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Incidence of key Insect pest in Pigeon Pea (Cajanus cajan) Kaushambi Region (U.P.) India

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ABSTRACT

During tenure of Research Investigation have Covered June 2015 to May 2016 in Kaushambi region. The pigeon pea is due to the direct damage to flower bud, and pod with developing grain by Insect pest. The key Insect pest such as Heliothis armigera (Helicoverpa armigera (Hub). Exelastic at mosa Etiella zincknella Trait Melangoargromyza obtusa Malloch and Lampides boeticus Lin are highly destructive and considered to be major pest problems.

A large number Insecticides such as DDT, BHC and Endosulfan are used prevent to damage control but no Information in available on the economic injury level. If besides insecticides, Farmer in used as obtain biological Abstract. It is more effective and no any side effect like Azadirchata indica and Croton bonapandalium and Crinium longifolia. It is a more effective and save economical problem.

Keywords : Pigeon pea, Insecticides, Heliothis, Biological control, Insect pest.

Introduction

Pigeon pea or red gram (Vern tur or arhar) Cajanus cajan is widely grown as Kharif crop in different part of India specially upper Gangatic and Narmada plain as well as upland plateau of Bihar covering about million

hectares. It form an important ingredient of the Indian diet the pigion pea crop through traditionally has been giving lower yield than a cereal crop yet there is no convincing evidence that it has a lower genetic potential. The current acceptance of low yield in this crop may have reason because for centuries. This crop has been grown under the marginal condition of the moisture and fertility.

A good number of factor are important in affecting the yield of the pigeon pea but one of the major constraint is damage by insect pest as destroyer of seedling foliage, bud flower and pod, more than several insect have been reported to attack the pigeon pea crop in India (Davies and Lateef of 1975) Nayar et.al. 1976 many of those pest are of local and occasional occurrence, succession record of those pest in known for some places in the country Singh and Singh (1978a) have a reported 17 Insect pest appearing in succession as an over leaping manner on the pigeon pea cultivar Prabhat at Delhi during 1973 and where as Kolkar and Singh (1983) and Kashyap et. al. (1990) have reported 38 and 21 Insect species in succession early cultivar of the pigeon pea at Hissar and Palampur respectively.

2(a) Description of Investigated Area

Kaushambi a newly created district out of Allahabad. It consist of major town such as Chail, Manjhanpur, Bharwari, Daranagar, Kashiya, Muratganj, Sirathu, Karari and Kara. It is a very easy to reach Kaushambi by road. It is a approximately 45 Km. from Allahabad. This site is good for history lovers who have interest in ancient history many Kaushambi artifact are in Allahabad Museum. It has a few excavated site including a Pillar historic site of rain of the Vatsa Mahajanpada and It University. There is a Jain derasan 14 Km. from Sarai Akil the soil is very fertile and it is world-famous for the Surkha Guava. The Surkha region lies mainly in Allahabad.

According to 2011 census Kaushambi district has population of 1596909 roughly equal to the Nation of the US state of ohio the district has a population density of 897 Inhabitant per square kilometer 2320 Sq.mi. Its population growth rate over the decade 2001-2011 was 2349 Kaushambi has sex ratio 905 Female for every 1000 meters and literacy rate of 63.49%. In Kaushambi district 85.80 had lived in Hindu and 13.78% has lived in Muslim.

2(b) Plan of Investigation

The investigation area have Daranagar, Kashiya, Muratganj, Sirathu, Karari and Kara near farmer land which is sowing in farmer land. He further emphasize extensive research region of the following prerequisites of the management of key pest of the pigeon pea.

1. Pest of succession in local traditional and high yielding crops.
2. Incidence of key pest in traditional and high yielding crop and relationships of incidence of pest with temperature humidity light and wind prevailing in agro ecosystem.
3. Determination of economic injury level of individual key of pest.
4. Impact of agro-economic practices on population build damage

