

Table 1: ETL based interventions against bollworms in different treatment combinations																
Treatment combination	Sucking pests	Bollworms														Total no. of spray
		Pink bollworm				American bollworm					Spotted bollworm					
		Period of occurrence	DAS at which flower damage crossed ETL	DAS at which green boll damage crossed ETL	No. of spray	Period of occurrence	DAS at which larval population crossed ETL	DAS at which square damage crossed ETL	DAS at which green boll damage crossed ETL	No. of spray	Period of occurrence	DAS at which larval population crossed ETL	DAS at which square damage crossed ETL	DAS at which green boll damage crossed ETL	No. of spray	
K ₀ B ₀ NFS	4	75 to 165 DAS (first week of October to second week of January)	75, 105	105, 135	3	75 to 150 DAS (first week of October to last week of December)	-	-	-	0	75 to 150 DAS (first week of October to last week of December)	-	-	-	0	7
K ₀ B ₀ FS	4		75, 105	105, 135	3		-	-	-	0		-	-	-	0	7
K ₀ B ₁ NFS	4		75, 105	105, 135	3		-	-	-	0		-	-	-	0	7
K ₀ B ₁ FS	4		75, 105	105, 135	3		-	-	-	0		-	-	-	0	7
K ₄₀ B ₀ NFS	4		75	135	2		-	-	-	0		-	-	-	0	6
K ₄₀ B ₀ FS	3		75	-	1		-	-	-	0		-	-	-	0	4
K ₄₀ B ₁ NFS	4		75	135	2		-	-	-	0		-	-	-	0	6
K ₄₀ B ₁ FS	3		75	-	1		-	-	-	0		-	-	-	0	4
K ₈₀ B ₀ NFS	3		75	135	2		-	-	-	0		-	-	-	0	5
K ₈₀ B ₀ FS	2		75	-	1		-	-	-	0		-	-	-	0	3
K ₈₀ B ₁ NFS	3		75	135	2		-	-	-	0		-	-	-	0	5
K ₈₀ B ₁ FS	2		75	-	1		-	-	-	0		-	-	-	0	3

Note: Common insecticides sprays for PBW during 75 and 105 DAS based on ETL population and damage. K=K₂O, B=KMB, F=Foliar spray of KNO₃

Table 2: Damage of pink bollworm to flowers in different treatments on G. Cot. Hy. 8 BG II during 2018-19

Factors	% Rosette flower/5 Plants recorded at 15 days interval									
	75 DAS		90 DAS		105 DAS		120 DAS		Pooled	
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
A. Main Treatment (Potash Fertilizer) K										
K ₀	13.88	21.78	5.52	13.55	11.89	20.14	8.02	16.43	9.83	17.98
K ₄₀	12.22	20.30	3.80	11.15	5.53	13.56	5.92	14.07	6.87	14.77
K ₈₀	11.08	19.36	2.11	8.24	4.78	12.57	4.74	12.55	5.68	13.18
GM		20.48		10.98		15.42		14.35		15.31
SEm ±		1.07		0.14		0.12		0.10		0.42
CD (5%)		NS		0.58		0.48		0.41		1.23
CV %		18.12		4.67		2.75		2.50		12.37
B. Sub Treatment										
Potash Mobilizing Bacteria (B)										
B ₀	12.46	20.53	4.41	11.97	7.87	16.00	6.33	14.48	7.77	15.75
B ₁	12.33	20.43	3.20	10.00	6.92	14.84	6.12	14.22	7.14	14.87
GM		20.48		10.99		15.42		14.35		15.31
SEm ±		0.57		0.18		0.16		0.18		0.14
CD (5%)		NS		0.53		0.49		NS		NS
Foliar sprays of Potassium Nitrate (F)										
NFS	12.40	20.53	3.96	11.17	7.90	15.98	6.33	14.47	7.65	15.54
FS	12.39	20.43	3.66	10.79	6.89	14.86	6.12	14.23	7.26	15.08
GM		20.48		10.98		15.42		14.35		15.31
SEm ±		0.57		0.18		0.16		0.18		0.14
CD (5%)		NS		NS		0.49		NS		NS
Interactions	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)
KB	1.00	NS	0.31	NS	0.28	0.85	0.31	NS	0.27	NS
KF	1.00	NS	0.31	NS	0.28	NS	0.31	NS	0.27	NS
BF	0.81	NS	0.25	NS	0.23	NS	0.25	NS	0.23	NS
KBF	1.41	NS	0.44	NS	0.40	NS	0.44	NS	0.40	NS
PK									0.54	NS
PB									0.32	NS
PF									0.32	NS
PKBF									0.80	NS
CV%		11.99		7.00		4.57		5.36		9.07

Note: P=Period, NS=Non significant, TV= Transformed mean (Arc sine), OV= Original Values, GM=General Mean

Table 3: Incidence of pink bollworm larvae (small and big) on G. Cot. Hy. 8 BG II during 2018-19

Factors	Number of pink bollworm larvae (small and big)/10 green bolls recorded at 15 days interval									
	90 DAS		105 DAS		120 DAS		135 DAS		Pooled	
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
A. Main Treatment (Potash Fertilizer) K										
K ₀	1.16	1.70	1.50	2.21	1.33	1.90	1.25	2.29	1.31	2.02
K ₄₀	0.91	1.62	1.41	1.84	1.08	1.74	1.16	1.99	1.14	1.62
K ₈₀	0.83	1.46	1.16	1.71	1.08	1.74	1.00	1.88	1.02	1.46
GM		1.59		1.92		1.79		2.05		1.83
SEm ±		0.05		0.06		0.04		0.07		0.03
CD (5%)		NS		0.25		NS		0.29		0.08
CV %		12.02		11.40		9.22		12.79		11.56
B. Sub Treatments										
Potash Mobilizing Bacteria (B)										
B ₀	2.28	1.65	3.44	1.97	3.05	1.87	4.11	2.12	3.22	1.90
B ₁	1.89	1.53	3.11	1.87	2.50	1.72	3.61	1.98	2.78	1.78
GM		1.59		1.92		1.80		2.05		1.83
SEm ±		0.04		0.05		0.06		0.07		0.03
CD (5%)		NS		NS		NS		NS		0.85
Foliar sprays of Potassium Nitrate (F)										
NFS	2.22	1.64	3.39	1.95	3.00	1.86	4.61	2.24	3.31	1.92
FS	1.94	1.55	3.17	1.89	2.55	1.73	3.11	1.86	2.69	1.76
GM		1.59		1.92		1.79		2.05		1.83
SEm ±		0.04		0.05		0.06		0.07		0.05
CD (5%)		NS		NS		NS		0.21		NS
Interactions	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)
KB	0.07	NS	0.10	NS	0.11	NS	0.12	NS	0.05	NS
KF	0.07	NS	0.10	NS	0.11	NS	0.12	NS	0.05	NS
BF	0.06	NS	0.08	NS	0.09	NS	0.10	NS	0.04	NS
KBF	0.10	NS	0.14	NS	0.16	NS	0.18	NS	0.07	NS
PK									0.06	NS
PB									0.06	NS
PF									0.06	0.17
PKBF									0.15	NS
CV%		11.72		12.87		15.66		15.21		14.18
Note: P=Period, TV= Square root + 0.5 whereas, OV= Original Values, NS= Non-Significant, GM= General Mean										

