

A new approach to the control of *Rhammatocerus schistocercoides* (Rehn, 1906) in Brazil

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Important plagues of the locust *Rhammatocerus schistocercoides* (Rehn 1906) (Orthoptera, Acrididae, Gomphocerinae) have resulted in the major destruction of crops for more than 10 years in the states of Mato Grosso and Rondônia in Brazil. This was considered to be a new problem, linked to the intensified farming of these areas since the 1980s, together with the introduction of intensive mechanised agriculture.

A research programme, initiated in 1992, has shown that the hypothesis that the plagues are a consequence of the introduction of intensive mechanised agriculture into the border areas of the cerrados of central-west Brazil was not correct. This hypothesis, postulating an ecological disequilibrium and the development of new, favourable environments, was found to be untenable. It has been shown that the plagues of locusts in the Mato Grosso are not a new phenomenon, having occurred on a large-scale in the past (since the beginning of the century) and in exactly the same areas as now. What is new is the economic problems caused by locusts, beginning, clearly, with the introduction of intensive agriculture in the area in the 1980s and in precisely those areas where locusts have multiplied in the past. Furthermore, where agriculture has been established, it has been mainly away from the breeding areas of this locust (campo-cerrado areas on sandy soils), i.e., with breeding areas and agricultural areas in juxtaposition. Much original data has been collected on the biology and ecology of *R. schistocercoides*. This has shown that this species is in no sense migratory, as a superficial observation might suggest and as has been accepted up until now. The swarms can move over only a limited distance. This locust is only locally nomadic throughout the dry season, in areas of degraded cerrado and campo-cerrado of the Chapada dos Parecis (s.l.) in the Mato Grosso. The swarms are of no danger to any other states in Brazil. It is very probable that multiplication depends mainly on rainfall and its variability between years at certain key points of the life cycle. Biotopes of the locust have been identified, described and their locations determined. The relationships between agriculture, animal breeding and the biological cycle of the locust are now well understood. These relationships depend on the season, crop type, cultivation methods and the locust biotopes

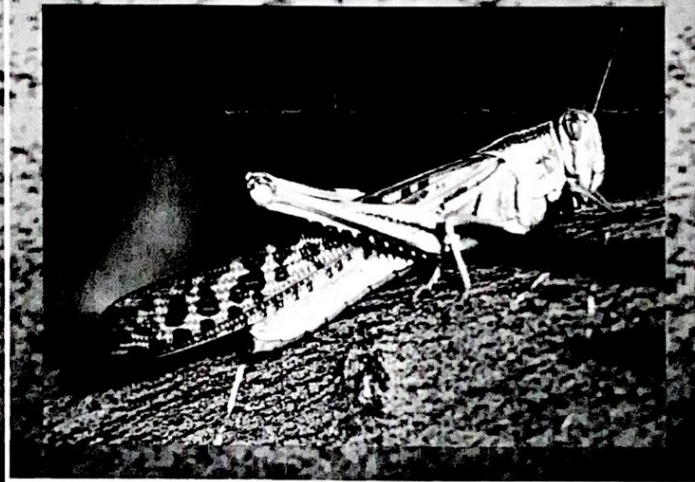
where agriculture has developed. These are complex relationships which sometimes interact in opposing directions.

These results are preliminary but are sufficient to enable a new control strategy for populations of this locust to be devised, a strategy based on a knowledge of the bio-ecology of the species and on an exact knowledge of the geographical location of its biotopes. The aim is to destroy hopper bands during the rainy season. This control method, in use in the past and then abandoned, is now once more seen as being valid, as a result of the data collected in this project. Joint control operations at the farmer's group level can significantly reduce locust population levels. The control methods can be enhanced by a detailed geographical location of the breeding areas, using satellite images (Landsat).

Edited by
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Table of contents

Biology of desert locusts

Evaluating recent locust outbreaks
P. Symmons

Ecology of *Schistocerca*
1994
H. Wilps

Forecasting and control

Desert locust forecasting
J.I. Magor and J. ...

SWARMS: A geographical analysis
K. Cressman

Mapping of desert locusts
F. Voss and U. D.

Vertical-looking radar
J.R. Riley and D.H.

Forecasting the early stages
of remotely sensed locusts
P.J.A. Burt, J. Colvin

Biotic and abiotic control of
grasshopper, *Oedipoda*
J. Colvin

Modelling brown locusts
S.A. Hanrahan and

Metapopulations and
early warning systems
M.G. Sergeev