

White cottonseed- a supplementary cattle feed

August 2016, Primefact 303, Second edition
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Introduction

White cottonseed (WCS) is the seed remaining after the ginning process. It is known as white cottonseed as it still has some cotton lint left on it. It is an ideal supplement for stock to maximise use of dry standing feed and during drought, although producers still need to be aware of some restrictions around its use.

Residues

White cottonseed may contain residues of chemicals applied to the cotton crop during growing or harvest and so producers should request a Commodity Vendor Declaration (CVD) each time they purchase it. That Declaration supports stock raising claims and provides a record that the relevant with holding periods and export slaughter intervals have been observed. If no CVD is obtained, cattle sold or processed within 60 days of being fed WCS must be identified in Question 7 of the National Vendor Declaration.

Gossypol toxicity

Whole cottonseed can contain up to 1% gossypol- a toxic dye in the kernel pigment glands. While mature ruminants (eg cattle, sheep) can break down some gossypol in the rumen, it must NOT be fed to pigs, poultry or horses. It should not be fed to weaned calves less than 3-4 months old, although there are no reports of calf losses when feeding cows with young calves during joining.

Feed value

White cottonseed is high in energy and protein (Table 1) but also provides fibre, mostly from the seed hulls. Most of the energy is in the form of oil

(Table 1) which can inhibit rumen function when it exceeds 6% of total diet. Digestion of WCS in the rumen releases nutrients slowly, which means that it can be fed twice weekly.

Table 1. White cottonseed feed value.

component	typical value
dry matter	90 - 93%
energy	13 -14MJ ME/kg DM
digestibility	80%
crude protein	20 - 24%
acid detergent fibre (ADF)	35 - 45%
oil content	15-22%

Note that most cotton grown in Australia is genetically modified (GM) and not segregated. Therefore WCS cannot be fed to stock being marketed in programs that prohibit GM feeds.

Feeding cottonseed

Cottonseed can be fed alone or combined with other feeds. It does not require rolling, milling or other processing and cannot cause acidosis. Molasses, salt or grain can be used to entice stock not familiar with WCS, though once started palatability is not a problem. Consider feeding daily amounts, to monitor acceptance and intake, for up to 10 days before switching to feeding every second day or twice weekly.

Allow 600mm per head when feeding adults in troughs. Use small dumps (enough to feed four head per dump) if feeding on the ground.

Where there is adequate standing feed available (>1200kg DM/ha), WCS can be available all the time for example in tractor tyre feeders. Note that intake generally increases as pasture quality and availability declines.

Another option is to dump a load of cottonseed in a paddock, encircle with an electric fence and then either push WCS under the fence or move the fence to feed stock.

Amounts required

Cottonseed is a suitable supplement for stock grazing low quality feed, such as cereal stubble or mature / frosted / drought affected tropical grass pasture with no visible green content. Under these conditions, it can be fed at up to 0.5% of bodyweight for cows, and 0.33% for weaned calves, per day (Table 2).

It can also be combined with other feeds as a full ration during drought. For example, mix 70% grain: 30% WCS, plus a roughage source.

Table 2. Suggested feeding levels with adequate dry feed available.

stock class	kg/head/day
lactating cows	2 - 3
dry – pregnant cows	1 - 2
yearlings 250-350kg	1 - 2
Weaned calves 100-150kg	0.5

Feeding white cottonseed in small dumps allows all stock access when feeding limited amounts.



Photo: Todd Andrews

Feeding cottonseed to bulls

Overseas pen feeding trials have shown that gossypol in WCS can reduce semen production over time. In practice, many bulls have been fed WCS along with cows and calves during the joining period, often in unregulated or large amounts, with no reports of infertility. As a precaution, do not feed large amounts of WCS to bulls in the months prior to joining.

Handling and storing WCS

Twelve tonnes of WCS is equivalent in volume to 20T of grain and it is mostly distributed either in tip trucks or specialised 'moving floor' trailers. It should be stored in sheds as it needs to be moved with a loader or by shovelling. It should not be stored in a silo and cannot be augered.

It can be stored for short periods in the open, uncovered, in a well-drained area. The dump should have a peak and smooth sides to shed water.

Note that WCS can combust spontaneously and so should not be stored with a moisture content above 14% or in stacks above 5m high. Mouldy WCS can cause deaths or poor performance due to aflatoxins. Storage life can be several years, though WCS can be infested by weevils.

Acknowledgments

This Primefact is based on a publication written by Ian Blackwood (NSWDPI) and was reviewed by Ian Blackwood and Roger Sneath (QDAF).

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ISSN 1832 6668