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Screening of different brinjal cultivars/genotypes against sucking insect pest of brinjal

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Abstract
The present investigations on screening of different brinjal cultivars/genotypes against sucking insect pest of brinjal were carried out under field condition during *Kharif* 2018-19 and 2019-20 at College Farm, N. M. College of Agriculture, Navsari Agricultural University, Navsari. Amond the different sixteen cultivars/genotypes, minimum aphid, jassid, whitefly as well as mite population found in GJLB – 4 and JBGR – 1, GJLB – 4 and Surati Ravaiya, GJLB – 4 and Pusa Purple Cluster as well as Pusa Purple Cluster and GJB – 3 while, maximum recorded in Panjab Sadabahar and GOB – 1, GJB – 2 and GOB – 1, KS – 224 and GOB – 1 as well as GJB – 2 and Arka Nidhi, respectively. Based on population of aphid, jassid, whitefly and mite, genotypes/cultivars GJLB – 4, JBGR – 1, Pusa Purple Cluster, GBL – 2 and GJB – 3 found tolerant; GOB – 1 and GJB – 2 found susceptible. For the yield point of view, GOB – 1 recorded significant higher yield while, GJLB – 4 recorded significantly lower fruit yield.

Keywords: Aphid, jassid, whitefly, mite, brinjal

Introduction
Agriculture plays a vital role in India's economy. Vegetable farming has an important place in Indian agriculture due to their nutritional, medicinal and land commercial value. India's contribution in vegetable production was 11.20 percent during 2016 [1]. Brinjal is also known as egg plant, aubergine, guinea squash, brinjaul and bringella [2]. Brinjal is known as a "King of Vegetables" originated in India. The brinjal is a staple food consumed as a green vegetable in diets by most of the people. The white brinjal is said to be for diabetic patients under ayurvedic medicines [3]. The major brinjal growing states are Andhra Pradesh, Karnataka, Tamil Nadu, Gujarat, Orissa, West Bengal, Madhya Pradesh, Bihar, Jharkhand, Uttar Pradesh, *etc*. [1, 4]. Brinjal is being cultivated in an area of about 133.48 thousand hectares in India with a production of 2413.86 thousand MT and productivity of 17.53MT per hectare as per final advance estimates during 2019-20. In Gujarat, brinjal is cultivated in almost all the districts occupying an area of about 71 thousand hectares with a production of 1437 thousand MT and productivity of 20.15MT per hectare during 2019-20 [5]. The brinjal crop is attacked by about 140 species of insect pests [6]. The major sucking insect pests of brinjal include Aphids, *Aphis gossypii* Glover (Hemiptera: Aphididae), Jassids, *Amrasca biguttula biguttula* Ishida (Homoptera: Cicadellidae), Whitefly, *Bemisia tabaci* Genn. (Hemiptera: Aleyrodidae) and Spider mites, *Tetranychus* spp.

Materials and Methods
An investigation on screening of different sixteen (16) genotype/cultivars of brinjal against sucking insect pest of brinjal was carried out at College Farm, N. M. College of Agriculture, NAU, Navsari, Gujarat during *Kharif* season 2018-19 and 2019-20 (Table 1). Different cultivars/genotypes were transplanted in gross plot of 4.5m x 5.4m with net plot of 2.7m x 4.2m at 90cm x 60cm spacing in a Randomized Block Design (RBD) in three replications. The brinjal cultivars/genotypes were transplanted during 4th week of July during both years and all the recommended agricultural practices were followed to raise the brinjal crop. Crop was kept free from insecticidal spray during entire crop period. From each net plot, 5 plants were selected randomly to count sucking insect pests and natural enemies population. The population of aphid, jassid and whitefly was recorded from three leaves. Observations on mite population were recorded from 4cm^2 leaf area by using magnifying lens (10X). The data so obtained was summed up and converted to total population per leaf. The data was recorded at weekly interval starting from one week after transplanting till the crop maturity. The yield data

was recorded picking wise from each net plot. The data on number of sucking insect pests were subjected to square root transformation and statistically analysed for interpretation by following standard statistical technique [7]. The levels of resistance were graded on the basis of infestation following the modified scale adopted are given underhere [8].

