

# 'Sweet Dani': A New Culinary and Ornamental Lemon Basil

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'Sweet Dani', a new annual lemon basil (*Ocimum basilicum* L.) cultivar with an intense lemon aroma, light green leaves, and small white flowers, provides a new type of lemon basil for the herb industry. The plant differentiates individually from commercial lemon basil cultivars in one or more characters. The plant is taller and more robust, has larger leaf area and a rounder shape, and a higher concentration of citral (60% to 76% of total oil) in the essential oil; the plant also has a distinctive upright growth habit not found in any other commercial lemon basil cultivar. 'Sweet Dani' is an attractive ornamental that can be grown successfully as a culinary herb, used fresh in floral arrangements, or dried for use in potpourris. The leaves and flowers can be used alone or in mixtures with other herbs to prepare herbal teas or as a flavoring for many kinds of foods and beverages. 'Sweet Dani' has been selected as an All-American Selection Winner.

## Origin

'Sweet Dani' was derived by four generations of pedigree selection from a plant found in the progeny of U.S. Dept. of Agriculture (USDA) PI # 358465 (originally from Yugoslavia) that had undergone natural outcrossing with 51 other USDA basil accessions from six countries (Iran, Taiwan, Thailand, Turkey, Yugoslavia, and Zambia) planted for observation in 1985. Each accession was planted into a randomized block design with two replications. Each plot consisted of two rows, 4 m

long, with plants 30 cm apart. Some natural outcrossing likely occurred between PI # 358465 and its closest neighboring accessions. Krishnan (1981) reported a varietal outcrossing frequency in sweet basil of 67%. Seeds

from each accession (half-sib family) were bulked at harvest. Half-sib seeds derived from PI # 358465 (B096) were planted for field observation at the O'Neill Research Center Farm in central Indiana in 1989. At flowering, plants were evaluated, and a single plant was selected based on its tall upright growth habit, attractive appearance, and strong lemon fragrance. The plant was transplanted to a greenhouse and self pollinated. Progeny were highly heterogeneous, allowing for the selection of vigorous, uniform, and tall plants with high citral content in the essential oil. Such plants were selfed further in each of four subsequent generations (Fig. 1). Natural selfing was accomplished by isolating the plants in the greenhouse. The cultivar being released performed well (relative to growth, vigor, and aroma) in central Indiana (Table 1).

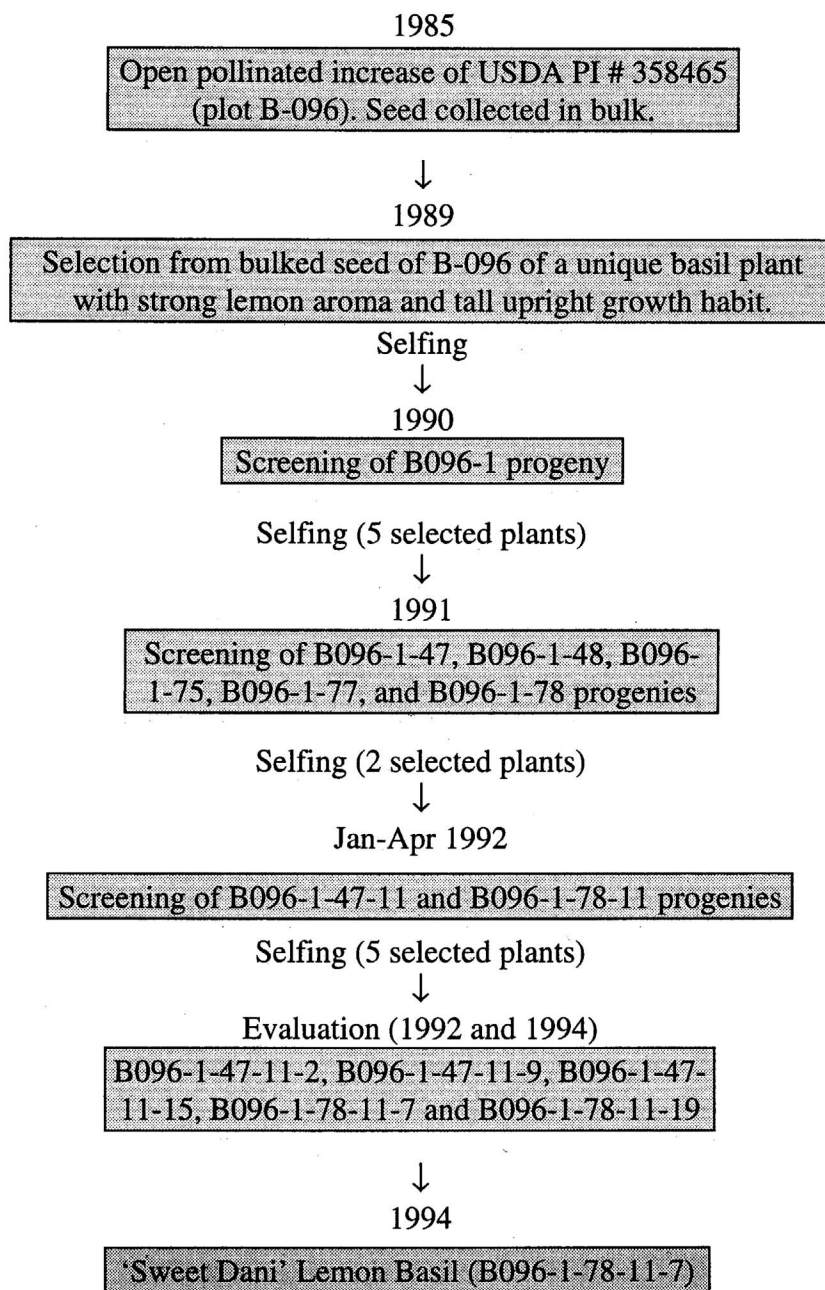


Fig. 1. Genealogy of 'Sweet Dani', a new lemon basil (*Ocimum basilicum* L.) cultivar.

