



United States Department of Agriculture

Research, Education, and Economics
Agricultural Research Service

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Services
Washington, D.C.

and

ORGANIC SEED ALLIANCE
Port Townsend, WA

NOTICE OF RELEASE OF YELLOW CARROT CULTIVAR Y1246

The Agricultural Research Service of the United States Department of Agriculture and the Organic Seed Alliance announce the joint release of Yellow Carrot Cultivar Y1246.

Trait Background

These carrots have demonstrated consistent production of uniformly yellow, smooth, sweet, and mild-flavored storage roots.

Breeding and Selection History

Pre-2005- Development of orange and white parents.

Orange parent: An intercross between the USDA inbred B2566, a moderately blunt, succulent, sweet, and mild-flavored orange Emperor, and the Florida Agricultural Experiment Station – USDA open-pollinated cultivar Apopka, a long, dark orange Emperor, had been selected for mild flavor and uniform orange color. This parent was at the F1 M4 S2 generation in 2005.

White parent: An intercross between white fodder carrots from the UK Vegetable Genebank Warwick Crop Center open-pollinated cultivars accession 8115 Blanche a Collet Tres Vert Hors Terre, and accession 9326 Witte Wortel, was true-breeding for white root color and had been selected for mild flavor and uniformly smooth, white roots with minimal green shoulder color. This parent was at the F1 M3 generation in 2005.

2005 to 2020 – In 2005, four roots of each of the orange and white parental stocks crossed in cage 553. Seeds from both parents were grown at the Desert Research and Extension Center (DREC), Holtville, CA, in 2006, and both pale yellow/off-white and orange roots were observed in plants grown from the orange parent. Pale yellow/white roots were F1 hybrids and vernalized for 6-8 weeks. Stecklings were planted in isolation cages at the West Madison Agricultural Research Station (WMARS) in Madison, WI, and self-pollinated to generate F2 populations. Yellow roots in 12 F2's were evaluated for uniform color, smooth root surface, and sweet, mild flavor, vernalized seven weeks and resulting flowering plants were self-pollinated. Resulting F3 populations were grown over several years and a population grown in 2011 at row 1246 at DREC that was true breeding for yellow root color and very sweet, mild flavor was identified for subsequent evaluation. In 2013 evaluation at DREC several plants were selected and self-pollinated to generate F4 populations. After evaluations in 2014, 2015, and 2016 for consistent color and flavor, 25 F4 plants were sib-mated and F4 M progeny further evaluated in field trials in CA, WA, IN, and WI.

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Root Appearance, Quality, and Crop Performance

Roots of Y1246 are 21-27 cm long, slightly conical, and smooth with a yellow exterior and interior. Flavor is mild and sweeter than average fresh market carrots grown today including Maverick and Propeel. Seed productivity is moderate, and no tendency toward early bolting has been observed. Y1246 displays a moderate level of resistance to *Alternaria dauci* (*Alternaria* leaf blight) based upon evaluations made under natural field exposure to this disease in Wisconsin and is susceptible to warm-season root-knot nematodes (*Meloidogyne incognita*, *M. javanica*).

Seed Request Instructions, Field Evaluation Team Credits, and Acknowledgements

Seed of carrot Y1246 is available for distribution to plant breeders, geneticists, pathologists, and other research personnel upon written request to Philipp W. Simon, USDA, ARS, Vegetable Crops Research Unit, Dept. of Horticulture, 1575 Linden Drive, Madison, WI 53706. Seed samples of this release will be deposited into the National Plant Germplasm System where they will be held for long-term storage. It is requested that appropriate recognition be made if this germplasm contributes to the development of new breeding lines or cultivars.

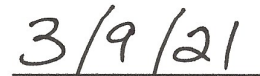
The efforts of Micaela Colley, Laurie McKenzie, and Katie Miller of the Organic Seed Alliance, Erin Silva of the University of Wisconsin-Madison, Lori Hoagland of Purdue University, Tim Waters and Lindsey Du Toit of Washington State University, and Joe Nunez and Jaspreet Sidhu of the University of California Cooperative Extension, Bakersfield, CA, to grow and assist in evaluation of these inbreds are acknowledged. The efforts of Philip A. Roberts and William Matthews of the University of California - Riverside in nematode resistance evaluation are acknowledged and the efforts of Robert Kane (deceased), Thomas Horejsi, and Emily Martin-Millar of the USDA - ARS are acknowledged in seed production and field trialing. Funding from the National Institute of Food and Agriculture, U.S. Department of Agriculture, under awards number 2011-51300-30903 and 2016-51300-25721 (Carrot Improvement for Organic Agriculture, CIOA), the California Fresh Carrot Advisory Board is gratefully acknowledged.

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Signatures:



Program Director, Organic Seed Alliance
Micaela Colley



Date

Acting Deputy Administrator, Crop Production and Protection
Agricultural Research Service, U.S. Department of Agriculture

Date