Category of Resistance	Scale for Resistance
Tolerant	$X_i < \overline{X}_i$
Less Susceptible (LS)	$X_i > \overline{X} < (\overline{X} + 1\ SD)$
Moderately Susceptible (MS)	$X_i > (\overline{X} + 1\ SD) < (\overline{X} + 2SD)$
High Susceptible (HS)	$X_i > (\overline{X} + 2SD)$

Results and Discussion

Aphid, *A. gossypii*

The pooled results of two years on aphid population (Table 1 and Fig. 1) indicated that GJLB – 4 (1.32 per leaf/plant) and JBGR – 1 (1.58 per leaf/plant) were at par with each other but recorded significantly lower aphid population. Cultivar Panjab Sadabahar recorded significantly higher population of aphid (16.65 per leaf/plant) followed by GOB – 1. The remained genotypes/cultivars were intermediate in performance. The interaction effects on population of

Table 1: Performance of different brinjal genotypes/cultivars against aphid and jassid population

Genotypes/cultivars	Aphid/leaf			Jassid/leaf		
	2018-19	2019-20	Pooled	2018-19	2019-20	Pooled
GJB – 3	2.16^{cd} (4.16)	2.22^{cd} (4.45)	2.19^{cd} (4.30)	2.14^{cd} (4.07)	2.20^{b} (4.36)	2.17^{cd} (4.21)
GJB – 2	3.10^{g} (9.11)	3.24^{g} (10.00)	3.17^{g} (9.55)	3.40^{k} (11.04)	3.64^{j} (12.74)	3.52^{k} (11.88)
GOB – 1	3.75^{h} (13.57)	3.93^{h} (14.93)	3.84^{i} (14.24)	3.29^{j} (10.30)	3.52^{ij} (11.89)	3.40^{j} (11.08)
GAOB – 2	2.38^{e} (5.15)	2.48^{e} (5.66)	2.43^{e} (5.40)	2.33^{f} (4.93)	2.40^{d} (5.28)	2.37^{f} (5.10)
GNRB – 1	2.89^{f} (7.88)	3.07^{fg} (8.9)	2.98^{f} (8.38)	2.48^{g} (5.67)	2.61^{e} (6.33)	2.55^{g} (6.00)
JBGR – 1	1.43^{a} (1.54)	1.46^{a} (1.63)	1.44^{a} (1.58)	2.07^{c} (3.78)	2.11^{b} (3.96)	2.09^{c} (3.87)
Doli – 5	3.57^{h} (12.25)	3.74^{h} (13.50)	3.66^{h} (12.87)	2.75^{i} (7.05)	2.87^{gh} (7.72)	2.81^{i} (7.38)
KS – 224	2.96^{fg} (8.25)	3.14^{fg} (9.34)	3.05^{fg} (8.79)	2.63^{h} (6.42)	2.76^{fg} (7.10)	2.69^{h} (6.75)
GJLB – 4	1.35^{a} (1.32)	1.36^{a} (1.35)	1.35^{a} (1.32)	1.48^{a} (1.68)	1.50^{a} (1.76)	1.49^{a} (1.72)
GBL – 2	1.91^{b} (3.17)	1.97^{b} (3.36)	1.94^{b} (3.26)	1.64^{b} (2.18)	1.64^{a} (2.18)	1.64^{b} (2.18)
GBL – 3	2.03^{c} (3.61)	2.09^{bc} (3.85)	2.06^{bc} (3.73)	3.23^{j} (9.96)	3.42^{i} (11.22)	3.33^{j} (10.58)
Arka Nidhi	2.25^{de} (4.58)	2.32^{de} (4.86)	2.28^{de} (4.72)	2.81^{i} (7.40)	2.94^{h} (8.13)	2.87^{i} (7.76)
Swarna Mani	2.84^{f} (7.58)	3.00^{f} (8.49)	2.92^{f} (8.03)	2.60^{h} (6.26)	2.71^{ef} (6.82)	2.65^{h} (6.54)
Pusa Purple Cluster	3.66^{h} (12.89)	3.83^{h} (14.19)	3.75^{hi} (13.53)	2.19^{de} (4.30)	2.25^{bc} (4.56)	2.22^{de} (4.43)
Panjab Sadabahar	4.04^{i} (15.84)	4.24^{i} (17.49)	4.14^{j} (16.65)	2.27^{ef} (4.65)	2.35^{cd} (5.04)	2.31^{ef} (4.84)
Surati Ravaiya	2.10^{cd} (3.89)	2.16^{cd} (4.16)	2.13^{cd} (4.03)	1.56^{ab} (1.95)	1.58^{a} (1.98)	1.57^{ab} (1.96)
S.Em.± T	0.06	0.08	0.05	0.04	0.05	0.03
Y			0.04			0.04
T×Y			0.16			0.15
C.D. at 5% T	0.19	0.22	0.15	0.10	0.14	0.09
Y			NS			NS
T×Y			NS			NS
CV%	9.88	10.20	10.05	9.68	10.59	10.16

