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GUARDING MAIZE: SCREENING LEAF, EAR AND KERNEL DAMAGE AGAINST INFESTATION OF FALL ARMYWORM, *SPODOPTERA FRUGIPERDA* (J.E. SMITH)

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ABSTRACT

The investigation is done to assess the resistance of various maize inbred lines against fall armyworm (*Spodoptera frugiperda*) infestation and to identify potential sources of resistance or susceptibility to the pest was undertaken at College of Agriculture, V. C. Farm, Mandya during 2020-21. The field experiment was conducted to screen 210 maize inbreds against fall armyworm at thirty days after sowing. It revealed that 155 inbreds were categorized under least susceptible (1- 4), among them 10 lines were found to be very least susceptible with lowest damage score (1- 1.5). Forty-nine inbreds were grouped under moderately susceptible category (4-7) whereas, six were found to be highly susceptible (7-9). The results revealed that, at 30 days after sowing the lowest damage score of 1.1 was noticed in MAI 711-1 and 520067. However, damage score was higher for Z 490-24 (7.3), which differed significantly from the other inbred lines. At 60 days after sowing, the damage scores varied significantly between different inbreds and hybrids, with some lines showing reduced damage compared to earlier stages. During the reproductive stage, ear and kernel damage varied significantly, with some lines showing minimal damage (Z 490-24) and others exhibiting substantial damage (MAI 249). Identified maize inbred lines with varying resistance levels to fall armyworm, crucial for pest management strategies and breeding programs.

Key words : Fall armyworm, *Spodoptera frugiperda*, Hybrids, Resistance, Screening.

Introduction

Maize is one of the important cereal crops cultivated in different parts of the world. It is widely used for animal and human consumption. Maize is the third major crop in India, it has great importance for grain and fodder purposes. Maize is also used for production of oil, syrup, alcohol, acetic, lactic acid, glucose, gum, starches for edible and laundry purposes, adhesives, methanol, corn meal and flakes. Maize yields can be affected by several biotic and abiotic agents. Among biological factors, diseases and insect pests are known to cause considerable losses in yield. Maize crops are often attacked by lepidopteran pests, which includes *Chilo partellus* (Swinhoe), *Busseola fusca* (Fuller) and *Sesamia calamistis* (Hampson) (Kfir *et al.*, 2002); however, recently introduced pest, fall armyworm *Spodoptera frugiperda* (J. E. Smith) known to cause greater damage that hinders maize yield. Kalleshwaraswamy *et al.*, 2018 also reported that fall armyworm is considered as major pest infecting maize. This study provides valuable insights into the resistance levels of different maize genotypes against FAW infestation, offering a basis for the development of resistant germplasm. Identifying resistant lines can aid in the formulation of pest management strategies, potentially reducing yield losses caused by FAW.

Materials and Methods

Screening of maize genotypes

Screening of 210 maize lines comprising inbred lines, private and public sector hybrids were carried out at Zonal Agricultural Research Station (ZARS), V. C. Farm, Mandya. The inbred lines included corn, sweet corn, popcorn and fodder maize. The maize inbreds and hybrids were sown in a plot containing 3 m row of single line in the field with a spacing of 60 × 20 cm between rows and plants, respectively in two replications. The maize crop was raised by following all the recommended practices except the plant protection measures. The maize inbreds were allowed for natural infestation of fall armyworm.

Observations taken

The weekly observations were made by recording the leaf damage through visual observation using the scale of 0-9 given by Davis and Williams (1992) as mentioned below (Table 1). According to the damage scale observed the inbreds were classified into three categories *i.e.*, least susceptible, moderately susceptible and highly susceptible which is indicated in Table 2. The ear and kernel damage were recorded by destructive sampling method when the crop was 70 to 90 days old approximately. The damage was recorded through visual observation using the scale of 0-9 specified by Davis and Williams (1992) as mentioned in Table 3. Further, ear and kernel damage of inbreds were classified into three categories *i.e.*, least susceptible, moderately susceptible and highly susceptible, which is indicated in Table 4.

Table 1 : Assessment of leaf damage using visual rating scale given by Davis and Williams (1992).

