'Petite-N-Green', a Small-seeded, Full-season, Green Cotyledon, Pinkeye-type Southernpea

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'Petite-N-Green' is a new southernpea [*Vigna unguiculata* (L.) Walp.] that was released on 7 Aug. 1998 by the U.S. Dept. of Agriculture, Agricultural Research Service (USDA, ARS). 'Petite-N-Green' is a small-seeded, full-season, large-vined, pinkeye-type southernpea that exhibits the green cotyledon trait. The new cultivar produces excellent yields of small, delicate peas that can be harvested dry without loss of their fresh green color. The unique combination of plant habit, maturity, and seed traits should make 'Petite-N-Green' more appealing to home gardeners than the recently released pinkeye-type, green cotyledon cultivar Charleston Greenpack (Fery, 1998), which was developed for the frozen food industry.

Origin

'Petite-N-Green' was developed over an 8-year period using a pedigree breeding procedure that included a single cross and repeated single-plant selections (Fig. 1). The cross involved 'Bettergreen', a cream-type pea with green-colored cotyledons, and 'Coronet', a pinkeye-type cultivar with cream-colored cotyledons (Brantley, 1976; Fery et al., 1993). Intense selection pressure was applied in the F₂ through the F₉ generations for the green cotyledon phenotype and superior horticultural characteristics. 'Petite-N-Green' originated as a bulk of an F₉ population grown in 1994.

Description

'Petite-N-Green' has a low, bushy plant habit similar to that of 'Coronet'. It has a more procumbent vine than does 'Charleston Greenpack' (Table 1). 'Petite-N-Green' produces dry pods in 70 to 76 d, 4 to 7 d later than 'Charleston Greenpack' and 2 to 9 d later than 'Coronet' and 'Pinkeye Purple Hull-BVR'

(Table 2). There is extensive pigmentation (purple) on the peduncles; the stems, branches, and petioles contain slight to moderate pigmentation at the bases and tips. Flower color is predominately white; the upper, inside margin of the standard is lightly pigmented (violet), the base of the standard is yellow, and the wing is pigmented (violet) on the back surface. Pod set is concentrated, and the pods are borne at foliage level in a scattered fashion. Dry pods are attached to the peduncles in a pendant manner, and each peduncle typically produces two pods.

A typical 'Petite-N-Green' pod is moderately curved, 14 cm long, and contains 14 peas

(Fig. 2). 'Petite-N-Green' produces more peas per pod than do 'Charleston Greenpack', 'Coronet', or 'Pinkeye Purple Hull-BVR' (Table 1). Pod color is green when immature, and dark purple when ready for mature-green harvest and when dry. The upper sutures and tips of immature pods are pigmented. Fresh peas are ovate to kidney-shaped and have a pink eye that is quite similar to fresh 'Charleston Greenpack', 'Coronet', and 'Pinkeye Purple Hull-BVR' peas. Dry peas are small (9.7–13.1 g per 100 peas) and have a smooth seedcoat (Table 2). 'Petite-N-Green' peas are 11.5% to 20.5% smaller than 'Charleston Greenpack' peas, 10.9% to 24.6% smaller than 'Coronet' peas, and 12.1% to 24.1% smaller than 'Pinkeye Purple Hull-BVR' peas. Results of replicated spring and summer field tests conducted at Charleston, S.C., during 1996 and 1997 indicated that yields of 'Petite-N-Green' were comparable with those of 'Charleston Greenpack', 'Coronet', and 'Pinkeye Purple Hull-BVR' (Table 2).

'Petite-N-Green' is homozygous for the *gc* gene that conditions the green cotyledon trait (Fery and Dukes, 1994). Seedcoats and cotyledons of field-grown 'Petite-N-Green' peas harvested at the dry-stage of maturity are light olive in color [Munsell Color (1990) rating: 7.5 Y 7/4]. Seed coats and cotyledons of 'Coronet' and 'Pinkeye Purple Hull-BVR' peas harvested at a similar stage of maturity are cream

Fig. 1. Pedigree of 'Petite-N-Green' southernpea.

Table 1. Plant height, plant width, peduncle length, pod length, and number of peas per pod for 'Petite-N-Green', 'Charleston Greenpack', 'Coronet', and 'Pinkeye Purple Hull-BVR' southernpeas, Charleston, S.C., 1997^a.

Cultivar	Plant		Peduncle length (cm) ^b	Pod length (cm) ^a	Peas/pod (no.) ^a
	Height (cm) ^b	Width (cm) ^b			
Petite-N-Green	49.8 a ^w	79.3 a	35.5 a	14.4 c	13.7 a
Charleston Greenpack	47.9 a	67.2 c	34.1 a	15.3 b	11.6 b
Coronet	51.3 a	76.3 a	36.6 a	15.1 b	11.5 b
Pinkeye Purple Hull-BVR	47.8 a	71.0 b	36.0 a	16.0 a	11.1 b

^aSpring and summer trials were planted on 2 June and 25 June, respectively. The experimental design of each trial was a randomized complete block with 10 replications. Each plot was space-planted, 18 hills per plot, three seeds per hill, 30 cm between hills, and 102 cm between rows. Each plot was harvested a single time (dry pod stage of maturity).

