'Redglow' Sweetpotato

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'Redglow' sweetpotato [*Ipomoea batatas* (L.) Lam.] was developed by the Univ. of Georgia at the university's Coastal Plain Experiment Station and is jointly released by the Univ. of Georgia Agricultural Experiment Station and the Univ. of California Agricultural Experiment Station. 'Redglow', a red-skinned cultivar, combines high yield with resistance to fusarium wilt and root-knot nematodes, good storage quality, good plant production from bedded roots, and excellent baking and canning quality.

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Origin

'Redglow', previously tested as GA-120, originated in 1977 as an open-pollinated seedling from GA-109. GA-109 originated in 1975 as an open-pollinated seedling of GA-52. GA-52 originated in 1966 from a Univ. of Georgia breeding clone of unknown origin.

Description

'Redglow' leaves are entire to slightly shouldered and of medium size. The leaf blade is green, but the midrib has a purplish cast. Vines are moderately long and grow vigorously. Storage roots are fusiform-irregular to block-shaped (Fig. 1), with a smooth, light purple-red skin that may grade to a deep rose in some soils. Flesh is deep orange.

Performance

'Redglow' has been evaluated in replicated yield trials with 'Jewel' and 'Centennial' in Georgia (1981-87) and with 'Jewel' and 'Garnet' in California (1986-90). The National Sweetpotato Collaborator Group has also evaluated 'Redglow' for 3 years (1988-90) for yield; sprout production; resistance to soil-borne diseases, insect pests, and nematodes; and baking and canning quality. 'Redglow' yields were generally similar to those of 'Jewel', 'Centennial', and 'Garnet' (Tables 1 and 2). Under some conditions, the skin appears bruised from contusions or abrasions caused by mechanical harvesting. However, this discoloration is leached out during

Fig. 1. 'Redglow' roots are fusiform-irregular to block-shaped with a smooth, light purple-red skin.

Table 1. Marketable yields (in metric tons per hectare) of 'Redglow', 'Jewel', and 'Centennial' sweetpotatoes.

Year	Cultivar	Georgia ^a *				National collaborators ^w				
		U.S. #1	Canner	Jumbo	Total marketable	U.S. #1	Canner	Jumbo	Total marketable	Sites reporting
1985	Redglow	33.9 a	7.2 a	8.4 a	49.7 a	15.4	8.3	4.5	28.2	19
	Jewel	28.3 a	7.8 a	4.8 a	42.1 a	17.2	6.4	4.0	27.6	20
	Centennial	13.5 b	3.1 a	10.4 a	27.2 b	14.0	7.5	3.5	25.0	18
1986	Redglow	29.1 a	8.2 a	4.0 a	41.6 a	16.7	7.1	2.4	26.2	20
	Jewel	29.1 a	6.5 a	3.4 a	39.0 a	16.5	6.8	2.2	25.5	21
	Centennial	23.2 a	5.1 a	4.5 a	33.3 b	14.6	7.0	2.5	24.0	20
1987	Redglow	25.9 a	4.0 a	9.7 a	40.5 a	17.6	7.3	5.7	30.6	15
	Jewel	23.6 a	6.5 a	3.7 a	34.0 a	14.7	6.4	4.4	25.5	19
	Centennial	22.4 a	5.4 a	6.4 a	34.4 a	12.0	8.0	2.3	22.3	16

^aU.S. #1 = 5.0 to 9.0 cm in diameter, 7.5 to 23.0 cm long; canner = 2.5 to 5.0 cm in diameter, 5.0 to 18.0 cm long; jumbo exceeds length and diameter requirements of U.S. #1.

^wMean separation within years within columns by Duncan's multiple range test, $P = 0.05$ for yields in Georgia.

^{*}Means within cultivar within year do not total for Georgia data because of rounding. Also, analyses were conducted on transformed data; back-transformed means are presented.

[†]Averages from 12 locations in 1985 and 14 locations in 1986 and 1987. Differences in growing conditions and experimental methods preclude statistical analyses of these data to detect differences. In some cases, there was more than one site per location.

Table 2. Marketable yields (in metric tons per hectare)¹ of 'Redglow' compared with 'Jewel' and 'Garnet' sweetpotatoes in California.

