

Integrated Pest Management of Tomato Virus Diseases

Rosemary Gutierrez-Coarite, Amjad Ahmad, and Kylie Tavares

Integrated Pest Management:

IPM is an ecosystem-based strategy that focuses on long-term prevention of pests through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only if needed.

Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment.

Tomato Virus diseases in Hawaii:

- Tomato Yellow Leaf Curl Virus (TYLCV)* vector: whiteflies
- Tomato Spotted Wilt Virus (TSWV) vector: thrips (showed after 3rd harvest)
- Tomato Mosaic Virus (TMV) vector: wind, insects, materials etc.

Companion Plants:

Companion planting is the practice of growing several types of crops near one another to enhance crop production (basil, chives, and dill).

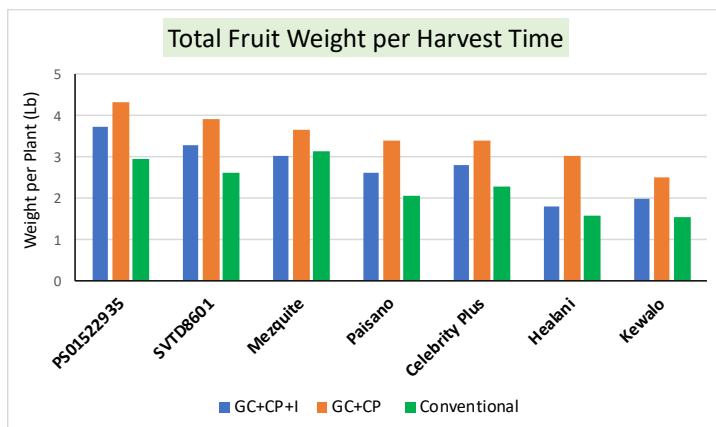
Resistant Tomato Varieties: PS01522935, SVTD8601, Mezquite (*Seminis*), Paisano, Celebrity Plus (*Johnnis*), Healani, and Kewalo (*UH*).

Treatments:

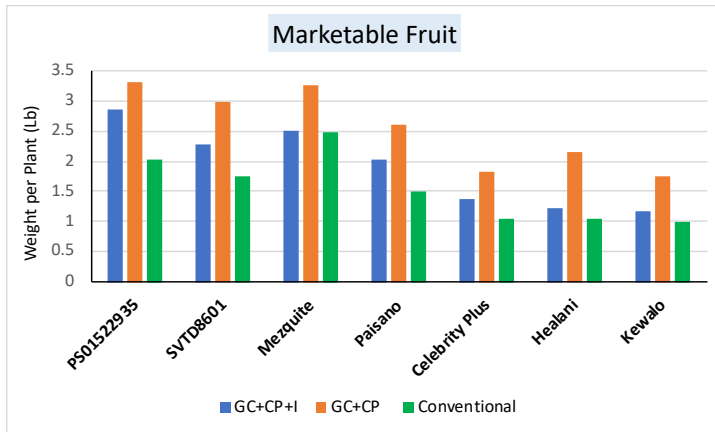
GC+CP+I = Reflective ground cover + companion plants + insecticides

GC+CP = Reflective ground cover + companion plants

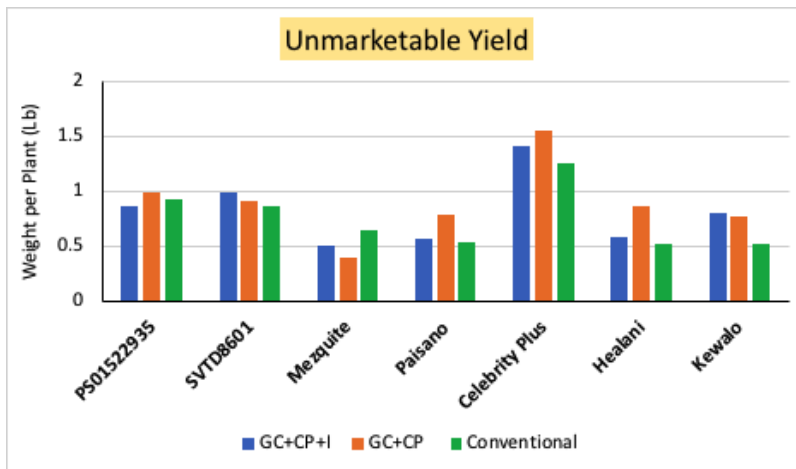
Conventional = Black ground cover + insecticides



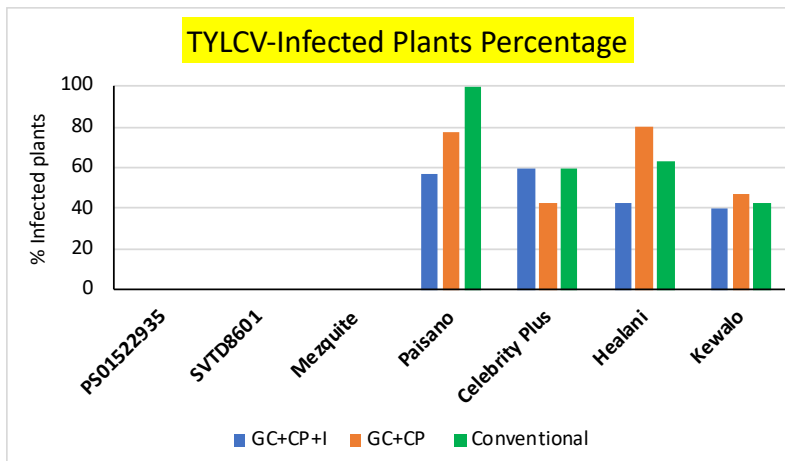
The variety with the highest total weight was PS01522935 in the treatment GC+CP (4.4 pounds/plant per harvest time)



The highest marketable weight per plant were observed in the varieties PS01522935 and Mezquite (3.5 pounds per plant per harvest time).



The highest weight of unmarketable fruits was observed in the variety Celebrity Plus in all the treatments.



The variety that showed the highest TYLCV plant infection was the variety Paisano followed by Healani, Celebrity Plus and Kewalo.

*Tomato spotted wilt virus fruit damage was only observed on the variety Paisano.

Insecticides applied:

- Admire-Pro (after one month of planting)
- Movento (after 20 days of Admire-Pro when whiteflies showed again)

Fertilizer:

- 20-20-20 every week (7Lb/week) and Calcium nitrate (15 Lb/1000 sf)

