‘Oregon 54’ Green Bean

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‘Oregon 54’ green bean (*Phaseolus vulgaris* L.) is a bush-type cultivar with a ‘Blue Lake’ background, developed primarily for processing in the Willamette Valley of Oregon. It is similar in pod type to ‘Oregon 91G’ (Baggett et al., 1981), the predominant cultivar processed in western Oregon for >10 years. It matures 2 days later than ‘Oregon 91G’. In 31 replicated plot trials over 6 years, the average ‘Oregon 54’ yield was $\approx 1 \text{ t}\cdot\text{ha}^{-1}$ higher than that of ‘Oregon 91G’, and the crop value per ha was about \$220 higher for ‘Oregon 54’ (Table 1). Processed pod quality, judged by processing industry panels, is about equal to that of ‘Oregon 91G’, except that ‘Oregon 54’ has better pod appearance.

‘Oregon 54’ was released jointly in 1992 by the Oregon and Idaho agricultural experiment stations and the Washington Agricultural Research Center.

Origin

‘Oregon 54’ originated as an F_7 selection developed by pedigree breeding from the cross OSU 5078 $\times$ OSU 5052. Also involved in the pedigree (Fig. 1) were ‘Oregon 43’ (Baggett et al., 1983), ‘Oregon 55’ (Baggett et al., 1992), ‘Oregon 1604’, and ‘Oregon 58’. These are bush Blue Lake-type cultivars developed in the Oregon State Univ. program, started in 1948, that initially involved crosses and backcrosses between bush cultivars and ‘Blue Lake’ pole beans (Frazier et al., 1958). The pedigrees of ‘Oregon 43’ and ‘Oregon 55’ (Baggett et al., 1982a, 1982b) include ‘White Seeded Slendergreen’, ‘White Seeded Tendercrop’, ‘Logan’, and ‘Bush Blue Lake 290’ (BBL 290). Pedigrees of OSU 2217, OSU 2313, ‘Oregon 1604’, and ‘Oregon 58’ are available from J.R.B.

Description

The ‘Oregon 54’ plant is determinate and upright until heavily podded, with medium-

long internodes. Leaves are dark green and nearly glabrous. Plants may reach 45 cm in height (to the apex of the top pod cluster) under good growing conditions. Beans mature mid-season, usually ≈ 70 days from seeding in mid-May (≈ 2 days later than ‘Oregon 91G’). Pods are borne well off the ground. Flower clusters usually bear four flower buds and two pods that develop to maturity.

Pods (Fig. 2) are dark green, smooth, and straight. Full-sized pods are ≈ 14 , 16, and 18 cm long at sieve size 3, 4, and 5, respectively. Pod cross-section is slightly oval when the pods are young, becoming round at maturity and slightly creaseback (broader than deep) when overmature. Flavor is typical of Blue Lake-type beans. Pods are stringless and free from detectable fiber in usable stages. ‘Oregon 54’ pods are similar to those of ‘Oregon 91G’ in appearance and quality but have been judged by processing industry representatives to be smoother and straighter. The seed content of ‘Oregon 54’ processed pods is generally higher than that of ‘Oregon 91G’. Seeds are green when immature and white when mature. Full-sized pods have six to seven seeds. There are ≈ 4270 mature dry seeds/kg.

‘Oregon 54’ carries the dominant *I* gene for resistance to bean common mosaic virus. Compared to ‘Oregon 91G’ and similar cultivars, ‘Oregon 54’ is slightly more susceptible to white mold [*Sclerotinia sclerotiorum* (Lib) de Bary] and slightly less susceptible to root rot [*Fusarium solani* (Mart) Appel & W. f. sp.

Table 1. Summary of green bean yields, Corvallis, Ore., 1988 to 1993.^z

Cultivar	Yield ($\text{t}\cdot\text{ha}^{-1}$) ^z		Dollars/ha ^a
	Nonadjusted	Adjusted ^y	
Oregon 91G	18.8	18.8	1740
Oregon 54	19.7	20.7	1962
LSD _{0.05}	0.7	0.8	134

^zMeans from 31 trials conducted from 1988 to 1993. Each trial had four replications in a randomized complete-block design. In an analysis of variance, a replication number of 124 was used. One to several 1.5-m plots were harvested from each replication. In each trial, data from the harvest closest to 50% 1- to 4-sieve in maturity was selected for analysis.

^yAdjusted to 50% 1- to 4-sieve maturity, using a standard average conversion factor derived from trials of bush Blue Lake-type cultivars.

^aData from same harvest used in yield, but four replications combined for grading; 31 trials were used as replications in an analysis of variance. Value based on price of \$302/t for 1- to 4-sieve pods, \$140/t for 5-sieve and larger pods.

Fig. 1. Pedigree of ‘Oregon 54’ green bean.

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Fig. 2. Pods of 'Oregon 54' at approximate sieve grade 4.

phaseoli (Burk) Snyder and Hans.]. It has not been tested for susceptibility to other bean diseases.

'Oregon 54' has not been extensively tested outside of western Oregon. Because of experience with 'Oregon 91G' and similar cultivars, we presume that 'Oregon 54' adaptation outside of this area will be limited.

Availability

Small seed samples for observation trials and information on the commercial availability of seed can be obtained from J.R.B.

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