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## Status on incidence of invasive thrips species *Thrips parvispinus* Karny in chilli nurseries of Guntur district of Andhra Pradesh: future risk and strategies to mitigate

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Chilli is an important commercial crop being cultivated in Andhra Pradesh, in south India, in an area of 1.8 lakh hectares with a production of 8.36 lakh tonnes (2020-21). The most important districts cultivating chilli are Guntur, Prakasam, Kurnool, Krishna, Ananthapur and East Godavari. Guntur (16.3067° N, 80.4365° E) occupies the first place and contributing to the major share in production and export of chilli from Andhra Pradesh. During 2021-22, due to the incidence of invasive thrips species i.e. *Thrips parvispinus* coupled with severe rains in the months of October, November, 2021 most of the chilli crop was damaged. 20-30% of the crops were uprooted and 50-70% reduction in yield was observed. Situation was alarming and all the chilli farmers were in distress. Keeping this in view it was expected that chilli area was going to be reduced drastically for 2022-23 cropping season. But in view of high market price to dried chilli most of the farmers preferred to go for chilli in 2022-23 as well. In this connection Dr. YSR Horticultural University along with the Department Officials and farmers conducted various training

programmes to create awareness among the farmers, field level workers including staff in Rythubharosa Kendras and Horticultural officers on pests and diseases management in chilli.

In this connection survey was taken up in major chilli growing areas of Guntur district viz. Ponnekallu, Garikapadu, Mandapadu, Bandarupalli, Siripuram, Medikonduru, Visadala, Damarapalli, Tadikonda and Tulluru. Nurseries in net house (Fig. 1), open field (Fig. 2), Nurseries surrounded by protective barriers like shade net (Fig. 3) and polythene sheet (Fig. 4) were observed for the incidence of *Thrips parvispinus*. In most of the nurseries preferred hybrids by the farmers are SVHM 2222, SVHA 1377, NS 264, NS 275, NS 279, Armor, classic DCH 055, SVHM 9093, Sangam 858, Kundan 284, US 341 and the plant protection measures were regularly followed by the farmers. The commonly used insecticides are Fipronil, Imidacloprid, Pyriproxifen, Tolfenpyrad, Spiromesifen, Diafenthiuron and Afidopyropen to control sucking pests like thrips and white fly. The commonly used fungicides are Copper

oxychloride, Tebuconazole + Trifloxystrobin, Captan + hexaconazole to control damping off and coenophora blight. In addition, farmers are also giving micronutrient sprays in the nurseries.

**The pests observed are listed in the following table**

S. No.	Village	Farmer Name	Area of the nursery	Pests observed
1	Ponnekallu	Palla Srinivasa Rao	2.0 acres	Symptoms of South East Asian Flower thrips incidence was noticed
2.	Garikapadu	Velpuri pavan	0.5 acre	No pest and diseases were observed
3.	Mandapadu	V. Krishna Reddy	0.75 acre	No pest and diseases were observed. 1-2 thrips per blue sticky trap of 15 x 30 cm size
4.	Bandarupalli	H. Ankamma Rao	1.0 acre	No pest and diseases were observed
5.	Siripuram	Y. Paparao	0.5 acre	Whitefly @ 1 to 2 per sq.m area and 1 to 2% leaf curl incidence were observed (Fig 5)
6.	Medikonduru	N. Adinarayana	1.0 acre	No specific pest and diseases were observed
7.	Visadala	V.Buchaih	1.0 acre	No specific pest and diseases were observed
8.	Damarapalli	B. Nageswara rao	0.5 acre	No specific pest and diseases were observed
9.	Tadikonda	K. Venkateswara Rao	0.5 acre	No specific pest and diseases were observed
10.	Tulluru	P. Siva reddy	0.5 acre	No specific pest and diseases were observed

Based on the observations and data collected during survey it can be stated that the present situation is not alarming and the sticky trap data in Mandapadu village showed very meager incidence of *Thrips parvispinus* (1 to 2 per trap). Though the population of *T. parvispinus* is under low proportions it may

increase towards flowering stage i.e during the first week of October, 2022. During the month of October most of the chilli crops transplanted in the third week of August, 2022 comes to flowering stage. The *T. parvispinus* adults especially females which are in large numbers

and found feeding on pollen may appear in large number during the pollen dehiscence.

At present farmers are advised to observe for the following symptoms during the vegetative phase:

- 1) Observe on underside of the leaves near veins for thrips colonization and feeding (Fig. 6)
- 2) Due to sucking of cell sap from the underside of leaf observe for streaking and blotches on corresponding upper surface of leaf (Fig. 7)
- 3) Distorted leaf lamina and bubbling (Fig 8)
- 4) Observe for burning of tips in newly emerging leaves (Fig. 9)

If the above symptoms are observed farmers are advised to take up the following integrated pest management practices on community basis to curtail the pest incidence