Note: 1. Figures in parentheses are retransformed values whereas outside are square root transformed values.
2. The letter(s) in common are not significant different from each other at 5% significant.

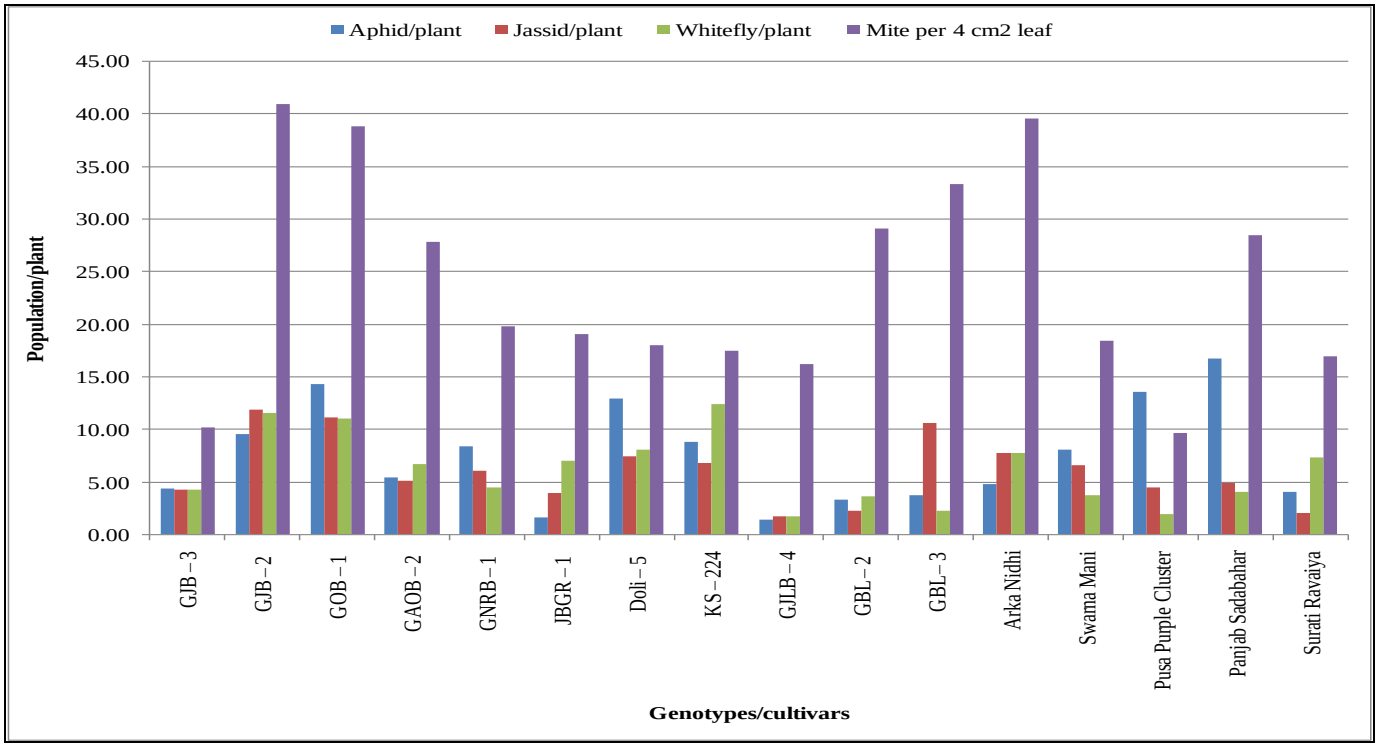

Fig 1: Population of aphid, jassid, whitefly and mite in different brinjal genotypes/cultivars (Pooled of two years)

