

## BRITISH SOCIETY OF ANIMAL SCIENCE

### Guidelines for the Preparation of Summaries for the Annual Meeting York University, 8-10 April 2002

A one-page summary allows BSAS to referee your proposed paper for scientific content, ethics, presentation and relevance. It will be published in the Proceedings of the British Society of Animal Science and must be suitable for use as a scientific reference. Submission of a summary is deemed a commitment to present the paper. Previews will not be accepted. Please ensure all authors are in agreement with being identified as being associated with the paper.

**Deadline date for the receipt of summaries is 31 October 2001**

#### COMMERCIAL PRODUCTS

Where results on commercial products are being presented, authors should ensure, before submitting their summary, that both their organisation and the commercial company involved give permission to publish.

#### CONTENT

Summaries should be complete in themselves. The title should be descriptive, specific, and concise. It should state the species concerned. It should replace information otherwise found in the main text. The name of the presenting author should appear first. The Introduction should first state the background and objectives of the work. The Material and methods should describe clearly the methods used, including numbers and types of animals. The Results obtained, together with relevant statistical analysis should be presented in sufficient detail to support the conclusions drawn. The Conclusions should clearly state the author's view of the implications of the results to scientific understanding and practical use. Vague sentences are not acceptable. Authors will be asked to rewrite substandard summaries or the summary may be rejected. Changes and corrections in titles and authors, other than those requested are to be avoided. Further information on the writing of a summary may be obtained from M. O'Connor, and F.P. Woodford, Writing Scientific Papers in English (Elsevier, Amsterdam, 1975). It is recommended that the material for a summary should be discussed with any co-authors and read critically by a colleague who has not been closely involved. References should be given where appropriate and acknowledgements kept to a minimum and be specific to the work being reported.

#### Statistical analyses and presentation of results

- The experimental design and statistical methods must be clear. Experiments where treatments and pens (or groups) of animals are confounded are not acceptable.
- Treatment means should be presented with appropriate standard errors of means or differences. The minimum number of decimal places required to demonstrate significant differences should be used.
- Probability values must be presented to support conclusions. Probability levels of  $P > 0.05$  are NOT significant.
- The use of percentages should be avoided wherever possible; concentrations or compositions should be expressed as mass per unit mass or mass per unit volume; decimal proportions should be used for common ratios such as digestibilities.
- The results of surveys will be accepted if the work has been conducted with the same scientific rigour as designed experiments

#### Format

The summary including any tables or figures must fit on to one page of A4, justified, 2 cm margin - right/left/bottom, and 1 cm margin at the top of page.

#### Typographical Conventions

Typographical conventions should be those used in Animal Science and full details are given in 'Instructions for Contributors', Volume 68, part 1 (1999) iii-vii; a copy of this can be obtained from the Secretary.

Please observe the following:

- Title** On the first line type the title of the paper in Times 12 bold, lower case. The title should be two lines maximum and not have a full stop (point) at the end. No abbreviations please. Do not type anything above the title.
- Authors** On the next line type the names of the authors in Times 10 lower case. Initials first then the family name without title. Use superscript numbers to distinguish authors with different addresses.
- Address** On the next line type the address of the author(s) in Times 10 italic lower case. Full address, including postcode and country for all authors. No full stop between last item of address and postcode or after country. Use the same superscripts as in authors to distinguish different addresses.
- Text** Leave one line after addresses and type the entire text of the summary with single spacing in Times 10 font. Different sections (introduction, materials and methods, etc.) should be separated by one clear line; section headings should be in bold and text should begin on the same line as the heading (see example). Summaries printed in smaller font sizes will be returned. Please use font Times New Roman, or Times. The summary may contain graphs and / or tables which complement the text. Summaries should be justified left and right, not centered on the page.
- Figures/Tables** Please do not reduce the size of text on figures and tables below font size 10.

Please ensure that the layout corresponds with the example summary.

Summaries should be submitted either as a disc version or by email. Acceptable word processing formats are Microsoft Word for Windows, WordPerfect/Works. Please note that we only accept the first version for submission to BSAS, you cannot send subsequent revised versions unless BSAS ask you to make corrections. We will acknowledge all those received by email. Subject heading should read '**Summary - Annual Meeting 2002**'. Email: [bsas@ed.sac.ac.uk](mailto:bsas@ed.sac.ac.uk) By Wednesday, 31 October 2001.

## BSAS ANNUAL MEETING

Before preparing your summary please read 'Guidelines for the preparation of summaries for the Annual Meeting' overleaf. Please complete one form per summary.

1 Title of paper .....

.....

2 Name of first author ..... Title .....(Prof/Dr/Mr/Mrs/Miss/Ms)

3 Contact person for correspondence.....

Tel:.....Fax:..... Email:.....

4 Please answer the questions below as appropriate:

a) Submitting theatre or poster presentation

Theatre

Poster

b) I confirm I have contacted my co-authors regarding this summary

c) Would you like to be considered as a President Prize candidate?  
(must be under 30 years of age, BSAS member and 1st or 2nd  
year presenting a theatre or poster at an Annual Meeting)

d) Are you a member of BSAS?

e) If not a member, would you like an application form to join the Society?

