field in 1993 and selected, using the above-mentioned parameters. This row was bulk-harvested and entered into yield tests. At this stage, it received the experimental line number L94C274. A series of wide-row (60 cm) yield tests followed, with two locations in 1994 and three locations in 1995. In 1996 and 1997, L94C274 was grown at six locations each year in the Prairie Bean Coop Wide Row Trial, which is part of the official bean registration trials in western Canada. Fifty progeny rows from single-plant selections made among greenhouse-grown plants of this line were grown at Twin Falls, southern Idaho, in 1997. Breeder seed was grown in Arizona in early 1998; 48 uniform lines were bulked after harvest.

AC Alberta Pink proved particularly promising, due to its 11% yield advantage and 15% increase in seed mass over that of the Pink check cultivar, Viva (5). In a total of seven irrigated trials, spread over 2 yr, seed yield of AC Alberta Pink averaged 3511 kg ha$^{-1}$, compared with 3156 kg ha$^{-1}$ for Viva. The seed of AC Alberta Pink (at 140 g kg$^{-1}$ moisture), averaged 31.2 g 100 seed$^{-1}$ over eight irrigated sites, which was considerably larger than that of Viva, at 27.1 g 100 seed$^{-1}$. AC Alberta Pink matured in 100 d, compared with 102 d for Viva. The dry seed color is a paler color than that of Viva.

AC Alberta Pink is similar to the check, Viva, in susceptibility to white mold [caused by Sclerotinia sclerotiorum (Lib.) de Bary], based on tests in a sclerotia- inoculated disease nursery in 1997 at Lethbridge. Based on greenhouse inoculation tests, both Viva and AC Alberta Pink are susceptible to common blight [caused by Xanthomonas axonopodis pv. phaseoli (Smith)] Vauterin et al. 1995 (6); syn. X. campestris pv. phaseoli (Smith) Dye], and halo blight [caused by Pseudomonas syringae pv. phaseolicola (Burkholder) Young et al.] It is also susceptible to fusarium yellows [caused by Fusarium oxysporum Schlechtend.: Fr. f. sp. phaseoli J.B. Kendrick & W.C. Snyder], pythium root rot [caused by Pythium ultimum Trow], and rhizoctonia root rot (caused by Rhizoctonia solani Kühn).

AC Alberta Pink is being released on an exclusive basis, through a licensing arrangement with the Alberta Wheat Pool–Bean Business Unit (Box 96, Bow Island, AB, Canada T0K 0G0), from whom pedigreed seed may be purchased. Small samples of seed of AC Alberta Pink may be obtained from the corresponding author for at least 5 years.

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References and Notes


7. H.-H. Mundel and H.C. Huang, Agric. & Agri-Food Canada Res. Ctr., P.O. Box 3000, Lethbridge, AB, Canada T1J 4B1; G. Saindon, Agric. & Agri-Food Canada Potato Res. Ctr., P.O. Box 20290, Fredericton, NB, Canada E3B 4Z7; F.A. Kiehn, Agric. & Agri-Food Canada Res. Ctr., Unit 100 - 101 Route 100, Morden, MB, Canada RM1 1Y5. LRC Contribution no. 387-9837. Registration by CSSA. Accepted 31 Oct. 1998. *Corresponding author (mundel@em.agr.ca).


Registration of ‘Matterhorn’

Great Northern Bean

‘Matterhorn’ great northern bean (Phaseolus vulgaris L.) (Reg. no. CV-159, PI 604228) was developed and released cooperatively by the Michigan Agricultural Experiment Station and the USDA-ARS in 1998 as an upright, disease-resistant cultivar of early to mid-season maturity.

Matterhorn, tested as C93414, was derived from a made in 1991 between great northern bean breeding lines, ‘Alpine’/X90012. Alpine is a midseason, rust-resistant, upright, indeterminate (Type I) cultivar (1), and X90012 is a virus-resistant breeding line with the pedigree WM1-85-56/2*Sierra’/3/WM1-85-45/Sierra’/PS6241. The F1 plants were advanced in the greenhouse and space-planted in an F2 nursery at the Bean and Sugarbeet Research Farm near Saginaw, MI. A single-plant F2 selection was identified as possessing the desired agronomic and great northern seed traits. The F2 progeny were advanced as a plant row in Puerto Rico. A single-plant selection was made in a space-planted F2 nursery in Michigan on the basis of agronomic traits, seed traits, and resistance to bean rust [caused by Uromyces appendiculatus (Pers. Pers.) Unger]. The F2 progeny were advanced as a plant row in Puerto Rico. The F2 breeding line, coded C93414, entered replicated yield trials in 1993.

Matterhorn was extensively tested for yield and agronomic traits at 26 locations in Michigan, North Dakota, Nebraska, Colorado, and Washington over five seasons (1993–1997). Matterhorn averaged 2880 kg ha$^{-1}$ and outyielded Alpine by 5% over 23 locations. Matterhorn topped the great northern yield trials in Michigan, Nebraska, and Washington in 1997 and the national dry bean trials in 1998. Matterhorn averaged 45 cm in height and exhibits an upright Type II indeterminate growth habit, with excellent resistance to lodging. Matterhorn has white flowers and blooms 42 d after planting. Matterhorn is a early to midseason bean, maturing 90 d after planting and with a range in maturity from 87 to 94 d, depending on season and location. Matterhorn matures 3 d earlier than Alpine and has demonstrated uniform maturity and excellent dry-down across a broad range of environments.

Matterhorn carries the single dominant hypersensitive I gene for resistance to bean common mosaic virus (BCMV), but is sensitive to temperature-insensitive necrosis-inducing strains of bean common mosaic necrosis virus (BCMV) such as NL 3 and NL 8, which induce the black root reaction. Matterhorn carries the Cor-3 rust resistance gene, which conditions resistance to Race 53 and all indigenous bean rust races prevalent in Michigan. Matterhorn is tolerant to root rot [primarily caused by Fusarium solani (Mart.) Sacc. f. sp. phaseoli (Burkholder) W.C. Snyder & H.N. Hans], but is susceptible to Michigan isolates of halo blight [caused by Pseudomonas syringae pv. phaseolicola (Burkholder) Young et al.], common blight [caused by Xanthomonas campestris pv. phaseoli (Smith) Dye], white mold [caused by Sclerotinia sclerotiorum (Lib.) de Bary], and bean anthracnose [caused by Colletotrichum lindemuthianum (Sacc. & Magnus) Lamk.-Schr.].

Matterhorn has a round seed, which averages 36 g 100 seed$^{-1}$ (range: 35–38 g 100 seed$^{-1}$). The seed is similar in color and shape to Alpine. In canning trials, Matterhorn was subjectively rated by a team of panelists as satisfactory in cooking quality and equivalent to Alpine. Matterhorn scored 2.8 on a five-point hedonic scale (where 5 is best). This evaluation is based on whole-bean integrity (no splitting or clumping), uniformity of size (uniform water uptake), color (no after darkening), and clear brine (no starch extruded into canning liquid). After processing, Matterhorn does not differ significantly from other commercial great northern bean cultivars for cooked color, texture, hydration, and drained weight ratios.