

## **FEEDING CONCENTRATES – SUPPLEMENTS FOR DAIRY COWS**

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This paper is a very brief summary of the new edition of a book first published in 1993. The new book (Kellaway and Harrington 2004) provides a summary of all relevant published Australian work, and many unpublished government department reports, relating to the feeding of concentrates to dairy cows, up to mid 2003. Many overseas publications also are included in order to provide perspective and to facilitate drawing general conclusions.

Milk production from grazing cows is maximised when they are allowed to be highly selective, which leads to pasture wastage. Milk production per hectare is maximised when grazing pressure is high, little pasture selection is possible and milk production per cow is depressed. The best of both worlds is to provide supplementary feed to grazing cows in order to maximise production per cow and per hectare. The economics of feeding supplements has to be determined in terms of feed costs, milk price and overall effects on the cows, including increase in bodyweight, improved fertility, increase in lactation length, residual responses in milk production after no longer feeding the supplement and improvement in milk composition.

The book focuses attention on the use of concentrates as a supplementary feed. Cow responses to concentrate feeding depend on cow and feed factors. Major cow factors are phenotypic potential, stage of lactation and environmental stress. Major feed factors are pasture availability and nutrient content, supplement availability and nutrient content, and rate of substitution of concentrates for pasture.

These factors are discussed under the following chapter headings: milk composition, strategies for concentrate feeding, measurement of milk responses to supplementation, energy supplements, protein supplements, fat supplements, mineral supplements, dietary cation-anion difference, buffers and antibiotics, factors affecting response to supplementation and economic analysis of concentrate feeding.

Three hundred and seventy nine papers were reviewed for the book, of which 39% have been published since the first edition in 1993. Under each topic, major results of all experiments are tabulated and discussed in a technical review. Conclusions are provided in general summaries to each chapter. The tabulated experimental results and technical reviews are designed to assist research scientists by clarifying our current state of knowledge, and suggesting areas for future research. The general summaries are designed to provide practical advice to farmers.

KELLAWAY, R.C. and HARRINGTON, T. (2004). 'Feeding Concentrates – Supplements for Dairy Cows.' (2<sup>nd</sup> Edition). (CSIRO Publishing: Melbourne.)

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