

Potential of high Ttunnels for strawberry, blueberry, tomato, and specialty cantaloupe production in Florida

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Protected culture includes structures such as high tunnels, greenhouses, and screenhouses. High tunnels are temporary, unheated, plastic-covered structures, with passive ventilation through roll-up side walls. These are set on with metal or wooden poles on the ground and their height might vary from 2 to 6 m. Crops are usually grown on soil. However, pot, bag, and soilless culture could be used, depending on availability, prices, and crops. Previous and current work has illustrated the advantages of protected agriculture in Florida for crop diversification and yield earliness, water use, and soilless culture to avoid fumigation. Studies were conducted to assess the performance of strawberry, blueberry, tomato, and specialty melons under high tunnels in west-central Florida. In strawberry, data indicated that early and total yield increased by 35% and 57%, respectively. For specialty cantaloupes, high tunnels demonstrated to be a valuable alternative to produce the crop, following strawberry culture, which cannot otherwise be grown in open fields mainly because rain-induced cracking. The first season of that study showed a 12% fruit yield increase inside tunnels in comparison with open-field culture, whereas soluble solid content improved from 11.5 to 14.0 °Brix. In blueberry, studies showed that fruit earliness was enhanced by the modified environment, with no significant amounts of berries harvested outside the high tunnels before the second week of April 2010, whereas inside high tunnels both cultivars produced 4.1 t/ha, since mid-February 2010, which translates into higher profits for premium early yield prices. Using high tunnels has also shown major advantages on reducing water volumes for freeze protection. For tomato, high tunnels provided an opportunity to produce the crop earlier than under field conditions due to the protection against cold weather. Similarly, the crop outperformed open field production during the warm months of the year when managed in soilless media. The use of high tunnels in Florida might benefit growers by: a) improving earliness and providing a competitive edge in the market; b) minimal use of sprinkler irrigation for freeze protection, hence reducing fruit damage and fuel or electricity costs of water pumping; c) decreased incidence of foliar and fruit diseases, which are disseminated by rain drops, leading to less fungicide applications; and e) opportunity for alternative production systems, such as intense intercropping and soilless culture to reduce fumigation practices.

Palabras Claves/Key Words:: Protected agriculture, greenhouse, vegetable crops, horticulture.