

Ancient solutions for present-day pest problems

Weaver ants (*Oecophylla smaragdina*, Hymenoptera) have been used for more than 2,000 years for the suppression of insect pests in Asian mango and citrus orchards, thus constituting the oldest known example of biological control in agriculture. Yet, in the Mekong Delta, pockets of smallholder farmers are still conserving weaver ant populations and relying upon these beneficial insects to keep pests at bay, especially in cashew plantations. Weaver ants are found naturally in organic plantations but their benefits are often unknown, as far as the possibility of increasing their population as a way to manage insect pests.

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FARMER TESTIMONY



Mrs. Sovannarim Seng, a cashew farmer and an ASSET Project beneficiary in Preah Vihear province

How did you learn about weaver ant?

Weaver ant bit us during the harvest, so my father wanted to spray insecticide. But I challenged him and showed him that in fact weaver ant is beneficial because it attacks and eats caterpillars (leaf folders, leaf miner, or apple and nut borers). I told him to observe trees and branches with weaver ant have more fruits, and he believed me that keeping weaver ant helps to control insects.

Did you expand the weaver ant to all the tree in the plantation?

I learned how to transfer the nest from the project, but my family does not have enough time. I do not transfer the nest as advised, but I stopped allowing people to collect the nest (larvae and pupae to sell on the market) in my plantation. Even my husband wanted to collect it as feed for fish in the pond, I told him not to. So, I see the weaver ants all over my plantation.

How is the quality of your nut? Is it of better quality?

The nut is more homogenous, and it is clean and smooth. Even storing long time, the kernel is full and white. I tested by opening 10 nuts. I found 9 nuts had full kernel. I do not know the taste, but I believe the taste is also better.



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**A TECHNICAL GUIDE:
Weaver Ant: a natural
ecological practice to protect
cashew nut plantations**

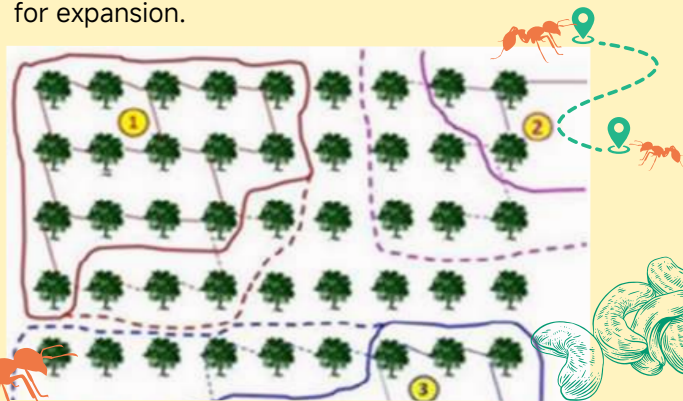


HOW TO EXPAND AND MAINTAIN THE POPULATION OF WEAVER ANTS?

To expand and ensure the long-term presence of weaver ants in cashew plantations, three key steps are recommended. This process is ideally carried out in November, when cashew trees sprout new leaves and flowers, providing insects as a food source for the ants to establish nests and thrive.

STEP 1: IDENTIFY WEAVER ANT COLONIES

- Locate trees with active weaver ant nests by lightly tapping trunks with a stick to observe ant activity.
- Determine colony boundaries by transferring a few ants between trees. If the ants fight, they belong to different colonies; if not, they are part of the same colony.
- Map the plantation, marking trees with respective colonies and identifying target trees for expansion.

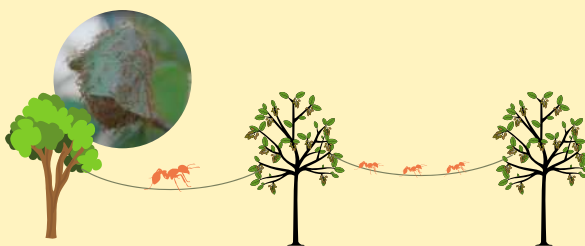


STEP 2: EXPAND WEAVER ANT POPULATIONS

- Check favorable trees for nest transfer: Ensure target trees have multiple branches, young leaves, and no black ants. Remove any black ant nests and eliminate remaining ants.



- Introduce weaver ant nests to plantations without weaver ants:
 - Collect fresh, large nests from other plantations or nearby forests. Place the nest in a secure bag and hang it on a selected tree branch. Keep the bag in place for 2-3 days, allowing ants to adjust, build new nests, and transfer their eggs and larvae.



- Expand colonies within plantations:
 - Use a string to connect a tree with ants to a tree without them. This facilitates natural migration and establishment.
 - For faster expansion, additional nests can be installed as described above.

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STEP 3: PROTECT AND MAINTAIN WEAVER ANT POPULATIONS

- Avoid using insecticides and herbicides, as these can potentially kill or chase away the ants.
- Plant supplementary trees such as mango, lemon, or other fruit trees around or within the plantation. These trees serve as alternative habitats and food sources for weaver ants, especially during the rainy season when cashew trees produce less food.
- Regularly monitor colonies and prune overlapping branches between different colonies to prevent fighting.
- Refrain from harvesting ant nests for eggs or larvae, as this can weaken the population.

How weaver ants can protect fruit trees?

The period of young leaves, flowering and fruiting is when cashew trees are susceptible to many pests. Meanwhile, the young parts of the cashew tree such as young leaves, young shoots, and young seeds all secrete nectar, thus attracting weaver ants to collect nectar and bring it back to the nest, while weaver ants patrol to protect the cashew tree from the attack of pests (hunting or repelling). Normally, the weaver ants patrol about 30-60 seconds/time on the young parts of the tree, so it is highly effective in preventing pests on cashew trees.