aphid in different genotypes/cultivars and year was found non significant indicating the consistent performance of genotypes/cultivars during both the years.

Jassid, *A. biguttula biguttula*

GJLB – 4 (1.72 per leaf/plant) and Surati Ravaiya (1.96 per leaf/plant) were at par with each other but recorded significantly lower jassid population except GBL – 2 with which it was at par in pooled results of two years (Table 1 and Fig. 1). Genotype GJB – 2 recorded significantly highest population of jassid (11.88 per leaf/plant) followed by GOB – 1 which was at par with GBL – 3. The remained genotypes/cultivars were intermediate in performance. The interaction effects on population of jassid in different genotypes/cultivars and year was found non-significant indicated that the results were consistent during both the years.

Whitefly, *B. tabaci*

The pooled results of two years on population of whitefly (Table 2 and Fig. 1) indicated that GJLB – 4 (1.68 per leaf/plant) and Pusa Purple Cluster (1.89 per leaf/plant) were at par with each other but recorded significantly lower whitefly population. Genotype KS – 224 recorded significantly highest whitefly population (12.41 per leaf/plant) as compared to rest of the genotypes followed by GJB – 2 and GOB – 1. The remained genotypes/cultivars were intermediate in performance. The interaction effects on population of whitefly in different genotypes/cultivars and year was found non significant indicated that the results were consistent during both the years.

Mite, *Tetranychus* spp

The pooled results of two years on population of mite (Table 2 and Fig. 1) indicated that Pusa Purple Cluster and GJB – 3 (9.63 and 10.14 per 4 cm^2 leaf/plant, respectively) were at par with each other but recorded significantly lower mite population. Cultivar GJB – 2 recorded significantly higher mite population (40.89 per 4 cm^2 leaf/plant) but were at par with Arka Nidhi (39.54 per 4 cm^2 leaf/plant) followed by GOB – 1. The remained genotypes/cultivars were intermediate in performance. The interaction effects on population of mite in different genotypes/cultivars and year was found non-significant indicated that the results were consistent during both the years.

Yield performance of different genotypes/cultivars of brinjal

The pooled results of two years on yield (Table 3 and Fig. 2) indicated that GOB – 1 (19.11 tonne/ha) recorded significantly higher seed yield than rest of the genotypes/cultivars screened and it was at par with GJB – 3 (18.77 tonne/ha), Punjab Sadabahar (18.33 tonne/ha), GBL – 2 (18.12 tonne/ha) and GJB – 2 (17.62 tonne/ha). Among different cultivars/genotypes, GJLB – 4 recorded significantly lower

Table 2: Performance of different brinjal genotypes/cultivars against aphid and jassid population

Genotypes/ cultivars	Whitefly/leaf			Mite per 4cm^2 leaf		
	2018-19	2019-20	Pooled	2018-19	2019-20	Pooled
GJB – 3	2.25^{de} (4.55)	2.08^{cd} (3.84)	2.16^{e} (4.19)	3.69^{a} (13.09)	2.84^{a} (7.55)	3.26^{a} (10.14)
GJB – 2	3.53^{i} (11.94)	3.42^{hi} (11.17)	3.47^{j} (11.55)	7.06^{h} (49.37)	5.81^{h} (33.21)	6.43^{j} (40.89)
GOB – 1	3.45^{i} (11.39)	3.32^{h} (10.54)	3.39^{j} (10.96)	6.90^{h} (47.10)	5.63^{h} (31.20)	6.26^{i} (38.75)

