

## The value of unusual feeds in drought

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There is a wide range of unusual feedstuffs that can be safely and effectively fed to livestock during drought. However, livestock producers need to fully evaluate the feed value, risks, practicality and real cost of these feedstuffs before replacing more conventional feeds. Many of these products are low in nutritional value, bulky to transport, difficult to handle, and may contain high levels of chemical residues, and supply may be inconsistent. Such products need to be evaluated on a dry matter and feed value basis, as some very high moisture feeds may have a low cost per tonne but work out to be very expensive on a dry matter basis, particularly when freight is included.

Producers also need to assure themselves that the feedstuff does not include any restricted materials such as meat, fish or feather meal, bone or blood meal, poultry litter or pet foods. Spent mushroom compost is also unacceptable unless it can be proven to be free of any poultry waste.

The best policy is not to feed unusual feedstuffs to stock without first establishing that the material is suitable. Producers should ask the supplier to certify that the material that they are supplying is suitable for the purpose for which it will be used. If this assurance cannot be given and the label, invoice or delivery docket does not clearly indicate that the feed is suitable for ruminants, do not buy or use it.

A By-product Vendor Declaration (BVD) is also available from Safemeat which covers materials that have not been produced specifically for

use as stock feed, including fruit and vegetable wastes and crop processing by-products such as peel, pulp, stems, pressings and leaf material. By definition, by-product stockfeeds do not include grain and grain by-products, cottonseed, oilseed meals, tallow or molasses.

By law, any by-product used as a drought feed must be declared on National Vendor Declaration forms. A 'yes' answer to the question on by-products (question 4 on the cattle NVD) is appropriate if the stock in question have been fed a by-product feed within 60 days prior to sale. (Note also the question in both the cattle and the sheep NVDs about animals that have grazed or been fed any feed sprayed with agricultural chemicals.)

Ideally, unusual feedstuffs should be tested for chemical contamination by an accredited testing laboratory before being used as a drought feed. However, this alone does not provide a guarantee of freedom from residues, as this screening typically only tests for a narrow range of chemicals.

Testing should also be carried out for nutrient value of unusual feeds, and it should be remembered that composition may vary widely between samples of the same product from

#### Unusual feedstuffs with a high risk of potential chemical residues

*Feeds are listed from highest potential risk, down.*

Stock fed any of the feeds listed here must spend at least 60 days on a residue-free feed prior to slaughter.

#### POTENTIALLY HIGH RISK FEEDS

**Cane hay/silage/tops**

**Vegetable and fruit wastes**

**Potatoes**

**Grape marc**

**Pumpkins**

**Citrus pulp**



different sources. Factors to be considered include not only the energy value (MJ/kg DM), protein content and dry matter percentage but also the dry matter digestibility of the feed (digestible dry matter, DDM%). Some alternative feeds may appear to have acceptable energy and protein levels but may be low in digestibility, restricting both intake and the availability of nutrients.

To calculate the actual cost of nutrients in a feed:

$$\text{Energy cost (c/MJ)} = \frac{\text{cost per tonne (\$)}}{\text{DM \%} \times \text{energy content (MJ/kg)} \times 10}$$

For example, a feed costing \$120 per tonne and analysed at 55% dry matter and 6.3 MJ/kg DM:

$$\frac{\$120/\text{t}}{0.55 \times 6.3 \times 10} = 3.46 \text{ c/MJ}$$

(A feed cost calculator is available on the NSW Department of Primary Industries website.)

Most unusual feeds should be used with caution and introduced into rations gradually over a period of around 2 weeks. Generally it is recommended that these feeds make up no more than 30% of the total ration. It must be remembered that, with low digestibility/low nutrient value feeds, stock may not be able to eat enough to meet their energy needs and may die from starvation unless fed with more digestible or more nutrient-dense feeds.

Some unusual feedstuffs recently available include:

**Bread:** High in carbohydrates but low in fibre: there is a risk of grain poisoning, so introduce slowly.

**Biscuit waste:** Similar to bread but extremely variable in nutrient value.

**Brewer's grain:** High moisture content restricts delivery distance but a good energy and protein source. Storage requires care or can be ensiled.

**Cane hay/silage/tops:** Beware of residues. Variable nutritive value.

**Citrus pulp:** Composition varies depending on type of fruit and whether skins and seed included. High moisture content limits area of use due to freight cost. Limited storage life but can be ensiled with other materials. Low in calcium. Must be introduced gradually – lemon is more acceptable than orange or grapefruit.

**Cottonseed hulls:** Palatable but low in feed value.

**Grape marc:** Generally low and variable in feed value and moisture content. Beware of residues.

**Potatoes:** High moisture content, low protein but good energy source. Palatable. Some risk of choking. Avoid sprouted potatoes or those that have turned green as a result of exposure to sun.

**Pumpkins:** Need to be chopped.

**Rice hulls:** Little feed value, abrasive and can cause impaction if fed at high levels.

**Rice straw:** Beware of residues. Low in nutritive value. High silica and oxalate levels may cause problems.

**Sawdust:** Has no nutritive value at all but at levels up to 15% can be used as a roughage substitute to facilitate rumen function. Hardwood is preferable to cypress pine.

**Vegetable and fruit wastes:** e.g. cabbage, carrots, whole apples, oranges – beware of residues. Can have high moisture content.

**Waste paper:** Little feed value\*. May contain toxins if printed.

Table 1 gives a guide to the average composition of some alternate feeds but producers are strongly urged to have products analysed before purchase.

Table 1. A guide to the average composition of some alternate feeds.

Product	Dry Matter (%)	Crude protein (%)	DDM (%)	Energy ME (MJ/kg DM)
<b>Roughages</b>				
Bread	62–85	13.5–18.2	85–89	12.8–13.4
Brewers grain	20–30	17–30	–	9.5–10.0
Cane tops	84.9	2.7–3.5	27.5	3.8–8.3
Citrus pulp	18.–25	7.5	–	10.4
Cottonseed hulls	93.4	4.0–11.5	35.5	2.9–6.3
Grape marc	49.1–51.6	11.2–16.1	25.1–48.8	3.8–7.3
Potatoes	16–25	7–14	84–86	10–12
Pumpkins	9	16	–	13
Rice hulls	92.3	2.0–3.1	23.3	2.4
Rice straw	52–93	2.2–9.0	30–55	3.1–7.5

Source: NSW Department of Primary Industries feeds database, and FeedTest®, Department of Primary Industries, Victoria.

\*Recent NSW DPI tests on the nutritive value of beer cartons (!) have rated some at 4.1 MJ/kg DM.

## **ALWAYS READ THE LABEL**

Users of agricultural or veterinary chemical products must always read the label and any Permit, before using the product, and strictly comply with the directions on the label and the conditions of any Permit. Users are not absolved from compliance with the directions on the label or the conditions of the Permit by reason of any statement made or not made in this publication.

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ISSN 1832-6668

Job number 6245

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**Disclaimer:** The information contained in this publication is based on knowledge and understanding at the time of writing (November 2005). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.