Common predatory hornet species and their management using baited-coloured traps

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Introduction

Beekeeping is a profitable non-farm agricultural enterprise that has become increasingly popular in Nepal. *Apis cerana* and *Apis mellifera* are the common domesticated species. Hornets and wasps are considered the important enemies of bee colonies. Farmers do not have enough appropriate local technology to manage them. Hence this study aimed to develop the local management technology in Karnali, Nepal.

Research questions

- What are the common hornet predatory species in bee colony
- Are there any local techniques to trap hornets and wasps in Nepal?
- What are the common protocols for developing a hornet management technology

Methodology

The study was conducted in Aalital RM of Dadeldhura district from April to June 2024. Plastic bottles (2-liter capacity), measuring rulers (15 cm), markers, rotten fruits, sharp knives/blades/scissors, honey, local fermented products, rope, sugar, and water were first prepared. Various baited-coloured traps such as green, yellow, red, transparent, and non-baited traps were used to evaluate their effectiveness.

Key findings

- *Vespa velutina* was the most abundant hornet predating the colonies of *A. cerana* . Other species are *V. basalis*, *V. tropica*, and *V. mandarinia* during the study period of May-April 2024.
- Baited green-coloured traps were found to be the most promising for all hornet species, followed by baited yellow, baited transparent, and baited red traps. *Vespa velutina* was the most trapped hornet species in these traps, followed by *V. basalis* and Vespa tropica.

Conclusion

Baited green-coloured trap was the most effective for trapping the hornet species which were similar to yellow colour trap and baited transparent color trap. The non-baited transparent trap was the least effective for trapping the hornet species which was similar to the baited red colour trap.

Similarly, the baited yellow colour trap was the most effective for trapping wasp species whose effectiveness is with that of baited green colour trap, baited transparent colour trap, and baited red colour trap.

Figure 1 Trapping efficiency of various baited colored traps for the hornets and wasps

$p < 0.05$

Legend: Baited green color trap ▪ Baited yellow color trap ▪ Baited red color trap ▪ Baited transparent color trap ▪ Non- baited transparent color trap