REGISTRATION OF TODD'S MITCHAM
PEPPERMINT
(Reg. No. 1)

M. J. Murray and W. A. Todd

'Todd's Mitcham' peppermint (Mentha piperita L.), a Verticillium wilt-resistant clone, was developed by the A. M. Todd Company, Kalamazoo, Michigan, and released in September 1971 to agencies responsible for plant certification at Oregon State, Washington State, Michigan State, and Purdue Universities. This cultivar was obtained by mutation breeding from vegetatively propagated Mitcham. Todd's Mitcham was identified as Selection 58 in the breeding program.

A detailed account of the mutation breeding methods and screening procedures used in obtaining the Verticillium wilt-resistant Todd's Mitcham has been published by Murray et al. (1971). Todd's Mitcham was released by the Montana Agricultural Experiment Station, Plant and Soil Science Department, Montana State University, Bozeman, Montana 59715.

In this planting verticillium wilt became more severe each year and the ensuing screening program reduced the approximately 103,667 plants which were transplanted into a field heavily infested with Verticillium albo-durum var. menthae Nelson. In this planting Verticillium wilt became more severe each year and the ensuing screening program reduced the approximately 6 million second-year plants to a 1% stand in the sixth year. The 58,724 non-wilt-infected selections were individually field tested, first as single plants, then in replicated 1.8 x 1.8-m plots and finally in 0.1-ha (2-acre) plots.

Three-year regional tests at Medaryville, Indiana; Corvallis, Oregon; and Prosser, Washington in cooperation with the Plant Science Research Division, ARS, USDA, and the Oregon and Washington State Agricultural Experiment Stations showed that established plantings of Todd's Mitcham have yields equal to the 'Mitcham' cultivar. Further, Todd's Mitcham produced an oil yield of 56 to 63 kg/ha (50-55 lb/acre) on the organic soil of Indiana under Verticillium wilt conditions that resulted in a nearly complete crop failure of the Mitcham cultivar.

Organoleptic tests and gas chromatographic analyses have indicated that the oil of Todd's Mitcham is not qualitatively different from that of the Mitcham cultivar. The oil has been accepted for quality by several major U. S. peppermint oil users. Todd's Mitcham has been classified as Mentha piperita by the FEMA Expert Panel and it has ruled that the oil is identical with peppermint oil already GRAS.

Todd's Mitcham has a darker green herbage color, slightly smaller leaves, a more erect and less branched plant habit (especially in spaced plants on organic soil), and is 5 to 10 days earlier in plant maturity than the cultivar Mitcham.

A limited amount of planting stock for grower increase can be obtained from Oregon State Seed and Plant Certification Board, Oregon State University, Corvallis, OR. 97331; Irrigated Agriculture Research and Extension Center, Prosser, WA. 99350; Washington State Dept. of Agriculture, Yakima, WA. 99801; Purdue University, Lafayette, IN. 47907, or Michigan State University, East Lansing, MI. 48823.

1 Registered by the Crop Science Society of America. Received Nov. 15, 1971.
2 Director of Plant Research and Vice-President respectively, A. M. Todd Company, Kalamazoo, Mich. 49005.

Tiflate is highly heterozygous and express many of the traits of plant, head and seed types. It has been produced in a highly heterozygous condition for many years. It is uniform to the extent that all plants mature either 10 to 15 days earlier in plant maturity than the cultivar Mitcham. It is a high-yielding, day-neutral pearl millet that is resistant to Verticillium wilt. Tiflate produces more uniform seasonal production of dry matter and has a higher percentage of leaves than other day-neutral pearl millet cultivars. Tiflate produces mature plants 6 to 8 feet tall with yields ranging from 600 to more than 2000 pounds per acre.

The Georgia Coastal Plain Experiment Station is grateful to the Georgia Agricultural Experiment Station, Coastal Plain Experiment Station, Tifton, Georgia, for the introduction of this variety.

1 Registered by the Crop Science Society of America. Received Nov. 6, 1971. Cooperative investigations with the Plant Science Research Division, Agricultural Research Service, U. S. Department of Agriculture, and the University of Georgia, College of Agriculture, College Station, Georgia.
2 Research Geneticist, Plant Science Research Division, ARS, USDA, and the University of Georgia, College of Agriculture, College Station, Georgia.
3 Director of Research, Plant Science Research Division, ARS, USDA, and the University of Georgia, College of Agriculture, College Station, Georgia.

Tiflate is widely adapted and should do well wherever other day-neutral pearl millet varieties are successful. Because of its short-day period sensitivity, Tiflate will not head until September when planted from April to August, or cut, April and August plantings may result in yields of 15 and 5 at maturity. Most plants produce fewer leaves. Seeds of Tiflate are variable in quality than seeds of Gahi-1.

When compared with Gahi-1 or similar day-neutral cultivars, Tiflate remains vegetative much longer, giving more time for grazing and has more uniform seasonal production. Because it does not head until later, it is easier to manage than day-neutral types. Tiflate produces a higher single-cut yield at the stage for silage and accumulates more green forage for grazing purposes. In grazing trials at Tifton, Tiflate has been shown to produce more upper dry matter than Gahi-1, but its dry matter is higher in digestibility. Tiflate is more disease resistant than most day-neutral pearl millet varieties. Like other cyanogenic glucosides, Tiflate is widely adapted and should do well wherever other day-neutral pearl millet varieties are successful. Because of its short-day period sensitivity, Tiflate will not head until September when planted from April to August, or cut, April and August plantings may result in yields of 15 and 5 at maturity. Most plants produce fewer leaves. Seeds of Tiflate are variable in quality than seeds of Gahi-1.

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