



Immature chinese bitter melon fruit

Asian vegetables rapidly emerging in Florida

By Guodong (David) Liu

VSCNews
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Asian vegetables are crops originating from countries such as China, India and Japan. They are also referred to as "oriental vegetables," and include bitter melon, long squash, yardlong bean, luffa, Chinese red meat radish and more. These new crops are emerging in Florida. In northeastern Florida, there is a grower producing more than 20 Asian vegetable crops. These crops significantly benefit Floridians in many aspects including economic, environmental and social importance.

CROP BENEFITS

Economically, these crops markedly increase growers' incomes. Due to market volatility, potato growers in northeastern Florida have been operating on a very thin profit margin for the last five years. A few growers have since switched to other crops such as Asian vegetables. The aforementioned grower has currently been operating 900 acres.

These new crops are highly profitable. For example, Tong Hao produces 2,000 boxes of leafy products per acre. The wholesale price is \$20 per 20-pound box. Thus, an acre of Tong Hao can generate \$40,000 gross income. The grower has several 10-year contracts with a distributor for large cities such as New York, Atlanta, Miami, etc. and some large cities in Canada. So, he is going to expand his acreage for Asian vegetables to 2,500 acres in the next growing season.

Socially, growing these ethnic vegetables provides many job opportunities. This same vegetable grower has hired 40 employees to work for him to plant, manage and harvest the crops and to process the products. As the crops are expanding, another 40 workers will be needed for the next season. In addition, as these ethnic crops are emerging and expanding, the policymakers may adjust or improve agriculture policy in Florida accordingly. For example, the Florida Department of Agriculture and Consumer Services may need to have best management practices (BMPs) for these new crops.

Environmentally, when compared with potatoes, all of these Asian vegetable crops are more efficient users of phosphorus. The soil in north Florida is rich in extractable phosphorus, as much as 600 parts per million (ppm). Potato growers apply 100 to 120 pounds per acre every growing season, even though the University of Florida/Institute of Food and Agricultural Sciences (UF/IFAS) recommends no phosphorus application for those soils having 45 or more ppm phosphorus. The ethnic vegetables, however, don't need any phosphorus fertilization when grown in fields with a history of potato production. Thus, growers can substantially eliminate the purchase of phosphate fertilizers, minimize water pollution/eutrophication and hence reduce the potential for algae bloom.

Additionally, Asian vegetable crops diversify Florida's farming system. This diversification not only increases



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crop rotation and reduces soilborne diseases, it also diversifies the food system and provides functional foods. This food diversity improves consumers' health, too. The ethnic vegetables are rich in antioxidants, vitamins and functional components with pharmaceutical activities.

For example, bitter melon tastes pleausurably bitter. Its seed, fruit and leaf extracts seem to have hypoglycemic effects for diabetes. In 2011, Haines et al. found that bitter melon significantly reduced fructosamine levels of type 2 diabetes. Research data also show that the extracts inhibit breast cancer cell proliferation.

Long squash (<http://edis.ifas.ufl.edu/hs1272>) fruit are used as a folk

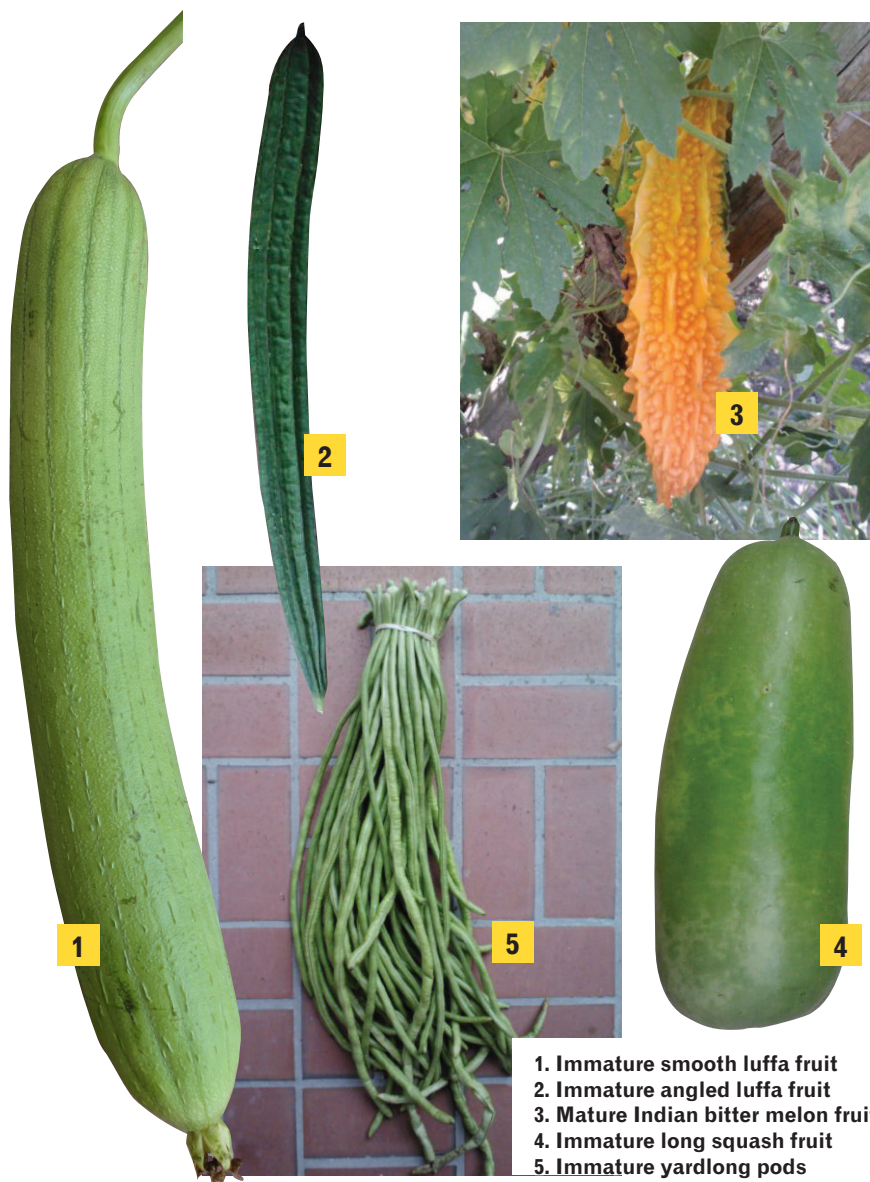
medicine for heart-protective properties in Asian countries such as India (Upaganlawar and Balaraman, 2009).

