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'RESISTO' SWEET POTATO¹

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INTRODUCTION

The 'Resisto' sweet potato [Ipomoea batatas (L.) Lam.] developed jointly by the U. S. Department of Agriculture, the South Carolina Agricultural Experiment Station, and the Texas Agricultural Experiment Station, combines high yield and excellent baking and canning quality with resistance to disease and insect pests not available in present cultivars.

ORIGIN

'Resisto', previously tested as W-125, originated as an open-pollinated seedling of W-56 in a 1976 polycross nursery of parental types developed through mass selection for multiple disease and soil insect resistances. W-56 was selected from generation 6 of mass selection population 1. Initiated in 1969, mass selection population 1 was designed to combine multiple insect, nematode, and disease resistances with other desirable production and market qualities. In the first generation, 163 selections from insect resistance studies and 64 fusarium-wilt-resistant selections were open-pollinated. In generations 3 to 6, materials from other sources were introgressed in order to widen the gene base. Since each generation was open-pollinated, an exact pedigree for 'Resisto' is not available.

DESCRIPTION

'Resisto' has moderate vine length and moderate-sized leaves that are entire to 3-lobed. Flowers are common in production fields. Roots have reddish-copper skin and dark orange flesh color with an attractive shape which varies from fusiform to short and blocky depending on soil type. Yields are equivalent to that of 'Jewel' but with fewer oversized roots and more canning size roots (Table 1). In the presence of southern root-knot nematodes [Meloidogyne incognita (Kofoid & White) Chitwood], marketable yields have ranged from 25 to

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100% higher than that of 'Jewel'. It also appears to be more tolerant of wet soils than 'Jewel'. Roots of 'Resisto' keep well in storage. It has a thin cortex and the skin separates well when baked. Baking and canning qualities are similar to that of 'Jewel', except that 'Resisto' has a darker orange internal flesh color that is slightly drier with the percentage of dry matter similar to 'Centennial' (Table 1). Sprouting is slightly better than Jewel following presprouting but more variable if not presprouted.

DISEASE AND INSECT RESISTANCES

As implied by its name, 'Resisto' has a unique combination of pest resistances superior to that of other presently available cultivars. It is resistant to internal cork, a virus disease, resistant to fusarium wilt or stem rot caused by the soilborne fungus Fusarium oxysporum f. sp. batatas (Wr.) Synd. & Hans., and highly resistant to the southern root-knot nematode. We have observed no symptoms of russet crack (a virus disease) in trials where other lines showed symptoms, but no specific tests for resistance have been made. 'Resisto' is intermediately susceptible to sclerotial blight caused by Sclerotium rolfsii Sacc. in plant beds. Like 'Jewel' and 'Centennial', it is susceptible to pox, or soil rot, caused by Streptomyces ipomoea (Person & W. J. Martin) Waks. & Henrici.

'Resisto' has an outstanding combination of soil insect resistances. It has good resistance to the wireworm-Diabrotica-Systema complex (WDS) which includes the southern potato wireworm (Conoderus falli Lane), the tobacco wireworm (C. vespertinus Fabricius), the banded cucumber beetle (Diabrotica balteata LeConte), the spotted cucumber beetle (D. undecimpunctata howardi Barber), the elongate flea beetle (Systema elongata Fabricius), the pale-striped flea beetle (S. blanda Melsheimer), and S. frontalis Fabricius (a flea beetle). It is resistant to the sweet potato flea beetle (Chaetocnema confinis Crotch.). 'Resisto' has good resistance to at least 2 species of white grubs, Plectris aliena Chapin. and Phyllophaga ephilida Say. In laboratory and field trials it has consistently sustained less injury than 'Centennial' by the sweet potato weevil, Cylas formicarius elegantulus (Summers) and is considered to be

moderately resistant to it.

AVAILABILITY

Foundation seed in limited quantities is commercially available. Request for roots or vines should be made to the South Carolina Foundation Seed Association, Clemson, SC 29631. No planting material will be available from USDA.

ORIGIN

Table 1. Yield and quality comparisons of 'Resisto' and 'Jewel' from 1980 and 1981 regional trials.

Year	Cultivar	US #1	Yield (MT/ha) ^z				Baking index ^y	Canning index ^y
			Canning	Jumbo or over	Total Marketable			
1980	Resisto	17.4	7.7	2.2	27.3	77.8	75.6	
	Jewel	17.1	4.6	4.0	25.7	76.9	73.7	
1981	Resisto	12.7	9.3	1.6	23.6	73.7	78.0	
	Jewel	14.5	7.6	1.9	24.0	74.3	73.3	
Avg.	Resisto	15.0	8.5	1.9	25.4	75.7	76.8	
	Jewel	15.8	6.1	3.0	24.9	75.6	73.5	

^zAveraged from 10 locations per year, plants from presprouted roots, 2-4 (2.6 average) replications per location in 1980, 4-5 (4.1 average) replications per location in 1981; MT/ha x 0.446 = tons per acre.

^yOn a 0-100 scale, the higher the index, the better the quality; averages of 5 baking trials each year, 8 canning trials in 1980 and 6 canning trials in 1981.