

THE VAUGHN-JORDAN PROJECT:

Conservation of a Genuine American Native

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Top: local avocados in the market.
Bottom: local fruit collector takes a break after a morning of dooryard harvesting.
Right: Local shows off a West Indian avocado growing in a home garden along the Pacific coast of Nicaragua.

BENEATH THE COOLING SHADE OF A BELEAGUERED TROPICAL ALMOND, WE DIRECTED our attentions to a distant avocado tree standing in the pasture across the Jaco Beach road, along the Pacific coast of Costa Rica. Juan Carlos Herrera, the local avocado guru, spins a tale about the tree—an avocado of such fine quality that in olden times people would travel for days by oxen and cart just to partake in its harvest.

We have grown accustomed to Juan Carlos' tales of corn-harvesting white-faced monkeys marauding across the Costa Rican countryside, and the mammoth fish that leap from the nearby rivers into the waiting arms of local fisherman—but this was somehow different. According to legend, the 'Blas' avocado, as it is known in these parts, originated from a seed discarded by a Spaniard making his way from the coast into the central valleys of Costa Rica. The tree is old and fragile now, but its legend stands strong on this hot tropical afternoon among the patrons of the Glorietta restaurant. A relic of times past, the 'Blas' now serves to inspire our ambitious project to conserve a vanishing resource, the West Indian avocado of Tropical America.

The Vaughn-Jordan Foundation awarded a generous grant to Fairchild in 2004 to conserve West Indian avocados and plant a living clonal garden for South Florida, and indeed, the global agricultural community. The grant allowed for the hiring and training of plant collectors dedicated to this conservation effort. Early success of the project can now be measured in the emerald green leaves of the clonal avocado garden gracing the Williams Grove Genetic Facility in the Redland. This

community asset will soon prove to be one of the most important introduction events for the West Indian avocado in the history of Florida, and a significant step in the conservation of this species.

The avocado (*Persea americana* Miller) is a traditional American native. Three major types were eaten by pre-Columbian peoples from Southern Mexico to northern South America; namely, the Mexican (*P. americana* var. *drymifolia*), Guatemalan (*P. americana* var. *guatemalensis*) and West Indian (*P. americana* var. *americana*) races. Detailed archeological evidence from Puebla and Oaxaca, Mexico demonstrates the use and selection of avocados by native peoples as early as 8000 to 7000 B.C. The races are separated by altitude and latitude, with the Mexican and Guatemalan races prevalent at the higher elevations from 1,000 to 3,000 meters in central and southern Mexico, and Guatemala through Costa Rica, respectively. The West Indian race is found throughout Central America from sea level to 1,000 meters.

West Indian avocados are found naturalized throughout the forests and countryside of Central America, but their quality is invariably better in association with humans—the work of centuries of selection. Long ago, they spread from

the Avocado



Tropical America throughout the tropical and subtropical world, and in the lowlands of Africa and Asia they have attained significant localized importance. In South Florida, nearly a century ago, West Indian avocados hybridized with Guatemalan varieties, giving rise to cultivars with superior commercial traits that allowed the Florida avocado industry to thrive until today.

PERILS FACE THE WEST INDIAN AVOCADO

Local markets and major grocery stores in Africa, America and Asia offer West Indian avocados throughout the year. Yet, the days grow cloudy for this American staple. New threats have arisen both abroad and within its ancestral home—most notably, the introduction of Asian diseases that devour their roots; commercial competition from their Mexican and Guatemalan cousins; and the constant threat posed by development and human activities. Throughout the avocado's historical range, there is a clear and present danger of loss of biodiversity and an urgent need for action. There have been coordinated international efforts aimed at the protection of avocado genetic resources, but the major thrust has been the protection of Mexican and Guatemalan race biodiversity. Despite their importance to the fabric of everyday life in the tropical lowlands, West Indian avocados have been largely overlooked.

We concentrated our collection efforts on superior selections within home gardens, public areas and small orchards of each region. Travel reports, diaries and personal experiences of hobbyist and professional field horticulturists offered

a starting point in the location of superior selections. These historical resources, when combined with genetic diversity studies, provided strong clues for the identification of localized centers of diversity and quality.

However, the real story lies with the people—the local collaborators and farmers with a deep practical knowledge and passion for the avocado. These dedicated individuals provided the necessary tools for the identification, evaluation and collection of truly superior selections. Juan Carlos Herrera (Costa Rica), Dwight Carter (Guatemala), Ariel Ramirez (Nicaragua), Leonel Waldemar (Guatemala), Teofilo Ramirez (Honduras), Marlon Brito (El Salvador), Hipolito Mejia (Dominican Republic), Jose Zamora (Puerto Rico) and an extended network of fruit harvesters and market bird-dogs provided vital local knowledge. The results of their pursuit for perfection now anchor their roots firmly in our soils.

LIVING COLLECTION AT WILLIAMS GROVE

The Williams Grove Genetic Facility is home to this invaluable resource—the living clonal garden of more than 150



avocado accessions. Significant challenges arose building such an extensive and diverse clonal collection in a relatively short time. Collaborative agreements had to be forged with each grower, cooperative, government institution or country before collecting. Scions (budwood) from each selection were collected and transported to Florida, ideally during the cool season, when grafting success was most favorable. Mandatory quarantine followed within Fairchild's greenhouses to assure freedom from hitchhiking pests. Only upon release from quarantine could the new selections be planted in the field to begin their horticultural journey.

Today the living collection is still quite young and just coming into production. But it won't be long until we will speak of the 'Juan Jose,' a seedless avocado to forge new markets within the United States and the world; the 'Pura Vida,' whose bold size and shape will turn the avocado world on its ear; or maybe the 'Darien,' offering a fungus resistant rootstock alternative to growers around the globe.

Perhaps it will be the 'Blas' itself whose distinctive fruit quality inspires a new generation of avocado pilgrims. Dreams indeed, but without the Vaughn-Jordan Foundation, Fairchild and a small but passionate group of avocado pioneers, we would be sentenced to the same old avocado rut, missing out on the new sensations resulting from the conservation and improvement of this ancient American native.