GAOB – 2	2.76^{f} (7.14)	2.59^{e} (6.20)	2.68^{f} (6.66)	5.90^{f} (34.36)	4.73^{f} (21.85)	5.32^{g} (27.76)
GNRB – 1	2.29^{e} (4.74)	2.13^{d} (4.04)	2.21^{e} (4.38)	5.03^{e} (24.81)	3.98^{e} (15.31)	4.50^{f} (19.78)
JBGR – 1	2.82^{fg} (7.45)	2.66^{ef} (6.59)	2.74^{fg} (7.02)	4.93^{de} (23.76)	3.90^{de} (14.69)	4.41^{ef} (18.96)
Doli – 5	2.97^{h} (8.32)	2.85^{g} (7.65)	2.91^{i} (7.98)	4.81^{cd} (22.64)	3.78^{bcd} (13.78)	4.29^{cde} (17.94)
KS – 224	3.65^{j} (12.82)	3.53^{i} (11.99)	3.59^{k} (12.41)	4.75^{bc} (22.05)	3.72^{bcd} (13.32)	4.23^{cd} (17.42)
GJLB – 4	1.56^{a} (1.92)	1.40^{a} (1.46)	1.48^{a} (1.68)	4.57^{b} (20.38)	3.60^{b} (12.44)	4.08^{b} (16.18)
GBL – 2	2.09^{c} (3.89)	1.93^{c} (3.21)	2.01^{c} (3.54)	6.01^{f} (35.64)	4.87^{f} (23.19)	5.44^{g} (29.09)
GBL – 3	1.73^{b} (2.48)	1.58^{b} (1.98)	1.65^{b} (2.23)	6.44^{g} (41.00)	5.18^{g} (26.32)	5.81^{h} (33.26)
Arka Nidhi	2.93^{gh} (8.06)	2.79^{fg} (7.30)	2.86^{hi} (7.68)	6.96^{h} (47.92)	5.70^{h} (31.95)	6.33^{ij} (39.54)
Swarna Mani	2.14^{cd} (4.06)	1.98^{cd} (3.41)	2.06^{cd} (3.73)	4.86^{cde} (23.11)	3.83^{cde} (14.20)	4.35^{de} (18.39)
Pusa Purple Cluster	1.62^{ab} (2.13)	1.47^{ab} (1.66)	1.54^{a} (1.89)	3.62^{a} (12.58)	2.75^{a} (7.06)	3.18^{a} (9.63)
Panjab Sadabahar	2.20^{de} (4.35)	2.04^{cd} (3.64)	2.12^{de} (3.99)	5.96^{f} (35.02)	4.80^{f} (22.51)	5.38^{g} (28.43)
Surati Ravaiya	2.87^{fgh} (7.75)	2.72^{efg} (6.92)	2.80^{gh} (7.33)	4.67^{bc} (21.34)	3.67^{bc} (13.00)	4.17^{bc} (16.92)
S.Em.± T	0.04	0.05	0.03	0.07	0.06	0.05
Y			0.04			0.07
T×Y			0.16			0.27
C.D. at 5% T	0.11	0.15	0.09	0.19	0.18	0.13
Y			NS			NS
T×Y			NS			NS
CV%	10.67	11.11	10.88	9.29	10.10	9.68
Note: 1. Figures in parentheses are retransformed values whereas outside are square root transformed values. 2. The letter(s) in common are not significant different from each other at 5% significant.						

