

# Praise for Pummelo, High Score for Soursop

Botanists name three dozen tropical plants the likeliest to succeed as new cash crops in poor countries

BY JANET H. HOPSON

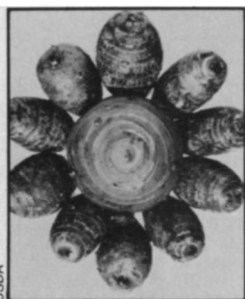
Guar. Soursop. Buffalo gourd. Peruvian parsnip. These just don't have a familiar ring. But then, neither did the soybean not so long ago. That ancient Chinese legume is the Cinderella crop of the U.S. Midwest—from an oddity to big business in 50 years. Now, three dozen tropical plants, including this odd-sounding foursome, have been elected by botanists the likeliest to succeed at badly needed business.

The tropical zone has both incredibly diverse plant habitats (the rain forests) and painfully barren ones (the tropical deserts). A few of the world's richest people live there—along with most of the world's poorest. These people, and, in fact, most of the global population, live on only 20 staple food crops including wheat, rice, corn, potatoes, cassava, legumes, sugar cane, coconuts and bananas. "These plants are the main bulwark between mankind and starvation," a new National Academy of Sciences report states. "It is a very small bastion." Relying on such a small number of food sources is risky since "monocultures are extremely vulnerable to catastrophic failure brought about by disease or variations in climate."

To protect the expanding and increasingly poorer tropic zone population from monoculture catastrophe, 83 botanists reviewed hundreds of "underexploited" tropical plants, searching for those with untapped economic potential. The group, headed by Smithsonian botanist Edward S. Ayensu and sponsored by the NAS Commission on International Relations, has published a report on the 36 most promising plants. These are complements to and not substitutes for existing tropical crops, they state. If cultivated on a larger scale, they should provide badly needed food, forage and raw materials, as well as protection from overreliance on too few crops. And most of the plants are already well adapted to harsh tropical habitats.

One cereal, for example, called channel millet or channel sorghum in its native Australian desert, will grow happily on a single watering and could perhaps be grown in other tropical deserts. Tamarugo, a leguminous tree that produces high protein forage year-round, grows in the northern Chilean desert through a crust of salt several feet thick. Saltbush, another

forage plant, will also tolerate high salinity. And two plant species, *Zostera marina* (a grain) and *Paspalum vaginatum* (silt grass) will grow in salt water. Peruvian parsnip, a starchy carrot-shaped root, costs half as much to grow as potatoes



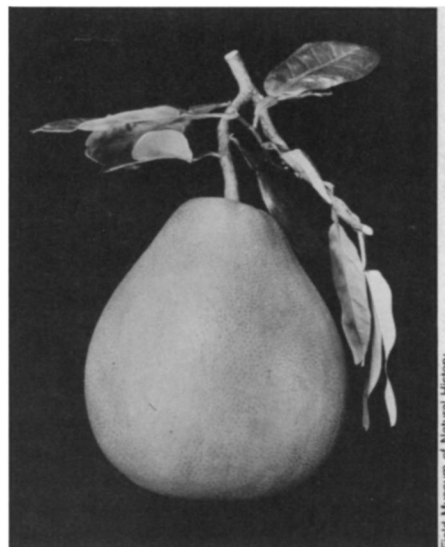
*Taro corm and tubers: Taro, the report states, should be more widely cultivated. Mangosteen is called one of the world's tastiest fruits.*



and thrives in dry tropical highlands.

Several plants could provide needed protein. The highland grain quinoa is rich in protein, and, before the Spanish Conquest, was a staple of the Incas. Spaniards' wheat and barley replaced it, though, and quinoa culture has not advanced for 400 years. The winged bean, the soybean of the tropics, is another potential dietary protein booster, but is not yet widely grown (SN: 8/16/75, p. 104).

Tropical fruits such as the soursop, mangosteen and durian might be profitably exported as well as savored at home. The small, purplish mangosteen of Southeast Asia is considered one of the world's best fruits and will grow in very wet areas. The soursop, which looks like a cross between a pineapple and a watermelon and grows in trees, could be processed into puree, nectar, jelly and ice cream. Southeast Asians build shelters beneath durian trees to beat elephants, tigers and monkeys to the harvest. The durian is a huge prickly fruit with a sweet



*Pummelo: Underexploited lowland citrus.*

taste but a somewhat disagreeable odor (like "custard passed through a sewer") and might also be exported as a dessert flavoring.

Oils, waxes, fiber and rubber could be harvested from other underexploited plants, the panel says. The Babassú palm, buffalo gourd, *Caryocar* species and jojoba all bear oily seeds that might be processed for exportable oil. Guar, increasingly cultivated in the United States, contains a desirable gum. Guayule, a Mexican desert shrub, produces rubber like that from rubber trees, but it is hard to extract from the plant material. Ramie, a tropical herb, produces long-wearing, shrink-resistant fibers eight times stronger than cotton. These fibers, too, however, are hard to extract from the vegetable matter and are covered with a tenacious gum.

Guayule and ramie aren't the only plants with problems nearly greater than their potentials. The NAS botany panel describes limitations and specific research requirements for each of the 36 plants, and these add up to a substantial research effort. Development agencies and foundations should consider sponsoring horticultural stations in tropical countries, the panel recommends.

Another potential problem, not specifically addressed by the report, springs to mind. What if the people don't like these plants? "I think we have all overplayed the unacceptability of foods in underdeveloped countries," group chairman Edward Ayensu told SCIENCE NEWS. "A lot of these people are starving and eating anything put before them now. This report was primarily a nutritional study," he said, "but acceptability was always at the back of our minds." Several major African staples—rice, corn, cassava and sweet potatoes—are already introduced plants. "This is something even Africans won't believe. People here should not worry about those old food taboos. They are all breaking down rapidly," Ayensu said. □