- Application of 200 kg neem cake, FYM enriched with *Trichoderma viride*, biofertilizers and VAM may be incorporated in soil during last ploughing.
- Border cropping with 2-3 rows of jowar or maize.
- Before going for transplanting to main field apply Fipronil 5%SC @ 2ml/L on nursery bed.
- If dry weather conditions prevail, nip terminal shoots to reduce pest population.
- Immediately after nipping apply Copper oxy chloride @ 3g/L to avoid rotting.
- Seedling root dip with Imidacloprid @ 0.5ml/L for 15 min may be taken up.
- Avoid close spacing; follow recommended spacing.
- Better to take up mulching with silver colour mulch sheet and follow drip irrigation.
- Application of 0.3G Fipronil granules @ 8kg/ acre at 15 and 45 days after transplanting under sufficient moisture conditions.
- Frequent intercultural operations to be taken up to destroy soil inhabiting pupae
- Clean cultivation and maintenance of weed-free bunds.
- Installation of blue sticky traps @ 40-50 per acre closer to the plant height on community basis for monitoring and mass trapping of the pest.
- Application of excessive use of nitrogenous fertilizers should be avoided and follow balanced application of fertilizers.
- Spraying of neem oil (Azadiractin) @ 1.25ml/L either alone or in combination with insecticides.
- During severe build up of thrips population apply foliar nutrients viz. 19:19:19 , 13-0-45 and micro nutrient mixtures. Light irrigations help to maintain leaf turgidity.

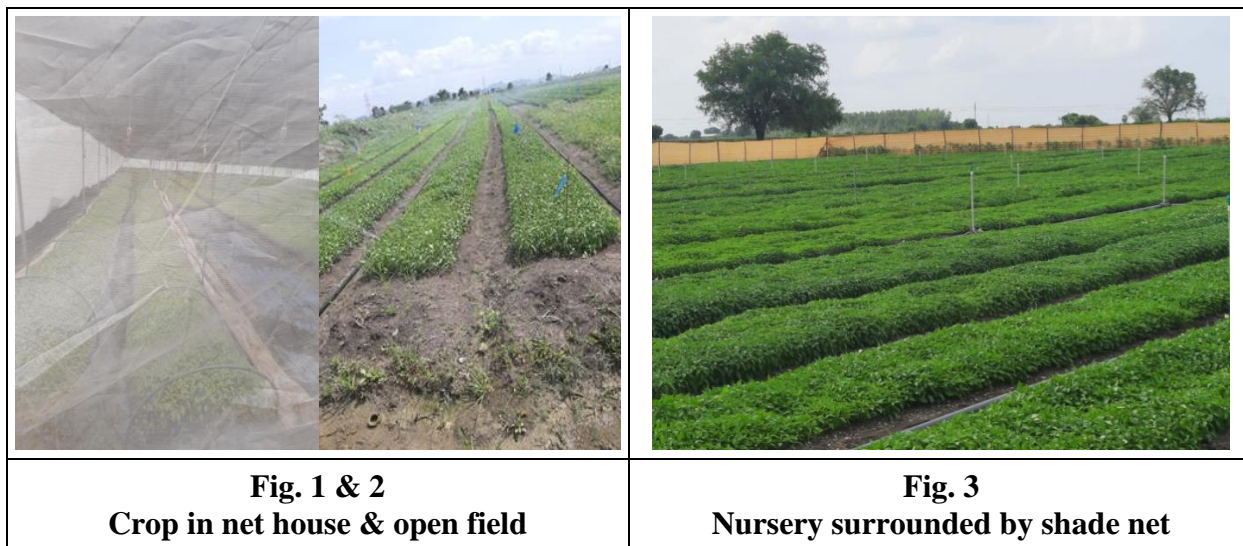
- Application of following recommended insecticides on need basis

Dimethoate 30% EC	2ml/L
Emamectin benzoate 5% SG	0.4g/L
Fipronil 80% WG	0.2g/L
Spinosad 45% SC	0.3ml/L
Spirotetramet 15.31% w/w OD	1ml/L
Spinetoram 11.7 SC	1ml/L
Fipronil 5% SC	2ml/L
Fipronil 40% + imidacloprid 40%	0.4g/L

- Application of entomopathogenic fungi like *Lecanicellium lecanii* @ 5g/L, *Beauveria bassiana* @ 5g/L, *Metarhizium anisopliae* @ 5g/L depending on the availability of quality material. These should be applied under cool weather conditions







Note:

1. Black thrips population on chilli may increase during flowering i.e most probably during the month of October, and during the peak incidence farmers are advised to go for the recommended practices to mitigate the pest incidence.
2. During the year 2021-22 chilli crop in field continued upto the end of March. During the month of March white fly population was very severe on chilli crop (16-20/plant) which continued with green chilli in summer months followed by current season crop. Hence, there is possiblility of increase in the population of white fly i.e *Bemisia tabaci* and incidence of Gemini virus on current crop.



**Fig. 1 & 2**  
Crop in net house & open field

**Fig. 3**  
Nursery surrounded by shade net

	
<p><b>Fig. 4</b> Nursery surrounded by blue polythene cover</p>	<p><b>Fig. 5</b> Gemini virus infection in nursery</p>
	
<p><b>Fig. 6</b> Colonisation of thrips near veins</p>	<p><b>Fig. 7</b> Yellow streaking on upper surface of leaf</p>
	
<p><b>Fig. 8</b> Distorted leaf lamina</p>	<p><b>Fig. 9</b> Burning of tips of newly emerging foliage</p>

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