CULTIVAR DESCRIPTION

AC Sundancer™ poplar

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Schroeder, W., Soolanayakanahally, R. and Lindquist, C. 2013. **AC Sundancer™ Poplar**. Can. J. Plant Sci. **93**: 1285–1287. AC Sundancer™ is a male, winter-hardy hybrid poplar tree released by Agriculture and Agri-Food Canada (AAFC), Agroforestry Development Centre for the Canadian prairies and United States northern Great Plains. The name AC Sundancer™ was chosen as it depicts the striking upright growth habit of the tree.

Key words: Cultivar description, hybrid poplar, *Populus*, tree breeding

Schroeder, W., Soolanayakanahally, R. et Lindquist, C. 2013. **Le peuplier AC Sundancer^{MC}**. Can. J. Plant Sci. **93**: 1285–1287. AC Sundancer^{MC} est une variété de peuplier hybride mâle homologuée par le Centre du développement de l'agroforesterie d'Agriculture et Agroalimentaire Canada (AAC) pour les prairies canadiennes et le nord des grandes plaines des États-Unis. Le nom AC Sundancer^{MC} a été choisi parce qu'il décrit le port étonnamment droit qui caractérise la croissance de cet arbre.

Mots clés: Description de cultivar, peuplier hybride, *Populus*, amélioration des arbres

AC Sundancer™ (*Populus* × 'WS-151E-86') is a new male poplar hybrid for agroforestry, short rotation forestry, phytoremediation and ornamental planting in the Canadian prairies and northern Great Plains of the United States. Poplars are widely used in ornamental landscaping mainly due to their fast growth and adaptability to a wide range of growing conditions. Currently the main poplar cultivars used in the Canadian prairies for ornamental planting are *P.* × 'Prairie Sky' (Davidson and Ronald 1993), *P.* × 'Tower' (Ronald 1980), Swedish columnar aspen (*P. tremula* 'erecta') and *P.* × 'Assiniboine' (Schroeder and Lindquist 1989). These cultivars have been planted with varying success due to diseases such as bronze leaf disease [*Apioplagiostoma populi* (Cash & A.M. Waterman) Barr], canker (*Septoria musiva* Peck.) and leaf rust (*Melampspora medusae* Thuem.). There are two main fastigiate poplars with sufficient hardiness to be planted in the Canadian prairies, namely Tower poplar and Swedish Columnar Aspen. Unfortunately both cultivars are highly susceptible to Bronze leaf disease, which has become a major threat to ornamental poplars in North America (Northover and Desjardins 2003). Other columnar clones such as Lombardy poplar (*P. nigra* L. 'Italica') and Bolleana (*P. alba* L. 'Pyramidalis') lack hardiness for cold climates including the Canadian prairies. AC Sundancer™, evaluated as *Populus* × 'WS-151E-86', was developed in the poplar improvement program of the AAFC, Agroforestry Development Centre, Indian Head, SK. Released cultivars from this program include Walker, Assiniboine and Okanese poplar.

Breeding Methods and Pedigree

AC Sundancer™ originated from a cross between *P.* × 'Walker' and *P.* × *canadensis* 'Serotina de Selys' (Fig. 1). Pollen was collected from the male parent, *P.* × *canadensis* 'Serotina de Selys', and stored at −18°C until pollination of receptive flowers using a camel hair brush. Controlled crosses were conducted by Carl Lindquist in 1979 in a greenhouse using detached branches of the female parent *P.* × 'Walker'. Seed was collected and germinated. Field-planted progeny were observed for vigour, form, insect and disease resistance. *P.* × 'WS-151E-86' was selected from the breeding population in 1986 by William Schroeder, then propagated and tested in replicated field trials in Saskatchewan. AC Sundancer™ poplar was named for the striking upright growth habit of the tree.

Description

Diagnostic features were classified according to Roller (1984) using leaf and twig samples from the upper crown of the original 32-yr-old tree. The trunk is smooth, greyish or creamy green in colour at the apex, becoming furrowed and grey at the base. Twigs are ribbed, greenish to light brown with linear vertically oriented lenticels. The 1-cm-long ovoid, appressed buds are gummy with large (3.0 × 3.5 mm) three-lobed triangular leaf scars.

