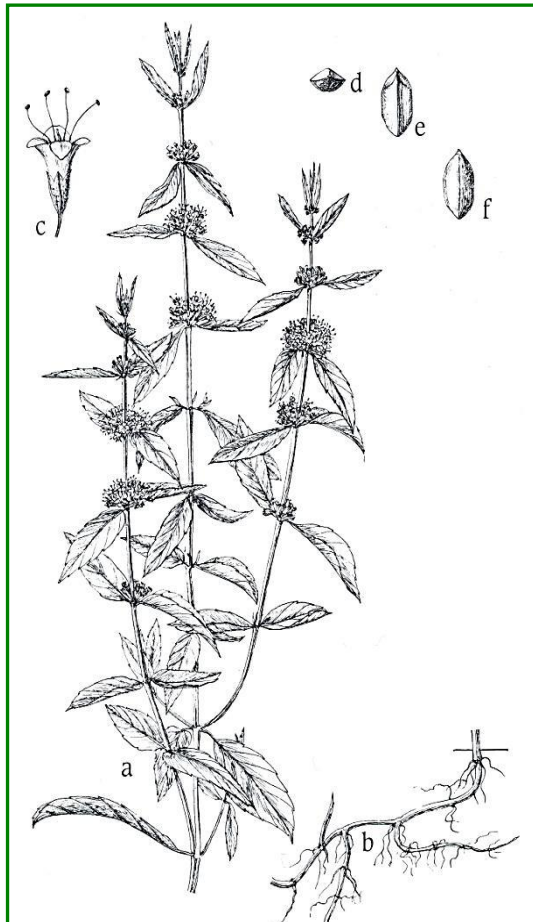


Scientific Name: *Mentha arvensis* L.

Family: *Lamiaceae*

Common Names: wild mint, field mint



***Mentha arvensis* a. flowering stems with opposite leaves, b. rhizome and roots, c. individual flower, d to f. seeds.**

Plant Description

Aromatic, erect perennial herb, with pubescent square stems, 15 to 50 cm high; leaves short-petioled, opposite oblong-lanceolate to ovate lanceolate, 1 to 8 cm long, serrate, rounded at base; pink to pale purple or white small flowers in dense axillary clusters, corolla 4 to 6 mm long fused into 4 to 5-lobed tube (Moss 1983).

Fruit/Seed: Four small, ovate nutlets at base of calyx, brown, ovoid, triangular at base, basal crescent-shaped depression (Moss 1983).

Habitat and Distribution

Common in sloughs and wet places, stream banks, lakeshores, wet meadows, clearings, marshy grounds, and throughout the prairies (USDA NRCS n.d.).

Soil: Tolerates periods of flooding (Gerling et al. 1996).

Is adapted to medium and fine textured soils and can tolerate a pH ranging from 5 to 7 (USDA NRCS n.d.).



***Mentha arvensis* showing axillary clusters of flowers.**



Distribution: Widespread across Alberta and much of North America and Eurasia. Circumboreal and circumpolar. Alaska, Yukon, southwestern District of Mackenzie to James Bay, Newfoundland south to California, New Mexico, Texas, Missouri, West Virginia, Delaware (Moss 1983).

Phenology

Flowers in June to July (Currah et al. 1983).

Pollination

Insect.

Seed Dispersal

Wind and water dispersed.

Genetics

$2n=12, 24, 48, 64, 72, 90, 92, 96, 120, 132$.

Symbiosis

Inoculation of vesicular–arbuscular mycorrhizal (VAM) fungus *Glomus fasciculatum* significantly increase the productivity of wild mint (Gupta et al. 2002).

Seed Processing

Collection: Hand-picking of fruiting stems.

Seed Weight: 0.099 to 0.106 g/1,000 seeds

Harvest Dates: June and late August.

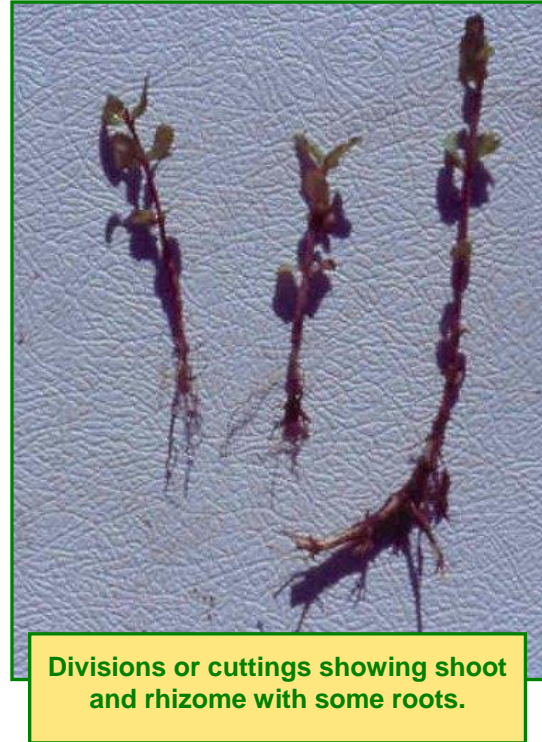
Cleaning: Air-dry fruiting stems in paper or Tyvek bags at 15 to 25°C. Crush material or remove large chaff and crush remaining material. Sieve to remove seeds from chaff using appropriate size screens. Small chaff and dust can be removed by winnowing.