Table 3: Yielding ability of different brinjal genotypes/cultivars

Genotypes/cultivars	**Yield (tonne/ha)**		
	2018-19	**2019-20**	**Pooled**
GJB – 3	19.79^{a}	17.75^{ab}	18.77^{ab}
GJB – 2	19.11^{abc}	16.12^{abcd}	17.62^{abcd}
GOB – 1	20.08^{a}	18.14^{a}	19.11^{a}
GAOB – 2	14.41^{fgh}	13.00^{fg}	13.70^{hi}
GNRB – 1	14.00^{gh}	12.87^{g}	13.43^{hi}
JBGR – 1	15.69^{efgh}	13.58^{fg}	14.64^{fgh}
Doli – 5	18.21^{abcde}	15.09^{cdef}	16.65^{cde}
KS – 224	16.26^{defg}	13.74^{efg}	15.00^{fgh}
GJLB – 4	13.57^{h}	12.40^{g}	12.98^{i}
GBL – 2	19.37^{abc}	16.87^{abc}	18.12^{abc}
GBL – 3	16.87^{cdef}	13.96^{defg}	15.42^{efg}
Arka Nidhi	17.79^{abcde}	14.49^{defg}	16.14^{def}
Swarna Mani	17.04^{bcdef}	14.10^{defg}	15.57^{efg}
Pusa Purple Cluster	18.78^{abcd}	15.83^{bcde}	17.31^{bcd}
Panjab Sadabahar	19.52^{ab}	17.14^{abc}	18.33^{ab}
Surati Ravaiya	15.10^{fgh}	13.38^{fg}	14.24^{ghi}
S.Em.± T	0.91	0.79	0.56
Y			0.21
T×Y			0.85
C.D. at 5% T	2.63	2.29	1.59
Y			NS
T×Y			NS
CV%	9.16	9.21	9.21
Note: The letter(s) in common are not significant different from each other at 5% significant.			

