

## Nutritive value of cereal straws and grain legume residues

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Historically crop residues, mainly cereal stubbles, have been very important feed sources for sheep during the summer-autumn period and for drought feeding. In more recent times there has been an increasing availability of grain legume residues due to increased sowing of crops such as peas and faba beans. In the present study a comparison was made of the nutritive value of cereal straws and a range of grain legume residues.

### Methods

Samples (10 -15 kg) of cereal straws (containing no grain) and grain legume residues (containing a few seeds) were collected from various districts in South Australia during the 1990-91 summer; these were hammer-milled through a large (25 mm) screen followed by a small (1 mm) screen. Proximate chemical analysis (1) and *in vitro* dry matter (DMD) and organic matter digestibilities (OMD) were determined for all samples (4).

### Results and discussion

Both the DMD and OMD of grain legume residues tended to be higher than those for cereal straws (Table 1 ). There was considerable variability within each group and overlap between groups. For cereal straws the range in DMD was from 42% for wheat to 56% for oats ; for grain legume residues it was from 42% for chick peas to 60% for lupins. The results for OMD were similar. The mean crude protein (CP) content of grain legume residues was considerably higher than that for cereal straws (7.2% vs 3.1%). This is an important advantage for most of the grain legume residues because adult sheep diets should contain about 8% CP (3) for maintenance and N deficiency is a major problem with low quality roughages. Chick peas stood out as the worst grain legume residue with the lowest CP content and digestibility and the highest fibre content. Although the feed quality of crop residues varies greatly between species, regions and seasons the values generally obtained here are similar to those which are reported elsewhere (2). In spite of the higher feeding value of many grain legume residues their use in livestock feeding systems, including drought feeding, has received little attention.

**Table 1. Nutritive value of cereal straws and grain legume residues (DM basis ).**

Feedstuffs	Chemical composition (%) <sup>a</sup>						In vitro digestibility (%)	
	DM	Ash	CF	CP	EE	NFE	DMD	OMD
<b>Cereal straws:</b>								
Barley	94	9.6	35.5	2.6	0.4	51.9	50.8	51.6
Oats	95	7.3	34.4	4.4	2.0	51.9	56.2	56.7
Triticale	92	7.3	39.4	3.0	0.1	50.2	46.1	47.0
Wheat	93	6.6	41.0	2.3	0.1	50.0	41.8	42.3
Mean	94	7.7	37.6	3.1	0.7	50.9	48.7±3.1	49.4±3.0
<b>Grain legume residues:</b>								
Broad beans	93	7.4	41.9	6.5	0.7	43.5	46.7	52.1
Chick peas	91	4.5	48.3	3.1	1.0	43.1	42.1	41.3
Faba beans	88	7.3	34.6	7.8	1.0	49.3	54.7	54.6
Lentils	93	5.1	35.1	11.1	0.7	48.0	45.7	46.1
Lupins	89	6.2	35.5	8.8	1.1	48.4	60.0	60.7
Peas	93	5.9	45.1	5.7	1.3	42.0	59.7	60.3
Mean	91	6.1	40.1	7.2	1.0	45.7	51.5±3.1	52.5±3.2

<sup>a</sup>CF= Crude fibre, EE= Ether extract, NFE= Nitrogen -free extract.

### References

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