Table 4: Incidence of pink bollworm larvae (big) on G. Cot. Hy. 8 BG II during 2018-19

Factors	Number of pink bollworm larvae (big)/ 10 green bolls recorded at 15 days interval									
	90 DAS		105 DAS		120 DAS		135 DAS		Pooled	
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
A. Main Treatment (Potash Fertilizer) K										
K ₀	1.16	1.27	1.50	1.40	1.33	1.34	1.25	1.30	1.31	1.32
K ₄₀	0.91	1.15	1.41	1.37	1.08	1.24	1.16	1.25	1.14	1.25
K ₈₀	0.83	1.11	1.16	1.25	1.08	1.22	1.00	1.18	1.02	1.19
GM		1.17		1.34		1.27		1.24		1.26
SEm ±		0.05		0.03		0.07		0.09		0.03
CD (5%)		NS		NS		NS		NS		0.08
CV %		16.17		9.99		20.19		26.94		19.16
B. Sub Treatments										
Potash Mobilizing Bacteria (B)										
B ₀	1.05	1.21	1.44	1.38	1.33	1.33	1.38	1.36	1.30	1.32
B ₁	0.88	1.14	1.27	1.30	1.00	1.20	0.88	1.13	1.01	1.19
GM		1.18		1.34		1.27		1.25		1.26
SEm ±		0.07		0.05		0.05		0.06		0.03
CD (5%)		NS		NS		NS		0.18		0.09
Foliar sprays of Potassium Nitrate (F)										
NFS	1.05	1.21	1.38	1.35	1.22	1.29	1.27	1.30	1.23	1.29
FS	0.88	1.14	1.33	1.33	1.11	1.24	1.00	1.18	1.08	1.22
GM		1.17		1.34		1.26		1.24		1.25
SEm ±		0.07		0.05		0.05		0.06		0.03
CD (5%)		NS		NS		NS		NS		NS
Interactions	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)
KB	0.12	NS	0.10	NS	0.10	NS	0.11	NS	0.05	NS
KF	0.12	NS	0.10	NS	0.10	NS	0.11	NS	0.05	NS
BF	0.10	NS	0.08	NS	0.08	NS	0.09	NS	0.04	NS
KBF	0.18	NS	0.14	NS	0.14	NS	0.15	NS	0.07	NS
PK									0.06	NS
PB									0.06	NS
PF									0.06	NS
PKBF									0.15	NS
CV%		26.75		18.51		19.99		21.65		21.69
Note: P=Period, TV= Square root + 0.5 whereas, OV= Original Values, NS= Non-Significant, GM= General Mean										

Table 5: Open bolls and locule damage by pink bollworm at harvest

Factors	Open bolls damage (%)		Locules damage (%)	
	OV	TV	OV	TV
A. Main Treatment (Potash Fertilizer) (K)				
K ₀	15.01	22.73	9.93	18.33
K ₄₀	12.77	20.83	8.15	16.51
K ₈₀	9.01	17.22	5.09	12.93
GM		20.26		15.92
SEm ±		1.02		0.68
CD (5%)		4.02		2.69
CV %		17.50		14.91
B. Sub Treatment				
Potash Mobilizing Bacteria				
B ₀	12.20	20.28	7.91	16.14
B ₁	12.33	20.24	7.54	15.71
GM		20.26		15.93
SEm ±		0.54		0.27
CD (5%)		NS		NS
Foliar sprays of Potassium Nitrate (F)				
NFS	12.09	20.06	7.51	15.65
FS	12.43	20.46	7.94	16.20
GM		20.26		15.93
SEm ±		0.54		0.27
CD (5%)		NS		NS
Interactions				
	SEm ±	CD (5%)	SEm ±	CD (5%)
KB	0.94	NS	0.47	NS
KF	0.94	NS	0.47	NS
BF	0.77	NS	0.39	NS
KBF	1.33	NS	0.67	NS
CV%		11.44		7.35

Note: TV= Transformed mean (Arc sine) whereas, OV= Original Values,
NS= Non- Significant, GM= General Mean

Table 6: Effect of potash application on damage to green bolls by pink bollworm

Factors	% Green boll damage recorded at 15 days interval									
	90 DAS		105 DAS		120 DAS		135 DAS		Pooled	
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
A. Main Treatment (Potash Fertilizer) K										
K ₀	8.33	13.94	16.66	23.84	9.16	16.18	15.00	22.49	12.29	19.11
K ₄₀	7.50	14.04	9.16	14.61	7.50	13.26	10.83	17.53	8.75	14.86
K ₈₀	5.00	9.66	8.33	13.94	7.50	14.04	12.50	19.67	8.33	14.33
GM		12.55		17.46		14.49		19.90		16.10
SEm ±		2.63		2.95		3.74		3.20		1.49
CD (5%)		NS		NS		NS		NS		NS
CV %		72.65		58.69		89.43		55.71		67.97
B. Sub Treatment										
Potash Mobilizing Bacteria										
B ₀	7.22	13.03	12.22	18.14	10.00	17.90	13.33	20.09	10.69	17.29
B ₁	6.66	12.06	10.55	16.79	6.11	11.09	12.22	19.71	8.88	14.91
GM		12.55		17.47		14.50		19.90		16.10
SEm ±		2.47		2.45		1.74		1.44		1.03
CD (5%)		NS		NS		5.17		NS		NS
Foliar sprays of Potassium Nitrate										
NFS	8.88	15.43	12.22	18.14	8.88	15.95	13.88	21.58	10.97	17.78
FS	5.00	9.66	10.55	16.79	7.22	13.03	11.66	18.21	8.61	14.42
GM		12.55		17.47		14.49		19.90		16.10
SEm ±		2.47		2.45		1.74		1.44		1.02
CD (5%)		NS		NS		NS		NS		2.89
Interactions	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)
KB	4.28	NS	4.25	NS	3.01	NS	2.49	NS	1.73	NS
KF	4.28	NS	4.25	NS	3.01	NS	2.49	NS	1.75	NS

BF	3.49	NS	3.47	NS	2.46	NS	2.03	NS	1.44	NS
KBF	6.05	NS	6.01	NS	4.26	NS	3.53	NS	2.45	NS
PK									3.16	NS
PB									2.07	NS
PF									2.07	NS
PKBF									5.08	NS
CV%		83.54		59.62		50.98		30.75		54.71

Note: P=Period, NS= Non-Significant TV= Transformed mean (Arc sine) whereas, OV= Original Values and GM= General Mean

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Table 7: Incidence of larva of spotted bollworm in different treatments on G. Cot. Hy. 8 BG II during 2018-19