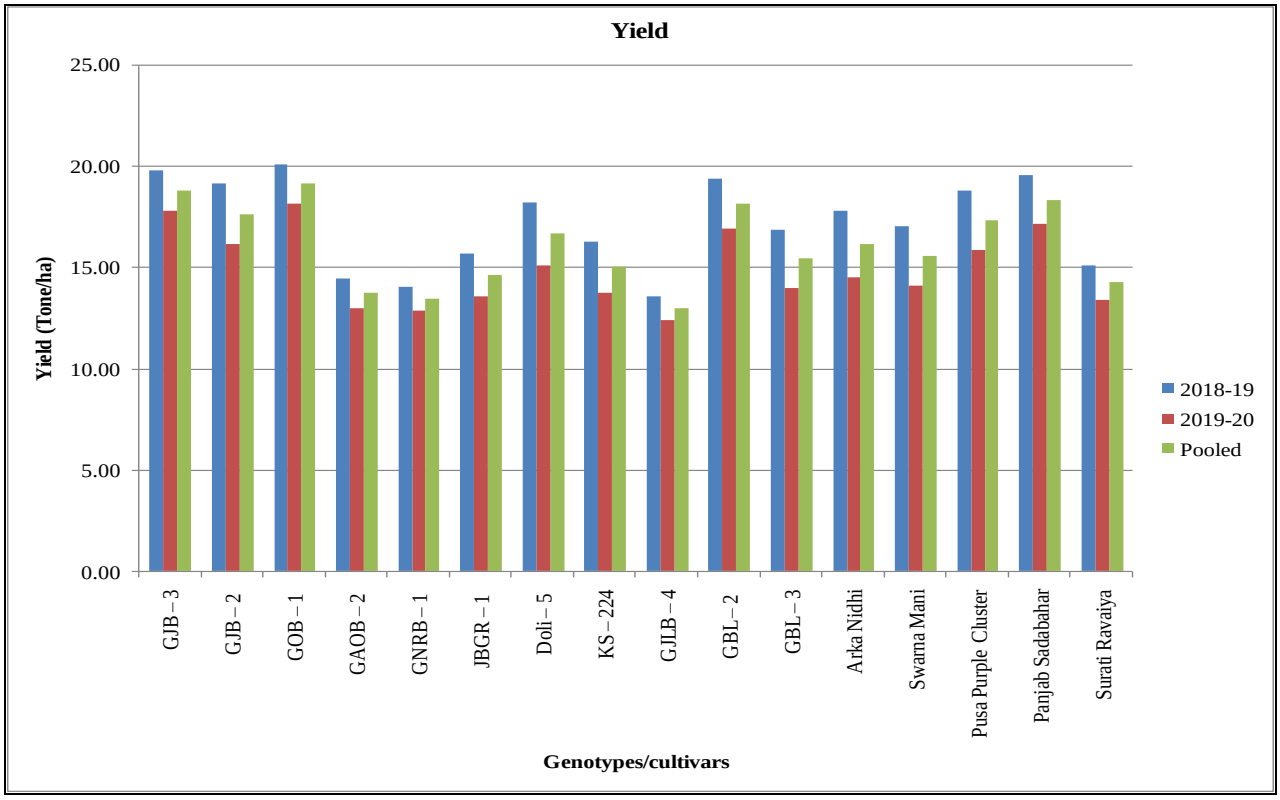

Fig 2: Yielding ability of different brinjal genotypes/cultivars

(12.98 tonne/ha) yield among the genotypes/cultivars screened but was at par with GNRB – 1 (13.43 tonne/ha), GAOB – 2 (13.70 tonne/ha) and Surati Ravaiya (14.24 tonne/ha). The interaction effect on year and genotypes/cultivars was non significant indicated that the overall performance was consistent in pooled analysis.

Categorization of the genotypes/cultivars

Aphid, *A. gossypii*

Genotypes/cultivars GJLB – 4, JBGR – 1, GBL – 2, GBL – 3, Surati Ravaiya, GJB – 3, Arka Nidhi and GAOB – 2 recorded less than 7.52 per leaf/plant were found tolerant (Table 4); Swarna Mani, GNRB – 1, KS – 224 and GJB – 2 recorded between 7.52 and 12.29 per leaf/plant were found less susceptible whereas, Doli – 5, Pusa Purple Cluster, GOB – 1 and Panjab Sadabahar recorded between 12.29 and 17.06 per leaf/plant were found moderately susceptible.

Jassid, *A. biguttula biguttula*

Genotypes/cultivars GJLB – 4, Surati Ravaiya, GBL – 2, JBGR – 1, GJB – 3, Pusa Purple Cluster, Panjab Sadabahar, GAOB – 2 and GNRB – 1 recorded less than 6.02 per leaf/plant were found tolerant (Table 4); Swarna Mani, KS – 224, Doli – 5 and Arka Nidhi recorded between 6.02 and 9.17 per leaf/plant were found less susceptible whereas, GBL – 3, GOB – 1 and GJB – 2 recorded between 9.17 and 12.31 per leaf/plant were found moderately susceptible.

Whitefly, *B. tabaci*

Genotypes/cultivars GJLB – 4, Pusa Purple Cluster, GBL – 3, GBL – 2, Swarna Mani, Panjab Sadabahar, GJB – 3 and GNRB – 1 recorded less than 6.08 per leaf/plant categorized into tolerant (Table 4); GAOB – 2, JBGR – 1, Surati Ravaiya, Arka Nidhi and Doli – 5 recorded between 6.08 and 9.51 per leaf/plant were found less susceptible whereas, GOB – 1, GJB – 2 and KS – 224 recorded between 9.51 and 12.95 per leaf/plant were found moderately susceptible.

Mite, *Tetranychus* spp

Genotypes/cultivars Pusa Purple Cluster, GJB – 3, GJLB – 4, Surati Ravaiya, KS – 224, Doli – 5, Swarna Mani, JBGR – 1 and GNRB – 1 recorded less than 23.94 per 4 cm^2 leaf/plant from were found tolerant (Table 4); GAOB – 2, Panjab Sadabahar, GBL – 2 and GBL – 3 recorded between 23.94 and 34.12 per 4 cm^2 leaf/plant were found less susceptible whereas, GOB – 1, Arka Nidhi and GJB – 2 recorded between 34.12 and 44.30 per 4 cm^2 leaf/plant were found moderately susceptible.

Various researchers have screened the different brinjal genotypes/cultivars for their susceptibility to insect pest complex of brinjal. Genotypes/varieties of brinjal, JB-64-1-2, GBH-1, Doli-5, AB-99-16, GBL-1 and JBPR-98-2 found resistant to jassid, whitefly and aphid [9]. Pechiparai, Pusa – 5 and Pusa Purple Cluster were found low.