S. no.	Damage severity	Scale
1	No visible leaf damage	0
2	Only pin hole damage to the leaves	1
3	Pin hole and shot hole damage to the leaves	2
4	Small elongated lesions (5-10mm) on 1-3 leaves	3
5	Midsized lesions (10-30mm) on 4-7 leaves	4
6	Large elongated lesions (>30mm) or small portion eaten on 3-5 leaves	5
7	Elongated lesions (>30mm) and large portions eaten on 3-5 leaves	6
8	Elongated lesions (>30cm) and 50% leaf eaten	7
9	Elongated lesions (30cm) and large portion eaten on 70% of leaves	8
10	Most leaves with long lesions and complete defoliation	9

Table 2 : Categorization of susceptibility of maize inbreds based on leaf damage scale.

Explanation/definition of damage	Rating scale
Minimal visible leaf damage (Least susceptible)	1-4
Marginal leaf damage (Moderately susceptible)	>4-7
Extensive leaf damage (Highly susceptible)	>7-9

Table 3 : Assessment of ears and kernel damage of maize inbreds specified by Davis and Williams (1992).

S. no.	Explanation/definition	Rating
1	No damage to any ears	1
2	Tip (<3cm) damage to 1-3 ears	2
3	Tip damage to 4-7 ears	3
4	Tip damage to 7 and more ears and damage to 1-3 kernels below ear tips on 1 to 3 ears	4
5	Tip damage to 7 and more ears and damage to 1-3 kernels below tips of 4 to 6 ears	5
6	Ear tip damage 7-10 ears and damage to 1-4 kernels below tips of 7 to 10 ears	6
7	Ear tip damage to 7-10 ears and damage to 4-6 kernels destroyed on 7-8 ears.	7
8	Ear tip damage to all ears and 4-6 kernels destroyed on 7-8 ears	8
9	Ear tip damage to all ears and 5 or more kernels destroyed below tips of 9-10 ears	9

Table 4 : Categorization of infestation of ear and kernels of Maize inbreds based on rating scale.

Explanation/definition of damage	Rating scale
Minimal damage to any ears (Least susceptible)	1-4
Kernels and ears damaged (Moderately susceptible)	>4-7
Ear and kernels extensively destroyed (Highly susceptible)	>7-9

Results and Discussion

The results of the screening experiments were obtained upon evaluation to know the reactions of 171 maize inbred lines and 5 hybrids against fall armyworm, *S. frugiperda*. The results revealed that, at 30 days after sowing the lowest damage score of 1.1 was noticed in MAI 711-1 and 520067. However, damage score was higher for Z 490 24 (7.3), which differed significantly from other inbred lines. The least damage score of 1.1 was noticed in MAI 711-1 and 520067 followed by V 93826 (1.2), MAI 210 (1.3), MAI 105-2 (1.3), V 940-31 (1.3), and 40027 (1.3). The moderate damage score was recorded in 27 inbred lines and one hybrid, that included MAI 264 and NAI 207 (4.1), 40019 (4.2), followed by MAI 224-1 (4.3) (Table 5). The higher damage score was recorded in SPS 23 (7.1), MAI 187 (7.1), MAI 215-1 (7.0), 314 (7.0), and PT 1877 (7.0) were on par with Z 490 24 (7.3). Among the 176 lines, 127 lines were found under least susceptible category, among them 10 lines were found very least susceptible with lowest damage score of 1-1.5.

At 60 days after sowing, the insect damage was reduced and the damage score varied significantly from 0.2 to 3.2 in various inbreds and hybrids except 40019 (3.1). The damage score was on par with MAI 10 and NAI 252 (3.2). At 60 days, the least damage score of 0.2 was recorded in inbred lines, CM 5 and SKV 193-1, followed by MAI 318, MAI 224 and MAI 133 with a damage score of 0.4. However, damage rating score of 3.2 was recorded for MAI 10 and NAI 252 inbred lines followed by 40019 (3.1), MAI 277 (2.9), MAI 711-1, MAI 759, NAI 365, and QMSC 36 (2.6). The inbred lines which recorded the damage score less than one showed higher resistance against the insect pest with a greater number of healthy plants (Table 5). Supporting to this Soujanya *et al.*, (2022) reported that the inbred lines, viz., DMRE 63, DML-163-1, CML 71, CML 141, CML 337, CML 346 and wild ancestor *Zea mays* ssp. *parviglumis* recorded lower leaf damage ratings against FAW and can be exploited for resistance breeding in maize.