Yardlong bean (or simply long bean) pods contain flavonoids with immunomodulatory effects. Asian vegetable products can improve immune systems and hence benefit health.

Due to the climatic and geographical advantages, Asian vegetable crops will have a promising future in Florida. The emerging and expanding Asian vegetable markets will promisingly contribute to Florida's vegetable industry and economy.

GROWING TIPS

Let's discuss how to grow a few typical Asian vegetable crops.



1. Immature smooth luffa fruit
2. Immature angled luffa fruit
3. Mature Indian bitter melon fruit
4. Immature long squash fruit
5. Immature yardlong pods

Bitter melon can be either directly seeded or transplanted. Planting dates are geographically dependent. For example, in north Florida, direct seeding dates are usually from February through April for the spring growing season, and July to early August for the fall growing season. The distance between rows should be 5 to 6 feet, and spacing between plants should be 3 to 5 feet. The plant type is climbing vine. Six-foot tall trellis is usually used to support the vines. This crop prefers warm (75°F to 80°F) and humid climates and grows very fast. It starts setting fruit approximately six weeks after planting and can produce many fruit. The fruit should be harvested immature. When the fruit mature, they become orange or red in color and easily rot. See <http://edis.ifas.ufl.edu/hs1271> for more information.

Yardlong bean can be either transplanted or directly seeded. If transplanting, the seedlings need to have two true leaves; otherwise the seedlings may be easily injured. Transplanting can establish the crop earlier and expand the growing season, but more labor is needed. In Florida, direct seeding is more common. The seeds are planted approximately 2 inches deep on raised beds. Distance between plants is 3 feet, and bed spacing is 6 feet. Plants can grow 9 to 12 feet tall. A 6-foot trellis support is usually used. Visit <http://edis.ifas.ufl.edu/hs1268> for additional information.

Tong Hao is a leafy crop that prefers a warm (optimum growth temperature: 68°F to 84°F) climate and damp but well-drained soil. In Florida, this crop can grow in both spring and fall. But in high-temperature growth conditions, it tastes slightly bitter. Tong Hao likes fertile and humus soil conditions. Seeds are tiny and need to be sown less than a half-inch deep. Plant spacing is 2 inches, and row spacing is 18 inches. Forty to 45 days after seeding, plants can reach approximately 8 inches tall. They can be multiply harvested by cutting the top parts of shoots and leaving two branches or five basal leaves in the

field. See <http://edis.ifas.ufl.edu/hs1276> to learn more.

POSSIBLE CHALLENGES

Marketing: Asian crops may be still new to most Americans. They may not be aware of how to cook these vegetables. Thus, it is not easy to sell them locally. However, Asians have eaten these foods for thousands and thousands of years. In large cities like New York, Miami and Vancouver, there are Asian or Chinese groceries. The Asian communities love these vegetables. Thus, new producers need to deliver to those cities to sell. New Asian vegetable growers may need to partner with marketing professionals or distributors in cities with sizable Asian populations.

Fertilizer program: Since these crops are newly emerging, they are not listed in the BMP manuals yet. There are not any UF/IFAS recommendations for these crops available to growers.

For the time being, growers can use UF/IFAS recommendations for the other crops from the same family as the Asian vegetable of interest. For example, bitter melon is from the same family as cucumber. Yardlong bean is from the legume family, like snap bean. Tong Hao and lettuce share the same daisy family.

CONCLUSION

Asian vegetables can diversify farming systems and food supply. This diversity can benefit agri-ecosystem and human health. Growing these crops can enhance the profitability of the vegetable industry in Florida. Producing these crops is promising. These crops will expand rapidly in Florida. 🍆

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