L 86-33 Sweetpotato Germplasm

L.H. Rolston¹, D.R. La Bonte², W.A. Mulkey³, C.A. Clark⁴,
J.M. Cannons, and P.W. Wilson⁶

Louisiana Agricultural Experiment Station, Louisiana State University
Agricultural Center, Baton Rouge, LA 70803

Additional index words. *Ipomoea batatas*, vegetable breeding, disease resistance

L 86-33 sweetpotato [*Ipomoea batatas* (L.) Lam.] was developed by the Louisiana Agricultural Experiment Station. This breeding line has a unique combination of disease resistance and high yield and excellent baking and processing qualities.

Origin

L 86-33 originated from the breeding program of L.H. Rolston as an open-pollinated seedling of L. 82-508, 'Beauregard', poly-crossed in 1985. The female lineage of L 82-508 is L 78-21. L 78-21 originated from L 70-197.

Received for publication 24 May 1993. Accepted for publication 19 Nov. 1993. Approved for publication by the Director of the Louisiana Agricultural Experiment Station as manuscript no. 93-28-7123. Supported by state and matching funds allocated to the Louisiana State Univ. Agricultural Center and the Louisiana Sweet Potato Advertising and Development Commission. 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.

¹Professor, Dept. of Entomology.

²Assistant Professor, Dept. of Horticulture, to whom reprint requests should be addressed.

³Resident Director, Sweet Potato Research Station, P.O. Box 120, Chase, LA 71324.

⁴Professor, Dept. of Plant Pathology and Crop Physiology.

⁵Specialist (Horticulture), Louisiana Cooperative Extension Service.

⁶Associate Professor, Dept. of Horticulture.

Description

L 86-33 has moderately long green-stemmed vines and a dense canopy, similar to that of 'Jewel'. Leaves are cordate, dark green with light purple adaxial and purple abaxial venation. The petiole is purple at the base and at the junction with the leaf axis. Storage roots are long, elliptic, and smooth with light-red skin that is lighter than that of 'Red Glow' and darker than that of 'Beauregard'. The cortex is thin (2.5 to 3.0 mm), and the flesh is uniform deep orange. Dry matter concentration is 24%, 26% for 'Jewel'. Baking and canning qualities are similar to those of 'Jewel' (1990, 1991, 1992 National Sweetpotato Collaborators regional trials). Flowering and seed set are moderate, similar to those of 'Beauregard'.

Disease and insect resistance

L 86-33 has a resistant reaction to fusarium wilt [*Fusarium oxysporum* Schlecht. f. sp. *batatas* (Wallenw.) Snyder & Hans], similar to that of 'Goldrush'. Reaction to southern root-knot nematode [*Meloidogyne incognita* (Kofoid and White) Chitwood] is intermediate, slightly less resistant than 'Jewel' and superior to that of 'Beauregard'. It is resistant to soil rot [*Streptomyces ipomoea* (Person & W.J. Martin) Waksman & Henrici]; the reaction is superior to that of 'Beauregard'. Yield and shape are not affected by severe soil rot conditions. L 86-33 does not show symptoms to the viral disease internal cork. Storage roots are resistant to bacterial root rot (*Erwinia chrysanthemi* Burkholder, McFadden, & Dimock), superior to 'Jewel'. Storage roots are resistant to fusarium root rot caused by *Fusarium solani* (Sacc.) Mart. emend. Snyder.

& Hans., similar to 'Beauregard' and superior to 'Jewel'.

L 86-33 is susceptible to both white grub species, *Plectris aliena* Chapin (1992 National Sweetpotato Collaborators regional trials) and *Phyllophaga ephialda* (Say.), similar to 'Jewel'. It is similar to 'Jewel' in susceptibility to the banded cucumber beetle (*Diabrotica balteata* Leconte). It is susceptible to the sweetpotato flea beetle (*Chaetocnema confinis* Crotch) when compared with resistant controls 'Regal' and 'Excel' (1992 National Sweetpotato Collaborators regional trials). Susceptibility to the wireworms, *Diabrotica*, *Systema* complex, is similar to that of 'Jewel', 'Centennial', and 'Vardaman' (1990, 1991, and 1992 National Sweetpotato Collaborators regional trials).

Plant production, root quality, and yield

L 86-33 has been evaluated for plant production, root quality, and yield in the National Sweetpotato Collaborators regional trials for 3 years. Plant production, uniformity of emergence, and earliness of plants in root beds is inferior to that of 'Beauregard' and 'Jewel' (1990, 1991, and 1992 National Sweetpotato Collaborators regional trials). L 86-33 retains its deep orange flesh up to 10 months in storage at 15C and is not a precocious sprouter in storage. L 86-33 requires 110 to 120 growing days, similar to 'Jewel'. Yield of L 86-33 was superior to that of 'Jewel' and similar to that of 'Beauregard' (1990, 1991, and 1992 National Sweetpotato Collaborators regional trials); however, the U.S. #1 grade roots (5.1 to 8.9 cm in diameter; 7.6 to 22.9 cm long) are more elongate than those of 'Beauregard' (15 to 18 cm vs. 12 to 16 cm) and less marketable, particularly when grown in light-textured soils. In 30 test plots in Louisiana, L 86-33 produced 13% less (by weight) U.S. #1 grade roots when compared to 'Beauregard'.

Availability

Limited quantities of seed stock will be available for free distribution to researchers upon written request to the Sweet Potato Research Station, P.O. Box 120, Chase, LA 71324 or the Southern Regional Plant Introduction Station, 1109 Experiment St., Griffin, GA 30223.