Factors	Av. number of larvae of Spotted bollworm/ 5 plants recorded at days after sowing																	
	113		120		127		134		141		148		155		162		Pooled	
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
A. Main Treatment (Potash Fertilizer) K																		
K ₀	0.50	0.96	0.66	1.03	0.41	0.90	0.41	0.90	1.08	1.20	1.75	1.48	2.25	1.64	2.33	1.67	1.17	1.22
K ₄₀	0.16	0.79	0.91	1.15	0.33	0.87	0.25	0.83	0.50	0.96	0.33	0.87	0.25	0.83	1.08	1.22	0.47	0.94
K ₈₀	0.00	0.70	0.25	0.83	0.00	0.70	0.00	0.70	0.00	0.70	0.08	0.75	0.16	0.79	0.00	0.70	0.06	0.73
GM		0.82		1.01		0.83		0.81		0.95		1.03		1.03		1.09		0.97
SEm ±		0.09		0.09		0.04		0.08		0.09		0.07		0.05		0.07		0.06
CD (5%)		NS		NS		0.15		NS		NS		0.28		0.23		0.29		0.20
CV %		41.97		33.42		16.81		37.18		35.36		24.55		18.82		21.48		28.97
B. Sub Treatment																		
Potash Mobilizing Bacteria (B)																		
B ₀	0.22	0.82	0.55	0.96	0.33	0.87	0.27	0.84	0.38	0.90	0.66	1.01	0.94	1.12	1.22	1.23	0.57	0.97
B ₁	0.22	0.82	0.66	1.05	0.16	0.79	0.16	0.79	0.66	1.00	0.77	1.06	0.83	1.05	1.05	1.17	0.56	0.97
GM		0.82		1.01		0.83		0.82		0.95		1.04		1.09		1.20		0.97
SEm ±		0.03		0.05		0.06		0.05		0.05		0.05		0.05		0.04		0.01
CD (5%)		NS		NS		NS		NS		NS		NS		NS		NS		NS
Foliar sprays of Potassium Nitrate (F)																		
NFS	0.16	0.79	0.55	0.98	0.33	0.87	0.27	0.84	0.44	0.91	0.77	1.06	0.94	1.11	1.16	1.21	0.58	0.97
FS	0.27	0.85	0.66	1.03	0.16	0.79	0.16	0.79	0.61	0.99	0.66	1.01	0.83	1.06	1.11	1.19	0.56	0.96
GM		0.82		1.00		0.83		0.81		0.95		1.04		1.09		1.20		0.97
SEm ±		0.03		0.05		0.06		0.05		0.05		0.05		0.05		0.04		0.01
CD (5%)		NS		NS		NS		NS		NS		NS		NS		NS		NS
Interactions	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)
KB	0.05	NS	0.08	NS	0.11	NS	0.09	NS	0.09	0.28	0.09	NS	0.08	NS	0.07	NS	0.03	NS
KF	0.05	NS	0.08	NS	0.11	NS	0.09	NS	0.09	NS	0.09	NS	0.08	NS	0.07	NS	0.03	NS
BF	0.04	NS	0.07	NS	0.09	NS	0.07	NS	0.07	NS	0.07	NS	0.07	NS	0.06	NS	0.02	NS
KBF	0.08	NS	0.12	NS	0.16	NS	0.13	NS	0.13	NS	0.13	NS	0.12	NS	0.10	NS	0.04	NS
PK																	0.08	0.23
PB																	0.05	NS
PF																	0.05	NS
PKBF																	0.12	NS
CV%		17.14		21.60		34.71		28.24		24.10		22.53		20.10		15.48		22.87

Note: P=Period, TV= Transformed mean (Arc sine) whereas, OV= Original Values and NS= Non-Significant, GM=General Mean

Table 8: Damage to square by spotted bollworm in different treatments on G. Cot. Hy. 8 BG II in 2018-19

Factors	% Square damage by SBW/ 5 Plants recorded at days after sowing																			
	75		82		89		96		102		109		116		123		130		Pooled	
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
A. Main Treatment (Potash Fertilizer) (K)																				
K ₀	1.16	6.0 6	2.02	8.1 3	3.61	10. 89	3.97	11. 46	4.30	11. 94	3.25	10. 34	3.05	10. 02	2.91	9.8 0	3.27	10. 34	3.06	9.8 9
K ₄₀	0.24	2.2 7	0.30	2.7 7	0.80	4.9 0	0.72	4.6 6	0.94	5.4 6	1.61	7.1 8	2.00	8.0 5	2.47	9.0 0	2.66	9.3 7	1.30	5.9 6
K ₈₀	0.24	2.2 7	0.27	2.3 8	0.33	3.1 5	0.58	4.2 7	0.72	4.7 5	0.91	5.4 4	1.05	5.8 4	1.28	6.2 6	1.55	7.0 9	0.77	4.6 1
GM		3.5 3		4.4 3		6.3 1		6.8 0		7.3 8		7.6 6		7.9 7		8.3 5		8.9 3		6.8 2
SEm ±		0.3 1		0.2 3		0.2 5		0.2 2		0.3 2		0.3 1		0.2 4		0.3 4		0.2 5		0.4 1
CD (5%)		1.2 1		0.9 0		1.0 0		0.8 8		1.2 5		1.2 2		0.9 7		1.3 4		1.0 0		1.2 5
CV %		30. 38		18. 06		13. 92		11. 46		15. 01		14. 07		10. 73		14. 17		9.9 2		14. 23
B. Sub Treatment																				
Potash Mobilizing Bacteria (B)																				
B ₀	0.57	3.5 9	1.00	4.9 3	1.70	6.7 3	1.85	7.0 4	1.99	7.5 2	2.09	8.0 5	2.05	8.0 3	2.38	8.7 2	2.50	8.9 8	1.79	7.0 7
B ₁	0.53	3.4 8	0.73	3.9 3	1.46	5.8 9	1.66	6.5 5	1.98	7.2 4	1.75	7.2 6	2.01	7.9 1	2.05	7.9 9	2.49	8.8 9	1.63	6.5 7
GM		3.5 4		4.4 3		6.3 1		6.8 0		7.3 8		7.6 6		7.9 7		8.3 6		8.9 4		6.8 2
SEm ±		0.4 6		0.4 3		0.3 3		0.2 9		0.2 5		0.2 0		0.1 9		0.2 7		0.2 2		0.1 0
CD (5%)		NS		NS		NS		NS		NS		0.6 1		NS		NS		NS		NS
Foliar sprays of Potassium Nitrate (F)																				
NFS	0.57	3.7 4	0.88	4.4 9	1.61	6.4 2	1.86	7.0 2	1.99	7.4 5	1.97	7.8 5	2.14	8.2 3	2.31	8.5 8	2.46	8.8 9	1.76	6.9 6

