Medic Seed Dynamics through Crop/Pasture Rotations

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Carter (1) has shown that the quality of a medic pasture is largely determined by the size of the seed reserve, and that many poor medic stands are the consequence of an inadequate seed reserve at the beginning of the pasture phase. Carter et al. (2) suggest that poor pasture seed production and poor seed survival through the rotation are major contributing factors to the inadequacy of the seed reserve. This paper describes the fluctuation in medic seed reserves through a crop/pasture rotation on the Yorke Peninsula of South Australia.

Methods

Medic seed reserves were measured each April for 3 consecutive years at 23 sites which were subjected to normal farm management. Monitoring began at 8 sites in 1985, and in a second group of 15 sites in 1986. All sites were located on a loamy mallee soil type. In the first sampling year (YR1) annual medic pasture was regenerating in cereal stubble following a crop the previous year. The dominant medics were Medicago truncatula (barrel medic) and M.polymorpha (burr medic). In the second sampling year (YR2) the sites were cropped with either wheat or barley. The third and final sampling (YR3) was done in the April following the crop. On each sampling occasion 25 soil cores (8cm deep by 10cm diam.) were taken in a grid pattern from the same 40 m2 area.

Results and discussion

Table 1. Average medic seed reserve(kg/ha)

	YR 1	YR 2	YR 3
1985 group (n=8)	223a	208a	75b
1986 group (n=15)	148a	240b	123a

Means in rows followed by a different letter are sig. diff. ($P<0.01$)

The average seed reserve of the 1985 group did not change following the pasture year. However, seed reserves increased in the 1986 group. Cropping reduced seed reserves in both groups. Consequently there was a net reduction in seed reserves through the rotation in the 1985 group, but no significant change in the 1986 group.

These results demonstrate that seed reserve may not always be built up during the pasture phase of a rotation, and that a large proportion of the reserve may be lost in a cropping year. This may contribute to an overall decline in the seed reserve through the rotation. The aim of the pasture year must therefore be to maximize seed set, thus boosting seed reserves enough to offset losses of seed through the crop year.

1. Carter, E.D. (1982) Proc. 2nd. Aust. Agron. Conf., Wagga Wagga.

2. Carter, E.D., Wolfe, E.C., Francis, C.M. (1982) Proc. 2nd. Aust. Agron. Conf., Wagga Wagga.