The structure of managed tagasaste (Chaemecytisus palmensis)

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The use of shrub legumes like tagasaste offers the possibility of providing green feed in summer and autumn when the only alternatives for feeding livestock are dry pasture residues, stubbles or supplements. While yields of 20 t/ha seem possible under high rainfall conditions (l), there is little information on how accessible this might be to a grazing animal, and whether under plantation plantings these yields are still observed. This work describes the distribution of dry matter in tagasaste grown under conditions of regular grazing and cutting in autumn of each year.

Methods

Six typical tagasaste shrubs with about 6-9 months regrowth were chosen from 5 year old tagasaste growing in rows 5m apart at a density of about 800 trees/ha. The site was part of the Martindale Research Project where all trees are growing on deep infertile sands in a 450-500mm rainfall zone. In early to mid-summer each tree was divided into approximately four 50cm layers and completely harvested except for the main stems below 50cm. Material from each layer was cut, weighed and sampled for total dry matter and leaf and stem fractions. Edible stem was defined from observations of the material readily eaten by sheep and includes material up to about 5mm diameter.

Results and discussion

The mean dry matter yield of about 3.4kg/plant is much lower than that reported elsewhere (l). If the single plant yield is multiplied by the plant population of 800 plants/ha, tagasaste yields about 2755 kgDM/ha in this environment. Undeveloped pasture in the rows between trees contributes about 2400 kgDM/ha. This total level of dry matter production is of the order expected in a 500mm rainfall zone.

Table l: Distribution of Production (g/plant)

Height	Dry Matter	(% of total)	Leaf	Edible Stem	Stem
0-50 cm	399	11.5	102	100	196
50-100cm	1706	49.5	498	365	843
100-150cm	990	28.8	345	256	390
>150cm	349	10.1	154	107	89
TOTAL	3444		1098	827	1518
(± S.E.)	(354)		(73)	(91)	(229)
Proportion (%)			31.9	24.0	44.1

As sheep can only graze to about 1m, about 40% of the dry matter remains unavailable unless it is mechanically cut. When this value is considered with the fact that only about 60% of all material is readily edible, the ability of an area of tagasaste to support livestock needs to be carefully calculated.

(l) Dann,P. and Low,S.(1988) Agric. Science 1,20-27.