

## Highlights from the Pomegranate Field Day in Alma, GA, September 9, 2013

Erick Smith<sup>1</sup>, Benjamin J. Shirley<sup>2</sup>, and Juan Carlos Diaz-Perez<sup>1</sup>

<sup>1</sup> The University of Georgia, Tifton Campus

<sup>2</sup> The University of Georgia Bacon County Extension ANR Agent

A single harvest of pomegranate fruit from trees in their third leaf was conducted at Don Wade's farm, 2370 Radio Station Road Alma, GA, on September 9, 2013. Each variety was individually harvested selecting fruit 9" in circumference or larger and segregating fruit by tree for measurement of yield. The varieties tested were as listed in Table 1:

Table 1. Characteristics of pomegranate varieties at Don Wade's farm, Alma, GA

Code	Assession Name	Taste	Seed	Skin Color
R-6	Al-sirin-nar	Sweet/Tart	Hard Seed	Yellowish/Orange Red
R-16	Kara bala miursal			
R-19	Nititski ranni	Tart	Hard Seed	Red
R-25	Bala Miursal	Sweet/Tart	Slightly Hard Seed	Yellowish/Red/Green
R-26	Afganski	Sweet	Soft Seed	Red
R-30	Kazake	Sweet/Tart	Slightly Hard Seed	Yellowish/Red/Green
R-33	Surh-anor	Slightly Tart	Hard Seed	Yellowish/Lt Green Red

The lugs containing the fruit were brought to the fishhouse, weighed for total harvest weight. Fruit in each lug were sorted, counted, and graded into fresh market and processed market (for arils or juice) quality, by the amount of blemish, sunscald, damage and decay. The downgraded fruit were counted and weighed. After the initial measurements were taken, an aliquot of each variety tested was peeled to gather the arils. The attendees (n=11) to the field day were given the opportunity to taste and rate each cultivar for sweetness, acidity, color, and seed hardness. The rating systems for arils were: Sweetness: 1 = very sweet, 5 = not sweet; Acidity: 1 = very acidic, 5 = not acidic; Seed hardness; 1 = very hard, 5 = very soft; Aril color; 1 = white, 5 = dark red.

### Results

R19, R6, and R33 had the highest total marketable yields (weight) per tree and the highest processed grade fruit quality (Fig. 1). R30, R26, R25, and R16 had low yields (Fig.1) and the lowest amount of processed fruit quality (Fig. 1). R19, R6, and R33 had the greatest number of fruit per tree (Fig. 3). The majority of the varieties had fruit weight that averaged 0.7 lb. R33 has the greatest individual fruit weight (0.8 lb) and produced 34.9 lb/tree of fruit. However, R33 fruit were downgraded by 71.7%, suggesting difficulty to bringing this crop to market as fresh market grade.

Fortunately, R19, R6, and R33 have some previous sensory data (Table 1). R19 tasted tart, had a hard seed, and a red skin (Table 1). R19 was mildly sweet and acidic, and had light red or dark pink arils, and moderately hard seed (Fig 5). R6 previously tasted sweet/tart, had a hard seed, and a skin color

yellowish/orange to red (Table 1). Our new sensory analyses showed R6 is slightly sweet, and has mild acidity, with red arils, and a firm seed (Fig 5). R33 had the highest rating for sweetness amongst the varieties, with the lowest acidity, pinkish arils, and a hard seed (Fig 5).

R30, R26, R25, and R16 did not perform well. Total average harvest weight was not above 22 lb/tree and the average fruit per tree was not over 37 lb/tree (Figs 1 & 2). The average fruit weight ranged from 0.7 to 0.6 lb per fruit (Fig 4). The sensory analyses did not highlight any outstanding qualities that were not present in the higher yielding varieties (Fig 5).

From the data presented, R19, R6, and R33 show the most promise when considering yield. However, R19 and R6 have darker red arils than R33, which should be considered because this is an indication of increased anthocyanin concentrations or increased antioxidant capacity. Further, the highest yielding variety was R19 (39.5 lb/tree).

Based on the yields observed, it is pertinent to ask whether there is enough fruit yield to justify establishment and input costs?

