) applied PRE can be safely used to control weeds in Ontario kidney and small red Mexican bean production.

Keywords

Adzuki Bean (Erimo), Kidney Bean (Red Hawk), Small Red Mexican Bean (Merlot), White Bean (T9905), Crop Injury, Plant Density, Plant Height, Seed Moisture Content, Tolerance, Yield

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Weed Control with Sulfentrazone plus a Low Rate of Imazethapyr in White Bean

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Abstract

Ontario dry bean (*Phaseolus vulgaris* L.) growers have few options for broadleaf weed control. Sulfentrazone is a group 14 herbicide that provides good control of several common Ontario weed species, and would provide another mode of action for broadleaf weed control if registered for use in Ontario dry beans. Five field studies were conducted during 2014 and 2015 to determine if a low dose of imazethapyr added to a tank mix of sulfentrazone + s-metolachlor would improve broadleaf control in white bean. Sulfentrazone (140 and 210 g·ai·ha⁻¹) was mixed with imazethapyr and s-metolachlor and evaluated at 2 and 4 weeks after crop emergence for crop injury. Weed control was assessed visually at 4 and 8 weeks after herbicide application (WAA), and weed stand counts and biomass were determined at 8 WAA. Seed moisture and yield were determined at harvest. At 8 WAA, sulfentrazone (140 g·ai·ha⁻¹) controlled pigweed species, common ragweed, common lambsquarters, wild mustard, barnyard grass and green foxtail 100%, 4%, 100%, 2%, 86% and 62%, respectively. The addition of imazethapyr (37.5 g·ai·ha⁻¹) to sulfentrazone (140 g·ai·ha⁻¹) improved the control of common ragweed, wild mustard and green foxtail by 19%, 98% and 33%, respectively. The three-way tank mix of sulfentrazone (140 g·ai·ha⁻¹) plus s-metolachlor (1050 g·ai·ha⁻¹) plus imazethapyr (37.5 g·ai·ha⁻¹) controlled pigweed species, common ragweed, common lambsquarters, wild mustard, barnyard grass and green foxtail 100%, 35%, 100%, 100%, 96% and 100%, respectively. The tank mixes evaluated caused unacceptably high levels of crop injury; this study does not support the registration of sulfentrazone plus s-metolachlor + imazethapyr for use in Ontario white bean.

Keywords

Biomass, Density, Injury, Height, Navy Bean, *Phaseolus vulgaris* L.

Sulfentrazone tank mix partners for weed control in white bean (*Phaseolus vulgaris* L.)

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Abstract: Soil-applied broadleaf herbicides for weed management in dry beans (*Phaseolus vulgaris* L.) in Ontario are limited. Sulfentrazone is an effective broadleaf herbicide with some grass activity and is currently registered for use in soybean and some pulse crops in Canada. If registered for use in dry beans in Ontario, sulfentrazone would provide growers with another mode of action for broadleaf weed control. Five field studies were conducted over a two year period (2014–2015) to determine the tolerance of white beans to sulfentrazone applied pre-emergence (PRE) and if the spectrum of weeds controlled can be expanded by tank-mixing sulfentrazone with a soil-applied grass herbicide. Sulfentrazone (140 and 210 g ai ha⁻¹) was mixed with pendimethalin, dimethenamid-p, s-metolachlor or pyroxasulfone. All the tankmixes evaluated provided good control of green foxtail (*Setaria viridis* L.), pigweeds (*Amaranthus powelli* L. and *A. retroflexus* L.), and common lambsquarters (*Chenopodium album* L.), but only sulfentrazone + pendimethalin had an adequate margin of crop safety. Based on this study, sulfentrazone combined with a grass herbicide provides acceptable control of some grass and broadleaf weed species; however, further research is required to determine if there is an adequate margin of crop safety for weed management in Ontario dry beans.

Key words: biomass, density, Injury, height, navy bean, *Phaseolus vulgaris* L.

Résumé : Le nombre d'herbicides que l'on peut épandre sur le sol pour lutter contre les dicotylédones dans les champs de haricot (*Phaseolus vulgaris* L.) est restreint en Ontario. Le sulfentrazone fonctionne bien contre les dicotylédones et certaines graminées. Il est homologué pour le soja et quelques légumineuses au Canada. S'il était homologué pour le haricot en Ontario, les producteurs auraient une corde de plus à leur arc pour lutter contre les dicotylédones. Les auteurs ont procédé à cinq études sur le terrain pendant deux ans (2014, 2015) afin de vérifier la tolérance du haricot blanc au sulfentrazone appliqué avant la levée et pour déterminer si on pourrait élargir la gamme de dicotylédones contrôlées en y ajoutant un herbicide contre les graminées. Le sulfentrazone (140 et 210 g de matière active par hectare) a été mélangé à du pendiméthalin, du diméthénamide-p, du s-métolachlor ou de la pyroxasulfone. Tous ces mélanges contrôlent bien la sétaire verte (*Setaria viridis* L.), les amarantes (*Amaranthus powelli* L. and *A. retroflexus* L.) et le chénopode blanc (*Chenopodium album* L.), mais seul celui de sulfentrazone et de pendiméthalin présente une marge de sécurité suffisante pour la culture. D'après les résultats de cette étude, mélanger le sulfentrazone à un herbicide à graminées permet de combattre de façon acceptable certaines graminées et dicotylédones. Cependant, il faudrait entreprendre des recherches plus poussées pour savoir si la marge de sécurité est suffisante en vue de l'utilisation d'un tel mélange pour désherber chimiquement les champs de haricot en Ontario. [Traduit par la Rédaction]

Mots-clés : biomasse, densité, dommages, hauteur, haricot, *Phaseolus vulgaris* L.

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Abbreviations: OM, organic matter; POST, post-emergence; PRE, pre-emergence; WAA, weeks after application; WAE, weeks after emergence.

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Fulvic and humic acid fertilizers are ineffective in dry bean

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Studies were conducted in Ontario dry bean (*Phaseolus vulgaris* L.) in 2010 and 2011 using fulvic acid (LX7[®], MTS Environmental Inc.) or humic acid (Plant XL[®], Alpha-Agri) fertilizers. Twenty fulvic acid field trials and 15 humic acid field trials indicate that these fertilizers were ineffective as plant vigour, height, 100-seed weight, and yield were similar to a control treatment.

Key words: Dry bean, *Phaseolus vulgaris*, fulvic acid, humic acid

Humic compounds, such as fulvic acid and humic acid, are formed by chemical and microbial degradation of plant and animal material and are a principal component of soil organic matter (Canellas et al. 2015). Because of their growth promoting properties in plants, humic compounds have been studied for decades (Schnitzer and Poapst 1967). In general, the application of fulvic and humic acid fertilizer amendments have been shown to enhance root growth, nutrient uptake, alleviate stress, and increase yield in various crops (Canellas et al. 2015).