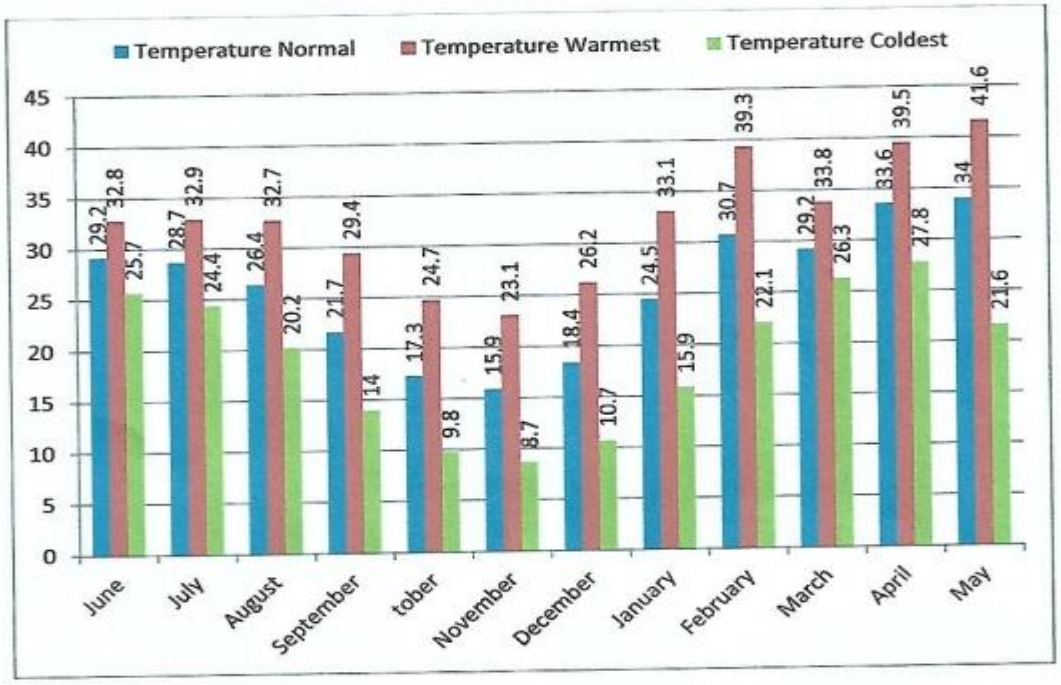
Weather Report during Prevailing of Research work

(June 2015-May 2016)

Months	Temperature			
	Normal	Warmest	Coldest	Precipitation
June	29.2°C	32.8°C	25.7°C	13
July	28.7°C	32.9°C	24.4°C	10
August	26.4°C	32.7°C	20.2°C	2
September	21.7°C	29.4°C	14.0°C	0
October	17.3°C	24.7°C	9.8°C	1

November	15.9°C	23.1°C	8.7°C	2
December	18.4°C	26.2°C	10.7°C	2
January	24.5°C	33.1°C	15.9°C	1
February	30.7°C	39.3°C	22.1°C	1
March	29.2°C	33.8°C	26.3°C	2
April	33.6°C	39.5°C	27.8°C	5
May	34.0°C	41.6°C	21.6°C	16

Weather Prevailing Graph of Research work



Material and Methods

The proposed work will be conducted in Farmer land and laboratory as also under quarantine condition considering the following aspect.

1. Succession of pest with reference to
   - I. Tradition sole pigeon pea crop
   - II. Traditional pigeon pea crop intercropped with, Urd, Bajara, Jawar

Table

Following key insect pest observed during of Tenure of Research investigation

S.No.	Common Name	Scientific Name	Crop Stage	State (Phenology)
1.	Grey Weevil	Myllocerus undecimpustulatus Faust J.	Seedling	Minor
2.	Green Fausied	Amarscea Kerri Pruthi	Seedling	Major
3.	Galarucid Beetle	Madurasea obseurella Jac	Seedling	Minor
4.	Semiloopr	Plusia orichalea Fabr	Active Vegetative growth	Minor
5.	Hairy caterpillar	Amsacta moorei Btlr.	Active vegetative growth	Minor
6.	Musbracied	Oxyrachis tarandus Fabr.	Active vegetative growth	Major
7.	Bug	Clavigralla gibbosa Spin	Active Vegetative growth	Major
8.	Surface grashopper	Chrotogonous larchypterus Blanch	Active vegetative growth	Minor
9.	Leaf tier (leaf webber)	Eucosoma critica Meyrick	Active vegetative growth	Major
10.	Gree hopper	Cyrtacanthacris tatarical	Active vegetative growth	Minor

11.	Grnos hopper	Oxya velox Fabr.	Active vegetative growth	Minor
12.	Red cotton bug	Dydercus Koenegi Fabr.	Flowering stage	Minor
13.	Flower eating bettles	Mylabris pustulata thumb	Flowering stage	Major
14.	Aphid	Aphis cracivora Koch	flowering stage	Minor
15.	Pod boere	Heliothis armigera Hub.	Pod formation stage	Major
16.	Podfly	Melanagromzia obtusa Mall	Pod formation stage	Major
17.	Green stink bug	Nizara viridula	Pod filling	Major
18.	Pod borer	Maruca vitrata Fabricus	Pod formation stage	Major
19.	Blue butterfly	Lampides boeticus (Linn)	Bud, flower and young pod and boreholes	Major
20.	Grass blue butterfly	Euchrysops cnejus (Fabricus)	Bud, flower and young pod and boreholes	Major
21.	Plume moth	Exelastis atomosa (Walsingham)	Pod formation stage	Major
22.	Stem fly	Ophiomyia phaseole (Tryom)	seedling stage	Major
23.	Pod wasp	Tanaostigmodes cajaninae (La Salle)	Pod formation stage	Minor
24.	Flower Webber	Eublemma hemirrhoda	Bud and flowering stage	Minor
25.	Spiny pod borer	Etiella zincknella	Flowering and Pod formation stage	Major

Diagram - Following Insect Pest have been depicted those which are harmful to Pigeon pea

