

Do strawberry cultivars have a difference in host plant resistance to chilli thrips?

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Summary

In 2021-22 four commercial strawberry cultivars were evaluated in the field for their resistance against chilli thrips. Among the four cultivars, Florida Brilliance had the lowest chilli thrips count from the trifoliolate and highest marketable fruit yield. The plots with Florida Pearl and Strawberry Festival produced the lowest marketable fruit throughout the season.

Objectives

The objective of this proposal was to evaluate strawberry cultivars for resistance against chilli thrips.

Methods

Evaluate strawberry cultivars for resistance against chilli thrips:

The study was conducted at Gulf Coast Research and Education Center (27.712490°, -82.302322°) during the strawberry season 2021-2022. Four commercial strawberry cultivars, Florida Brilliance, Sweet Sensation® Florida127, Florida Medallion™, and mix of Florida Pearl + Strawberry Festival were assessed for their host plant resistance. Twenty bare root transplants of each cultivar were planted on each plot. The plots were 30 ft long and had a 15 ft buffer in between. The experimental design was a randomized complete block, replicated five times (Fig. 1). Samples were taken biweekly. Five randomly selected young leaves from each plot were collected and washed in 70% ethanol. Thrips species were identified using taxonomic keys (Cluever and Smith 2017).

Rep 1 (Bed 1)	Rep 2 (Bed 2)	Rep 3 (Bed 3)	Rep4 (Bed4)	Rep 5 (Bed 5)
Medallion		Sensation		Pearl + Festival
	Brilliance		Medallion	
Sensation		Pearl + Festival		medallion
	Medallion		Brilliance	
Pearl + Festival		Medallion		Sensation
	Sensation		Pearl + Festival	
Brilliance		Brilliance		Brilliance
	Pearl + Festival		Sensation	

Figure 1: Plot design in the field with four cultivars.

Marketable fruit yield: Fruits were harvested every week. Marketable fruits from each cultivar were weighed in grams. The damaged fruits were discarded before weighing.

All the data were analyzed on SAS® on Demand for Academics web platform (SAS Institute Inc, Cary, NC, USA).

Current Project Status:

The field study will be repeated with seven cultivars during the strawberry season of 2022-2023.

Results:

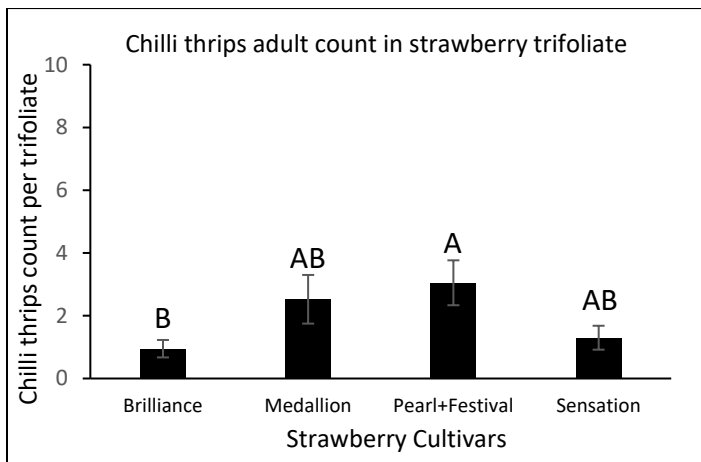


Figure 2: Chilli thrips counts from the trifoliates

Brilliance had significantly lower number of chilli thrips count compared to Pearl+Festival (p value=0.01).

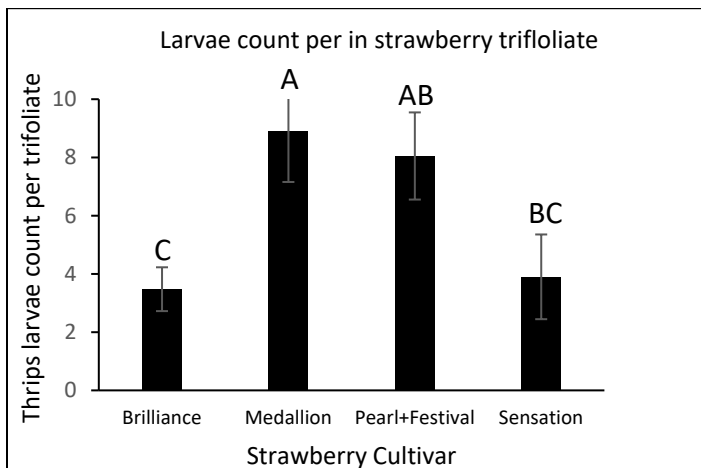


Figure 3: Thrips larval count from trifoliates

Brilliance and Sensation had a significantly lower number of chilli thrips and flower thrips larvae in the trifoliates than other cultivars (p value= 0.0032).

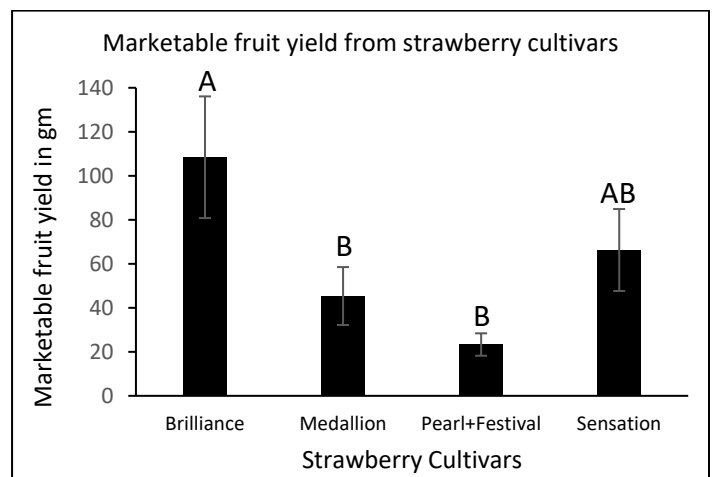


Figure 4: Marketable fruit yield

In case of marketable fruit yield, Brilliance produced significantly higher marketable fruit compared to Medallion and Pearl+Festival. (p value= 0.0009).

Therefore, Brilliance emerged as a strawberry cultivar with high potential of host plant resistance owing to lower number of chilli thrips adults and larvae present on these plants during the field season and higher marketable fruit yield.

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