During the reproductive stage of the crop the larvae started to feed on the softer portion of tassels and cobs. The ear and kernel damage recorded during the reproductive stage of the crop varied significantly from 1.1 to 7.6. The lowest ear and kernel damage score of 1.1 was recorded in inbred lines Z 490-24, V 938-26 and MAI 8. However, the highest ear and kernel damage of 7.6 was recorded in case of inbred line MAI 249, followed by PT 2217 (7.3) and PT 2383 (7.0) (Table 5). Among the 176 lines, based on the ear and kernel damage score, 155 lines were grouped under least susceptible category,

Table 5 : Screening of maize inbred parental lines and hybrids against fall armyworm *Spodoptera frugiperda* at different days after sowing.

S. no.	Inbred lines /hybrids	Whorl damage rating at 30 DAS	Whorl damage rating at 60 DAS	Ear and kernel damage rating
1	MAI 1	2.00	2.00	4.00
2	MAI 10	3.00	3.20	1.50
3	MAI 105	3.60	2.40	1.50
4	MAI 105 1	3.00	0.60	1.60
5	MAI 105 2	1.30	1.60	1.40
6	MAI 105 3	2.20	0.90	1.50
7	MAI 105 5	3.10	0.90	1.50
8	MAI 112	5.30	1.80	3.60
9	MAI 117	3.20	0.80	1.40
10	MAI 133	3.40	0.40	2.00
11	MAI 142	1.40	1.20	1.30
12	MAI 16	5.30	2.50	1.50
13	MAI 168	2.40	1.30	1.60
14	MAI 187	7.10	1.00	1.50
15	MAI 191	3.70	2.20	4.00
16	MAI 2	2.90	1.20	1.50
17	MAI 21	3.00	1.60	1.70
18	MAI 210	1.30	1.30	2.20
19	MAI 212	3.60	1.10	1.40
20	MAI 214	4.00	1.20	4.70
21	MAI 215 1	7.00	1.20	1.50
22	MAI 218	2.30	0.80	1.60
23	MAI 224	1.40	0.40	1.40
24	MAI 224 1	4.30	1.00	3.50
25	MAI 227	2.40	3.80	1.90
26	MAI 230	3.60	0.60	1.50
27	MAI 249	4.00	1.10	7.60
28	MAI 261	5.70	2.70	3.50
29	MAI 262	2.70	1.60	1.50
30	MAI 264	4.10	1.70	1.50
31	MAI 264 4	2.20	1.00	3.60
32	MAI 267	2.40	1.30	4.50
33	MAI 276	2.10	1.10	2.50
34	MAI 276 1	2.60	1.30	1.20
35	MAI 277	4.00	2.90	3.50
37	MAI 293	3.20	0.60	1.40
38	MAI 293 1	1.80	0.00	1.60
39	MAI 295	2.10	0.70	3.70
40	MAI 296	2.80	1.00	1.50
41	MAI 298	4.40	1.60	1.30
42	MAI 3	3.40	2.00	1.50
43	MAI 303	4.50	1.40	1.40