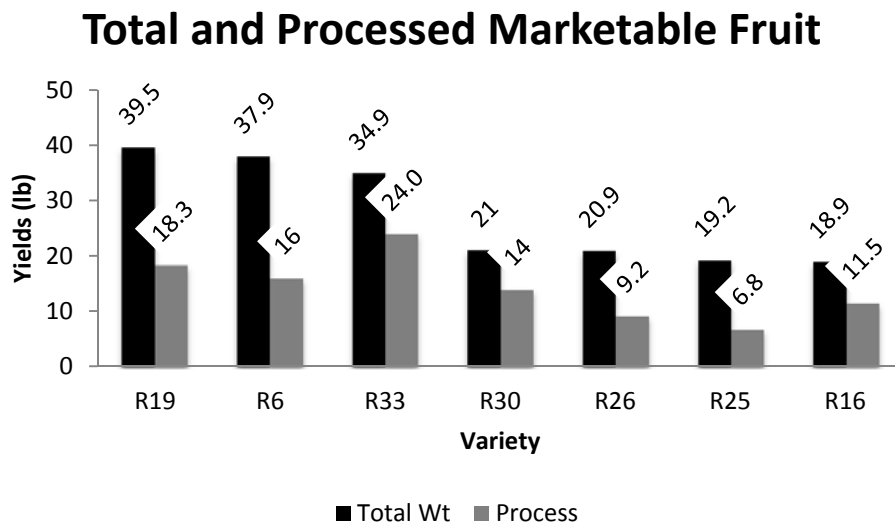


Fig. 1. Average total and processed marketable fruit yields. Fruit weight of each tree per variety of pomegranate in black. Grey bars represent the weight of the downgraded or sorted fruit.

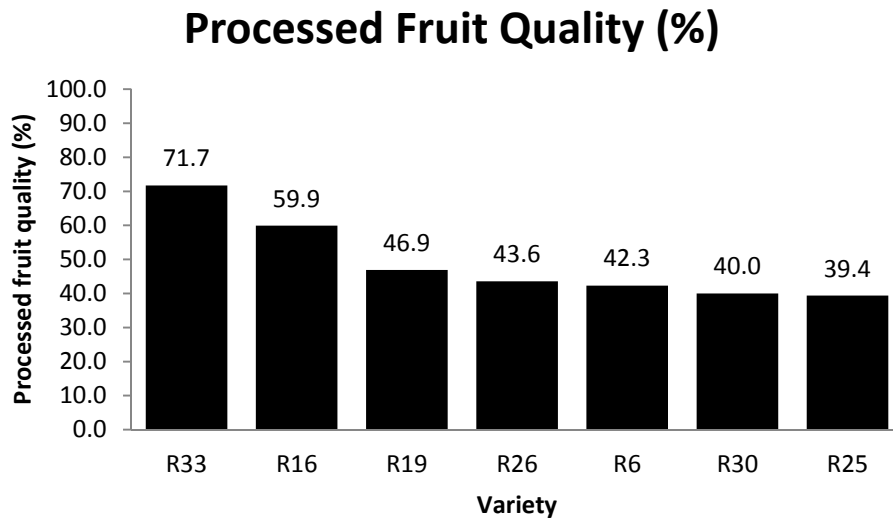


Fig. 2. Processed fruit quality in relation to the total fruit weight per tree.

