Tropical Root Crop Production
Edible ginger (Zingiber officinale Roscoe) is a tropical crop that optimally requires a 10 month growing season in Hawaii to produce mature ginger rhizomes. A shorter growing season results in reduced yields and size of rhizomes. Baby ginger or young ginger is a gourmet quality product with a tender, low-fiber texture and is mostly used for pickling. Baby ginger yields are lower than that of mature ginger. Certainly, baby ginger is a candidate as a specialty crop for high tunnels. Although, it may not be possible to obtain equivalent mature ginger yields as from a tropical region, there remains potential as a profitable niche market crop, especially if the growing season can be extended by several months in high tunnels.

Fresh market ginger commands higher returns than the various processed ginger products. Both raw and cooked fresh ginger are prized in Indian and Asian culinary. Examples of processed food products include ginger ale, ginger beer, gingerbread and ginger snaps. Both fresh and prepared ginger have medical uses. Ginger is sold as a dietary supplement because it is not FDA approved as a medicine. However, mixed claims have been made for effectiveness on nausea, motion sickness, a cold remedy, for settling an upset stomach and for inflammation. Doctors warn against possible blood thinning properties, because ginger may interact with other medicinal blood thinners.

In a cooperative venture with the University of Hawaii, 50 gram ginger rhizome ‘seed pieces’ were sent from Hawaii and grown in high tunnels at the Penn State Horticulture Research Farm, Rock Springs, PA. They were planted in 3 gallon containers filled with a peat-perlite growing medium on May 14, 2007 and were top watered on a greenhouse bench until July 2 when the pots were placed on 1-inch high soft nursery trays which rested on the floor of a 10’ x 4’ tank such that there were 2 rows with a 1 ft spacing within rows. Current recommendation is to place the ginger pieces about 2 to 2.5 inches deep in 3 gallon pots in a greenhouse in mid to late February at a temperature of about 90°F until the ginger have produced 2 to 3 inch stems. The ginger than can be placed in high tunnels in the non-circulating hydroponic beds. As the season progresses, multiple stems will emerge and the plants will become 2 to 4 ft. tall. A constant 2 inch level of water is
maintained with a float valve and the pots are watered by sub-irrigation. The water is fertilized with a complete hydroponic formula (Chem-Gro 8-15-36) plus calcium nitrate and magnesium sulfate. The solution is checked weekly with an electrical conductivity meter and is replenished to a level of 1.5 mS. The tank was covered with an aluminized plastic mulch which is very reflective, but remains cool such that leaves do not burn when they contact the mulch.

Ginger rhizomes were also placed in a 10’ x 4’ peat perlite bed which was 10 inches deep. The growing medium was trenched to a 4-inch depth and seed pieces were planted 1 to 2 inches deep. As the crop grows, the growing medium should be hilled to promote vertical, rather than horizontal growth of the rhizomes. Ginger was planted on June 14 and 13/14 of the plants had emerged by July 9.

In a tropical environment, ginger would normally be harvested in December through February after the leaves turn yellow and dry down and the stems fall over. However, we harvested the experiments around the first week of October, right after a frost. Since the ginger might not be totally mature, the epidermis might still be fragile and care must be exercised in handling the ginger during harvesting. The ginger should be washed and dried on screened racks for about 5 days and then be ready for market. Some of the crop can be used as seed for another crop next year.