Effect of Sowing Period on Incidence of Sucking Pests on Pigeonpea C*ajanus cajan* (L.) Millsp.

J. D. Patel, D. R. Patel* and Alok Shrivastav

Dept. of Entomology, N. M. College of Agriculture, Navsari Agricultural University, Navsari- 396 450, Gujarat, India

Corresponding Author

D. R. Patel
e-mail: patel.devendra2829@yahoo.com

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Abstract

A field experiments were carried out at the College farm, N. M. College of Agriculture, Navsari Agricultural University, Navsari during *Kharif* 2015-16 to study the effect of sowing period on incidence of sucking pest of pigeonpea. The study revealed that the pigeonpea pod bug and cow bug population were significantly influenced by sowing period and cultivars. The significant lowest cow bug and pod bug population was observed during crop sown on 2nd fortnight of July, while the highest population was recorded during crop sown on 2nd fortnight of August, *i.e* late sowing. The interaction effect of sowing dates and varieties had non-significant influence on the cow bug population while, significant influence on the number of pod bug plant^{-1}.

Keywords: Cow bug, cultivars, incidence, pigeonpea, pod bug, sowing period

1. Introduction

Pigeonpea [*Cajanus cajan* (L.) Millsp.] is one of the most important legume crops of the tropics and subtropics of Asia and Africa. India is the world's largest producer and consumer of pulses including pigeonpea. The productivity levels range from 360 to 1145 kg ha^{-1} owing to the cultivation of the crop on a wide range of soils in different cropping systems across varied agro climatic regions (NICRA, 2011). Pigeonpea is tasty, not only to people, but also to insect pests. It was known to be attacked by >150 insects species at various stages of its crop growth in India (Davies and Lateef, 1975). Choice of sowing time and varieties are the good tools to minimize the damage caused by insect pests. Integration of these methods of pest management will be helpful in minimizing pest problems. Hence, the field experiment was conducted to study the impact of sowing periods and varieties on incidence of insect pests of pigeonpea.

2. Materials and Methods

To study the effect of sowing dates on incidence of sucking pest, the pigeonpea crop (cvs. Vaishali and GT-1) was grown in different sowing period viz., first fortnight of July, second fortnight of July, first fortnight of August, second fortnight of August during *Kharif* 2015-16 at College farm, N.A.U., Navsari, Gujrat, India. The experiment was laid out in a factorial RBD replicated thrice. All the recommended agronomic practices were followed for raising the crop. Experimental area was kept free from insecticidal spray throughout the season. Observations on sucking pests viz., cow bug and pod bugs were recorded at weekly interval. For this purpose, cow bug and pod bugs were counted on whole plant basis by visual search method on five plant plot^{-1} and recorded separately. Mean population of sucking pest plant^{-1} were worked out. The mean population of sucking pests were subject to square root transformation prior to statistical analysis.

3. Results and Discussion

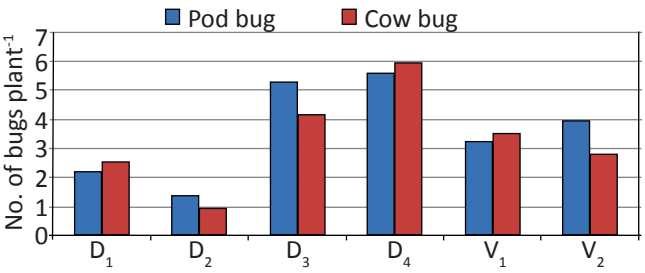
3.1. Cow bug, Oxyrachis tarandus

Perusal of result (Table 1 and Figure 1) indicated that the impact of sowing period on cow bug population was significant. The intensity of infestation varied from 0.96 to 5.95 cow bugs plant^{-1}. The result indicated that the lowest population was observed during crop sown on 2nd fortnight of July (0.96 cow bug plant^{-1}), while the highest population (5.95 cow bug plant^{-1}) was recorded during crop sown on 2nd fortnight of August. The above data thus revealed that delay in sowing caused higher population of cow bug. Varieties had no significant influence on the cow bug population (Table 1). However, variety GT-1 had lower incidence of cow bug. The interaction of sowing dates and varieties had non-significant influence on the cow bug population (Table 1 and Figure 2). Considering all sowing dates and varieties, variety GT-1 sown on 2nd fortnight of July had less number of cow bug population (0.54 cow bug plant^{-1}) followed by variety Vaishali sown on same period *i.e.* 2nd fortnight of July.