FS	0.53	3.3 3	0.85	4.3 7	1.55	6.2 1	1.64	6.5 7	1.98	7.3 2	1.87	7.4 6	1.92	7.7 1	2.12	8.1 2	2.53	8.9 7	1.67	6.6 7
GM		3.5 4		4.4 3		6.3 1		6.8 0		7.3 8		7.6 6		7.9 7		8.3 5		8.9 3		6.8 2
SEm ±		0.4 6		0.4 3		0.3 3		0.2 9		0.2 5		0.2 0		0.1 9		0.2 7		0.2 2		0.1 0
CD (5%)		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS
Interactions																				
	SE m ±	CD (5 %)	SE m ±	CD (5 %)	SE m ±	CD (5 %)	SE m ±	CD (5 %)	SE m ±	CD (5 %)	SE m ±	CD (5 %)	SE m ±	CD (5 %)	SE m ±	CD (5 %)	SE m ±	CD (5 %)	SE m ±	CD (5 %)
KB	0.81	NS	0.75	NS	0.57	NS	0.50	NS	0.44	NS	0.35	NS	0.33	NS	0.47	NS	0.39	NS	0.17	NS
KF	0.81	NS	0.75	NS	0.57	NS	0.50	NS	0.44	NS	0.35	NS	0.33	NS	0.47	NS	0.39	NS	0.17	NS
BF	0.66	NS	0.61	NS	0.46	NS	0.41	NS	0.36	NS	0.29	NS	0.27	NS	0.39	NS	0.32	0.9 5	0.14	NS
KBF	1.14	NS	1.06	NS	0.81	NS	0.72	NS	0.63	NS	0.50	NS	0.47	NS	0.67	NS	0.55	NS	0.24	NS
PK																			0.28	0.8 0
PB																			0.31	NS
PF																			0.31	NS
PKBF																			0.76	NS
CV%		56. 26		41. 71		22. 28		18. 36		14. 91		11. 45		10. 38		14. 03		10. 76		19. 47
Note: P=Period, TV= Transformed mean (Arc sine) whereas, OV= Original Values, NS= Non-Significant, General Mean																				

Table 9: Damage to green bolls by spotted bollworm in different treatments on G. Cot. Hy. 8 BG II during 2018-19

Factor s	% Green boll damage/ 5 plants recorded at days after sowing											
	113		120		127		134		141		Pooled	
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
A. Main Treatment (Potash Fertilizer) (K)												
K ₀	3.30	10.40	3.19	10.22	3.36	10.51	3.77	11.16	2.33	8.21	3.19	10.10
K ₄₀	1.08	5.68	1.44	6.86	2.24	8.43	1.61	7.17	0.80	4.82	1.43	6.59
K ₈₀	0.36	3.00	0.80	5.03	0.63	4.47	0.64	4.43	0.28	2.35	0.54	3.86
GM		6.36		7.37		7.80		7.59		5.13		6.85
SEm ±		0.32		0.51		0.53		0.31		0.65		0.23
CD (5%)		1.26		2.01		2.11		1.25		2.55		0.68
CV %		17.58		24.10		23.86		14.56		44.01		24.59
B. Sub Treatment												
Potash Mobilizing Bacteria (B)												
B ₀	1.64	6.48	1.92	7.64	2.11	7.98	2.07	7.78	1.44	5.92	1.83	7.16
B ₁	1.51	6.24	1.70	7.10	2.05	7.64	1.94	7.39	0.83	4.03	1.61	6.54
GM		6.36		7.37		7.80		7.59		5.13		6.85
SEm ±		0.47		0.19		0.21		0.25		0.50		0.16
CD (5%)		NS		NS		NS		NS		1.49		0.45
Foliar sprays of Potassium Nitrate (F)												
NFS	1.64	6.59	1.94	7.65	2.16	8.04	2.05	7.75	1.48	5.96	1.85	7.20
FS	1.51	6.13	1.68	7.09	1.99	7.57	1.96	7.42	0.79	4.29	1.59	6.50
GM		6.36		7.37		7.80		7.59		5.13		6.85
SEm ±		0.47		0.19		0.21		0.25		0.50		0.16
CD (5%)		NS		NS		NS		NS		1.49		0.45
Interactions												
	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)
KB	0.81	NS	0.34	NS	0.38	NS	0.44	NS	0.86	NS	0.27	NS
KF	0.81	NS	0.34	NS	0.38	1.13	0.44	NS	0.86	NS	0.27	NS
BF	0.66	NS	0.27	NS	0.31	NS	0.36	NS	0.70	NS	0.22	NS
KBF	1.15	NS	0.48	NS	0.53	1.60	0.62	NS	1.22	NS	0.38	NS
PK											0.48	NS
PB											0.35	NS

PF											0.35	NS
PKBF											0.86	NS
CV%		31.3 7		11.3 5		11.9 1		14.2 3		41.5 1		21.8 9
Note: P=Period, TV= Transformed mean (Arc sine) whereas, OV= Original Values, NS= Non-Significant, GM= General Mean												

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Table 10: Open bolls and locules damage by spotted bollworm at harvest

Factors	Open bolls damage (%)		Locules damage (%)	
	OV	TV	OV	TV
A. Main Treatment (K)				
K ₀	4.11	11.65	3.09	10.10
K ₄₀	3.54	10.77	2.75	9.51
K ₈₀	3.49	10.73	2.30	8.68
GM		11.05		9.43
SEm ±		0.36		0.18
CD (5%)		NS		0.71
CV %		11.58		6.66
B. Sub Treatment				
Potash Mobilizing Bacteria				
B ₀	3.80	11.17	2.82	9.64
B ₁	3.63	10.92	2.61	9.22
GM		11.05		9.43
SEm ±		0.22		0.18
CD (5%)		NS		NS
Foliar sprays of Potassium Nitrate (F)				
NFS	3.82	11.20	2.77	9.53
FS	3.61	10.89	2.66	9.33
GM		11.05		9.43
SEm ±		0.22		0.18
CD (5%)		NS		NS
Interactions				
	SEm ±	CD (5%)	SEm ±	CD (5%)
KB	0.39	NS	0.32	NS
KF	0.39	NS	0.32	NS
BF	0.32	NS	0.26	NS
KBF	0.56	NS	0.46	NS
CV%		8.78		8.54

Note: TV= Transformed mean (Arc sine) whereas, OV= Original Values, NS= Non-Significant, GM= General Mean

Table 11: Incidence of larva of American bollworm in different treatments on G. Cot. Hy. 8 BG II during 2018-19

