

Registration of 'NC-Roy' Soybean

'NC-Roy' soybean [*Glycine max* (L.) Merr.] (Reg. no. CV-475, PI 617045) was developed by USDA-ARS in cooperation with the North Carolina Agricultural Research Service. It was released in 2001 to provide a cultivar of Group VI maturity that is a high yielding alternative to Group VI soybean cultivars currently in production. NC-Roy is adapted to production areas between 33 and 37° N latitude.

NC-Roy is the bulk of an F₅-derived line selected from the cross 'Holladay' × 'Brim' (Burton et al., 1994; Burton et al., 1996). Holladay and Brim were crossed in 1990 at Clayton, NC, and the F₁ was grown in the USDA Winter Soybean Nursery at Isabella, PR, the following winter. The F₁ progenies were inbred in North Carolina and Puerto Rico to the F₅ generation using single seed descent (Brim, 1966). Initial testing of the line occurred in 1994 and 1995. Before release, the breeding line was designated N94-552. NC-Roy was evaluated in the USDA Uniform Group VI tests from 1997 to 1999 (Tyler et al., 2000).

NC-Roy is similar in maturity to the cultivar Boggs (Boerma et al., 2000) in full season planting. It performed best in the East Coast region (eight environments, 1997–1999) where it yielded 8% more than Boggs. In the North Carolina Official Variety Test grown in 2001, 2002, and 2003 (a total of 17 locations), the average yield for NC-Roy was 3292 kg ha⁻¹ (Bowman, 2003). The commercial cultivar of similar maturity included in all three tests, Southern States 'SS665N', yielded 3091 kg ha⁻¹.

In the USDA Uniform Group VI tests, the average seed protein and oil concentrations for NC-Roy were 426 and 189 g kg⁻¹ seed, compared with 429 g protein kg⁻¹ seed and 199 g oil kg⁻¹ seed for Boggs (Tyler et al., 2000). NC-Roy has yellow seeds with dull luster and buff hila, brown pod walls, white flowers, gray pubescence, and determinate growth habit. In the USDA Uniform tests, seed size averaged 12.8 g 100 seeds⁻¹ (0.5 g 100 seeds⁻¹ less than Boggs), and plant height averaged 86 cm (8 cm greater than Boggs, Tyler et al., 2000). NC-Roy has good resistance to lodging (a score of 2 on a 1–5 scale, 1 being no lodging) and *Soybean mosaic virus*. It is susceptible to soybean cyst nematode (*Heterodera glycines* Ichinohe) and root knot nematodes [*Meloidogyne arenaria* (Neal) Chitwood and *M. incognita* (Kofoed and White) Chitwood]. Based on North Carolina field observations in 2004, NC-Roy has resistance to frogeye leaf spot (caused by *Cercospora sojina* Hara)

and susceptibility to powdery mildew (caused by *Microspora diffusa* Cke. & Pk.).

In 2000, Breeder seed was provided to the North Carolina Foundation Seed Producers, 8220 Riley Hill Road, Zebulon, NC 27597 for increase. The North Carolina Agricultural Research Service will be responsible for maintaining Breeder seed. Small quantities of NC-Roy seeds can be obtained (for research and breeding purposes) from the corresponding author for at least 5 yr from the date of this publication.

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