

# ‘NJ55’ Apple

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*Additional index words.* *Malus domestica*, fruit breeding, storage quality, SunCrisp

‘NJ55’ apple is a firm golden apple (*Malus domestica* Borkh.) with a prominent orange-red blush and excellent flavor. Fruit ripen ≈1 week after ‘Golden Delicious’ and maintain their crisp texture and good flavor for several months in common storage at 1C. ‘NJ55’ is being released by the New Jersey Agricultural Expt. Station (NJAES) for fruit growers interested in quality apple cultivars for wholesale or roadside markets. The cultivar was patented as ‘NJ55’ but is being sold by commercial nurseries under the registered trademark name SunCrisp.

## Origin

‘NJ55’ originated from a cross between a numbered selection (NJ303955) and ‘Golden Delicious’ made in 1963 by L. Fredric Hough and Catherine Bailey at the Rutgers Horticultural Research Farm, New Brunswick, N.J. (Fig. 1). The tree was first selected in 1971 at the Rutgers Fruit Research and Extension Center, Cream Ridge, N.J. Its field location was designated B8-33-20. The tree was propagated on M7a and apple seedling rootstocks and tested as NJ55. ‘NJ55’ also has been evaluated in trials in Washington, Oregon, Illinois, Indiana, Ohio, New York, Massachusetts, Virginia, France, and Belgium.

## Description and performance

‘NJ55’ fruit are large and firm (Fig.2). The average fruit weight of ‘NJ55’ in Prosser, Wash., was 220 g compared to 188 g for ‘Golden Delicious’ (Norton et al., 1993). The skin color at harvest is yellow-green with an orange-red blush covering ≤40% of the fruit on the sun-exposed skin. ‘NJ55’ is more prone to skin russet than ‘Golden Delicious’, especially in the stem cavity; this may limit its potential for the wholesale market in regions where russetting on ‘Golden Delicious’ is objectionable.

The flesh color is creamy white to yellowish white. At the optimum harvest date, ‘NJ55’

fruit are firm (70 to 80 N) (Norton et al., 1991, 1994), and they maintain firmness better than ‘Golden Delicious’ in common refrigerated storage (Gussman et al., 1993). In informal tests, fruit were judged to be of excellent eating quality; soluble solids concentration (SSC) (13% to 14.8%) is high. They have a balanced sugar : acid ratio between 2.0 and 2.2 [as defined by the SSC (percent) : titratable acidity (milligram per liter of malic acid equivalent) ratio] (Norton et al., 1991). After 4 to 5 months of common refrigerated storage at 1C, the eating quality of ‘NJ55’ did not differ significantly from that of ‘Red Fuji’ in sensory evaluation tests (Stebbins et al., 1990, 1991a) or ‘Braeburn’ (Stebbins et al., 1991b). Thinning the fruit to 15.2 to 20.3 cm apart was necessary to maximize fruit quality.

In our studies, fruit stored in perforated plastic bags maintained their aromatic flavor and texture for ≤6 months in common storage at 1C. Unwaxed fruit stored in open boxes were prone to desiccation. Moderate superficial scald was observed in 1991 when fruit were immediately stored in perforated plastic bags. Preliminary tests conducted by the fruit processing industry indicate that ‘NJ55’ also may have potential as a processed apple. Oxidative browning was minimal on ‘NJ55’ fruit slices.

‘NJ55’ trees are of medium vigor and upright to semi-erect. ‘NJ55’ generally blooms with ‘Golden Delicious’. Compatibility with standard cultivars has not been examined, but it is likely an effective pollinizer for apples blooming in its season because it has been successfully used as a pollen parent in our breeding program. When propagated on M7a rootstock, trees were precocious and productive. Fruit is well distributed throughout the tree canopy and is borne on spurs and terminals. Older trees exhibited a high tendency for

biennial bearing when fruit are thinned late or inadequately. Preliminary reports from midwestern states indicate that ‘NJ55’ is at least moderately susceptible to fire blight incited by *Erwinia amylovora* (Burr.) Winslow et al. ‘NJ55’ does not carry any qualitative genes for disease or insect resistance. Consequently, a standard pest control program should be followed.

The following detailed description of ‘NJ55’ is based on Hedrick (1925) and uses color designations in accordance with the *Royal Horticultural Colour Chart* issued by the British Colour Council in collaboration with the Royal Horticultural Society. Color also was measured in terms of its color space coordinates (L\*, a\*, and b\*) with a chromameter (model CR-300; Minolta, Ramsey, N.J.) calibrated with a white calibration plate.

## FLOWER

Petals: Length, 2.2 cm; width, 1.2 cm.  
 Corolla: Diameter at anthesis, 3.9 cm.  
 Color: Flower buds are crimson plate 59a (L\* = 25.66, a\* = +30.60, b\* = +6.60), fading to white (open flowers).

## FRUIT

Shape: Round to conic, slightly irregular.  
 Size: Axial diameter, 7.0 cm; transverse diameter, 8.0 cm.  
 Color: Undercolor is yellow-green (plate 153d; L\* = 75.47, a\* = -12.04, b\* = +46.76). Overcolor is orange-red (plate 34b to 34c; L\* = 62.35, a\* = +18.72, b\* = +36.34), covering between 0% and 40%.  
 Skin: Slightly rough with some small light-brown irregular dots (lenticels) mostly on the fruit shoulder; medium thick.  
 Stem: Medium, 1.5 to 2 cm; medium thick; clubbed.  
 Cavity: Acuminate, deep, medium width, slight to moderate russet.  
 Basin: Medium in depth, slightly furrowed, wide in breadth.  
 Calyx: Persistent, erect, partly open with divergent calyx tips.  
 Calyx tube: Short, funnel shape.

