

in Queensland, Sequel outyielded Siro Peruvian by 16% at Biloela and 29% at Gatton, and outyielded CUF 101 by 14% at Biloela and 20% at Gatton (2,7).

In the Biloela trial it was the highest yielding of seven cultivars tested, and at Gatton it was outyielded only by Trifecta (non-significantly) among 19 cultivars tested. Because of its combined resistance to root and crown rots and three aphid species, Sequel should be more persistent and productive than other highly winter active cultivars wherever these diseases and pests are prevalent. At Gatton after two years, Sequel was equal to Trifecta in persistence and significantly more persistent than Siro Peruvian and Hunter River (7), and at Biloela it was significantly more persistent than Siro Peruvian (Trifecta and Hunter River were not included in the Biloela trial) (2). Its field resistance to leaf diseases (*Stemphylium* sp., *Leptosphaerulina* sp.) was similar to that of the other highly winter active cultivars in the Gatton trial (7).

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Annual Medic

Medicago truncatula Gaertn. (barrel medic)

cv. **Sephi**

(Reg. No. B-9a-10)

Origin (1)

Collected by the late Dr Joesph (Sephi) Katznelson and Dr Eli Putievsky near Mt Meron, Upper Galilee, Israel in 1969. Coded as NYM 62 and forwarded to the Department of Agriculture, South Australia in 1976. The line, designated SA10419, was grown in the Parafield Plant Introduction Centre nursery in 1977. Two plants were selected by E. J. Crawford as founders of SA11959, a line which proved to have aphid resistance during screening by E. T. Kobelt at Northfield Research Laboratories in 1979.

Multiplication of this line by M. J. Mathison revealed the presence of some progeny with a different leaf marking. This component was rogued out, but continued to arise in subsequent generations. Seed of the partially rogued line, designated SAD6297, was distributed widely for testing in New South Wales, Victoria, Queensland, Western Australia and South Australia from 1980. Recent progeny tests carried out by A. W. H. Lake indicate that one or both of the two original plants were heterozygous for a recessive blotch marker. There is, however, no evidence of segregation for any other major character (1).

Breeder's seed is produced from SAD 6297 by the South Australian Department of Agriculture. Recommended for registration by the South Australian Herbage Plant Liaison Committee. Registered December 1984.

Morphological description (1)

The cultivar Sephi is a mixture of two components. These components are morphologically indistinguishable except for a difference in markings on the abaxial surfaces of the leaflets. Eighty per cent of the plants have a lighter green "watermark" blotch mostly edged with brown on the distal part of the leaflets. The remaining 20% have a brown blotch on the mid-lower part of the leaflets. Both leaf markers disappear later in the life of the plant, and may not be expressed in the warmer months of the year.

The other main distinguishing feature of Sephi is the pod, which is relatively squat, with its length rarely exceeding its width; it contains 3 or 4 clockwise coils (*cf.* Jemalong which has 5 to 6 anticlockwise coils). The spines are somewhat longer and larger than those of Jemalong, having a rating of 12 (*cf.* Jemalong 10), but considerably shorter than Ascot, rated 16–17. Spines of Sephi have a similar curve to those of Akbar. There are 7–9 seed per pod, and about 260 000 seeds per kg. Compared to Jemalong, a cultivar which it resembles quite closely morphologically, Sephi has a slightly more erect habit, but leaf shape and size, hairiness, stipule shape and size and floral morphology are all similar. Sephi flowers up to a week earlier than Jemalong, but both are similar in maturity date and in their patterns of hard seed breakdown.

Agronomic characters (1,2,3,4,5)

Sephi has high levels of resistance to both the spotted alfalfa aphid (SAA), *Therioaphis trifolii* (Monell) f. *maculata*, and the blue-green aphid (BGA), *Acyrtosiphon kondoi* Shinji. It is susceptible to pea aphid, *Acyrtosiphon pisum* (Harris).

In four years of field testing Sephi has performed excellently under both SAA and BGA attack (4,5). Its resistance to these aphids is equal to or greater than that of any other cultivar of barrel medic, both in the field and in glasshouse tests. In carefully controlled glasshouse experiments, Sephi seedlings were almost undamaged by SAA, while Jemalong and Paraggio, which are rated as tolerant to SAA, died 2–3 weeks after aphid addition. Susceptible cultivars died in one week (2). Sephi and Paraggio are equally good in their resistance to BGA and are very much superior in this respect to all other barrel medic cultivars.

Sephi has been compared with all currently available annual medic cultivars over a wide range of environments. Data from New South Wales collected over eight sites in 1981 showed Sephi to be equal to or better than Jemalong, Cyprus, Paraggio and 10 other aphid resistant lines in herbage yield at all sites. In seven of the eight sites, seed yield of Sephi was more than 20% above the site mean yield, and it outyielded Jemalong at six, and Paraggio at five sites (5).

Regeneration was measured in 1983 following the 1982 drought. Sephi had 100% more seedlings per square metre than the next best line at two sites, and at no site was Sephi's regeneration significantly worse than that of Paraggio. At one site it was outperformed by Jemalong (5). These trial sites cover a broad range of environments, ranging from grey sands of pH 6 (Cuttabri) to a heavy grey self-mulching clay of pH 8 (Walgett).

In Victoria, Sephi was compared with Paraggio and Jemalong at Walpeup and Beulah. At Walpeup, Sephi yielded significantly more seed than both other cultivars, and at Beulah, Sephi equalled Paraggio and outyielded Jemalong in both spring herbage and seed (3).

Trial data from other States also indicate that Sephi is superior to aphid susceptible cultivars under BGA and SAA attack, both in terms of herbage and of seed yield (4).

In other agronomic characters, Sephi is similar to Jemalong, and is regarded as a dual aphid resistant replacement for that cultivar. In comparison with Paraggio, the only other BGA resistant barrel medic in commerce, Sephi has a higher level of SAA resistance and of hardseededness.

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