



New Hazelnut Cultivar

'Clark' (OSU276.142)

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'Clark' is a hazelnut selection developed by Oregon State University. Trees of this genotype are about 30 percent smaller than 'Barcelona' yet have comparable yields to 'Barcelona.' This selection has good quantitative resistance to eastern filbert blight (EFB). Harvest is 7–10 days earlier than 'Barcelona' and nuts are free-husking. Nuts have a high percent kernel, and kernels blanch well.

Horticultural characteristics

Tree growth habit. 'Clark' has an upright growth habit, yet is more branching than 'Barcelona.' Tree size is approximately 70 percent of 'Barcelona' (Figure 1).

Flowering characteristics. The incompatibility alleles are S_3S_8 . Female flowers bloom very late. 'Hall's Giant' is compatible but pollen shed is too early to pollinate the majority of 'Clark's' flowers. Suitable pollinizers still need to be identified. OSU510.041 is compatible (S_1S_{15}) with 'Clark' and is EFB immune; however, pollen shed is at the same time as 'Hall's Giant.' Other OSU selections have promise as late pollinizers and currently are under evaluation.

Yield and yield efficiency. This selection has had yields similar to 'Barcelona' in its first 5 bearing years (Figure 2). However, yield efficiency is greater since similar yields are being produced on trees that are 70 percent the size (Figure 3).

Harvest time: Nut clusters contain three to four nuts and are free-husking. Nuts fall 7–10 days earlier than 'Barcelona.'

Nut and kernel quality. Nuts of 'Clark' trees are 50 to 75 percent the size of 'Barcelona' nuts depending on the crop load of the tree (Figure 4). Kernels are 52 to 88 percent the size of 'Barcelona' kernels. In the high crop year (1997), 'Barcelona' and 'Clark' had a high percentage of defects (~40 percent). However, the majority of the defects of 'Clark' were poorly filled and shriveled kernels (27 percent), while 'Barcelona' had more blanks/brown stain (7 percent), twins (4 percent), and poorly filled nuts (18 percent). In 1998, a light crop year, the primary nut and kernel defects of 'Clark' included: blanks (5 percent) and moldy kernels (6 percent), and total defects were 19 percent. 'Barcelona' had 12 percent blank nuts, 6 percent poorly filled nuts, and 4 percent moldy kernels, and a total of 27 percent defects. The percent kernel of 'Clark' nuts, estimated from field run samples, was 51 percent in 1996, 45 percent in 1997, and 50 percent in 1998. 'Barcelona' nuts were 39–42 percent kernel in 1996 to 1998. Kernel quality is very good, with good flavor and texture, and nearly complete blanching, similar to 'Willamette.'

Propagation. Layers root easily and abundantly and are easy to handle in the nursery. Layers are less vigorous and smaller in height and caliper than those of 'Barcelona.'



'Clark' nuts, raw kernels, and blanched kernels.

Pest tolerance. A major strength of this cultivar is its quantitative resistance to eastern filbert blight. Its resistance is similar to 'Lewis.' Big bud mite tolerance is better than 'Casina' and less than 'Barcelona.' Chemical control of big bud mite should not be necessary.

Development

'Clark' was selected from progeny of a cross of 'Tombul Ghiaghli' and 'Willamette.' The cross was made in 1982 by Maxine Thompson at the Smith Vegetable and Hazelnut Research Farm. Preliminary analysis of the performance of the genotype began in the seedling row, and in 1990 it was identified as a promising selection. An advanced selection trial was established in 1992 at the Smith Farm. The data presented in this summary are from this trial.

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'Clark'

Flowering characteristics

Incompatibility alleles: S_3S_8

Time of bloom: pollen shed starts at the same time as 'Hall's Giant'; female bloom is late, after 'Ennis'

Pollinizer recommendations

'Hall's Giant'—one-quarter to one-third of the pollinizer trees

Later blooming, compatible pollinizers are yet to be identified

Estimated time of harvest

7–10 days before 'Barcelona'

Nut and kernel quality

	'Barcelona'		'Clark'	
	1997	1998	1997	1998
Nut weight (g)	3.3	3.8	1.7	2.8
Kernel weight (g)	1.4	1.5	0.8	1.4
Kernel percentage	41	39	45	50
Blanching rating (1-7; 1=100% removal of pellicle)	3.9	5.2	2.6	3.5
Nuts free of defects (%)	70	74	69	81

Pest tolerance

Eastern filbert blight: quantitative resistance good and similar to 'Lewis'

Big bud mite: better than 'Casina' and less than 'Barcelona'

