ESTIMATING PASTURE LEGUME SEED RESERVES

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The following is a handy technique for estimating pasture legume seed reserves in paddocks. The method involves simulating the season's break by watering an area of ground and counting the subsequent germinating of medic or sub clover plants.

Use a piece of old bore casing or something similar of approximately 30 - 40 cm diameter and 15 cm deep. Knock this into the ground until it is half buried and then gently fill the ring with water - take care not to disturb the topsoil too much. Cover the ring with a bag to reduce evaporation. Under warm conditions, the ring will have to be rewatered every 2 - 3 days so that the ground does not dry out too much.

Count the germinated medic or sub clover plants after a week to ten days and convert this figure to plants per square metre. For example, if 27 medic plants are counted in a 30 cm (0.3 m) diameter ring:

Area of ring	=	π x radius^2
	=	3.142 x $(0.15)^2$
	=	0.071 m^2
27 ÷ 0.071	=	380 plants per m^2

As a rough rule of thumb, 500 plants/m^2 in higher rainfall areas (> 400 mm) and 300 plants/m^2 in lower rainfall areas indicate that a good pasture can be expected after the opening rains. (These figures represent around 35 and 21 plants per 30 cm diameter ring respectively). Counts lower than this suggest that sowing additional legume seed before the opening rains might be warranted.

The more counts that can be made in a paddock the better the indication of the paddock's seed reserves.

Using this technique will help make decisions such as whether to crop or resow pasture in the paddocks being investigated.

The Fate of Medic Seed

If 5 kg/ha of medic seed is sown, it can be expected that the following will be produced:

At best, assuming a good finish to the season:

2,000 kg/ha medic pasture > 750 kg/ha pods > 250 kg/ha seed

This assumes that grass and broadleaf weeds will make up one third of the pasture composition.

1 sheep/ha overall = 1.5 sheep/ha pasture area

Animal intake + trampling + leaching + wind loss
= 6.5 kg/sheep/day. At 1.5 sheep/ha = 9.7 kg/ha/day.

2,000 kg pasture could last 200 days at best (from maturity in October to late April) resulting in bare ground = exploitation.

Of grazed pods, about 1.3% (for Harbinger) pass through sheep undigested, reducing seed from 250 kg/ha down to 3.2 kg/ha seed.

Stock trample 10% of the seed population, from which 10% will germinate and 50% establish, therefore 0.5% of original - 1.3 kg/ha seed available for regeneration.

If 10% of the original 250 kg/ha of seed is buried, there is 225 kg/ha of seed available for stock feed. 225 kg is eaten, 1.3% will pass through the sheep unaffected = 2.9 kg of seed.

Total amount of seed available = 1.3 + 2.9 = 4.2 kg/ha = NOT ENOUGH

LESS THAN THE ORIGINAL AMOUNT OF SEED SOWN!

Why are my Medic Pastures Poor?

* Increased cropping intensities
* Insect damage - aphids, earthmite
* Late openings to seasons
* Poor seasonal finishes
* Strong weed competition
* Use of Sulfonyl Urea Herbicides (Glean, Logran, Ally)
* General in-crop herbicide use
* Over grazing, early in season and over summer period
* Failure to correctly inoculate
* Poor varietal choice/performance

* Sowing techniques - too deep
* Specific soil type problems, nonwetting sands
* Poor establishment techniques
* Low soil fertility - phosphorus, trace elements, eg. Zn
* Outside influences - commodity prices shortfall in $$$
* Low seed bank number
* Frequent hay cutting
* Heavy ground cover, toxins from stubbles in walker tracks.

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REMEMBER: BCDS Field Day - 14 September