

Development of Disease and Insect Resistant Capsicums

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Peppers (chiles) are the number one spice food ingredient in the world because of their mild capsaicin content and the many health aspects of the pod. Mexican food is the number one ethnic food in the U.S.A. because of peppers. Bell pepper is the most highly consumed pepper type in the U.S.A, followed by long green/red chile, cayenne, jalapeño, tabasco, paprika, serrano, habanero, ancho, cherry, pimiento, yellow pickling types. Breeding peppers for the processing industry is a herculean task. Every major processing entity requires and demands peppers with their own unique characteristics with respect to types, size, color, flavor, pungency, fruit dry matter, resistance to insects, diseases, and health related issues. The product can be fresh market for all and or processed into whole, sliced pickled, picante sauces, etc.

In 1970, the Texas Agricultural Experiment Station at Weslaco placed emphasis in obtaining genetic resistance to important pepper viruses and insects. Fifteen different genotypes from Mexico, Central and South America, possessing heritable resistance to local isolates of tobacco etch virus, pepper mottle virus, cucumber mosaic virus, potato virus Y, tobacco mosaic virus, and tobacco ringspot virus were identified. Hybridization of these stocks with the best commercial cultivars of 25 different types yielded thousands of improved breeding lines utilizing the backcross method, two seasons/year, for 30 years. These lines were screened for resistance to Phytophthora root rot, leafminer, pepper weevil, white fly, and tropical environmental stresses.

As early as 1971 the Texas Agricultural Experiment Station pepper breeding program began looking at the nutritional aspects of all pepper types. Thousands of improved, superior pepper breeding lines of different types were developed and evaluated twice/year. These genetic packages contained multiple disease and insect resistance, tropically adapted (high temperature flower set), high color, flavor, high yielding (concentrated fruit, special culture practices to develop a single stem for mechanical harvest), and earliness. Health related issues included high concentrations of Vitamins C, A, anti-inflammatory cancer preventing antioxidants, i.e. flavonoids (luteolin, quercetin, etc.). Thousands of germ plasm packages were distributed throughout the world. Screening at every generation yielded **nine** new named cultivars: **TAM BELL-1, TAM MILD CHILE-1, TAM MILD JALAPEÑO-1, TAM BELL-2, HIDALGO SERRANO, TAM MILD CHILE-2, RIO GRANDE GOLD-SWEET, TAM VERACRUZ –HOT JALAPEÑO, and TAM JALORO-HOT YELLOW JALAPEÑO.** The release of the “**TAM MILD JALAPEÑO-1**” in 1981 was a major milestone. It revolutionized the entire U.S.A. salsa picante industry which outsold **sugar-**based tomato ketchup by 1990 and thereafter. The **TAM VERACRUZ** replaced most existing hot jalapeño varieties. Successful breeding efforts continue under the direction of Dr. Kevin Crosby at Texas A&M University, Texas A&M AgriLife Research at College Station, Texas. Subsistence farmers throughout the world can grow these peppers with more security and less cost. Increased food production is accomplished utilizing fewer chemicals and less acreage, making it easier to maintain environmental quality. This has important implications for more efficient production of other foods in a sustainable agricultural system.

NEW MULTIPLE VIRUS RESISTANT PEPPER CULTIVARS DEVELOPED

BY

DR. BEN VILLALON AT TEXAS A&M, WESLACO, TEXAS, A TOTAL SUCCESS STORY



TMJ-1 1975



Hidalgo

1975



LARGO PAPRIKA



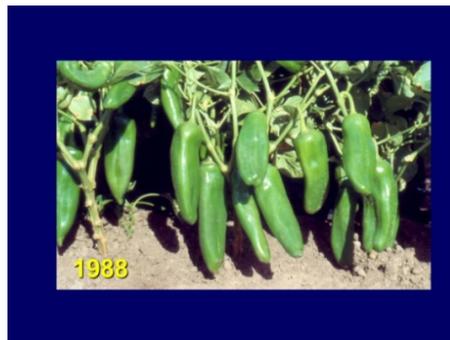
TAM MILD CHILE-2

1985

NM-6



TAM JALORO



1988