Factors	Av. number of larvae of American bollworm/ 5 plants recorded at days after sowing																			
	106		113		120		127		134		141		148		155		162		Pooled	
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
A. Main Treatment (Potash Fertilizer) K																				
K ₀	0.83	1.09	0.83	1.08	0.75	1.08	1.25	1.27	2.00	1.56	1.41	1.34	1.08	1.24	0.33	0.87	1.00	1.19	1.05	1.19
K ₄₀	0.16	0.79	0.08	0.75	0.08	0.75	0.25	0.83	0.33	0.87	0.16	0.79	0.25	0.83	0.17	0.79	0.08	0.75	0.17	0.79
K ₈₀	0.00	0.70	0.00	0.70	0.00	0.70	0.00	0.70	0.00	0.70	0.08	0.75	0.00	0.70	0.00	0.70	0.00	0.70	0.01	0.71
GM		0.86		0.84		0.84		0.93		1.05		0.96		0.92		0.79		0.88		0.90
SEm ±		0.06		0.07		0.05		0.09		0.03		0.04		0.05		0.03		0.02		0.03
CD (5%)		0.26		0.28		0.23		0.37		0.15		0.18		0.20		0.11		0.10		0.10
CV %		27.28		29.20		23.99		35.42		12.78		17.38		19.17		13.32		10.91		22.39
B. Sub Treatment																				
Potash Mobilizing Bacteria (B)																				
B ₀	0.38	0.89	0.33	0.86	0.38	0.89	0.55	0.96	0.83	1.06	0.55	0.95	0.44	0.93	0.16	0.79	0.33	0.87	0.44	0.91
B ₁	0.27	0.83	0.27	0.83	0.16	0.79	0.44	0.91	0.72	1.03	0.55	0.96	0.44	0.91	0.16	0.79	0.38	0.89	0.38	0.88
GM		0.86		0.85		0.84		0.94		1.05		0.96		0.92		0.79		0.88		0.90
SEm ±		0.06		0.06		0.03		0.05		0.05		0.07		0.05		0.05		0.05		0.01
CD (5%)		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS
Foliar sprays of Potassium Nitrate (F)																				
NFS	0.27	0.84	0.33	0.86	0.38	0.89	0.50	0.93	0.77	1.04	0.66	1.00	0.44	0.92	0.16	0.79	0.33	0.87	0.43	0.90
FS	0.38	0.89	0.27	0.83	0.16	0.79	0.50	0.93	0.77	1.05	0.44	0.91	0.44	0.92	0.16	0.79	0.38	0.89	0.39	0.89
GM		0.86		0.84		0.84		0.93		1.04		0.95		0.92		0.79		0.88		0.90
SEm ±		0.06		0.06		0.03		0.05		0.05		0.07		0.05		0.05		0.05		0.01
CD (5%)		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS
Interactions	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)
KB	0.11	NS	0.11	NS	0.06	NS	0.09	NS	0.10	NS	0.12	NS	0.08	NS	0.09	NS	0.08	NS	0.03	NS
KF	0.11	NS	0.11	NS	0.06	NS	0.09	NS	0.10	NS	0.12	NS	0.08	NS	0.09	NS	0.08	NS	0.03	NS
BF	0.09	NS	0.09	NS	0.05	NS	0.07	NS	0.08	NS	0.10	NS	0.07	NS	0.07	NS	0.06	NS	0.02	NS
KBF	0.16	NS	0.16	NS	0.08	NS	0.12	NS	0.14	NS	0.17	NS	0.12	NS	0.13	NS	0.12	NS	0.04	NS
PK																			0.05	0.16
PB																			0.05	NS
PF																			0.05	NS
PKBF																			0.14	NS
CV%		32.88		33.59		18.30		23.80		24.06		31.99		23.24		29.45		23.51		27.13

Note: P=Period, TV= Transformed mean (Arc sine) whereas, OV= Original Values, NS= Non-Significant, GM= General Mean

Table 12: Damage to square by American bollworm in different treatments on G. Cot. Hy. 8 BG II in 2018-19

Factor	% Square damage by ABW/ 5 Plants recorded at days after sowing																			
	75		82		89		96		102		109		116		123		130		Pooled	
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
A. Main Treatment (Potash Fertilizer) (K)																				
K ₀	0.3 3	2.59	1.6 1	7.19	1.1 1	5.92	1.3 8	6.56	3.3 8	10.5 9	3.9 1	11.4 0	2.1 9	8.49	3.3 3	10.5 0	3.7 7	11.1 7	2.3 3	8.27
K ₄₀	0.2 7	2.38	0.2 2	2.15	0.1 6	1.78	0.4 4	3.75	0.5 5	4.19	0.7 4	4.91	0.7 7	4.91	0.5 8	3.93	0.8 0	4.98	0.5 0	3.67
K ₈₀	0.2 2	1.88	0.1 9	1.77	0.0 8	1.03	0.2 4	2.40	0.2 7	2.52	0.4 4	3.72	0.2 8	2.65	0.2 4	2.40	0.4 7	3.87	0.2 7	2.47
GM		2.28		3.70		2.91		4.24		5.77		6.68		5.35		5.61		6.67		4.80
SEm ±		0.31		0.32		0.39		0.28		0.12		0.22		0.43		0.40		0.30		0.44
CD (5%)		NS		1.28		1.53		1.12		0.48		0.87		1.69		1.60		1.19		1.33
CV %		48.3 0		30.5 2		46.4 4		23.3 0		7.38		11.5 8		27.9 0		25.2 3		15.7 9		23.4 7
B. Sub Treatment																				
Potash Mobilizing Bacteria (B)																				
B ₀	0.3 3	2.64	0.7 2	3.83	0.4 8	3.15	0.7 7	4.42	1.4 4	6.02	1.7 7	6.85	1.1 0	5.48	1.4 0	5.67	1.8 8	7.08	1.1 0	5.02
B ₁	0.2 2	1.93	0.6 2	3.57	0.4 2	2.67	0.6 0	4.05	1.3 6	5.51	1.6 2	6.50	1.0 5	5.22	1.3 6	5.56	1.4 7	6.27	0.9 7	4.59
GM		2.29		3.70		2.91		4.24		5.77		6.68		5.35		5.62		6.68		4.81
SEm ±		0.61		0.47		0.40		0.33		0.30		0.18		0.27		0.35		0.17		0.12
CD (5%)		NS		NS		NS		NS		NS		NS		NS		NS		0.52		NS
Foliar sprays of Potassium Nitrate (F)																				
NFS	0.3	2.48	0.7	3.80	0.4	3.00	0.7	4.50	1.4	6.00	1.7	6.72	1.1	5.74	1.4	6.07	1.7	6.85	1.0	5.02