Released January 5, 1999

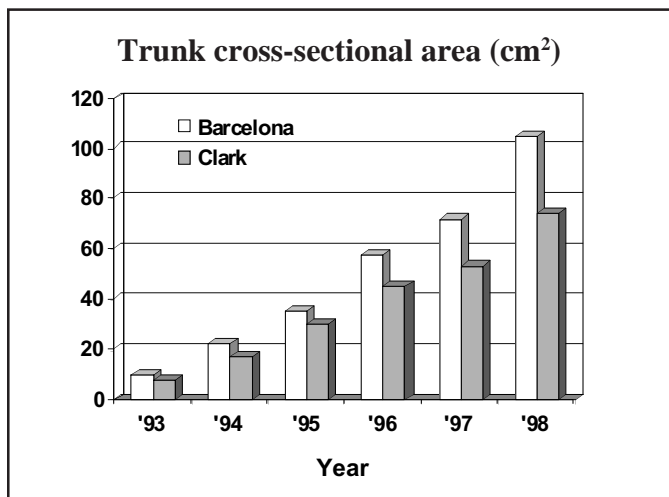


Figure 1.—Trunk cross-sectional area.

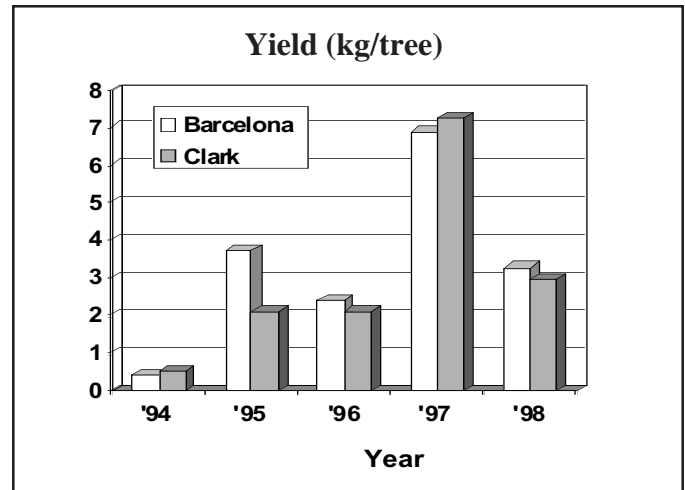


Figure 2.—Nut yield.

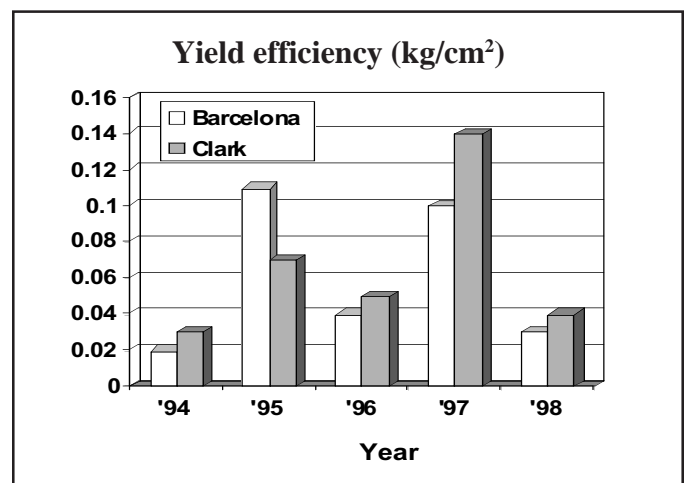


Figure 3.—Yield efficiency.

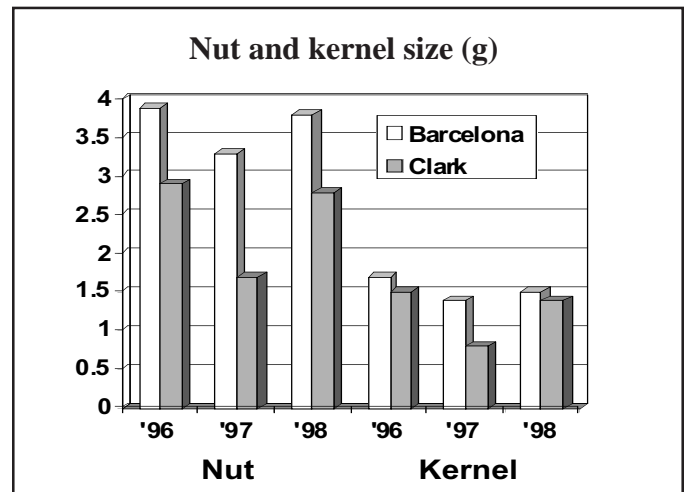


Figure 4.—Nut and kernel size.

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Published March 1999.