

MSU Soil Fertility Research Program

VARIETAL RESPONSE OF DRY BEAN TO PHOSPHORUS
 Trial ID: DB02-19 Location: SVRF Trial Year: 2019
 Investigator: Kurt Steinke
 Project ID: DBPHOS

Crop Code						PHSSS
Crop Name						Bean
Description						lbs
Rating Date						Sep-25-2019
Rating Type						YIELD
Rating Unit						CWT
Crop Stage Scale						HARVEST
ARM Action Codes						ER1 TY3
Number of Decimals						1
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Other Rate	Growth Unit Stage
						3
TABLE OF R MEANS						
Replicate 1						22.4
Replicate 2						24.5
Replicate 3						20.4
Replicate 4						23.1
TABLE OF A (Variety) MEANS						
1 Zenith						23.8 a
2 Black Bear						21.9 a
3 Viper						20.4 a
4 Merlin						24.4 a
LSD P=.05						4.60
Standard Deviation						7.05
CV						31.16
TABLE OF B (Fertilizer) MEANS						
1 CHECK						25.0 a
1 Urea	46-0-0	46 GR	60 lb ai/a	130 lb/a	PPI	
2 MAP	11-52-0	52 GR	25 lb ai/a	48 lb/a	PPI	22.7 a
2 Urea	46-0-0	46 GR	54.7 lb ai/a	119 lb/a	PPI	
3 MAP	11-52-0	52 GR	50 lb ai/a	96 lb/a	PPI	22.7 a
3 Urea	46-0-0	46 GR	49.4 lb ai/a	107 lb/a	PPI	
4 MAP	11-52-0	52 GR	100 lb ai/a	192 lb/a	PPI	20.6 a
4 Urea	46-0-0	46 GR	38.9 lb ai/a	84.6 lb/a	PPI	
5 MAP	11-52-0	52 GR	150 lb ai/a	288 lb/a	PPI	22.0 a
5 Urea	46-0-0	46 GR	28.3 lb ai/a	61.5 lb/a	PPI	
6 MAP	11-52-0	52 GR	200 lb ai/a	385 lb/a	PPI	22.6 a
6 Urea	46-0-0	46 GR	17.7 lb ai/a	38.5 lb/a	PPI	
LSD P=.05						3.02
Standard Deviation						4.26
CV						18.85
TABLE OF A (Variety) B (Fertilizer) MEANS						
1 Zenith						25.1 a
1 CHECK						
1 Urea	46-0-0	46 GR	60 lb ai/a	130 lb/a	PPI	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).
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Crop Code Crop Name Description Rating Date							PHSSS Bean lbs Sep-25-2019	
Rating Type Rating Unit Crop Stage Scale ARM Action Codes Number of Decimals							YIELD CWT HARVEST ER1 TY3 1	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage	3
2	Black Bear							25.7 a
1	CHECK							
1	Urea 46-0-0	46	GR	60 lb ai/a	130 lb/a		PPI	
3	Viper							23.1 a
1	CHECK							
1	Urea 46-0-0	46	GR	60 lb ai/a	130 lb/a		PPI	
4	Merlin							26.3 a
1	CHECK							
1	Urea 46-0-0	46	GR	60 lb ai/a	130 lb/a		PPI	
1	Zenith							25.8 a
2	MAP 11-52-0	52	GR	25 lb ai/a	48 lb/a		PPI	
2	Urea 46-0-0	46	GR	54.7 lb ai/a	119 lb/a		PPI	
2	Black Bear							21.0 a
2	MAP 11-52-0	52	GR	25 lb ai/a	48 lb/a		PPI	
2	Urea 46-0-0	46	GR	54.7 lb ai/a	119 lb/a		PPI	
3	Viper							20.4 a
2	MAP 11-52-0	52	GR	25 lb ai/a	48 lb/a		PPI	
2	Urea 46-0-0	46	GR	54.7 lb ai/a	119 lb/a		PPI	
4	Merlin							23.7 a
2	MAP 11-52-0	52	GR	25 lb ai/a	48 lb/a		PPI	
2	Urea 46-0-0	46	GR	54.7 lb ai/a	119 lb/a		PPI	
1	Zenith							24.3 a
3	MAP 11-52-0	52	GR	50 lb ai/a	96 lb/a		PPI	
3	Urea 46-0-0	46	GR	49.4 lb ai/a	107 lb/a		PPI	
2	Black Bear							22.8 a
3	MAP 11-52-0	52	GR	50 lb ai/a	96 lb/a		PPI	
3	Urea 46-0-0	46	GR	49.4 lb ai/a	107 lb/a		PPI	
3	Viper							21.0 a
3	MAP 11-52-0	52	GR	50 lb ai/a	96 lb/a		PPI	
3	Urea 46-0-0	46	GR	49.4 lb ai/a	107 lb/a		PPI	
4	Merlin							22.7 a
3	MAP 11-52-0	52	GR	50 lb ai/a	96 lb/a		PPI	
3	Urea 46-0-0	46	GR	49.4 lb ai/a	107 lb/a		PPI	
1	Zenith							20.6 a
4	MAP 11-52-0	52	GR	100 lb ai/a	192 lb/a		PPI	
4	Urea 46-0-0	46	GR	38.9 lb ai/a	84.6 lb/a		PPI	

