Domestic growers will be able to compete effectively with imported cluster tomatoes from Holland and other specialty crops if tests in plastic-covered buildings and tunnels go well.

University of Florida scientists are testing a protected greenhouse system on a half-acre plot in Gainesville that may lead to large-scale domestic production of the increasingly popular tomatoes.

Dan Cantliffe, chair, horticulture sciences department, University of Florida, who also is a researcher on the study, said consumers are demanding the quality and flavor of cluster tomatoes, even though their average retail cost is $2.99 per pound.

Currently, most cluster tomatoes are grown in protected greenhouses in Holland and Israel, with Holland's share of the market estimated as high as 20 percent.

"You can't grow them in the field. If they get water on them, they get spots," Cantliffe said.

Growers in Mexico -- the United States' top competitor for traditional tomatoes -- already are experimenting with protected greenhouses, he said. They have greenhouses on about 300 acres in Baja California, the majority consisting of plastic houses.

Competing economically with imports

Protected greenhouses, which are basically greenhouse-like structures or walk-in tunnels covered with plastic, are an economical way for U.S. growers to compete with imported products. In one study, researchers found that tomatoes grown under walk-in tunnels could be planted earlier and grew faster than greenhouse tomatoes. And researchers in northern Florida found that cucumbers and squash seeded one winter in walk-in tunnels yielded two to 10 times more than a similar crop in the field, even though the outdoor air temperature dropped below freezing for six nights.

"Obviously, low temperatures of this sort would preclude field production at this time of the year," Cantliffe said.

And growers worldwide are recognizing that plastic houses and tunnels
offer a winter production alternative to standard greenhouses. The protected greenhouses were used on about 300,000 hectares worldwide in 1998, he said, and countries in Asia, Africa, Europe and North America have made “major investments” in using the technology. In the University of Florida project, researchers teamed with Israeli companies because Israeli growers already have efficient protected greenhouse operations in the desert, a climate similar to Florida during the winter.

“You can take Tel Aviv and Gainesville and they have a pretty similar latitude and temperatures, but the soil types are different,” Cantliffe said.

Buildings, walk-in tunnels and rows covered with plastic are much more economical for production in Florida because they do not require heat in the winter like greenhouses in the North, he said.

A 33.5- by 10.7-meter greenhouse can cost as much as $30,000 to build, and greenhouse supplies, energy and labor were estimated at $14,000 in 1990.

Although Cantliffe does not have specific figures on the cost savings of plastic houses, growers’ heating costs would “significantly” drop in comparison with production systems in Holland or Ontario, Canada, making the buildings ideal for Southeastern operations.

**Melons**

Besides tomatoes, the protected houses offer ideal growing conditions for other unique crops such as Galia muskmelons and seedless cucumbers.

The Galia market could be very profitable for US growers.

“Galia is the number one melon for most of Europe,” Cantliffe said. “They have very high sugar levels with tremendous flavor and will bring in $3 to $5 a melon.”

About $327 million worth of the fruit was sold in the United States between 1993 and 1995.

Currently, most Galia melons are produced in Israel, Spain and Turkey. Although U.S. growers have tried growing Galia melons outside, they are unable to produce a consistent quality with high sugar levels.

Galias are native to the desert Middle East area and respond well to intensive light. However, they are also well suited for Florida in protected greenhouses.

“They are very susceptible to damage from excess moisture,” Cantliffe said. “By growing muskmelons under protective structures, the plants can be protected from the rains and moisture, which are typical of the sub-tropical Florida environment.”

**Cucumbers and peppers**

University scientists also are testing bet alpha, or seedless cucumbers, which have a thinner skin and better flavor than traditional field cucumbers, Cantliffe said.

“The quality is superior to anything we have in the U.S.,” he said.

Thinner-skinned cucumbers, such as the small, pickling-type cucumbers sold in some grocery stores, are becoming more popular in the United States.

The scientists also are testing red and yellow bell peppers, which grow better in protected greenhouses.

“There are better varieties of colored peppers and no problems with rain, less rot, less disease and a better looking pepper. They are in the greatest demand today,” Cantliffe said.

**Methyl bromide alternative**

Growing methods used in protected greenhouses also offer effective alternatives to methyl bromide, the soil fumigant that is slated for phaseout by 2005. Using soil-less cultures such as Perlite and water/nutrient solutions, researchers will not need to use methyl bromide.

“Soil-less vegetable production is practiced all over the world,” Cantliffe said.

Growers can utilize aeroponics, spraying nutrient solutions on plants suspended in the air; nutrient film technique, running a thin film of nutrient solution over the roots; or planting plants in bags filled with rockwool, peat or Perlite, then delivering the nutrient solution to the media. §