

Greenhouse industry update and challenges

Michael E. Bledsoe¹, Erika Verrier²; Christy Goodman³; Dana Sfetcu⁴. ¹Village Farms International, Heathrow, Florida, ²Backyard Farms, Madison, ME, ³EuroFresh, Snowflake, CA, ⁴Houweling Nurseries, Carmarillo, CA. mebledsoe@villagefarms.com

The North American Greenhouse hydroponic tomato production continues to increase each year. The US large-scale greenhouses industry (>10 acre) has grown from around 10 acres in 1989 to close to 800 acres today. Field tomato production averages 6-7 lbs/ yard², with the current greenhouse production in semi-closed greenhouses exceeding 200 lbs/ yard². This intense year-round mono-cropping can lead to significant challenges.

From a chronological perspective Botrytis became one of the first major challenges our industry faced. Early on there were no products registered for this new industry. Fortunately, the US-EPA and IR-4 worked with the industry to begin to change that. Today with due attention to cultural practices, and with materials like Switch, Decree, Scala, Cease/MilStop and other materials, we are gaining the edge on Botrytis.

Bacterial canker (*Clavibacter michiganensis* subsp. *michiganensis* [Cmm]), became a major challenge beginning around 2002. This disease is mechanically spread and is seed transmitted. Working with OSU, MSU, UF, U of HI, Omnilytics, and Agdia, the incidence of Cmm in the US greenhouses has dropped from upwards to 70% to > 1% each year.

Mechanically transmitted virus and viroid like Pepino Mosaic Virus (PepMV), and Tomato Chlorotic Dwarf Viroid (TCDVd) are expected to always be with us. Once this virus or viroid is present in a greenhouse, even the best phytosanitation seems to fall short of eliminating the pathogens.

Today's newer challenges are generally arthropod-borne. In 2010, the Bemisia whitefly (A-Biotype) moved across from Mexico and introduced the Tomato Yellow Leaf Curl Virus (TYLCV) to Texas greenhouses. Also, Psyllid-borne phytoplasma are found across the US and are not subject for biocontrol.

Leaf mold, caused by the fungus *Fulvia fulva* (synonym *Cladosporium fulvum*), is becoming a greater challenge in more humid growing regions.