

FLORIDA SUSTAINABLE AGRICULTURE ISSUES

James J. Marois

The development of methyl bromide as a soil fumigant in Florida was a major breakthrough in allowing the establishment of a more sustainable agriculture. Before that time, the need for long term rotation for pest control prohibited full economic development of vegetables in Florida. The application of methyl bromide, a byproduct of the petroleum industry, to soil revolutionized the production of high value crops in Florida and elsewhere. Entire production systems, including agricultural engineering, plant breeding, and marketing were dependent upon the annual application of methyl bromide to the soil. This "sustainable" system lasted for almost 50 years.

With the discovery that methyl bromide was a major depleter of the ozone, alternative sustainable technology must be developed. The goals for the alternative technologies are similar to the original goals associated with the development of methyl bromide as a soil fumigant in the first place. We need to find an economically viable production system that, if possible, uses the most readily available resources. A truly sustainable production system requires that the system itself have a certain degree of flexibility to accommodate changing crops, market conditions, and pests. The use of inputs can be higher, if they inputs can be assumed to be economically and physically available, or lower, where ecological aspects of production will be more important. Whatever systems are developed, it is likely that much of the vegetable production in Florida will be very different than the recent past.

In Florida, sustainable production systems are being developed from three different philosophies. The first is to find chemical substitutes for methyl bromide that would support the conventional production systems. To date these efforts have had to rely on other environmentally harsh chemicals or unregistered chemicals. A second approach has been to rely chiefly on nonchemical methods of pest control while keeping the present production system intact. Soil solarization of fall tomatoes best exemplifies this approach. With modifications of the use of plastic, most of the weeds and fungal pathogens can be controlled. The rest of the intensive plastic culture, including yield, is maintained. The third approach is a more radical departure from the present production systems as both the yield and inputs are reduced significantly. Pests are controlled utilizing rotation, natural enemies and habitat modification. This integrated approach incorporates animals, timber, and pasture into the vegetable production system. It may be that the lower inputs associated with the possibly lower yields will make the system economically sustainable. The incorporation of multiple cropping systems into a larger sustainable system offers the biological and economic advantages achieved through diversification. Challenges in technology are apparent, but not overwhelming.