

# The impact of the form and frequency of sulphur on pasture yield and composition in South Island high country



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**1**

Large responses in legume growth are obtained with Sulphur fertilisers in the South Island hill and high country.

Trials were carried out between 1986 and 2001 near Lindis Pass, Otago and in the Wairau Valley, Marlborough to compare the forms and timing of alternative sulphur fertilisers.

**2**

Initial trials showed that sulphur fortified superphosphate fertilisers are more effective products than fine elemental sulphur and sulphur bentonite prills, both in terms of dry matter production, safety of aerial spreading and cost effectiveness.

This is because Sulphur Super products contain both sulphate sulphur and fine elemental sulphur.

**4**

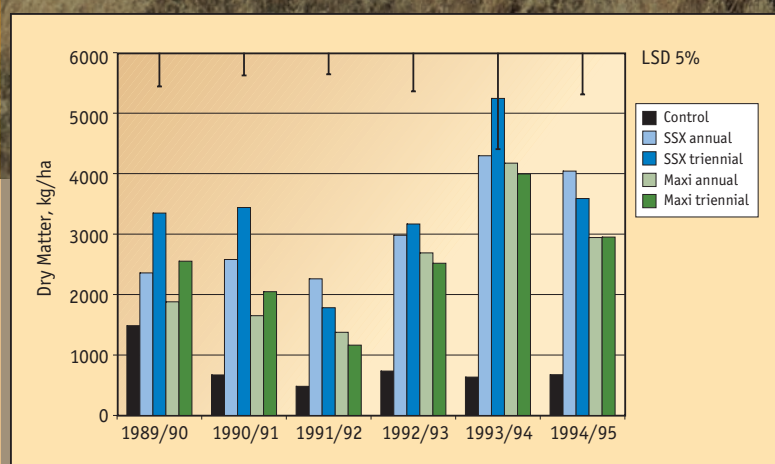
It is preferable to apply these products on a biennial rather than a triennial basis to maximise dry matter (Figure 2), maintain better sward composition and to improve the chances of fertiliser application coinciding with better growth conditions, particularly summer rainfall. The effect of higher summer rainfall is seen in the higher yields from 1993/94 to 1996/97.

Residual elemental S oxidises with time, reducing the dependence on biennial application, although there is still a risk of temporary sulphur deficiency and a delay in response of clover to follow up topdressing if topdressing is left beyond two years.

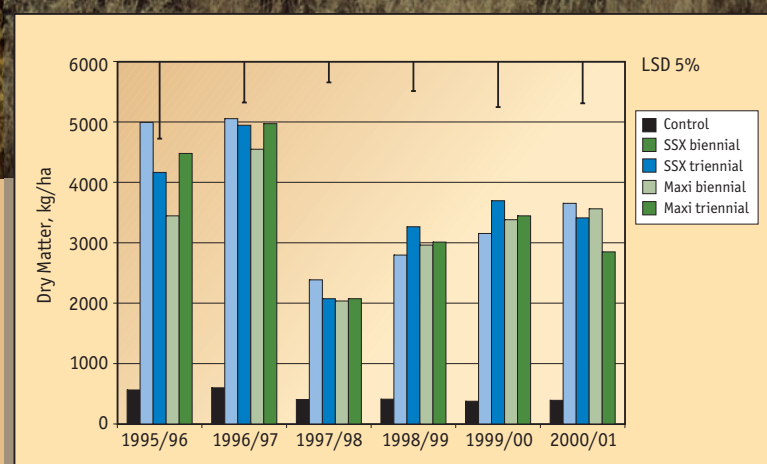
**3**

In the short to medium term Sulphur Super Extra (28% S) was more effective than Maxi Sulphur Super (50% S), Figure 1, largely because it contained more sulphate sulphur.

Sulphur Supers (containing 20-30% S) are the best fertilisers for development.



**Figure 1** Comparison of dry matter production from annual (19 kgS/ha) vs triennial (57 kgS/ha) application of Sulphur Super Extra (SSX, 28% S) and Maxi Sulphur Super (50% S), Lindis Pass, Otago.



**Figure 2** Comparison of dry matter production from biennial (38 kg S/ha) vs triennial (57 kg S/ha) application of Sulphur Super Extra (SSX, 28% S) and Maxi Sulphur Super (50% S), Lindis Pass, Otago.

- Sulphur Super treatments significantly lifted soil available nitrogen status (measured 1989/90-1997/98) from year 2-3, particularly in wetter seasons.
- Herbage sulphur levels, in conjunction with observation of pasture composition and vigour are useful indicators of when sulphur fertiliser needs to be reapplied.

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