	1				6		9		6		2		8		9		4		9	
FS	0.2 4	2.10 4	0.6 4	3.60 4	0.4 4	2.82 9	0.5 9	3.98 5	1.3 5	5.53 8	1.6 8	6.63 8	0.9 8	4.96 7	1.2 7	5.15 2	1.6 2	6.50 8	0.9 8	4.59
GM		2.29		3.70		2.91		4.24		5.76		6.67		5.35		5.61		6.68		4.80
SEm ±		0.61		0.47		0.40		0.33		0.30		0.18		0.27		0.35		0.17		0.12
CD (5%)		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS
Inter actio ns	SE m ±	CD (5%)	SE m ±	CD (5%)	SE m ±	CD (5%)	SE m ±	CD (5%)	SE m ±	CD (5%)	SE m ±	CD (5%)	SE m ±	CD (5%)	SE m ±	CD (5%)	SE m ±	CD (5%)	SE m ±	CD (5%)
KB	1.0 6	NS	0.8 2	NS	0.6 9	NS	0.5 8	NS	0.5 3	NS	0.3 1	NS	0.4 8	NS	0.6 0	NS	0.3 0	NS	0.2 0	NS
KF	1.0 6	NS	0.8 2	NS	0.6 9	NS	0.5 8	NS	0.5 3	NS	0.3 1	NS	0.4 8	NS	0.6 0	NS	0.3 0	0.90	0	NS
BF	0.8 6	NS	0.6 7	NS	0.5 6	NS	0.4 7	NS	0.4 3	NS	0.2 5	NS	0.3 9	NS	0.4 9	NS	0.2 4	NS	0.1 7	NS
KBF	1.5 0	NS	1.1 7	NS	0.9 8	NS	0.8 2	NS	0.7 5	NS	0.4 4	NS	0.6 8	NS	0.8 6	NS	0.4 3	NS	0.2 9	NS
PK																			0.3 2	0.93
PB																			0.3 7	NS
PF																			0.3 7	NS
PKBF																			0.9 0	NS
CV%		113. 48		54.8 1		58.1 8		33.7 1		22.6 4		11.4 8		22.0 7		26.5 5		11.2 1		32.7 4

Note: P=Period, TV= Transformed mean (Arc sine) whereas, OV= Original Values, NS= Non-Significant, GM= General Mean

Table 13: Damage to green bolls by American bollworm in different treatments on G. Cot. Hy. 8 BG II during 2018-19

Factors	% Green boll damage/ 5 plants recorded at days after sowing											
	113		120		127		134		141		Pooled	
	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV	OV	TV
A. Main Treatment (Potash Fertilizer) (K)												
K ₀	3.08	9.99	3.88	11.28	3.58	10.88	4.16	11.74	3.94	11.42	3.73	11.06
K ₄₀	1.44	6.86	0.94	5.46	1.61	7.18	0.72	4.66	0.80	4.90	1.10	5.81
K ₈₀	0.27	2.35	0.72	4.75	0.91	5.44	0.58	4.27	0.33	3.15	0.56	4.00
GM		6.40		7.16		7.83		6.89		6.49		6.96
SEm ±		0.55		0.39		0.24		0.30		0.14		0.47
CD (5%)		2.19		1.55		0.98		1.18		0.55		1.56

CV %		30.2		19.16		11.04		15.15		7.57		17.84
B. Sub Treatment												
Potash Mobilizing Bacteria (B)												
B ₀	1.60	6.48	1.90	7.41	2.20	8.22	1.94	7.18	1.75	6.83	1.88	7.22
B ₁	1.59	6.32	1.79	6.92	1.86	7.45	1.70	6.60	1.62	6.15	1.71	6.69
GM		6.40		7.17		7.83		6.89		6.49		6.96
SEm ±		0.36		0.32		0.17		0.28		0.29		0.13
CD (5%)		NS		NS		0.53		NS		NS		0.36
Foliar sprays of Potassium Nitrate (F)												
NFS	1.75	6.64	1.88	7.31	2.10	8.06	1.90	7.07	1.72	6.59	1.87	7.13
FS	1.44	6.16	1.81	7.03	1.96	7.61	1.73	6.71	1.66	6.39	1.72	6.78
GM		6.4		7.17		9.15		6.89		6.49		6.96
SEm ±		0.36		0.32		0.17		0.28		0.29		0.12
CD (5%)		NS		NS		NS		NS		NS		NS
Interactions												
	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)	SEm ±	CD (5%)
KB	0.62	NS	0.55	NS	0.31	NS	0.49	NS	0.50	NS	0.22	NS
KF	0.62	NS	0.55	NS	0.31	NS	0.49	NS	0.50	NS	0.22	NS
BF	0.51	NS	0.45	NS	0.25	NS	0.40	NS	0.41	NS	0.18	NS
KBF	0.88	NS	0.78	NS	0.43	NS	0.70	NS	0.71	NS	0.32	NS
PK											0.35	1.05
PB											0.29	NS
PF											0.29	NS
PKBF											0.72	NS
CV%		23.99		18.96		9.71		17.65		19.10		17.95
Note: P=Period, TV= Transformed mean (Arc sine) whereas, OV= Original Values, NS= Non-Significant, GM= General Mean												

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Table 14: Open bolls and locules damage by American bollworm at harvest

Factors	Open bolls damage (%)		Locules damage (%)	
	OV	TV	OV	TV
A. Main Treatment (Potash Fertilizer) (K)				
K ₀	3.88	11.31	3.06	10.05
K ₄₀	3.02	9.94	2.38	8.85
K ₈₀	2.61	9.27	2.23	8.54
GM		10.17		9.15
SEm ±		0.29		0.18
CD (5%)		1.16		0.72
CV %		10.11		7.00
B. Sub Treatment				
Potash Mobilizing Bacteria				
B ₀	3.43	10.60	2.68	9.38
B ₁	2.91	9.74	2.43	8.91
GM		10.17		9.15
SEm ±		0.20		0.18
CD (5%)		0.60		NS
Foliar sprays of Potassium Nitrate (F)				
NFS	3.28	10.35	2.61	9.22
FS	3.06	10.00	2.51	9.07
GM		10.17		9.15
SEm ±		0.20		0.18
CD (5%)		NS		NS
Interactions				
	SEm ±	CD (5%)	SEm ±	CD (5%)
KB	0.35	NS	0.31	NS
KF	0.35	NS	0.31	NS
BF	0.28	NS	0.25	NS
KBF	0.50	NS	0.44	NS
CV%		8.55		8.43
<p>Note: TV= Transformed mean (Arc sine) whereas, OV= Original Values, NS= Non-Significant, GM= General Mean</p>				

Table 15: Boll worm incidence irrespective of main and sub treatments and their correlation with expression of *Cry1Ac* and *Cry2Ab* in boll rind

PBW larvae/10 green bolls			SBW larva/5 plants		ABW larva/5 plants		<i>Cry1Ac</i> /boll rind ($\mu\text{g g}^{-1}$ of fresh tissue)			<i>Cry2Ab2</i> /boll rind ($\mu\text{g g}^{-1}$ of fresh tissue)		
90 DAS	105 DAS	120 DAS	111DAS	118 DAS	111DA S	118 DAS	90 DAS	105 DAS	120 DAS	90 DAS	105 DAS	120 DAS
P1	P2	P3	S1	S2	A1	A2	Y1	Y2	Y3	Y1	Y2	Y3
2.08±0.51	3.28±0.9 2	2.78±0.5 2	0.22±0.2 6	0.61±0.3 4	0.31±.4 1	0.28±0.4 2	3.20±0.1 6	3.06±0.1 8	3.01±0.2 0	81.79±7.57	85.79±6.4 2	87.86±9.0 7
Correlation value												
P1							0.0111			-0.5929**		
	P2							0.0609			-0.2248	
		P3							-0.2216			-0.4555*
			S1					0.1030			-0.2313	
				S2					0.5315**			0.064
					A1			-0.2813			-0.2288	
						A2			0.0442			-0.5064**

