

Trials and Tribulations of High Tunnel Raspberries

Dr. Courtney Weber
Associate Professor
Department of Horticulture
Cornell University
Geneva, NY 14456
caw34@cornell.edu

Replicated raspberry variety trials were established in 2008 to evaluate 7 primocane (Autumn Britten, Caroline, Heritage, Himbo Top, Jaclyn, Joan J and Polka) and 7 floricane (Canby, Encore, K81-6, Killarney, Moutere, Prelude and Titan) varieties under high tunnels. The new variety Crimson Giant was observed in a single plot in 2010-11. Haygrove 24 ft. multi-bay tunnels were utilized with 3 rows in each bay and harvested in 2009-2011. Harvest dates, yield and fruit weight were recorded throughout each season. Fruit was evaluated for relative firmness, color and flavor as well. Observations on pest problems, harvest ease, growth habit and other traits were made each year.

The highest yielding primocane variety was Joan J in each of the 3 seasons averaging 12,800 lbs per acre (extrapolated from three 2 meter harvest plots) followed by Caroline with 9,800 lb/ac. Heritage, Himbo Top and Polka all produced similar yields of around 8,500 lb/ac. Autumn Britten and Jaclyn were the lowest yielding at around 6,200 lb/ac. Autumn Britten was consistently the earliest variety, fruiting as early as July 23 in 2010 and was also the largest fruiting variety in the replicated trial, averaging just over 3 g in each year. Heritage was the latest to begin harvest, starting harvest no earlier than August 16 and as late as August 28 and had the smallest fruit at around 2 g average. Jaclyn was considered the best flavored variety, followed by Caroline. Joan J was the firmest of the varieties. Several varieties had dark red fruit that was considered unacceptable for wholesale markets including Joan J, Caroline and Jaclyn. Jaclyn was also very difficult to harvest because the fruit adheres tightly to the receptacle. Notably, Jaclyn and Polka showed the most symptoms consistent with potato leafhopper damage, and both displayed reduced yields over time.

In the floricane trial, Moutere and K81-6 had the highest yields at just over 10,000 lb/ac followed by Killarney and Encore at 9,300 and 8,900 lb/ac, respectively. Prelude had the lowest yield at 6,700 lb/ac and the smallest fruit (2.2 g) but was consistently the earliest fruiting variety by as much as 7 days, ripening as early as June 14 in 2010. Prelude also produced a moderate primocane crop with considerably larger fruit that was not harvested due to trial parameters. The largest fruit was produced by K81-6, averaging 4.1 g. over 2 seasons followed by Titan at 3.7 g and Encore at 3.5 g. with the others averaging less than 3 g. Encore and K81-6 had the best fruit quality with good flavor and color, although both tended to get soft in high temperatures and could show sunburn. Moutere was the firmest of the varieties but had very poor flavor and a very flat red color. Canby had good quality in 2010 but in 2011 showed powdery mildew on the fruit making it unmarketable. No other notable pest problems were observed in the floricane trial.

The newly released Crimson Giant was evaluated from a single plot in 2011 for yield, fruit size and harvest dates. The first harvest began on September 17, a full month later than Heritage and continued until November 7 when the temperature became too cold for ripening. At that point an estimated 53% of the berries had been harvested with an average weight of 3.7 g over the season. Maximum fruit weight exceeded 7 g in the early season. Harvested yield up to November 7 was 5,100 lb/ac with a potential for 9600 lb/ac if all the fruit could be harvested. Crimson Giant can significantly extend the fall harvest season in temperate climates when grown in high tunnels. In winter production systems, the late harvest can also extend the season into late winter/early spring.