

Sironaria and Sirothora - disease resistant safflower cultivars

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Two new disease-resistant safflower cultivars Sironaria and Sirothora have been registered and will be available for commercial production during 1987-88.

A breeding program at the Centre for Irrigation and Freshwater Research at Griffith, developed the two new cultivars resistant to *Alternaria* leaf blight and *Phytophthora* root rot(1).

Sironaria will do well in any areas of known *Alternaria* infection. It is especially suited to the northern areas of New South Wales and Queensland where hot humid weather is more frequent. Results from trials have shown that leaf blight is now present in all states. Sironaria is also tolerant to *Phytophthora* root rot.

Sirothora is recommended to be sown on raised beds under irrigation especially with heavy soil types. It is susceptible to *Alternaria* leaf blight and would be recommended to be grown south of the 38th parallel.

The origin of the two cultivars is complex. For two generations the breeding program developed into a two-way back crossing procedure, using Gila as the female recurrent parent. One program concerned *Alternaria* and the second *Phytophthora* (2,3). The resistant backcross progeny were then intercrossed to combine both resistances, their progeny were screened for both diseases and selections were backcrossed again with Gila. The selfed progeny were screened for three consecutive generations before evaluations for resistance, morphological and agronomic characteristics were made.

Prior to being selected to be assessed in trials in Queensland, New South Wales, Victoria and South Australia, they were field screened for *Phytophthora* root rot at the Centre in a disease nursery, which was heavily infected with *Phytophthora cryptogea*. Ideal conditions were created by flooding test plants at the bud visible stage to a depth of 15 cm for up to 10 hours on a day when the air temperature exceeded 35°C. Gila, which was always used as the susceptible control, had to maintain 100% mortality.

Sironaria is similar to Gila in plant morphology, seed colour and size, hull percentage, seedling vigour, leaf and bract spininess and flower colour. On average it is three centimetres taller than Gila. Sirothora's plant morphology, seed colour, seedling vigour, leaf and bract spininess and flower colour resemble Gila but at maturity it is, on average, six centimetres shorter. It matures slightly later than Gila.

References

1. Harrigan, E.K.S., McRae, C.F. and Heritage, A.D. 1983. *J. Aust. Inst. Agric. Sci.* 48: 15840.
2. McRae, C.F., Harrigan, E.K.S. and Brown, J.F. 1983. *Plant Dis.* 68: No. 5, 408-10.
3. Heritage, A.D. and Harrigan, E.K.S. 1983. *Plant Dis.* 68: No. 9,