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Crop Code Crop Name Description Rating Date							PHSSS Bean lbs Sep-25-2019	
Rating Type Rating Unit Crop Stage Scale ARM Action Codes Number of Decimals							YIELD CWT HARVEST ER1 TY3 1	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage	3
2	Black Bear							19.6 a
4	MAP 11-52-0	52	GR	100 lb ai/a	192 lb/a		PPI	
4	Urea 46-0-0	46	GR	38.9 lb ai/a	84.6 lb/a		PPI	
3	Viper							16.1 a
4	MAP 11-52-0	52	GR	100 lb ai/a	192 lb/a		PPI	
4	Urea 46-0-0	46	GR	38.9 lb ai/a	84.6 lb/a		PPI	
4	Merlin							26.2 a
4	MAP 11-52-0	52	GR	100 lb ai/a	192 lb/a		PPI	
4	Urea 46-0-0	46	GR	38.9 lb ai/a	84.6 lb/a		PPI	
1	Zenith							22.6 a
5	MAP 11-52-0	52	GR	150 lb ai/a	288 lb/a		PPI	
5	Urea 46-0-0	46	GR	28.3 lb ai/a	61.5 lb/a		PPI	
2	Black Bear							21.2 a
5	MAP 11-52-0	52	GR	150 lb ai/a	288 lb/a		PPI	
5	Urea 46-0-0	46	GR	28.3 lb ai/a	61.5 lb/a		PPI	
3	Viper							19.9 a
5	MAP 11-52-0	52	GR	150 lb ai/a	288 lb/a		PPI	
5	Urea 46-0-0	46	GR	28.3 lb ai/a	61.5 lb/a		PPI	
4	Merlin							24.4 a
5	MAP 11-52-0	52	GR	150 lb ai/a	288 lb/a		PPI	
5	Urea 46-0-0	46	GR	28.3 lb ai/a	61.5 lb/a		PPI	
1	Zenith							24.2 a
6	MAP 11-52-0	52	GR	200 lb ai/a	385 lb/a		PPI	
6	Urea 46-0-0	46	GR	17.7 lb ai/a	38.5 lb/a		PPI	
2	Black Bear							21.1 a
6	MAP 11-52-0	52	GR	200 lb ai/a	385 lb/a		PPI	
6	Urea 46-0-0	46	GR	17.7 lb ai/a	38.5 lb/a		PPI	
3	Viper							22.3 a
6	MAP 11-52-0	52	GR	200 lb ai/a	385 lb/a		PPI	
6	Urea 46-0-0	46	GR	17.7 lb ai/a	38.5 lb/a		PPI	
4	Merlin							22.9 a
6	MAP 11-52-0	52	GR	200 lb ai/a	385 lb/a		PPI	
6	Urea 46-0-0	46	GR	17.7 lb ai/a	38.5 lb/a		PPI	
LSD P=.05							6.03	
Standard Deviation							4.26	
CV							18.85	

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COMPLETE SPLIT-PLOT AOV For PHSSS Bean lbs Sep-25-2019 YIELD CWT HARVEST ER1 TY3 1 (Data Column 3)						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	95	2311.623455				
R	3	212.841294	70.947098	3.902	0.0130	
A	3	233.016684	77.672228	1.564	0.2647	4.6
ERROR A	9	446.860527	49.651170			
B	5	161.646330	32.329266	1.778	0.1311	3.0
AB	15	166.253536	11.083569	0.610	0.8556	6.0
ERROR B	60	1091.005085	18.183418			
FACTORIAL/POOLED ERROR AOV For PHSSS Bean lbs Sep-25-2019 YIELD CWT HARVEST ER1 TY3 1 (Data Column 3)						
Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	95	2311.623455				
R	3	212.841294	70.947098	3.183	0.0292	
A	3	233.016684	77.672228	3.485	0.0203	2.7
B	5	161.646330	32.329266	1.451	0.2174	3.3
AB	15	166.253536	11.083569	0.497	0.9341	6.7
ERROR	69	1537.865611	22.287907			

Crop Code

PHSSS, BVBE, Phaseolus sp., Bean = US

Rating Type

YIELD = yield

Rating Unit

CWT = hundredweight (u.s.=100 lb)

ARM Action Codes

ER1 = Excluded replicate 1

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