Table 4: Categorization of brinjal genotypes/cultivars for their susceptibility to sucking insect pest population

Category of susceptibility	Scale	Genotypes/cultivars
Aphid	$\overline{X}$ = 7.52	S.D. = 4.77
Tolerant (T)	X_i < 7.52	GJLB – 4 (1.32), JBGR – 1 (1.58), GBL – 2 (3.26), GBL – 3 (3.73), Surati Ravaiya (4.03), GJB – 3 (4.30), Arka Nidhi (4.72), GAOB – 2 (5.40)
Less Susceptible (LS)	X_i > 7.52 < 12.29	Swarna Mani (8.03), GNRB – 1 (8.38), KS – 224 (8.79), GJB – 2 (9.55)
Moderately	X_i > 12.29 < 17.06	Doli – 5 (12.87), Pusa Purple Cluster (13.53), GOB – 1 (14.24), Panjab Sadabahar (16.65)

Susceptible (MS)		
High Susceptible (HS)	$X_i > 17.06$	--
Jassid	$\bar{X} = 6.02$	S.D. = 3.15
Tolerant (T)	$X_i < 6.02$	GJLB – 4 (1.72), Surati Ravaiya (1.96), GBL – 2 (2.18), JBGR – 1 (3.87), GJB – 3 (4.21), Pusa Purple Cluster (4.43), Panjab Sadabahar (4.84), GAOB – 2 (5.10), GNRB – 1 (6.00)
Less Susceptible (LS)	$X_i > 6.02 < 9.17$	Swarna Mani (6.54), KS – 224 (6.75), Doli – 5 (7.38), Arka Nidhi (7.76)
Moderately Susceptible (MS)	$X_i > 9.17 < 12.31$	GBL – 3 (10.58), GOB – 1 (11.08), GJB – 2 (11.88)
High Susceptible (HS)	$X_i > 12.31$	--
Whitefly	$\bar{X} = 6.08$	S.D. = 3.44
Tolerant (T)	$X_i < 6.08$	GJLB – 4 (1.68), Pusa Purple Cluster (1.89), GBL – 3 (2.23), GBL – 2 (3.54), Swarna Mani (3.73), Panjab Sadabahar (3.99), GJB – 3 (4.19), GNRB – 1 (4.38)
Less Susceptible (LS)	$X_i > 6.08 < 9.51$	GAOB – 2 (6.66), JBGR – 1 (7.02), Surati Ravaiya (7.33), Arka Nidhi (7.68), Doli – 5 (7.98)
Moderately Susceptible (MS)	$X_i > 9.51 < 12.95$	GOB – 1 (10.96), GJB – 2 (11.55), KS – 224 (12.41)
High Susceptible (HS)	$X_i > 12.95$	--
Mite	$\bar{X} = 23.94$	S.D. = 10.18
Tolerant (T)	$X_i < 23.94$	Pusa Purple Cluster (9.63), GJB – 3 (10.14), GJLB – 4 (16.18), Surati Ravaiya (16.92), KS – 224 (17.42), Doli – 5 (17.94), Swarna Mani (18.39), JBGR – 1 (18.96), GNRB – 1 (19.78)
Less Susceptible (LS)	$X_i > 23.94 < 34.12$	GAOB – 2 (27.76), Panjab Sadabahar (28.43), GBL – 2 (29.09), GBL – 3 (33.26)
Moderately Susceptible (MS)	$X_i > 34.12 < 44.30$	GOB – 1 (38.75), Arka Nidhi (39.54), GJB – 2 (40.89)
High Susceptible (HS)	$X_i > 44.30$	--

resistant against mite [10]. Genotypes AB-09-19 and NDB 18 recorded minimum aphid. Genotype AB-09-1 and JBGR 1 were recorded minimum jassid. AB-09-1 and NDB 18 recorded significantly minimum whitefly. Genotype AB 09-14 recorded significantly higher aphid, jassid as well as whitefly and found most susceptible [11]. Swarna Mani recorded lower sucking pest population [12].

Conclusion

From the present investigation, it is concluded that based on the population of aphid, jassid, whitefly and mite, genotypes/cultivars GJLB – 4, JBGR – 1, Pusa Purple Cluster, GBL – 2 and GJB – 3 found tolerant; GOB – 1 and GJB – 2 found susceptible.

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