Table 1: Effect of sowing dates and varieties on incidence of sucking pest of pigeonpea

Factor	Treatments	Cow bug plant^{-1}	Pod bug plant^{-1}
1. Sowing date (D)	1st fortnight of July (D_1)	1.75 (2.56)	1.65 (2.24)
	2nd fortnight of July (D_2)	1.21 (0.96)	1.37 (1.39)
	1st fortnight of August (D_3)	2.16 (4.17)	2.39 (5.32)
	2nd fortnight of August (D_4)	2.54 (5.95)	2.47 (5.62)
	SEm±	0.10	0.07
	CD (p=0.05)	0.33	0.23
2. Varieties (V)	Vaishali (V_1)	2.01 (3.54)	1.88 (3.27)
	GT (V_2)	1.82 (2.81)	2.06 (4.02)
	SEm±	0.07	0.05
	CD (p=0.05)	NS	0.16

Figures outside parentheses are √(X+0.5) transformed values



D_1: 1st fortnight of July; D_2: 2nd fortnight of July; D_3: 1st fortnight of August; D_4: 2nd fortnight of August; V_1: Vaishali; V_2: GT-1

Figure 1: Effect of sowing dates and varieties on incidence of cow bug and pod bug on pigeonpea

3.2. Pod bug, Clavigrella gibbosa

The result of sowing dates and varieties on the incidence of pod bugs are presented in Table 1 and Figure 1. Sowing dates showed significant influence on pod bug population on pigeonpea. The pod bug population varied from 1.39 to 5.62 pod bugs plant^{-1}. It is evident from the results that the pod bug population was found low in 2nd fortnight of July sown crop (1.39 pod bug plant^{-1}). Thus the crop sown during second fortnight of July had less attacked is pod bug. This was in agreement with observation made by Nimse and Jat (2011) who recorded the lowest pod bug population on 15th July sown crop. Interaction of sowing dates and varieties had significant influence on the number of pod bug plant^{-1} (Table 2 and Figure 2) considering all sowing dates and varieties, variety Vaishali

Table 2: Interaction effect of sowing dates and varieties on incidence of sucking pest of pigeonpea

Date of sowing	Variety	Cow bug plant^{-1}	Pod bug plant^{-1}
1st fortnight of July (D_1)	Vaishali	1.82 (2.81)	1.75 (2.56)
	GT 1	1.67 (2.29)	1.61 (2.09)
2nd fortnight of July (D_2)	Vaishali	1.41 (1.49)	1.29 (1.16)
	GT 1	1.02 (0.54)	1.37 (1.40)
1st fortnight of August (D_3)	Vaishali	2.22 (4.43)	2.11 (3.95)
	GT 1	2.10 (3.91)	2.59 (6.21)
2nd fortnight of August (D_4)	Vaishali	2.60 (6.26)	2.53 (5.90)
	GT 1	2.48 (5.65)	2.36 (5.07)
	SEm±	0.15	0.10
	CD (p=0.05)	NS	0.33
	CV%	13.94	9.66

Figures outside parentheses are √(X+0.5) transformed values

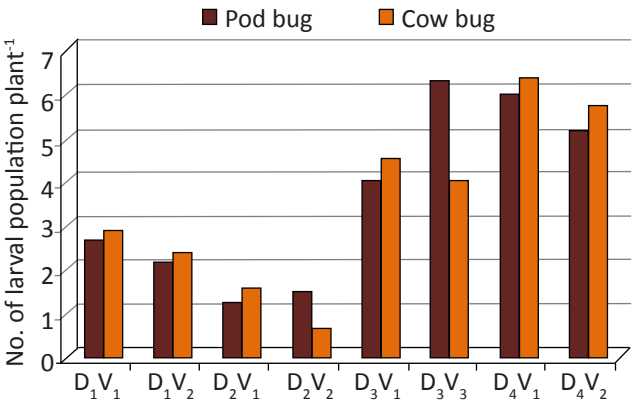


Figure 2: Interaction effect of sowing dates and varieties on incidence cow bug and pod bug of pigeonpea

sown on 2nd fortnight of July had lower pod bug infestation (1.16 pod bugs plant^{-1}). It was significantly at par with variety GT-1 sown on 2nd fortnight of July (1.40 pod bugs plant^{-1}). The highest population were recorded in variety GT-1 sown in 1st fortnight of August. Thus data clearly indicated that pigeonpea crop sown with variety Vaishali during 2nd fortnight of July had less infestation of pod bug.

4. Conclusion

Field study on effect of sowing period on incidence of sucking pest of pigeonpea revealed that pod bug and cow bug population were significantly influenced by sowing period and cultivars. The significant lowest cow bug and pod bug population was observed during crop sown on 2nd fortnight of July, while the highest population was recorded during crop sown on 2nd fortnight of August, *i.e.* late sowing. The interaction effect of sowing dates and varieties had non-significant influence on the cow bug population while,

significant influence on the number of pod bug plant^{-1}.

5. References

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