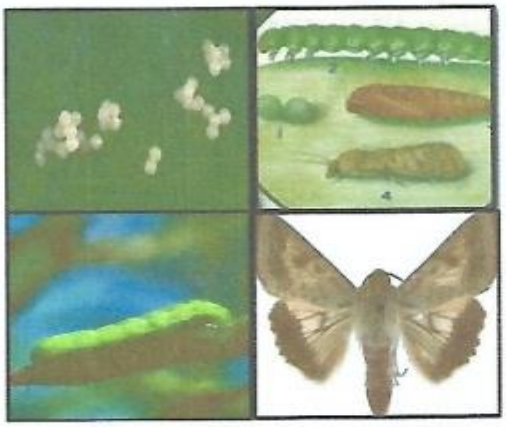


Fig. 1 Pod borer Heliothis armigera Hub
(Egg, Larva, Pupa and Adult)

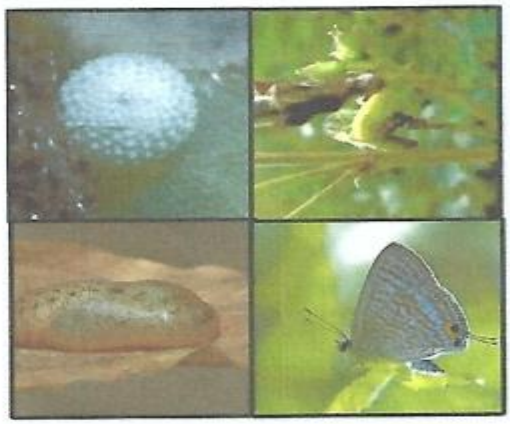


Fig. 2 Blue butterfly Lampides boeticus Linnaeus
(Egg, Larva, Pupa and Adult)

Fig. 3 Melanoagromiza obtusa Mall
(Egg, Larva, Pupa and Adult)

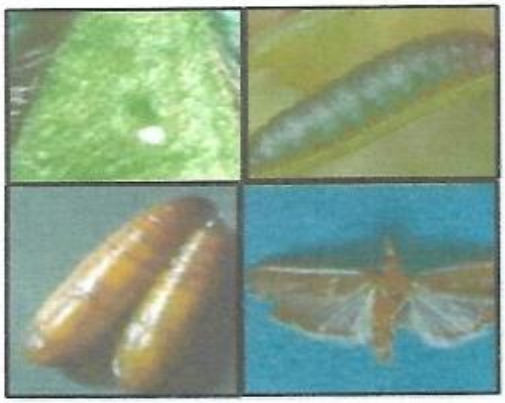


Fig. 4 Spiny podborer Eiella zincknella
(Egg, Larva, Pupa and Adult)

Result and Discussion

However the general concensus is that low yield in the pigeon pea is due to the direct damage to flower bud, flower and pods with developing grain by insect pest the pod feeding insect species such as Heliothis armigera

(Helicoverpa armigera) Hub, Exelastis atmosa W. Etiella zinckenella Treit Melano agromyza obtusce Malloch and Clavigralla gibbosa spiniola and Lampides boeticus Linn are highly destructive and considered to be major pest problems Agekar and Thobbi 1957 Gangrade 1963 Rawat and Jakhmola 1966 & 1967 Jayraj and Seshadri 1967 Odak et.al 1968 Kochlar and Rachi 1971 Kooner et.al. 1971 Srivastava et.al 1971 Davies and Lateef, 1975 Veda et. al. 1975 Singh and Singh 1990 Patel 1983 Reed et.al 1980, Ghetiya L.V. and Mehta D.M., 2014.

In this investigation pod borer may cause loss upto fifty percent or more the damage to pigeon pea due to Heliothis attacks in India alone has been estimated at more than 200 million ton loss annually. In which references in the Kaushambi region in different area has been reported to range from 30% to 40% the loss of pod and 6 percent due to podfly 2.6 percent due to plume mouth and annual loss due to Butterfly from 14% to 19%.

A large number of insecticides such as DDT. BHC, Emdosulfan etc. Use and percent the damage control of this site but no information is available on the economic injury level. If besides insecticides farmer used as obtain biological Abstract like some precaution for plant control of key pest with helps of natural product form. Azadrichata indica (b) Crotonbonapandalium, Crinum lomgifolia. Its extract are more effective and save economical problem. No any side effect of another crops.

Suggestion

After surveying and investigated it concluded that major pest are highly destructive considered to major pest problems. In this studies they must be range high economic injury level because former has been used large number of insecticides and costly pesticides whereas. If farmer used as Biological Abstract Untill these abstract more effective and save economic

problem. However Researcher have been given following suggestion.

1. Researchers Advise to Farmer before sowing crops should be done after soil testing.
2. Researchers want to given suggestion to farmer crop rotation should be used.
3. Researchers advise to farmer instead of Insecticides farmer should be used natural biological product extraction of Azadrichata indica, Crotan bonapondalium and Crinum longifolia all these extract are more effective and no any side effect of another crops and domestic animal and human being.
4. During Harvesting and storage time crop and seeds are should be less content of humidity.

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