S. no.	Inbred lines /hybrids	Whorl damage rating at 30 DAS	Whorl damage rating at 60 DAS	Ear and kernel damage rating
44	MAI 318	3.10	0.40	1.50
45	MAI 319	2.80	1.70	2.00
46	MAI 329	3.20	1.60	2.00
47	MAI 393	3.60	1.70	1.60
48	MAI 7	2.70	0.80	3.50
49	MAI 711 1	1.10	2.60	2.80
50	MAI 712	3.20	1.60	1.50
51	MAI 729 1	5.30	0.80	4.00
52	MAI 729 2	5.10	3.60	1.40
53	MAI 729 5	1.90	1.10	3.50
54	MAI 729 6	2.80	0.90	1.50
55	MAI 746	3.00	1.30	2.50
56	MAI 753	2.90	1.70	3.50
57	MAI 755	4.40	1.90	5.10
58	MAI 759	3.70	2.60	3.50
59	MAI 759 1	3.40	1.60	1.20
60	MAI 763	1.90	2.50	5.00
61	MAI 764	2.80	1.20	1.30
62	MAI 769	2.30	0.90	1.70
63	MAI 8	4.70	2.70	1.10
64	NAI 137 2	2.80	2.10	2.50
65	NAI 137 3	2.10	1.00	1.90
66	NAI 137 4	3.00	1.90	1.70
67	NAI 137 6	2.70	1.70	1.60
68	NAI 137 7	3.90	1.40	1.20
69	NAI 170	2.30	0.70	1.30
70	NAI 175	5.30	1.90	1.50
71	NAI 179	5.80	2.00	4.20
72	NAI 181	3.40	1.00	1.50
73	NAI 204	2.10	0.80	1.50
74	NAI 204 1	5.20	1.80	2.00
75	NAI 207	4.10	1.80	5.30
76	NAI 217	2.90	1.10	4.60
77	NAI 252	3.40	3.20	1.50
78	NAI 365	5.60	2.60	4.50
79	NAI 600 2	3.40	2.10	1.50
80	314	7.00	1.30	3.60
81	1443	1.80	2.00	1.70
82	32079	5.30	1.00	2.00
83	32129	2.00	1.70	1.70
84	32645	4.40	0.90	1.40
85	40019	4.20	3.10	3.60
86	40027	1.30	1.50	1.70
87	40061	2.10	0.60	1.50
88	40104	2.00	2.10	1.30
89	40128	1.90	1.10	1.50
90	40203	4.90	0.90	2.60
91	40234	2.20	0.50	1.50
92	40283	5.20	0.80	4.80
93	40319	1.60	1.40	3.80
94	40402	2.70	0.60	1.40
95	40415	2.30	1.00	1.60
96	52022	3.00	2.10	5.30
97	52067	1.10	0.60	1.40
98	52133	2.60	1.30	1.20
99	52167	2.90	1.20	1.70
100	52167	4.80	1.10	1.60
101	52242	2.30	1.00	1.90
102	52283	2.40	1.60	4.40
103	52342	5.10	1.30	3.40
104	52347	5.30	1.20	1.80
105	52348	2.10	1.50	1.70
106	52349	3.30	2.40	1.30
107	52357	3.20	1.30	4.70
108	52366	2.90	1.80	1.60
109	52493	2.90	1.70	3.70
110	52540	2.20	1.20	1.30
111	52563	2.30	1.80	1.70
112	52563	2.90	1.50	1.50
113	52569	2.10	0.90	1.50
114	32 1129	1.70	1.30	1.50
115	CAL 1443	2.20	0.70	1.30
116	CM 202	1.70	2.50	1.50
117	CM 5	2.90	0.20	1.80
118	CML 1443	3.20	0.70	1.80
119	CML 300	3.40	0.60	2.60
120	KUI 1411	3.30	0.90	3.50
121	KUI 1411 4	4.00	1.80	2.40
122	HKI 209	3.60	0.80	1.50
123	PT 1609	2.90	1.20	3.50
124	PT 1634	4.30	2.00	1.50
125	PT 1663	2.70	2.20	1.60
126	PT 1740	2.90	1.00	3.70
127	PT 1863	2.70	1.50	2.30
128	PT 1877	7.00	0.80	1.20
129	PT 2087	2.90	1.50	1.50
130	PT 214	2.90	0.60	1.50
131	PT 2217	3.20	1.80	7.30
132	PT 2294	2.60	2.30	1.60
133	PT 2338	1.70	1.60	2.40

S. no.	Inbred lines /hybrids	Whorl damage rating at 30 DAS	Whorl damage rating at 60 DAS	Ear and kernel damage rating
134	PT 2383	2.60	1.40	7.00
135	PT 5880	2.40	1.50	1.50
136	QMSC 36	2.60	2.60	5.50
137	S 485 35	2.30	0.70	5.40
138	SKV 50 4	2.00	1.40	1.70
139	SN 193 1	2.00	0.20	1.50
140	SN 194 36	2.90	0.90	2.70
141	V 31	3.20	1.10	3.50
142	V 43	2.90	1.50	2.60
143	V 43 7	3.30	1.20	2.00
144	V 931 10	4.70	1.50	1.50
145	V 931 12	2.70	1.30	1.50
146	V 931 6	2.20	2.10	1.60
147	V 938 26	1.20	1.00	1.10
148	V 939 34	2.80	2.40	1.50
149	V 939 47	2.60	1.30	3.50
150	V 939 50	2.90	2.50	1.50
151	V 939 50	3.00	3.00	1.70
152	V 940 21	3.60	3.70	1.50
153	V 940 31	1.30	1.40	2.30
154	V 940 41	2.10	0.90	1.50
155	V 940 5	1.80	1.20	1.00
156	V 940 7	1.40	1.00	1.50
157	WEB 6	2.00	1.00	1.40
158	Z 4848	2.40	1.40	1.50
159	Z 485 20	4.00	2.00	1.50
160	Z 4864	2.10	1.00	1.90
161	Z 487 4	3.10	1.60	1.90
162	Z 489 149	2.90	2.30	1.50
163	Z 490 24	7.30	1.50	1.10
164	Z 491 20	2.90	0.60	1.70
165	Z 4913	3.40	1.80	1.50
166	Z 84 5	3.70	1.60	5.70
167	QPM 26	2.20	1.50	3.70
168	QPM 26 1	2.20	1.30	5.60
169	QPM 26 2	3.00	1.30	4.50
170	QPM 26 5	2.10	1.10	1.60
171	QPM 37	4.00	1.40	1.50
172	KMH 8333	5.40	1.30	1.80
173	KMH PROFIT	2.20	1.20	4.80
174	GK 3045	2.70	2.50	5.50
175	GK 3588	1.90	1.70	2.40
176	MAH 14-5	1.20	2.00	1.15
	SEm±	0.14	0.07	0.08
	CD	0.41	0.22	0.23

