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RESPONSE OF A NATIVE GRASSLAND IN THE FALKLAND ISLANDS TO LIQUID SEAWEED EXTRACT

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ABSTRACT:

In the Falkland Islands, the native grasslands are dominated by the coarse, wiry grass *Cortaderia pilosa* (whitegrass), in association with a range of herbaceous species. Reseeding has been attempted but there is currently an interest in developing organic systems of management. The only feasible local source of fertiliser is seaweed (mainly *Macrocystis* and *Durvillea* species).

Experiments have shown that seaweed applied as a liquid foliar feed (Liquid Seaweed Extract - LSE) gave a better growth response than from dried ground or pelleted application. Commercially available LSE (Marinure c.) was applied at rates of 0, 20, 50, 100 and 200 litres per ha. and Nitrochalk (25% N) was applied at a rate of 60kg N $ha.^{-1}$ to uniform native whitegrass pasture at Fox Bay, West Falkland. Pasture production was measured bi-annually for 4 years, and nutrient content of herbage measured in year 2 and pasture biodiversity in year 3.

Pasture production was in the order of 3 - 4 t DM$ha.^{-1}$ for seaweed treatments (NS). There were indicators of a response to higher levels of Marinure (200 l $ha.^{-1}$) by year 4.

N($P \geq 0.05$) and P(>0.001) contents of herbage were significantly higher following application of inorganic N than any seaweed treatment.

Species biodiversity was greatest where inorganic fertiliser was applied. The potential of seaweed to act as fertiliser in organic systems in the Falklands will be discussed.

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THE EFFECT OF LIQUID SEAWEED EXTRACTS ON THE GROWTH OF COCKSFOOT (*DACTYLIS GLOMERATA*)

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ABSTRACT:

Following a period of agrarian reform there is an interest in pasture improvement for sheep farming in the Falkland Islands. Where reseeding is attempted, Cocksfoot (*Dactylis glomerata*) has proved one of the most successful species. Imported fertilisers represent approximately 63% of the cost of reseeding and are a major economic deterrent.

There are huge reserves of seaweed (mainly the kelp *Macrocystis pyrifera*) in the waters around the Islands. In view of this a programme of research into the use of seaweed as fertiliser in the Falkland Islands was funded by the U.K. Falkland Islands Trust in 1984.

A series of field trials were established to determine the effect of LSE on Cocksfoot. Establishment was unaffected by LSE (or by conventional fertiliser). In two experiments LSE significantly improved the growth of Cocksfoot tillers and in one experiment growth was unaffected. Leaf senescence was significantly lower where LSE had been applied than where no fertiliser or inorganic N had been applied in one experiment.

Overall, it was concluded that, provided application rates were high, LSE has some fertiliser value and the response it evokes in grassland and plant growth must be more than the nitrogen content of the material.

THE POTENTIAL FOR A SEAWEED INDUSTRY IN THE FALKLAND ISLANDS

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ABSTRACT:

The Falkland Islands have a rich marine flora in terms of abundance of species, among which are several of commercial importance for phycocolloid production. These include the carrageenophytes *Gigartina skottsbergii*, *Callophyllis variegata* and possibly *Sarcothalia crispata*, and the alginophytes *Macrocystis pyrifera, Lessonia spp.* and *Durvillaea antarctica*. The survey of Westermeier et al. (1999) indicates that there is a solid basis for the exploitation of standing stock of the species mentioned. Moreover, all of them, except *Durvillaea*, have the potential for cultivation.

There is a need to confirm that information on growth and biology from other regions is applicable to the Falklands so that the effects of harvesting can be predicted.

Seaweed found in the Falklands could be utilised as raw material for high value markets such as the phycocolloid industry, for human consumption, for cosmetic and biomedical purposes. Lower value markets might exist locally for application in agriculture, horticulture and forestry.

There is potential for aquaculture, though most applications may not have immediate relevance. The authors highlight the need for the research in certain key areas.