Note: Table value at 5%=0.331 and at 1%=0.4266, *=Significant, **= Highly-significant

Table 16: Seed cotton yield as influenced by different treatment combinations

Factors	Seed cotton yield (kg ha ⁻¹)	
A. Main Treatment (K)		
K ₀	2103.90	
K ₄₀	2471.45	
K ₈₀	2692.90	
GM	2422.75	
SEm ±	67.55	
CD (5%)	265.19	
CV %	9.66	
B. Sub Treatment I (B)		
Potash Mobilizing Bacteria		
B ₀	2376.37	
B ₁	2469.13	
GM	2422.75	
SEm ±	28.93	
CD (5%)	85.95	
Foliar sprays of Potassium Nitrate (F)		
NFS	2379.80	
FS	2465.70	
GM	2422.75	
SEm ±	28.93	
CD (5%)	NS	
Interactions		
	SEm±	CD(5%)
KB	50.10	NS
KF	50.10	NS
BF	40.91	NS
KBF	70.86	NS
CV%	5.07	

Table 17: Economics of main and sub-treatments

Treatment	Seed cotton yield (Kg/ha)	No. of spray		Total spray	Gross realization (Rs./ha)	Fixed cost	Variable costs					Total expenditure (Rs./ha)	Net realization (Rs./ha) (Rounding to near rupee)	BCR	
		Cost of cultivation (Rs./ha) excluding picking and inputs (Fixed cost)	Treatment cost					Gross treatment cost							
			Potassium and its application cost			Potash Mobilizing Bacteria and its application cost	Potassium Nitrate and its application cost		Insecticide and its application						
SP	BW			SP	BW										
A. Main Treatment (K)															
K₀	2103.91	4.00	3.00	7.00	94675.95	35000.00	0.00	315.50	3414.00	5111.00	3378.00	12218.50	47218.50	47457.00	2.01
K₄₀	2471.45	3.50	1.50	5.00	111215.25	35000.00	1623.00	315.50	3414.00	4278.00	2294.00	11924.50	46924.50	64290.00	2.37
K₈₀	2692.90	2.50	1.50	4.00	121180.61	35000.00	2889.00	315.50	3414.00	2579.50	2294.00	11492.00	46492.00	74688.00	2.61
B. Sub-treatment 1 (B)															
B₀	2376.37	3.33	2.00	5.33	106936.73	35000.00	1504.00	0.00	3414.00	3989.50	2655.33	11562.83	46562.83	60373.00	2.30
B₁	2469.14	3.33	2.00	5.33	111111.15	35000.00	1504.00	631.00	3414.00	3989.50	2655.33	12193.83	47193.83	63917.00	2.36
C. Sub-treatment 2 (F)															
NFS	2379.80	3.67	2.33	6.00	107091.08	35000.00	1504.00	315.50	0.00	4555.67	2864.00	9239.17	44239.17	62851.00	2.42
FS	2465.71	3.00	1.67	4.67	110956.80	35000.00	1504.00	315.50	6828.00	3423.33	2446.67	14517.50	49517.50	61439.00	2.24

Note: SP= Sucking pest, BW= Bollworm, BCR=Benefit Cost Ratio

Table 18: Economics of various treatment combinations at ETL based interventions

Treatment	Seed cotton yield (Kg/ha)	No. of Sprays		Total Spray	Gross realization (Rs./ha)	Fixed cost	Variable cost					Total expenditure (Rs./ha)	Net realization (Rs./ha) (Rounding to near rupee)	BCR
		SP	BW			Cost of cultivation (Rs./ha) excluding picking and inputs (Fixed cost)	Potassium and its application cost	Potash Mobilizing Bacteria and its application cost	Potassium Nitrate and its application cost	Insecticide and its application cost				
										SP	BW			
K ₀ B ₀ NFS	2047.33	4	3	7	92129.9	35000	0	0	0	5111	3378	43489	48641	2.12
K ₀ B ₀ FS	2119.34	4	3	7	95370.3	35000	0	0	6828	5111	3378	50317	45053	1.90
K ₀ B ₁ NFS	2088.48	4	3	7	93981.6	35000	0	631	0	5111	3378	44120	49862	2.13
K ₀ B ₁ FS	2160.49	4	3	7	97222.1	35000	0	631	6828	5111	3378	50948	46274	1.91
K ₄₀ B ₀ NFS	2272.63	4	2	6	102268.4	35000	1623	0	0	5111	2607	44341	57927	2.31
K ₄₀ B ₀ FS	2500.00	3	1	4	112500.0	35000	1623	0	6828	3445	1981	48877	63623	2.30
K ₄₀ B ₁ NFS	2489.71	4	2	6	112037.0	35000	1623	631	0	5111	2607	44972	67065	2.49
K ₄₀ B ₁ FS	2623.46	3	1	4	118055.7	35000	1623	631	6828	3445	1981	49508	68548	2.38
K ₈₀ B ₀ NFS	2705.76	3	2	5	121759.2	35000	2889	0	0	3445	2607	43941	77818	2.77
K ₈₀ B ₀ FS	2613.17	2	1	3	117592.7	35000	2889	0	6828	1714	1981	48412	69181	2.43
K ₈₀ B ₁ NFS	2674.90	3	2	5	120370.5	35000	2889	631	0	3445	2607	44572	75799	2.70
K ₈₀ B ₁ FS	2777.78	2	1	3	125000.1	35000	2889	631	6828	1714	1981	49043	75957	2.55

Note: Av. Seed cotton price Rs. 45 kg⁻¹ during 2018-19 and labour charge @ Rs. 178/8 working hours day⁻¹, SP= Sucking pest, BW= Bollworm, K= K₂O levels, B= KMB application, F=foliar sprays of KNO₃, BCR=Benefit Cost Ratio