DAS: Days after sowing.

19 experimental lines were classified under moderately susceptible and three lines under highly susceptible category.

Screening of sweet corn and popcorn inbred lines against fall armyworm

Among the eight sweet corn and nine popcorn inbred lines screened against FAW showed that, at 30 days after sowing the damage rating score significantly varied between 1.3 and 5.0. The lowest damage score observed was in the sweet corn inbred lines, MAI 285 (1.3), followed by damage score of 1.5 in case of 4085 (Table 6). However, the highest whorl damage rating score (5.0) was observed in case of POP 1739, followed by the sweet corn line, MAI 225 (4.0) and in the two popcorn lines, POP 1861(3.9) and POP 1853 (3.8). Among the popcorn and sweet corn lines, 14 lines were grouped under least susceptible category whereas, remaining lines were moderately susceptible.

At 60 days after sowing, there was reduction in the whorl damage except the popcorn line, POP 1731 showed high damage rating score of 4.4. The same line showed less damage at 30 days. The second highest damage score of 3.0 was recorded for MAI 225 a sweet corn line, followed by 2.8 in a popcorn inbred line *i.e.*, POP 1. The least damage score recorded (0.4) was in case of popcorn inbred line POP 317, followed by two sweet corn inbred lines *i.e.*, 4085 (0.7) and 17251 (0.7).

Among the inbred lines evaluated for screening of cob damage against fall armyworm a significant lower ear and kernel damage (1.5) was recorded in case of three sweetcorn and one popcorn lines, MAI 14, MAI 225, 40224 SC and POP 317 respectively (Table 6). However significant higher ear and kernel damage score of 7.0 was recorded in the popcorn inbred line, POP 1857 followed by a sweetcorn line 17251 (5.6), and a popcorn line POP 1851 (5.5). Among the 17 lines, 10 lines were grouped as least susceptible, while 6 lines were moderately susceptible. POP 1857 (7.0) was found to be highly susceptible among 17 inbred lines. These findings are closely associated with the outcome of Abel *et al* (2020), who reported that average leaf damage scores for experimental maize lines GEMN-0095 (5.8), GEMN-0096 (5.7) and GEMN-0133 (5.6) were moderately resistant.

Screening of fodder inbred lines against fall armyworm damage

Among the 17 fodder inbred lines evaluated, it was found that at 30 days after sowing the whorl damage rating score varied from 1.3 to 7.1 and significantly differed from one another and was found to be on par with SPS

Table 6 : Screening of sweet and popcorn inbred lines against fall armyworm, *Spodoptera frugiperda*.

S. no.	Inbred lines	Whorl damage rating at 30 DAS	Whorl damage rating at 60 DAS	Ear and kernel damage rating
1	MAI 14	1.90	1.40	1.50
2	MAI 225	4.00	3.00	1.50
3	MAI 283	2.60	2.00	2.70
4	MAI 285	1.30	0.90	2.10
5	17251	2.40	0.70	5.60
6	40224	3.20	1.10	1.50
7	40225	2.00	1.20	1.80
8	4085	1.50	0.70	5.40
9	POP 1	2.30	2.80	3.50
10	POP 1731	3.10	4.40	2.00
11	POP 1739	5.00	1.90	4.50
12	POP 1803	2.60	0.80	5.00
13	POP 1853	3.80	2.20	3.50
14	POP 1855	3.20	2.10	4.80
15	POP 1857	1.70	2.20	7.00
16	POP 1861	3.90	2.30	5.50
17	POP 317	1.70	0.40	1.50
SEm ±		0.11	0.10	0.11
CD		0.34	0.28	0.32

DAS: Days after sowing.