Year	Cultivar	U.S. #1	Canner	Jumbo	Total marketable
1987	Redglow	11.9 a ^y	7.6 a	11.6 a	31.1 b
	Jewel	19.3 a	6.0 a	17.9 a	43.2 a
1988	Redglow	21.8 a	10.4 a	22.1 a	57.8 a
	Jewel	27.6 a	11.1 a	6.2 b	44.9 b
1988	Redglow	13.6 a	4.4 b	4.8 a	21.9 a
	Garnet	12.8 a	5.3 a	4.0 a	22.9 a
1989	Redglow	27.6 b	14.2 ^z	11.0 a	52.8 a
	Jewel	38.2 a	9.1	11.7 a	59.0 a
1990	Redglow	29.0 b	10.6 a	10.0 a	49.6 b
	Jewel	47.4 a	13.0 a	4.4 a	65.4 a
1990	Redglow	18.8 a	5.1 a	1.3 a	25.2 a
	Garnet	15.9 a	4.9 a	2.4 a	23.8 a

¹U.S. #1= 5.0 to 9.0 cm in diameter, 7.5 to 23.0 cm long; canner = 2.5 to 5.0 cm in diameter, 5.0 to 18.0 cm long; jumbo exceeds length and diameter requirements of U.S. #1.

²Mean separation within years within columns by Duncan's multiple range test, $P = 0.05$.

³Canner data were not recorded separately in 1989; obtained by subtracting U.S. #1 and Jumbo from total marketable roots. No statistical analysis was performed.

Table 3. Evaluation of 'Redglow', 'Centennial', and 'Jewel' sweetpotato processing quality.

Cultivar	Year			3-Year ave
	1985	1986	1987	
<i>Canning quality index^x</i>				
Redglow	74.2	69.4	72.3	72.0
Jewel	72.1	71.8	71.8	72.1
Centennial	71.8	72.1	74.9	72.9
<i>Baking quality index^y</i>				
Redglow	74.8	71.1	75.0	73.6
Jewel	72.0	68.3	76.4	72.2
Centennial	78.0	70.3	75.6	74.6

^xValues represent an additive index determined by evaluating color (chroma, uniformity, attractiveness), wholeness, smoothness, firmness, moistness, fiber, mouthfeel, and flavor using a 1 to 10 scale for each. Average of eight National Sweet Potato Collaborators canning trials in 1985 and five in 1986 and 1987.

^yValues represent an equally weighted index determined by evaluating eye appeal, color (intensity, uniformity, freedom of discoloration), smoothness, moistness, lack of fiber, and flavor using a 1 to 10 scale for each. Average of seven, six, and three National Sweet Potato Collaborators baking trials in 1985, 1986, and 1987, respectively.

Table 4. Three-year average resistances of 'Redglow' sweetpotato to soil-borne diseases and insects, compared with 'Jewel' and 'Centennial' sweetpotato.

Cultivar	Diseases ^z			Insect damage (% root sample) ^y			
	Plants killed by fusarium wilt (%)	Root-knot index		Noninjured roots	Distribution (%) on injured roots		
		Gall	Egg mass		Grubs	SPFB	WDS
Redglow	44	2.0	2.2	36	25	20	54
Jewel	13	2.4	2.4	26	25	31	63
Centennial	70	4.3	4.2	24	23	7	69

^zFusarium wilt incited by *Fusarium oxysporum* f. sp. *batatas*. Southern root knot incited by *Meloidogyne incognita*. For root-knot gall and egg mass indices, 1 = lowest counts and greatest resistance and 5 = greatest counts and least resistance.

^yGrub = white grub (*Plectris aliena*), SPFB = sweetpotato flea beetle, and WDS = wireworm -*Diabrotica*-*Systema* complex.

commercial washings before marketing and has not interfered with market acceptance of these roots. 'Redglow' has excellent baking and canning qualities, similar to those of 'Jewel' and 'Centennial' (Table 3).

Sprout production from bedded roots is comparable to that of 'Jewel' and 'Centennial' in terms of number of plants, earliness, and emergence uniformity (1985-87 National

Sweetpotato Collaborators Regional Trials).

'Redglow' resistance to fusarium wilt or stem rot [*Fusarium oxysporum* f. sp. *batatas* (Wr.) Snyder & Hans] is greater than that of 'Centennial' but less than that of 'Jewel' (Table 4) (1985-87 National Sweetpotato Collaborators Regional Trials). 'Redglow' resistance to root-knot nematode [*Meloidogyne incognita* (Kofoid and White) Chitwood] is similar to that of 'Jewel' but greater than that of 'Centennial'. This selection is similar to 'Jewel' and 'Centennial' in susceptibility to grubs (*Plectris aliena* Chapin), sweetpotato flea beetle (*Chaetocnema confinia* Crotch), and larvae of the wireworm-*Diabrotica*-*Systema* soil-insect complex.

'Redglow' combines high yield and excellent baking and canning qualities with resistances to soil-borne diseases and insect pests, similar to the 'Jewel' and 'Centennial' stan-

dards, in a red-skinned cultivar for Georgia and California or other areas requiring a sweetpotato of this type.

Availability

Breeder seed roots will be maintained by the Univ. of Georgia Agricultural Experiment Station. In California, foundation planting stock is available from R.W.S.