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HOW TO CONTROL OF PEST INTERACTA

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Abstract: In order to evaluate the population behavior of serious potato pest Agrotis interacta wlk. in potato growing field in Patna district and field experiments were design in respect of its life cycle, population dynamics, host association of pest along with nature of damage to photo by A. interacta. Further two distinet methods for the control of pest, A. interacta by pesticide of plant origin as well as insecticide were examined under the present project.

I. INTRODUCTION

The entire experiment was carries out in different field localities of Patna district and Post Graduate Department of zoology at College of Commerce, Patna under normal laboratory conditions. The experiments were conducted during the session 2008-2011. The field and laboratory observations were recorded carefully and presented with the help of tables and photographs.

The details methods in relation to five different parameters of the project are given below:

II. LIFE HISTORY AND BIOLOGY OF CUTWORM A. INTERACTA

The life cycle of Cutworm of A. Interacta was studied in the laboratory during 2009-02011 at room temperature 25°-30° C. The rearing was startyed with a pair of adult moth in coupling jar. The mouth of coupling jar was covered with perforated cloth. The life history was rested with 4 common host plants i. e. Potato (Salamn Meberosum), Gram (Cicer Arietinum), Bathua weeds (Chenopodium Album) and Tobacco (Nicotiana Robaccem). In the coupling jar, glucose was added for survival of adult moth. The incubation periods, pre-oviposition, oviposition, post-oviposition and fecundity rates were recorded for each pair of adult moth on each host plant, separately. Just after hatching of the eggs, a tender leave of each host plant separately were kept in plastic jar and transferred the newly hatched larvae with fine brush on host plants. 10 plastic jars were used for each host plant for larval feeding with partly filled with soil for its preparation of earthern shell by full matured larvae and pupation took place in the soil. The duration of each larva instar was noted by molting of instars. The duration of pre-pupal and pupal of cutworm was counted separately for each host plant. The sex raion and cannabolism were also recorded.

III. POPULATION DYNAMICS OF A. INTERACTA

A fluorescent light was installed at experimental site of potato crop in season as well as throughout year during 2009 and 2010 for monitoring the adult moth and other Lepidopteran months at weekly intervals.

Further afield experiment was designed in 1000m2 area with variety Kufri Chandramukhi in the farmers field, during 2009-2011 to observe the incidence of larval and pupal population in the crop. Abiotic factors like temperature, humidity and rainfall were recorded throughout crop season in order to co-realte the ecological factors in relation to cutworm incidence.

Observation were made at weekly intervals on the incidence of larval and pupal population of cutworm beginning from germination till harvest. At harvest, larval and pupal population was recorded. The incidence of tuber damage plants in one squire meter area by digging one feet depth during the months of March to April. The incidence of larval and pupal population were also recorded on their host plants throughout potato crop season.

IV. TO STUDY THE HOST ASSOCIATION OF THE PEST IN RELATION TO SEASONS

An extensive and intensive survey was also conducted in some potato growing areas on potato as well as on other host plants at fortnightly intervals throughout the year to observe the incidence of the pest, A. Interacta with seasonal changes.

V. SYMPTOMS AND NATURE OF DAMAGE MADE BY A. INTERACTA

In order to examine the impact of the potato pest A. Interacta the field observations in potato growing areas in the localities of Patna district in respect of extent of damage made by the pest with evident symptoms were carried out.

To study the avoidable damages both qualitative and quantitative a survey was carried out at various locations in around Patna district in potato growing areas at fortnightly intervals during 2009-2010 staring from germination till harvest 10 samples were taken at each location in an area about 500 square meters each. It was recorded the total picture of avoidable losses of potato due to cutworms in the farmers field. At harvest tuber infestations by cutworm both by number and weight was recorded accordingly in different categories of size of tubers i. e. large, medium and small size of tubers.

VI. SOME METHODS FOR THE CONTROL OF INFESTATIONS OF A. INTERACTA

In order to control the serious infestations of A. Interacta on potato the pesticides of plant origin were carried out as safe method of pest control.

a) A field experiment was lad out in randomized block design and replicated 4 times with 5 different cakes namely neem cake, mahua cake, castor cake, mustard cake and sessemum cake. Seven different types of neem oil and products namely Neembicide oil Neem glod (Karnel extract), Margocide OK (oil), Margosom (oil), Limonor (oil), Neem green (extract), and Azadirachin (0.03%) and seven chemical insecticides, namely Dursban 10G, Chlopyrifos 20EC, Endosulfan 35EC, Quinaphos 25EC, Thimet 10G and Carbofuran 3G in different doses against cutworm, Agrotis interacta in potato crop. The variety Kufri Ashoka was planted on 5th November in farmers field at Muzaffarpur during 2010-2011. The plot size 4.2x3m and spacing 60 x 20cm were taken accordingly. All the agronomical practices were done as per schedule. Weekly observations were recorded on the incidence of cutworm A. Interacta on both foliage and tubers. At harvest, number of infested tubers by cutworm both by number and weight basis were taken to notice.

b) A field experiment was laid out in randomized block design and replicated 4 times during 2009-2010 at Patna in the farmers field with 9 treatments including untreated check. The treatments are T1 - Control (without any treatment), T2 - Chlorpyrifos - 20 EC @ 0.51 ai/ha spray once al earthing, T3-Chlorpyrifos - 20 EC @ 0.5L/ha spray twice, first at earthing and second after 20 days of first spray, T4 - Endosulfan-35 EC @ 0.5L/ha spray once at fire tat earthing up, T5 - Endosulfan - 35 EC @ 0.5L/ha spray twice first at earthing up and second after 21 days of first spray (Foiar Spray), T6 - Quinaphos 25 EC @ 0.5L/ha spray once at earthing, T7 - Quinalphos - 25 EC @ 0.5L/ha spray twice, first at earthing up and second 21 day after first spray, T8 - Soil application of Thimet - 10G @ 1.5kg ai/ha at planting and T9 - Carbofuran - mG @ 1.5kg ai/ha at planting. the variety K Chandramukhi was used for the purpose. The plot size and spacing is 4.2 x 3m3 and 60 x 20cm were use for planting respectively. other Agronomical practices were done as per schedule.

Weekly observations on the incidence and extent of damage of cutworm were recorded on plant foliage. At harvest number of infested tuber both by number and weight were recorded accordingly.

VII. SOURCES:

Educational research survey by Dr. Sanjay Sharad.