Evaluation of potential pesticides for the management of cabbage aphid in Dailekh, Nepal

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Introduction

Cabbage aphid *Brevicoryne brassica* (Linnaeus, 1758) is an economic pest that causes 30-40% yield losses. Their feeding behaviour and rapid reproductive potential makes it difficult to control. Integration of plant-based pesticides along with other biological-based pesticides into IPM approaches could be a preliminary strategy for reducing the use of chemical pesticides. Such pesticides are safe, biodegradable and eco-friendly, and they effectively combat target pests.

Research questions

- What could be the most effective pesticides for managing cabbage aphids under the climatic conditions of Dailekh, Nepal?
- How do different pesticides affect the overall yield of cabbage crops?

Methodology

Eight treatments each with three replications in RCBD were tested on transplanted seedlings. The sprays of treatments were applied at 30 days after transplanting them at 10-day intervals. The cabbage aphid populations at pre-spray, three, six and nine days post spray, and head weight at harvesting were recorded. Data were analysed using R-Studio.

Key findings

The lowest aphid population was recorded in plots sprayed with Azadirachtin 1500 ppm, which was very similar to plots treated with Azadirachtin 300 ppm, Metarhizium anisopliae, and botanical extracts.

The maximum population reduction over control was found in Azadirachtin 1500 ppm treated plot with the highest yield among other plots.

Figure 1 Effect of various pesticides on aphid population reduction over control (%)

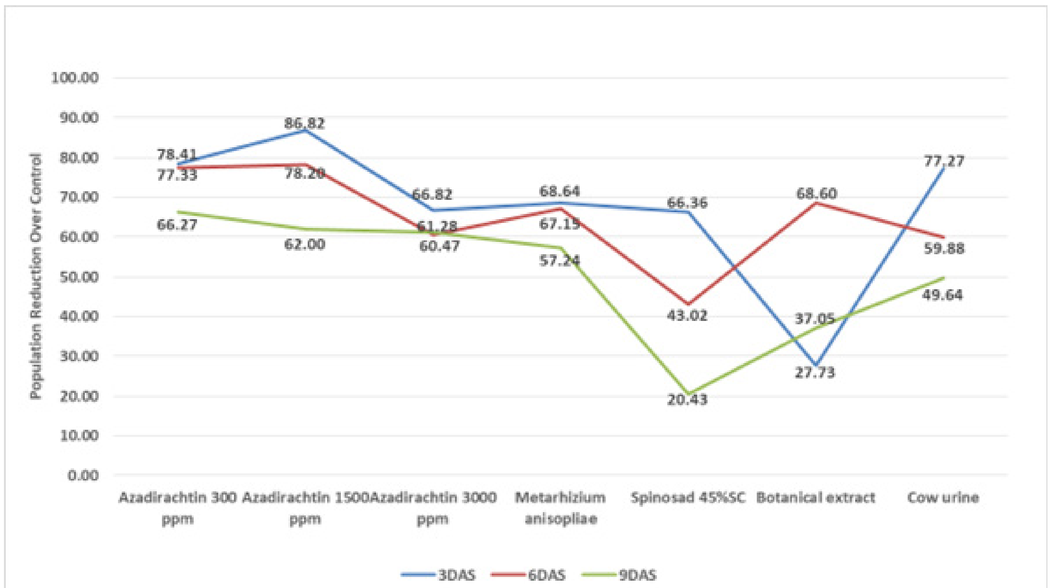
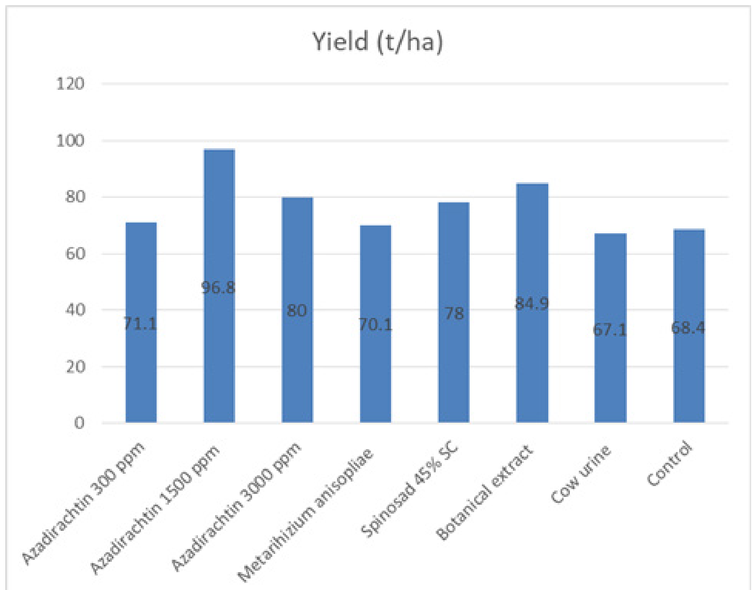


Figure 2 Effect of various pesticides on yield of cabbage



Conclusion

The use of Azadirachtin in different concentrations resulted in the highest reduction of cabbage aphid population and significantly outperformed Spinosad 45% SC. The maximum mortality was recorded on Azadirachtin 1500 ppm sprayed plots and so was the yield. For every spray, higher efficacy was observed for up to one week only.