



Relationship Between Pepper Size, Harvest Time and Labor Costs in Hawai'i-Grown Hot Peppers (*Capsicum* sp)

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Small fruited peppers of *Capsicum* spp. are heavily used in Asian-Pacific cuisine and are a common ingredient in local hot sauce, pickles and other value-added products in Hawai'i. Consequently, small fruited hot peppers have potential as a high-value specialty crop for Hawai'i growers. Labor costs associated with hand-harvest are expected to be high and dependent on pepper size/weight. While the relationship between pepper size/weight and harvest time is unknown, we suspect that selecting cultivars within a market type for relatively large pepper size may reduce labor costs associated with hand harvest considerably.

To test this hypothesis, 15 cultivars of three pepper species (*Capsicum* annum, *C. frutescens* and *C. chinense*) were grown in replicated field trials at two locations (O'ahu and Molokai) July-October, 2009. Market mature peppers were harvested by experienced farm crews, and time to harvest each experimental unit was recorded.

Harvest rates ranged from 0.9-4.5 kg per worker-hour for small-fruited cultivars including Hawaiian, 'Firecracker,' 'Orange Thai,' 'Thai Hot,' 'Super Chili,' and 'Rooster Spur.' Harvest rates ranged from 13.6-40.9 kg per worker-hour for larger-fruited jalapeño and



Habanero cultivars (Figure 1). Fruit size (volume) measured by water displacement exhibited strong linear correlation ($R^2 = 0.98$, $N = 105$) with pepper fruit weight across the range of pepper sizes. Average harvest rates for cultivars were strongly dependent on individual pepper weight. Within the small fruited types (0.7-4.5 g per fruit), it was estimated that harvest labor costs were reduced by 20% for every 1g increase in average fruit weight (Figure 2). Based on these data we recommend selecting pepper varieties with average single fruit weights greater than 1.5 grams for

commercial production.

Figure 1. Average fruit weight (10 fruits) of hot pepper varieties in three market groups.

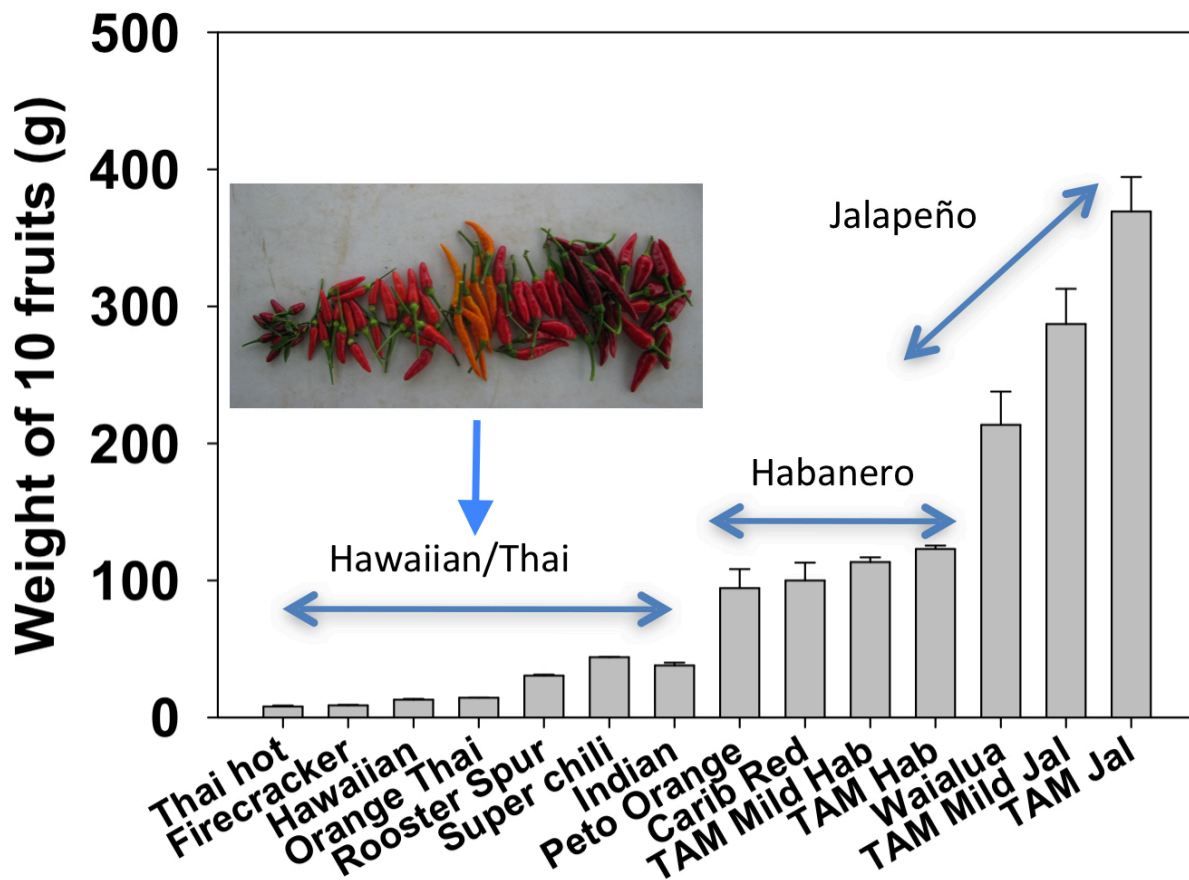


Figure 2. Relationship between fruit weight and cost of labor to pick one pound of fruit.