^bSpring trial.

^cSummer trial.

^wMean separation within columns by Student-Newman-Keuls multiple range test, $P \leq 0.05$.

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Table 2. Number of days to harvest, machine shellout, weight per 100 dry peas, and dry pea yield for 'Petite-N-Green', 'Charleston Greenpack', 'Coronet', and 'Pinkeye Purple Hull-BVR' southernpeas grown in spring and summer trials, Charleston, S.C., 1996 and 1997.^z

Cultivar	Days to harvest (no.)	Machine shellout (%) ^y	Wt/100 dry peas (g)	Dry pea yield (kg·ha ⁻¹)
<i>Spring 1996</i>				
Petite-N-Green	71.0 a ^x	80.7 a	10.3 b	1121 a
Charleston Greenpack	67.0 a	78.2 b	12.9 a	978 a
Coronet	66.4 a	79.8 a	13.1 a	1175 a
Pinkeye Purple Hull-BVR	66.0 a	76.9 c	13.4 a	1259 a
<i>Summer 1996</i>				
Petite-N-Green	69.6 a	75.7 b	9.7 c	586 a
Charleston Greenpack	62.4 b	79.1 a	12.2 a	699 a
Coronet	67.8 a	71.6 c	11.1 b	548 a
Pinkeye Purple Hull-BVR	68.0 a	72.9 bc	11.6 ab	586 a
<i>Spring 1997</i>				
Petite-N-Green	70.0 a	79.6 a	10.1 c	761 a
Charleston Greenpack	65.0 c	78.1 b	12.6 b	967 a
Coronet	66.2 b	78.9 ab	13.4 a	971 a
Pinkeye Purple Hull-BVR	66.9 b	74.1 c	13.3 a	732 a
<i>Summer 1997</i>				
Petite-N-Green	75.8 a	80.0 a	13.1 b	719 ab
Charleston Greenpack	68.6 b	77.6 a	14.8 a	592 b
Coronet	67.6 b	78.2 a	14.7 a	869 a
Pinkeye Purple Hull-BVR	66.6 b	74.4 b	14.9 a	596 b
<i>Combined analysis of all trials</i>				
Petite-N-Green	72.0 a ^{***}	79.3 a ^{***}	11.1 b ^{***}	778 a ^{**}
Charleston Greenpack	66.1 b	78.1 b	13.3 a	800 a
Coronet	67.0 b	77.6 b	13.4 a	900 a
Pinkeye Purple Hull-BVR	66.8 b	74.5 c	13.6 a	750 a

^zSpring and Summer 1996 trials planted on 23 May and 2 July, respectively. Spring and Summer 1997 trials planted on 2 June and 25 June, respectively. The experimental design of each trial was a randomized complete block with five (1996) or 10 replications (1997). Results of combined analyses of all trials indicated a significant cultivar × trial interaction for all variables. Consequently, results are presented for both single trial and combined analyses to aid interpretation.

^yPercentage of dry seed obtained from machine-shelled sample of dry pods [(wt. of dry seed/wt. of dry pods) × 100].

^xMean separation within columns and plantings by Student-Newman-Keuls multiple range test, $P \leq 0.05$.

^{***}Significant interaction between cultivar and trial at $P \leq 0.01$ or 0.001, respectively.

Fig. 2. Pods and peas of 'Petite-N-Green' southernpea.

in color [Munsell Color (1990) rating: 2.5 Y 8/4]. Dry 'Petite-N-Green' peas imbibed to restore fresh-harvest seed size and blanched in boiling water for 3 min exhibit a near-fresh green color [Munsell Color (1990) rating: 10 Y 7/4]; similarly treated 'Coronet' and 'Pinkeye Purple Hull-BVR' peas are cream colored [Munsell Color (1990) rating: 5 Y 8/2].

'Petite-N-Green' is recommended particularly for use as a home-garden cultivar in the southeastern United States. The peas can be harvested not only fresh for immediate consumption or storage in home freezers, but also when fully dry for storage as an attractive dry pack. The dry peas can be removed from storage and imbibed to restore a near-fresh green color. 'Petite-N-Green' should perform well in areas where the popular home-garden cultivar Pinkeye Purple Hull has been grown successfully.

Availability

Protection for 'Petite-N-Green' is being sought under the Plant Variety Protection Act. 'Petite-N-Green' was developed under a Co-operative Research and Development Agreement with Western Seed Multiplication (WSM), Box 173AA, Oglethorpe, GA 31068, and WSM has been granted an exclusive license to market the new cultivar. Genetic material of this release will be deposited in the National Plant Germplasm System, where it will be available for research purposes, including development and commercialization of new cultivars.

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