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## Description

'Sweet Dani' has large ovate leaves that are uniformly light green. Plants are tall (60 to 70 cm), bushy and flower at  $\approx 75$  to 80 days after planting. Inflorescences are slim and long (30 to 40 cm), with small white flowers borne in rosettes or whorls of six spaced 2.5 cm along the stiff rachis (Fig. 2). Blooming is profuse and lasts  $\approx 15$  to 20 days. This plant can be pruned back and kept vegetative for long periods. Plants are frequently visited by numerous insects, particularly bee species and butterflies throughout the blooming period. The high citral content in the essential oil results in a distinct and strong lemon aroma.

## Performance

Horticultural characteristics of 'Sweet Dani' were assessed in a replicated field experiment in 1992 and 1994. Plant dry weight, height, and width; leaf length, width, and area; total oil content; and the percentage of citral in the total oil were compared with those of the original source population ( $S_1$ ) and two commercial cultivars ['Mrs. Burn's' (seed provided by T. DeBaggio Herbs, Arlington, Va.) and a generic 'Lemon Basil' (seed source: Johnny's Selected Seeds, Albion, Maine)]. Plant foliage and flowers were harvested at late blooming stage, 116 and 119 days after planting in 1992 and 1994, respectively, then

Table 1. Comparison of plant, leaf, and oil characteristics among 'Sweet Dani' and three other lemon basil populations grown in central Indiana (means of 1992 and 1994).

Cultivar	Plant			Leaf			Total oil content (%) <sup>y</sup>	Citral (as % of total oil)
	Dry biomass (g)	Ht (cm)	Width <sup>z</sup> (cm)	Length (cm)	Width (cm)	Area <sup>z</sup> (cm <sup>2</sup> )		
Sweet Dani	169 a <sup>x</sup>	67 a	70 b	6.8 ~	2.7 a	19.5 b	0.70 a	68 a
Source <sup>w</sup>	124 b	57 b	57 c	6.7	.8 a	20.8 a	0.49 a	56 a
Johnny's	89 c	31 c	58 c	4.1 b	2.1 b	6.4 d	0.65 a	58 a
Mrs. Burn's	165 a	50 b	80 a	6.5 a	3.5 a	18.3 c	1.75 a	28 b
Interaction								
Year $\times$ cultivar <sup>z</sup>	NS	NS		NS	NS		**	NS

<sup>z</sup>1992 data only.

<sup>y</sup>Percentage based on mL/100 g of dry weight.

<sup>x</sup>Mean separation within columns by Duncan's multiple range test at  $P \leq 0.05$ .

<sup>w</sup> $S_1$  progeny from the original plant selection.

<sup>ns, \*\*</sup>Nonsignificant or significant at  $P \leq 0.01$ .



Fig. 2. 'Sweet Dani' growing in central Indiana. Bar on top left = 1 cm.

dried at 36 °C for total essential oil extraction and compositional analysis (Charles and Simon, 1990).

The most common true-to-type lemon basil is the generic 'Lemon Basil', characterized by its short stature (31 cm, Table 1) and early flowering (53 to 58 days). 'Sweet Dani' is significantly taller and has a larger leaf area than the commercial lemon basil studied. Compared to the generic 'Lemon Basil' from Johnny's Selected Seeds, 'Sweet Dani' is a wider plant, producing almost twice as much dry biomass (Table 1). The main distinctiveness of 'Sweet Dani' is its high citral content (as a relative percentage of the total oil), which was more than twice that of 'Mrs. Burn's' (68% vs. 28%, respectively), the only other relatively tall type of lemon basil. Growth habit is another important difference between 'Sweet Dani' and 'Mrs. Burn's'. Although 'Sweet Dani' has an upright growth (its branches do not touch the ground), 'Mrs. Burn's' has a wider, more spread-out growth, with its lower branches growing in a more open angle, touching the ground and then arching up. This feature explains the wider plant of 'Mrs. Burn's' compared to 'Sweet Dani' (80 vs. 70 cm) (Table 1). Except for total essential oil content, there was no year  $\times$  cultivar interaction for the traits studied, which implies that there was consistency in the response between cultivars. These data agree with the horticultural performance of earlier generations of this new lemon basil germplasm (Morales et al., 1993).

## Availability

'Sweet Dani' seed is available commercially from Pan American Seed Co., West Chicago, Ill. (phone: 630/231-1400). Small seed quantities for experimental purposes can be obtained from M.R.M. and J.E.S.

## Literature Cited

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