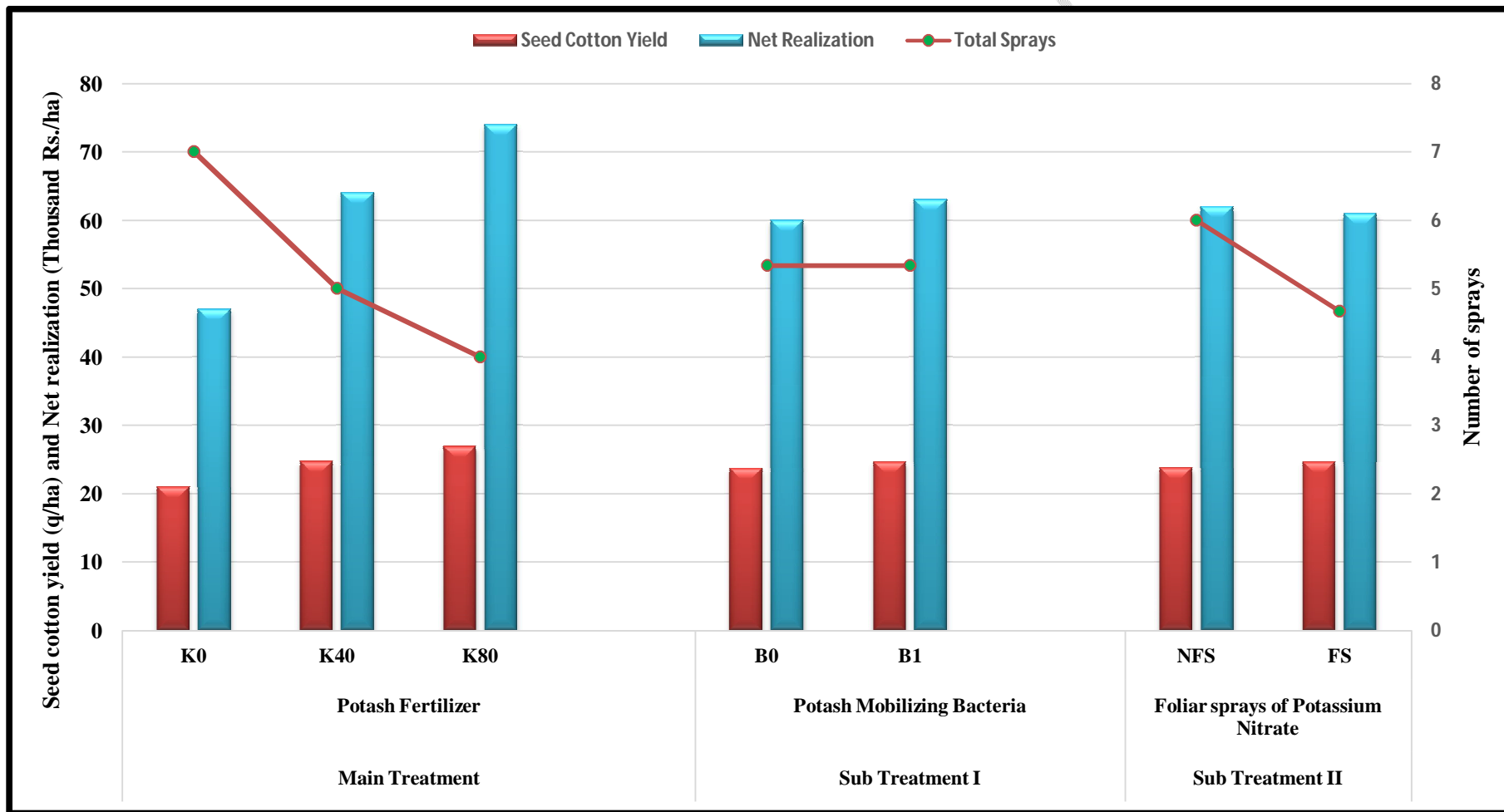


Fig. 1: Number of sprays for insect pest management, seed cotton yield and net realization of main and sub treatments

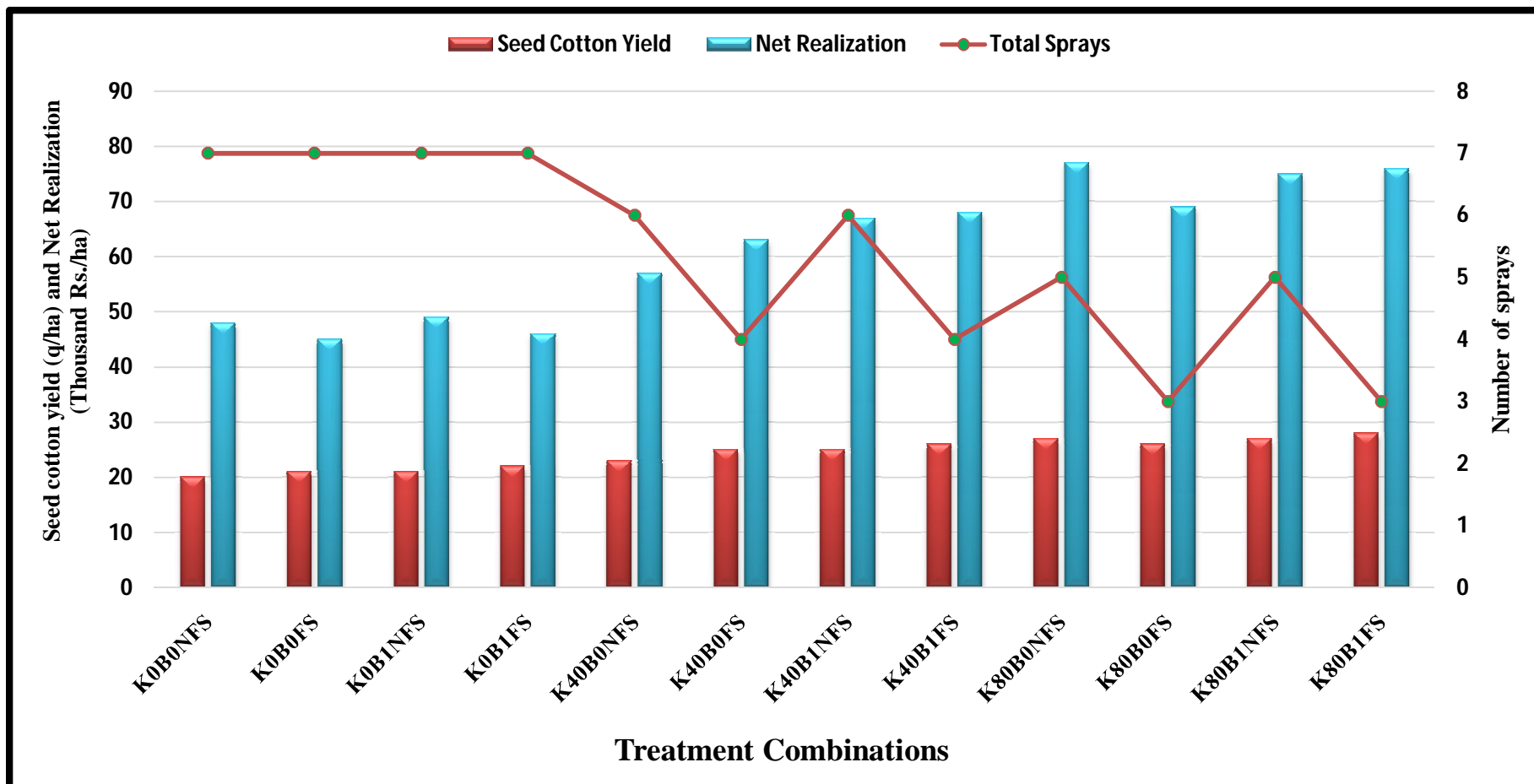


Fig. 2: Number of sprays for insect pest management, seed cotton yield and net realization in various treatment combinations