

b, fallow or cultivation of crops other than rice, especially in the dry season), and timely application of some suitable insecticides should be combined for controlling the insect pest. When the population density of N. lugens is high, it is almost impossible to prevent the high infestations of rice plants caused by each of the two diseases by applying insecticides to the vector insect in the field.

BIOTAXONOMY OF N. LUGENS (STÅL) IN SOUTH-EAST ASIA.

M.F. Claridge & J. den Hollander (Cardiff, U.K.).

N. lugens is widely distributed, from India to the Solomon Islands and from Japan to Queensland. It is generally regarded as the single most important insect pest of rice in the area. Not only does it damage the plants directly causing hopperburn, but it is also a vector of grassy and ragged stunt disease

The Centre for Overseas Pest Research (COPR), London, has recently developed a collaborative research programme with the International Rice Research Institute (IRRI), Philippines, and the South East Asian Regional Centre for Graduate Studies in Agriculture (SEARCA). The main areas of collaboration include biotaxonomic and genetic studies, population ecology and migration, and techniques of control. The U.K. input on biotaxonomy and genetics has been contracted to the Zoology Department, University College, Cardiff, under the direction of M.F.C.

N. lugens has developed a number of so-called biotypes in different parts of its range which are characterised by their abilities to attack and destroy different previously resistant varieties of rice. This problem was first identified in the Philippines, but has now been detected in most major rice growing countries.

The nature of these biotypes has been investigated both at IRRI and by us. Contrary to early reports, the biotypes - at least in the Philippines - freely interbreed, producing fertile offspring.

Our major effort is devoted to the characterisation of populations from areas with different degrees of spatial isolation. Detailed studies are being made in the Philippines. Morphological work is being done mainly by Dr. J. Kathirithamby, using measurements from field samples and multivariate statistical techniques for analysis. Preliminary results suggest significant differences between populations from Sri Lanka and Malaysia. Biochemical

differences, using electrophoretic techniques and chromosomal variation, are being studied by J.d.H. Characteristics of courtship and mating signals are being investigated by M.F.C. and Mr. J.S.Singhrao, using laboratory cultures. Preliminary results suggest geographical differences in some aspects of courtship songs.

The very preliminary results indicate that it may, indeed, be possible to identify populations of N.lugens from different areas. If so, it may then be possible to determine the importance of large-scale migration in causing outbreaks of this pest in tropical regions - a subject of considerable controversy and significance.

THE EFFECTS OF TREATMENT AND UTILIZATION OF MEADOWS ON AUCHENORRHYNCHA COMMUNITIES.

L.Andrzejewska (Dziekanów Leśny, Poland).

Generally, the density, species composition and dominance structure of the Auchenorrhyncha faunas of meadows depend on characteristics of the vegetation, mainly its biomass, species diversity, structure, length of growing season and quality, measured by the content of nitrogen.

Use and management of meadows change the vegetation, introducing substantial disturbance in the plant cover, and indirectly affect the Auchenorrhyncha fauna by changing the relationships between plant biomass and both density of Auchenorrhyncha and the number of species represented. Increasing intensity of disturbance of meadow vegetation both decreases species diversity of Auchenorrhyncha communities and also increases the proportion of "weed" species such as Macrosteles laevis.

Quick changes in plant biomass of the meadow caused by mowing can intensify the reduction of Auchenorrhyncha and loss of species. But fertilizer application improves plant quality and this then increases the fecundity of female Auchenorrhyncha.