

Control of *Cactoblastis cactorum* using insecticides

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South Africa has a long history of chemical control of *Cactoblastis cactorum* in cactus pear cultivations (*Opuntia ficus-indica* and *O. robusta* cultivars) dating back to the early seventies when Carbaryl, a contact insecticide, was first registered against this insect. Control focused entirely on eggs and the neonate larvae before entering the cladode. Subsequent insecticide trials between 1983 and 1989 identified Cypermethrin and Deltamethrin as new highly effective contact insecticides. Later trials focused on identifying effective systemic insecticides, including Mevinphos, Dimethoate and Monocrotophos, none of which were effective at standard rates. More recent research in Argentina in *O. ficus-indica* plantations confirmed the high efficacy of Carbaryl, Deltamethrin and Spinosad for *C. cactorum* control. This was followed by further trials in Florida under roof cover and using isolated cladodes of *O. stricta* as host of the insect. Good ovicidal and larvicidal (neonates) control were achieved with Cypermethrin, Emamectin, Spinosad and Bt (*Bacillus thuringiensis*). Open field trials on *O. ficus-indica* in South Africa in 2006-2007 confirmed the high efficacy of Cypermethrin (200g/l active ingredient (ai) as emulsifiable concentrate (EC)), Deltamethrin (25g/l ai as EC) and Spinosad (480g/l ai as suspension concentrate). Abamectin, Emamectin, Imidacloprid and Bt were not effective or inconsistent in controlling *C. cactorum*. Present treatment procedures with these insecticides have limited efficacy in countries with overlapping cactus moth generations because of difficulties in timing the applications and the extended periods where protection will be needed and hence the need for insecticides with a long residual effect. The chemical protection of wild growing *Opuntia* species will be difficult and uneconomical. None of these contact insecticides will control endophagous larvae and hence the need to identify an effective systemic insecticide. This has limitations because of the limited uptake through the thick wax protection layer and because of the high dilution effect in a succulent like *O. ficus-indica*. Uptake through the roots will also be difficult because of the extended root system and moisture limitations. Soil applied systemic insecticide may, however, be effective in pot plants where the roots are confined and where soil moisture can be regulated.