Storage Behaviour: Orthodox; seeds can be dried, without damage, to low moisture contents; their longevity increases with reductions in both moisture content and temperature (Royal Botanic Gardens Kew 2008).

Storage: Royal Botanic Gardens Kew (2008) recommends IPGRI preferred conditions; these involve drying seed to low moisture content (3% to 7% fresh weight, depending on the species) and

storing them, in hermetically-sealed containers, at low temperature, preferably at -18°C or cooler (Fassil and Engels 1997).

Longevity: Up to 6 years.



Propagation

Natural Regeneration: Rhizomes regenerate shoots from their nodes (Bahl et al. 2002).

Germination: 78% to 100% germination on 1% agar media with varying pre-treatments and temperatures; the highest germination was achieved by germinating seed at 21°C with 12 hours light and 12 hours of dark, and pre-treatments (Royal Botanic Gardens Kew 2008).

Pre-treatment: Germination increases if cold stratified for at least 4 weeks. Thompson et al. (1977) suggest that a 4.5°C fluctuating temperature is required to promote germination under light. Royal Botanic Gardens Kew (2008) acquired their highest germination when they sterilised the seed (immersed

in 10% Domestos solution for 5 min), then scarified it (chipped with scalpel) and added 250 mg/l gibberellic acid (GA3) to agar.

Vegetative Propagation: Regenerates primarily by rhizomes. 90% of rhizomes survived the first year and fully established by year three. *Mentha arvensis* spreads in wetlands.

Propagates by rhizome cuttings or division of plants in spring or fall; by tip cuttings in spring, if cuttings placed in sand or vermiculite under intermittent mist or in heated frames, they will root in 21 to 28 days (Currah et al. 1983)

Cold stored suckers can serve as direct sowing material for the late summer crop of mint (Bahl et al. 2002).

Micro-propagation: Have been micro-propagated from axillary buds (Rech and Pires 1986).

Aboriginal/Food Uses

Food: Mint tea is made by boiling the leaves.

Medicinal: Tea can be taken to treat a cough, a cold, congestion, fever, chills, menstrual cramps, to soothe teething babies' gums, to treat tiredness or fatigue, to aid with digestion, to treat children's diarrhoea, to treat headaches and to treat high blood pressure.

Also, part of a compound medicine to treat cancer or diabetes, or pain, and used as a wash for sores.

Flowers can be grinded and mixed with yarrow and water to use as a wash for infected gums or to relieve a toothache.

Commercial Resources

Availability: Available through a few nurseries in Alberta and Manitoba.

Cultivars: Available cultivars are not suitable for reclamation.

Uses: Industrial crop used for the production of menthol for use in cosmetic, pharmaceutical, food, and flavouring industries (Gupta et al. 2002).

Photo Credits

Photos: Wild Rose Consulting, Inc.

Line Diagram: John Maywood, of Bruce Peel Special Collections used by permission University of Alberta.

References

Bahl, J.R., R.P. Bansal and S. Kumar, 2002. Direct planting of the short-duration summer crop using cold stored suckers of menthol mint *Mentha arvensis*. Journal of Horticultural Science & Biotechnology 77(2): 217-219.

Currah, R., A. Smreciu and M. Van Dyk, 1983. Prairie Wildflowers. An illustrated manual of species suitable for cultivation and grassland restoration. The Friends of the Devonian Botanic Garden, University of Alberta, Edmonton, Alberta. 300 pp.

Fassil, H. and J. Engels, 1997. Seed Conservation Research: IPGRI's Strategies and Activities. BGC News 2(9).
<http://www.bgci.org/worldwide/article/349/> [Last accessed June 26, 2013].

Gerling, H.S., M.G. Willoughby, A. Schoepf, K.E. Tannas and C.A Tannas, 1996. A Guide to Using Native Plants on Disturbed Lands. Alberta Agriculture, Food and Rural Development and Alberta Environmental Protection, Edmonton, Alberta. 247 pp.

Gupta, M.L., A. Prasad, M. Ram and S.Kumar, 2002. Effect of the vesicular-arbuscular mycorrhizal (VAM) fungus *Glomus fasciculatum* on the essential oil yield related characters and nutrient acquisition in the crops of different cultivars of Menthol mint (*Mentha arvensis*) under field conditions. Bioresource Technology 81(1): 77-79.

Moss, E.H., 1983. Flora of Alberta. A manual of flowering plants, conifers, ferns, and fern allies found growing without cultivation in the province of Alberta, Canada. 2nd edition. University of Toronto Press, Toronto Ontario. p. 482.



Rech, E.L. and M.J.P. Pires, 1986. Tissue culture propagation of *Mentha sp.* by the use of axillary buds. *Plant Cell Reports* 5(1): 17-18.

Royal Botanic Gardens Kew, 2008. *Mentha arvensis* L. Seed Information Database.
<http://data.kew.org/sid/SidServlet?ID=15369&Num=vO2> [Last accessed June 14, 2013].

Thompson, K., J.P. Grime and G. Mason, 1977. Seed germination in response to diurnal fluctuations of temperature. *Nature*.267: 147-149.

USDA, NRCS, n.d. *Mentha arvensis* L. wild mint. The PLANTS Database. National Plant Data Center, Baton Rouge, Louisiana.
<http://plants.usda.gov/core/profile?symbol=MEAR4> [Last accessed June 24, 2013].

