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EFFECT OF WATER LEVEL IN RICE FIELDS ON THE POPULATION BUILD UP OF THE BROWN PLANT HOPPER, *NILAPARVATA LUGENS* AND ON THE INCIDENCE OF HOPPER BURN.

Availability of standing water in rice fields has been observed as a desirable factor for the multiplication of *N. Lugens* (Anon., 1969; Pathak and Dyck, 1973; Fernando, 1975; Stapley, 1975). It was observed at the International Rice Research Institute, Philippines that there were two large population peaks of Brown Plant Hopper in flooded fields while the drained fields had the incidence of only one moderate peak. (Anon., 1972). But Hinckley (1963) had observed that excess of water at the basal region of the plants drown eggs and hinder the population build up of the insect. In the absence of conclusive data in this aspect of the pest problem an experiment was conducted at the College of Agriculture, Vellayani and the results are reported in this note.

Rice seedlings of the variety 'Jaya' were planted at a spacing of 10x 10 cm in field cages (4x2m) filled to a height of 30 cm with mud collected from paddy fields. The cages were separated from one another by brick walls 45 cm high from the mud level. Water was maintained at three levels viz. the flooded condition immersing the stem and the leaf sheath of the plants, normal irrigation level of 2" and the field capacity level. Since the cages were leak proof water could be retained at the required levels throughout the period of the experiment. Each treatment was repeated in three cages.

Twenty days after planting 50 adults each of male and female Brown Plant Hoppers were liberated in each cage and this was continued for five consecutive days. Three weeks after terminating the liberation the population of the insect in each cage was assessed by making a direct count of the insects on 15 clumps selected at random. A second count was taken one month after the first count. Along with the second count the extent of damage caused to the plants also was recorded. The results are presented in Table 1.

The data showed that the higher level of water in rice fields is conducive to the multiplication of Brown Plant Hopper and consequent incidence of hopper burn. Draining the field immediately after observing the incidence of the insect and maintaining irrigation only to field capacity may inhibit the multiplication of *N. Lugens* and avert the possible emergence of the insect as a serious pest.

Table 1.

Effect of water level in rice fields on the population build up of *N. lugens* and on the incidence of 'hopper burn'.

Water level in field	Mean number of B. P. H. per clump		Mean percentage of damaged clumps per cage	
	1 st. count	2nd. count	fully damaged	partially damaged
Immersing stem and leaf sheath	40.15	63.05	26.47	23.05
Normal irrigation	5.30	17.55	10.82	11.29
Field capacity level	1.30	14.00	0.24	4.71

സംഗ്രഹം

ഇറക്കി മണ്ണിലെ ഈർപ്പം നിലനിർത്തൽക്കു തോതിൽമാത്രം ജലസേചനം നടത്തിയാൽ ഈ കീടത്തിന്റെ വംശവർദ്ധന ഫലപ്രദമായി നടത്താൻ കഴിയുന്നില്ല. ഇതു വൻതോതിൽ നേരിടുന്ന നശിപ്പിക്കുന്ന ഒരു കീടമായി പ്രത്യക്ഷപ്പെടുന്ന ഈ വെള്ളായണി കാർഷിക കോളേജിൽ നടത്തിയ പരീക്ഷണങ്ങൾ സൂചിപ്പിക്കുന്നു.

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