

Rotating Extension Column

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"Protected Agriculture" Could Be the Future for Fresh Vegetable Production

We want our vegetables fresh and available during any time of year. That's a pretty tall order, but so far farmers have been able to fill the bill. We are in fact, spoiled in this respect. Having fresh vegetables available to consumers during any season requires effort just short of a miracle in scheduling, specialized production, distribution and marketing.

Florida ranks second in total vegetable production and sales. Vegetables are grown on almost three hundred thousand acres of land and the resulting sales are approximately 1.6 billion dollars annually.

Though successful in making fresh produce available in the past and present, the U.S. vegetable industry faces some major challenges in the future. Among these are: increased urbanization and the loss of some of the more desirable production land, increased regulation of water, fertilizer and pesticide inputs, the loss of methyl bromide, a major soil fumigant, increased problems associated with regional and global market competition and extreme weather including rain, wind and freezes.

The next big step in commercial vegetable production could be what is termed "protected agriculture". This is the latest buzz word among horticulturists, Extension agents and producers. This system, using greenhouse structures to protect the crop from weather extremes and to reduce pests, also allows for off- season and more intensive production.

"Protected agriculture" is a broad term, which includes traditional greenhouse production and plasticulture with soilless crop production. The latest move is toward lower input methods such as shade house and high tunnel production. The latter two methods are quickly gaining interest as they appear more feasible for small farmers.

Shade house vegetable production research and production has been underway for several years, with the University of Florida having demonstrations available at several sites. This production method is used to extend the season into hot weather by providing shade of a predetermined percentage. The percent shade can be altered through the season for maximum production.



One of five new 30' x 96' high tunnels ready for planting at Mississippi State University's South Research Farm.

Vegetables such as tomatoes, peppers and cucumbers are well adapted to shade house production. In this system they are produced in large nursery containers or in bags containing a special substrate such

as perlite, vermiculite, peat, pine bark or coconut fiber. They are then placed on the ground which is covered with a special weed barrier type woven fabric. Irrigation and nutrients are delivered through a micro-irrigation system.

The "high tunnel", sometimes called the hoophouse, is another system and one that is currently causing a lot of excitement. This system utilizes polyethylene covered structures with no electrical, ventilation or heating system. These covered structures moderate cold temperatures in winter, allowing for vegetables to be grown and sold to consumers during the off season.

High tunnel production differs from conventional greenhouse production in several ways. It is somewhat less complicated and less expensive in that there is no artificial heating or cooling. And, plants are grown in the ground, rather than in containers as is done in the shade house.

Several Land Grant Universities have available and are working to produce more information for shade house and high tunnel producers. Mississippi State University has just finished erecting five large high tunnel structures for research on vegetable and cut flower production.

Anyone who is interested in this topic can contact the local Cooperative Extension office or go to Land Grant University web sites such as the University of Florida, Mississippi State, Penn State, Rutgers, Cornell or North Carolina State.