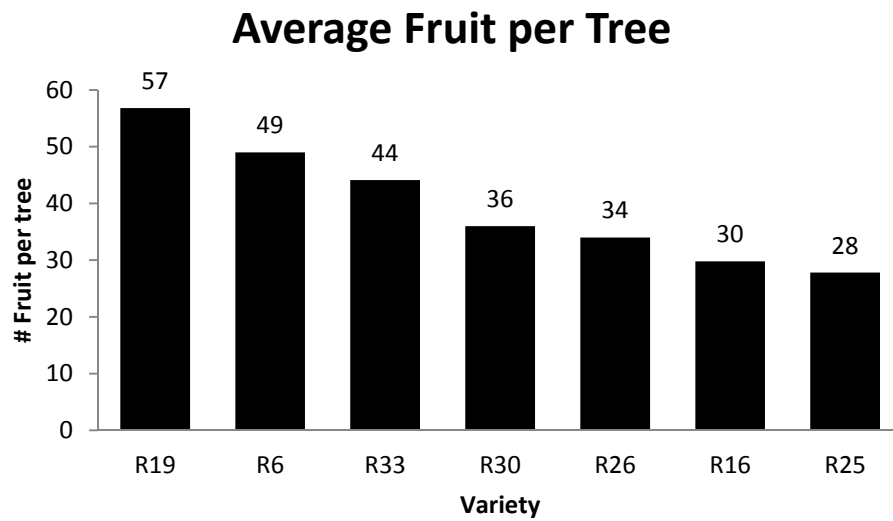


Fig. 3. Average fruit number per tree over each variety evaluated.

## 2013 Average Weight per Fruit (lb)

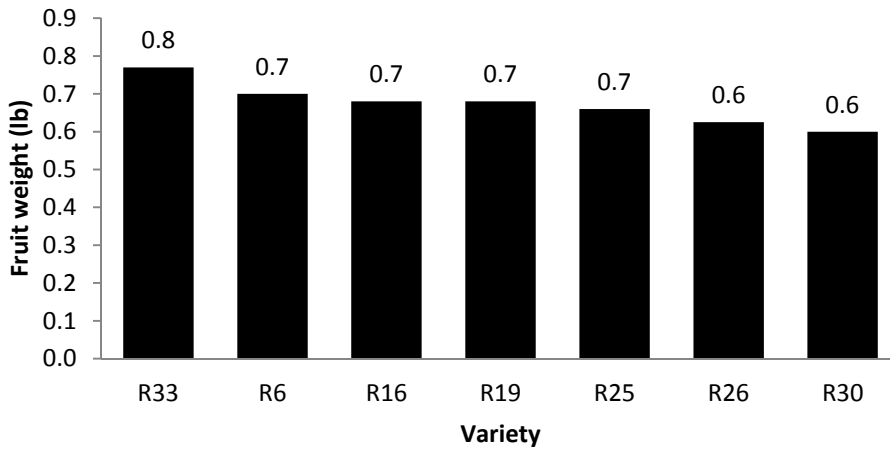


Fig. 4. Average weight of the individual fruit harvested by variety.

## 2013 Sensory Analyses

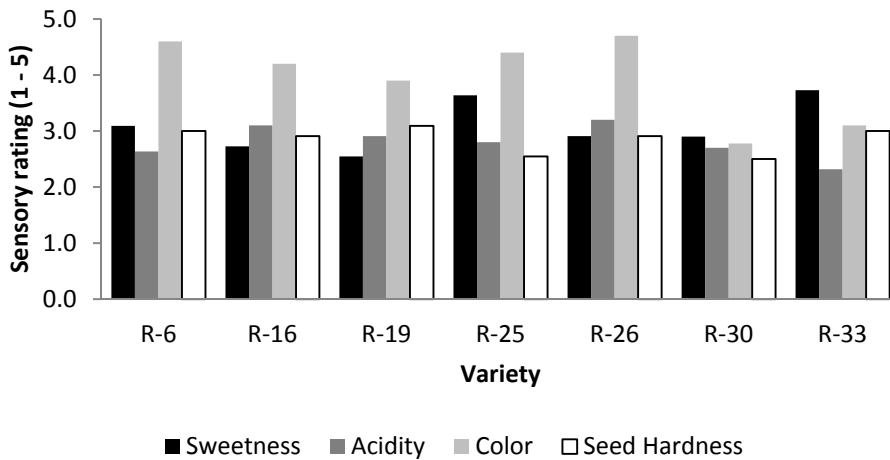


Fig. 5. Sensory evaluations of pomegranate varieties. Rating scales: Sweetness; 1 = very sweet, 5 = not sweet; Acidity 1 = very acidic, 5 = not acidic; Color 1 = white, 5 = dark red; Seed hardness 1 = very hard, 5 = very soft.