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## Effect of Deltamethrin on *Argas persicus* in Selected Clusters Within Machakos and Kitui Counties, Kenya

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### Abstract

A study on prevalence of argasid ticks and their response to deltamethrin treatment was undertaken in 4 purposively selected farmer groups (2 each for Katangi and Munyumbuni cluster) between March to December 2009. The groups were sensitized before the pre-control argasid tick populations were established. Two synthetic pyrethroids, deltamethrin (Ectomin®), UltraVetis, Animal health) and deltamethrin (Decatix®, Coopers Ltd, Kenya), both effective acaricides, were used to spray on chicken houses where birds were separately housed. This was after randomising the insecticide by group. Decatix® was used on the chicken houses belonging to members of the Nzewani women group in Kithito and Wikwatyo group in Munyumbuni, while Ectomin® was used on houses of Ngwate Ngukwate group of Kithito and Mituki ya Iveti group of Munyumbuni. Since both Ectomin and Decatix have concentrations of 5% w/v, a double strength solution of 2 ml (0.1 mg) of acaricide in 10 litres of water was used instead of the recommended dilution of 1ml (0.05 mg) for every 10 litres of water used for spraying animals. The insecticide was then sprayed on the chicken housing units using a knapsack sprayer in the morning before temperature rise during the day. Initial spraying was done weekly for the first month, biweekly regimens were adopted after the soft tick population dropped substantially. Two of the groups were purely women groups while the other two had mixed membership. A total of 39 members participated in the study, each owning between 10 to 40 chickens. The argasid tick population on chicken houses was high and ranged between 0 to 80 with participants in the Katangi cluster having slightly higher tick populations than those in the Munyumbuni cluster. The commencement of spraying Ectomin and Decatix resulted in a significant drop in argasid population in the participating households as was revealed during the monitoring visits. However the ticks were never eradicated owing to their unique biology. The study showed that synthetic pyrethroids are quite effective against argasid ticks and efforts should be made to synchronise soft tick control with that of hard ticks.

**Keywords:** Argasid ticks, indigenous chickens, tick control