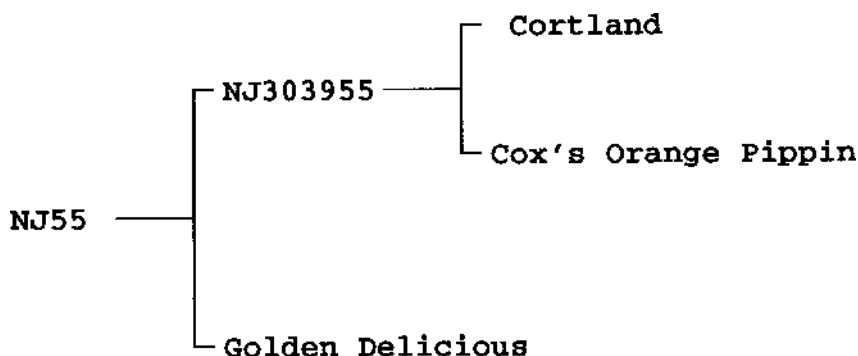


Fig. 1. Pedigree of ‘NJ55’ apple.

Received for publication 24 May 1994. Accepted for publication 27 Aug. 1994. Paper no. D12166-3-94 of the Journal Series, New Jersey Agricultural Expt. Station. This research was supported by state and Hatch funds. The cost of publishing this paper was defrayed in part by the payment of page charges. Under postal regulations, this paper therefore must be hereby marked *advertisement* solely to indicate this fact.

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Stamen remnants: Marginal.  
 Core: Median position.  
 Core lines: Claspings, distinct.  
 Carpels: Axile, closed in cross section; obovate in longitudinal section.  
 Seeds: Acuminate, plump, not tufted.  
 Maturity: One week after 'Golden Delicious'.  
 Keeping quality: Excellent, retains quality and texture for ≤5 months in refrigerated storage at 1C.  
 Use: Late maturity, long storage, dessert apple.

**FLESH**

Texture: Medium to coarse, crisp, breaking, firm.  
 Quality: Sweet, mild subacid, rich aromatic flavor, excellent dessert quality.  
 Color: Naples yellow (plate 11c).  
 Aroma: Slight.

**TREE**

Tree: Medium, upright to semi-erect, very productive, precocious, tendency toward biennial bearing.  
 Leaves: Elliptic; serrate; length : width ratio, 2.0.

**Availability**

Limited quantities of nonindexed budwood are available for testing purposes only from the Rutgers Fruit Research and Extension Center, 283 Route 539, Cream Ridge, NJ 08514. Virus-indexed budwood is available from the IR-2 Program, WSU Irrigated Agriculture Research and Extension Center, Route 2, Box 2953A, Prosser, WA 99350-9687, with

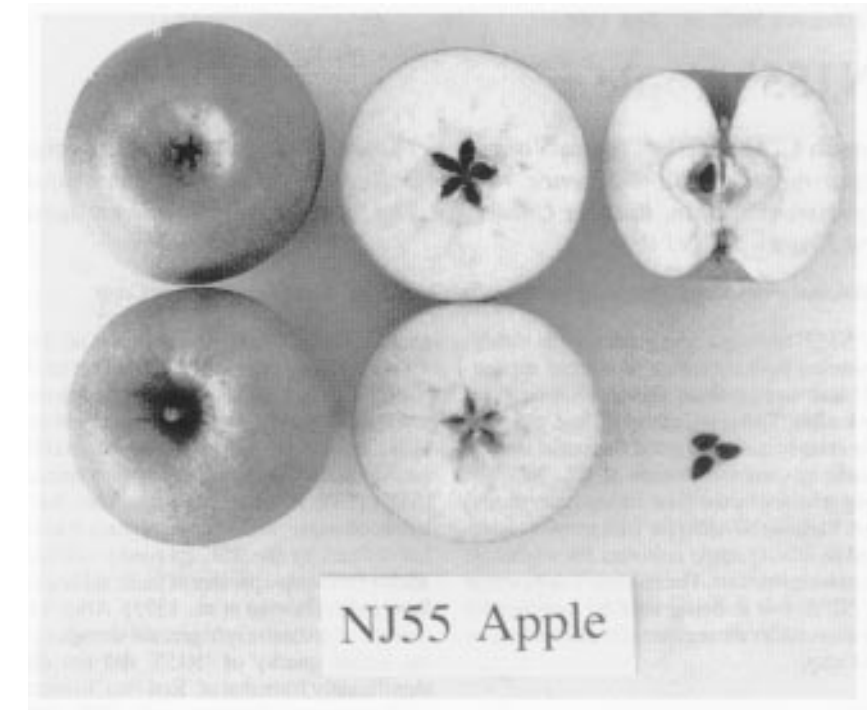


Fig. 2. Fruit and seeds of 'NJ55' apple.

written permission from the NJAES. Plant patent no. 8648 was granted for this cultivar on 22 Mar. 1994 and assigned to Rutgers Univ., New Brunswick, N.J. 'NJ55' trees are sold by licensed commercial nurseries under the registered trademark name SunCrisp. Nurseries desiring a propagation license should write to J.C.G.

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