Table 7 : Screening of fodder inbred lines against fall armyworm, *Spodoptera frugiperda*.

S. no.	Inbred lines	Whorl damage rating at 30 DAS	Whorl damage rating at 60 DAS	Ear and kernel damage rating
1	SPS 10	2.30	0.20	1.50
2	SPS 13	6.90	1.00	1.80
3	SPS 15	1.60	0.40	1.50
4	SPS 19	2.60	1.30	2.40
5	SPS 20	2.20	0.80	1.40
6	SPS 21	1.30	0.20	1.50
7	SPS 22	1.80	0.20	1.80
8	SPS 23	7.10	1.10	4.30
9	SPS 28	6.70	0.80	1.50
10	SPS 29	2.10	0.80	1.50
11	SPS 3	2.40	0.80	2.00
12	SPS 30	4.90	0.90	1.70
13	SPS 31	5.00	0.80	1.50
14	SPS 33	3.00	0.60	1.10
15	SPS 5	2.30	0.90	1.50
16	SPS 9	4.80	1.60	2.40
17	African tall	2.00	0.60	1.50
SEm ±		0.17	0.03	0.09
CD		0.51	0.08	0.26

DAS: Days after sowing.

13 (6.9), SPS 28 (6.7) and SPS 23 (7.1). The lowest damage score of 1.3 was observed for SPS 21, followed by SPS 15 (1.6) and African tall (2.0) (Table 7). The highest whorl damage score of 7.1 was recorded in SPS 23 followed by SPS 13 (6.9) and SPS 28 (6.7). Among the 17 fodder lines evaluated, 11 lines were classified as least susceptible, 4 lines were classified as moderately susceptible and SPS 23 and SPS 13 were classified as highly susceptible for the fall armyworm.

At 60 days after sowing, significantly high damage score of 1.6 was recorded for SPS 9 followed by SPS 19 (1.3) and SPS 13 (1). But significantly lower damage score of 0.2 was recorded in SPS 10, SPS 21 and SPS 22 followed by 0.4 in case of SPS 15.

Among the 17 fodder lines evaluated for cob damage caused by the fall armyworm at reproductive stage of crop, significantly lower damage score of 1.1 was recorded in SPS 33, followed by SPS 20 (1.4) (Table 7). However, a significantly higher ear and kernel damage score of 4.3 were recorded for SPS 23, followed by 2.4 in SPS 19 and SPS 9. All the fodder lines were found to be least susceptible, while SPS 23 was found to be moderately susceptible according to cob damage caused by the fall armyworm.

The present investigation is in close agreement with findings of Paul and Deole (2020), indicating that evaluation has been carried out on the basis of both leaf damage score, ear and cob damage score recorded in their respective growth stages. They recorded the lowest leaf damage score of 2.36 and 2.61 for the highly resistant genotypes, DKC- 9190 and S-6217 and highest damage score of 8.21 for highly susceptible genotype, NK- 31 against *S. frugiperda* in maize at 45 days after sowing. Similar results were observed by Xinzhi *et al*. (2014), who screened various experimental lines, by visual observation of damage rating score 0-9 scale and reported that 'Mp708' and 'FAW7061' were the most resistant, whereas 'Ab24E' and 'EPM6' were the most susceptible to fall armyworm feeding. Praveen *et al*. (2013) reported that the lowest scoring of leaf damage was recorded in maize resistant variety NAC-6002 (0.66 and 2.33) against *Chilo partellus* and the highest scoring was in susceptible variety Basi-local (6.00 and 7.00) at 30 DAS and 60 DAS, respectively. Similarly, Darshan *et al*. (2024) reported that among fifteen different cultivars screened against fall armyworm, Kaveri minchu recorded the highest mean

leaf damage score (4.62) whereas, the hybrid PMH 224 recorded the least mean leaf damage score (0.73).

Conclusion

The field experiment assessing 210 maize genotypes against fall armyworm revealed promising results. Majority (155) were least susceptible, with 10 lines showing remarkable resilience with minimal damage. Moderately susceptible genotypes were fewer (49), and only six were highly susceptible. Ear and kernel damage further supported these findings, with most genotypes (177) exhibiting least susceptibility. This indicates potential in breeding programs for developing resistant varieties against fall armyworm. The identification of highly resistant genotypes suggests avenues for further research and breeding efforts to enhance maize resilience. These findings underscore the importance of continued monitoring and development of resistant cultivars to mitigate fall armyworm damage and ensure maize crop sustainability.

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