†*Deceased.*

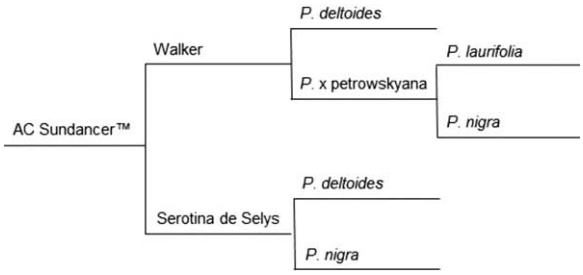

Fig. 1. Pedigree of AC Sundancer™ poplar.

Leaf shape is deltoid with a broad cuneate base and acuminate tip. Leaves are light green on top and greyish green on the lower surface averaging 6.0 cm in length and 6.0 cm in width. Leaf margins are coarsely serrate without glands on the tips. Petioles are flat, green and over half the length of the blade averaging 3.5 cm in length. Leaves flush in late April to early May and defoliating in mid to late September (W. R. Schroeder, unpublished data).

Performance

AC Sundancer™ is a tall, columnar male tree with ascending branches. The original tree located at the AAFC Agroforestry Development Centre has attained a height of 21 m at 32 yr with a crown width of 3.5 m. The orientation of the lateral branches to main trunk with angles of 35° contributes to the development of a distinctly columnar crown.

Performance of AC Sundancer™ at 10 yr was compared with Assiniboine, Prairie Sky and Walker poplar in a randomized complete block design with three, five-tree replications at Pleasantdale, Saskatchewan (lat. 52°48′N, long. 104°70′W). At Pleasantdale, height and trunk diameter (at 1.5 m above ground) of AC Sundancer™ was similar or larger than Walker and considerably larger than Assiniboine and Prairie Sky (Table 1). Annual growth approached 1 m yr^{-1} with total height at 10 yr averaging 865 cm, trunk diameter was 10.8 cm, considerably larger that of than other cultivars.

AC Sundancer™ performs well on a range of soils with best growth on medium-textured fertile soils with adequate moisture and a pH <8.0. AC Sundancer™ is highly resistant to bronze leaf disease and moderately resistant to septoria canker, but susceptible to melampspora leaf rust. No winter damage was observed in 32 yr at Indian Head, Saskatchewan, which is located in zone 2a of the plant hardiness zones in Canada (Natural Resources Canada 2013). AC Sundancer™ is well adapted for planting throughout the Canadian prairies and the northern Great Plains of the United States. Performance and adaptation outside the Canadian prairies has not been determined; however, expectations are that that AC Sundancer™ would grow well in plant

Fig. 2. Ten-year-old AC Sundancer™ tree at Indian Head, Saskatchewan.

Table 1. Height and stem diameter growth and incidence of disease and winterkill of AC Sundancer™, Assiniboine, Prairie Sky and Walker poplar after 10 growing seasons in a field trial at Pleasantdale, SK. Each growth mean was calculated on three, five-tree replications. Canker, rust and dieback as percent affected trees in trial

Cultivar	Tree height (cm)	Trunk diameter (cm)	Septoria canker (% trees affected)	Leaf rust (% trees affected)	Dieback (% trees affected)
AC Sundancer™	865*a*	10.8*a*	0	100	6
Assiniboine	574*b*	6.1*c*	20	100	57
Prairie Sky	656*b*	7.1*c*	6	100	40
Walker	827*a*	9.0*b*	13	100	42

a–c Least square means with different letters in the same columns are significantly different at $P=0.05$ (SAS pdiff option).

hardiness zones of Canada 1b to 4a and USDA plant Hardiness zones 1–4 (United States Department of Agriculture 2012). AC Sundancer™ propagates readily from dormant hardwood cuttings and softwood cuttings. Rooting success using 15- to 25-cm-long hardwood cuttings has averaged over 80%.

Availability

AC Sundancer™ is registered with the Canadian Ornamental Plant Foundation (COPF) (COPF Registration No. 9642, 2012 Apr. 02). A limited supply of clonal material is maintained at AAFC, Agroforestry Development Centre, Indian Head, SK, and is available to COPF members for commercial production and to institutions for research purposes.

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