Registration of ‘Montola 2004’ Safflower

‘Montola 2004’ (Reg. no. CV-26, PI 631483) safflower (Carthamus tinctorius L.) was developed at the Eastern Agricultural Research Center, Montana Agricultural Experiment Station, Sidney, MT in cooperation with the Williston Research Extension Center, North Dakota Agricultural Experiment Station, Williston, ND. Montola 2004 was released by the Montana Agricultural Experiment Station in 2002. This cultivar was released for its high oleic, low saturated fatty acid profile and normal white hull for use in the specialty oil and the birdseed markets.


Sidney selection 87–14–6, Sidney selection 87–42–3, and Sidney selection 87–14–B are selections made in 1965 for Alternaria leaf spot (caused by Alternaria carthami Chowdhury) resistance from a 1964 bulk composite of 555 safflower introductions from the 1960 USDA-ARS safflower collection. Arizona 2698 is an experimental line with the brown stripe gene backcrossed into Gila obtained from the Arizona Agricultural Experiment Station. Arizona 9322 is an experimental high oil early ripening line obtained from the Arizona Agricultural Experiment Station. Arizona pigmentless is an experimental line obtained from Dr. D. Rubis, Arizona Agricultural Experiment Station in 1980 with the pigmentless gene (pp), which prevents the formation of the pigmented melanin layer in the pericarp of safflower seed. AC-1 is a high seed oil content cultivar with a purple-striped hull developed in Phoenix, AZ, by the Anderson Clayton Company. S-208 was developed by Seedtec International, Woodland, CA, and is a normal-white hull seed cultivar. USDA selection 012–251–3–6 is a selection produced from a backcross of striped hull into VFR-1 made by C.A. Thomas, USDA-ARS, Beltsville, Maryland, in 1973, having resistance to Fusarium (caused by Fusarium oxysporum Schlechtend. Fr. f. sp. carthami Kliesiewicz and Houston), Phytophthora (caused by Phytophthora spp.), and some strains of Verticillium wilt (caused by Verticillium dahliae Kleb.). Nebraska selection N-10 is a normal white hull cultivar derived from a single plant selection from accession 852 in 1946 and released in 1955 by the Nebraska Agricultural Experiment Station (Williams, 1964). Montola 2000 is a normal hull high oleic safflower oil cultivar having over 800 g kg\(^{-1}\) oleic acid and was developed and released by the Montana Agricultural Experiment Station in 1991 (Bergman et al., 2000).

Recurrent selection for high oleic and low saturated fatty acid composition was used in the breeding of Montola 2004. Individual plant selections for oil quality were made during the 1997–2001 period, Montola 2004 averaged 1665 kg ha\(^{-1}\) with a test weight of 29.7 kg hl\(^{-1}\), with a seed oil content of 370 g kg\(^{-1}\); 29.7 kg hl\(^{-1}\); 376 g kg\(^{-1}\); and 45.5 cm, respectively, for dryland and irrigated trials at Sidney, MT during the 1997–2001 period. Montola 2004 averaged 1665 kg ha\(^{-1}\) with a test weight of 30.8 kg hl\(^{-1}\), a seed oil content of 329 g kg\(^{-1}\); 29.7 kg hl\(^{-1}\); 376 g kg\(^{-1}\); and 45.5 cm, respectively, for dryland and irrigated trials at Sidney, MT during the 1999–2001 period. Montola 2004 is 5 cm taller than Montola 2000; and under irrigated conditions, it is more resistant to Alternaria leaf spot and moderately susceptible to Alternaria bacterial blight (caused by Pseudomonas syringae Van Hall). Disease ratings indicate Montola 2004 is resistant to Phytophthora (caused by Phytophthora sp.) in the birdseed market, is similar in seed size to Montola 2000, and averages 41 g per 1000 seeds, 4.6 mm in length. The fatty acid composition of Montola 2004 during the 1999–2001 period averaged 59 g kg\(^{-1}\) total saturated fatty acids, 838 g kg\(^{-1}\) oleic fatty acid and 88 g kg\(^{-1}\) linoleic acid. Montola 2004 is classified as early maturing.

Breeder and Foundation seed will be maintained by the Montana Agricultural Experiment Station, Montana State University, Bozeman, MT 59717. Limited seed of Montola 2004 for research purposes will be available on request from the corresponding author for at least 5 yr. The U.S. Plant Variety Protection Act has been granted (PVP Certificate No. 200200242). The cultivar shall be restricted to the class of Certified seed.


References
