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FIELD ASSESSMENT OF HELIOTHIS VIRUSES ON COTTON

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ABSTRACT.

A Heliothis NPV formulation, GemStar®, showed promise as a basis for successful selective, non-chemical insect control on cotton. Trials were conducted with the virus as a stand-alone insecticide on dryland cotton at Dalby, Q. by D. Murray (QDPI), and in conjunction with Envirofeast® on irrigated cotton at Moree by R. Mensah, (NSW Agriculture).

On dryland cotton at Dalby, Qld, yields were equivalent to those with conventional chemical control at one of the two sites. The virus failed to contain a heavy infestation of Heliothis in February 1996, but neither did conventional insecticides.

In an IPM programme on cotton with lucerne strip cropping at Moree involving 4 Envirofeast sprays followed by 3 sprays of the virns combined with Envirofeast and a clean-up chemical spray, yields were similar to those obtained with a conventional insecticidal regimen. Predator numbers were higher in the Envirofeast/GemStar plots than in other "soft" treatments, Envirofeast/endosulfan or Envirofeast/Bt endosulfan, suggesting that any disruption to predators by GemStar was at a low level.

Bioassays indicated that GemStar® maintained its potency during on-farm, refrigerated storage. Levels of infection achieved on cotton were variable but the overall average was about 55%. This suggests that the use of the virus shonld be integrated with other Heliothis control measures.

Thresholds frequently exceeded 2 larvae per row metre without undue damage to the crops, suggestiug that this biocontrol system provided greater flexibility in control response than with chemical insecticides. This aspect requires further investigation to determine appropriate thresholds.