

ICAR- National Bureau of Agricultural Insect Resources, Bengaluru

Field report of DAPSC & DAPST visit to Araku Valley, Visakhapatnam, Andhra Pradesh

As a part of DAPSC and DAPST activities on “Inventorization of diversity of selected insect pests, pollinators and natural enemies in natural farming systems (NFS) and integrated farming systems (IFS) in selected aspirational villages of tribal areas and NEH villages as a part of National Programme on IFS & NFS” was taken up in tribal aspirational villages of Araku valley in identified natural farming and IFS villages. A group of scientists comprising Dr G. Mahendiran, Dr Ankita Gupta, Dr K J David, Dr U Amala, Dr Richa Varshney and Dr R. Ramya and lead by Dr. M. Nagesh have visited the villages viz., Santhabayalu, Kulluba and Sirsapalli of Araku Valley, Visakhapatnam, Andhra Pradesh; from 12th to 14th July 2022

Day- 12th July

Weather: Drizzling throughout the day; temperature 22-25 °C.

1. Visit to Sarada Valley Developmental Samithy (SVDS), Santhabayalu field office; location- Paderu. Interaction with the tribal women entrepreneurs.



2. Visit to Jackfruit seed powder Unit and interaction with the unit workers.



3. ICAR-NBAIR Director suggested measures for improvising existing methodology- air dryers recommended to retain the nutritional content of the fruit and seed powder.

Field activities:

1. Site 1 (GPS coordinates 18°10'36.9"N 82°36'46.5"E); site location- Kulluba

Site details: In general, the site is an open field with mixed cropping (mixed crops grown intermittently as well as in patches) surrounded by weeds.



Crops: Mixed cropping was observed- crops included groundnut, turmeric (high planting density), ginger, black gram, pigeonpea, pearl millet with surrounding fields of maize and marigold on bunds as trap crops. The crop was one – two months old.

Pest Infestation and associated NEs observed

Pest: *Udaspes folus* in turmeric; *Rhopalosiphum maidis* in maize; *Aphis craccivora* on black gram; leaf miner on groundnut; etc.

NEs: Field bunds with heavy predation by *Zygogramma bicolorata* and coccinellids in general.



Sample collection: Ten yellow pan traps (YPTs) laid for 24 hours for preliminary pest and natural enemy observation, mechanical sweeping was done for two hours accompanied by hand collection of pests and NEs based on visual observations.



Results: In general, there was very low pest incidence (<5%). Parasitoids in general were not encountered in the yellow pan traps. Many adults of *Udaspes folus* were encountered in the sweeping process as well as in the YPTs.

Natural farming methods observed

1. Two types of mulches for ginger (dry straw and mango twigs with leaves) fields and one field without mulch was observed. Marked difference in terms of higher crop growth and suppressed weeds was observed in the dry mulched field.



2. A mixture of cow dung+cow urine+ water (mixed and fermented for two days) locally called as 'Neemashtra' is sprayed on crops post sieving.



II. Site 2- (GPS coordinates 18°12'45.8"N 82°37'16.0"E); site location- SIRSAPALLI



CROPS: Mixed cropping was observed- crops included maize, pigeon pea (red gram), groundnut, tapioca (on borders), scattered plantation of finger millet (ragi), bamboo on field corners, etc.

Pest Infestation and associated NEs observed

Pest: *Spodoptera frugiperda* (2-3% infestation) on maize; indeterminate white borer on maize



NEs: Rove beetles, etc.

Natural farming methods observed

1. Neemasutra spray for pest control.

Day- 13th July

1. Both the field sites were revisited for insect collection accompanied by general collection enroute. The traps were serviced.
2. Monitoring the honeybee colonies at Sirasapalli: On 13th July 2022, the development of the colony of *Apis mellifera* was monitored at the tribal farmers field at Sirasapalli. We observed the two months old six colonies of *A. mellifera* installed in a brinjal field with an active movement of foragers into the hive. The hives were opened to display the different castes of bees viz., queen and workers to the tribal farmers. The colonies were at the initial stages of brood development. The farmers were advised to add super/honey chambers to the hive so as to ensure honey storage by the foragers. They were also encouraged to maintain good floral source to hasten the brood development with good pollen and honey storage. The concept of sowing cross pollinated crops like cucurbits, sunflower etc., in crop borders was explained to the tribal farmers to provide forage resource to the honeybees rather than installing the hives in brinjal fields where solitary bees have much role to play than honeybees.



Image: Monitoring the honeybee colonies at Sirasapalli