5 Commercial/advisory/academic/other specify .....

6 Please tick one box in each column which best describes the topic of your paper:

Cattle		Breeding & Genetics	
Sheep/Goats		Nutrition & Digestion	
Pigs		Physiology & Endocrinology	
Poultry		Reproduction	
Other (please specify)		Lactation	
		Growth	
		Health	
		Ethology & Welfare	
		Environment & Housing	
		Animal Products	
		Other (please specify)	

7 Please send summary to: Email: [bsas@ed.sac.ac.uk](mailto:bsas@ed.sac.ac.uk) or disc copy to address below.

8 Summary must arrive no later than 31 October

Checklist :

- i) Emailed or disc copy of summary - Microsoft Word/Works or Wordperfect
- ii) This form completed with information as requested

The Secretary  
BSAS Annual Meeting  
PO Box 3  
Penicuik, Midlothian EH26 ORZ, Scotland  
Tel: 00 44 (0)131 445 4508 Fax: 00 44 (0)131 535 3120  
Email: [bsas@ed.sac.ac.uk](mailto:bsas@ed.sac.ac.uk)

# The effect of incremental changes in metabolisable energy intake on the partitioning of metabolisable energy in dairy cows

R. E. Agnew, F. J. Gordon, D. J. Kilpatrick, T. Yan and M. G. Porter

The Agricultural Research Institute of Northern Ireland, Hillsborough, Co. Down BT26 6DR, U.K.

**Introduction** The current energy (E) feeding standards (AFRC, 1993) have the objective of providing accurate feeding of dairy cows when there is either zero tissue E retention or a given tissue E change. Such approaches are of limited practical value in the real world in which we must be able to predict optimum feeding levels and strategies for animals of differing milk yield potential producing in a range of physical and economic environments. In the latter context the key economic factor is how the animal responds to additional increments of feed. This is primarily driven by how the animal partitions that additional E between milk output and body tissue gain. The objective of this experiment was to use calorimetric techniques to explore the impact of level of metabolisable E (ME) intake (MEI) on milk E output ( $E_l$ ) and tissue E gain ( $E_g$ ) and hence partitioning of increments of MEI between milk and tissues.

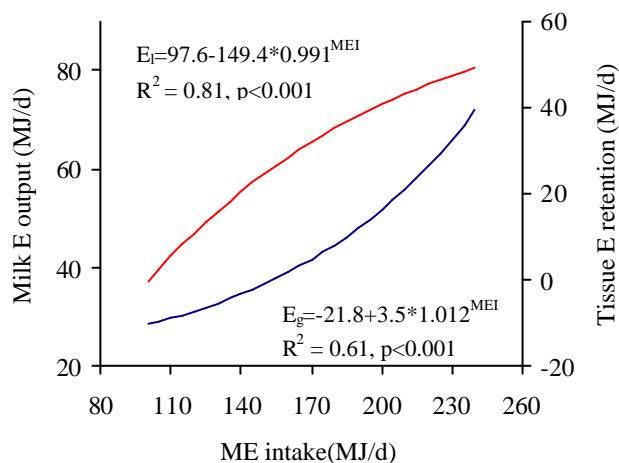
**Materials and methods** Four Holstein-Friesian dairy cows were used in the study. At the commencement of the trial, the cows had a mean lactation stage of 65 days (s.d. 19.3) and mean milk yield of 29 kg/d (s.d. 0.96). A total mixed ration, based on concentrate and dried grass (0.40:0.60 dry matter (DM) basis), was offered throughout the study and had the following composition: DM 894 g/kg, crude protein 158 g/kg DM, gross E 17.7 MJ/kg DM and metabolisability of 0.588. Each animal was offered sequentially four levels of MEI, ranging from approximately 240 – 120 MJ/day in equal steps. At each level of MEI individual animals were subjected to measurements of gaseous exchange in indirect open circuit respiration chambers. Each calorimetric measurement period was preceded by a one-week dietary adjustment period and three-weeks feed in period prior to transfer to the calorimeters for three days, with measurement of gaseous exchange made over the final 48 hours. Regression analyses between MEI and  $E_l$  and  $E_g$  for each animal and for all animals were undertaken.

**Results** Mean energy metabolism data for the experiment are given in Table 1. The mean relationships between MEI and  $E_l$  and MEI and  $E_g$  for the four cows are shown in Figure 1. The relationship between responses in  $E_l$  and  $E_g$  for incremental changes in MEI alters considerably with level of MEI. At low MEI there is a high response in  $E_l$  and little response in  $E_g$  yet at high MEI the opposite effect is obtained. Using these two relationships, and their differentials, it has been computed that where  $E_g =$  zero (i.e. requirements are met) the marginal response in  $E_l$  (MJ) to additional MEI (MJ) was 0.30 and in  $E_g$  (MJ) was 0.29. Using the data of Yan *et al.* (1997), which indicate that the efficiency of ME use for  $E_g$  during lactation is 0.96 of the efficiency of use for  $E_l$ , the present results would suggest that when animals are fed to meet requirements then an additional increment of MEI was partitioned approximately equally between  $E_l$  and  $E_g$ .

**Table 1** Mean energy metabolism data (MJ/d)<sup>#</sup>

Period	1	2	3	4	s.e.m.
MEI	231.3	202.1	167.5	132.4	3.67
HP	126.1	121.1	106.8	91.6	3.74
$E_l$	74.8	70.8	62.7	49.4	2.94
$E_g$	30.4	10.2	-2.0	-8.6	4.45

<sup>#</sup> Effects of periods on all variables were significant (p<0.001)



**Figure 1** Effect of MEI on  $E_l$  and  $E_g$

**Conclusions** The results of the present study demonstrate that each individual animal follows a curvilinear response between MEI and  $E_l$  and in addition the converse response is obtained for  $E_g$ . Therefore in practical terms the concept of optimum level of feeding hinges upon the cost of feed relative to milk value, the degree of partitioning of the animal and the potential need to alter the body tissue reserves of the cow.

## References

AFRC, 1993. *Energy and protein requirements of ruminants*. CAB International, Wallingford, Oxon, England.  
 Yan, T., Gordon, F. J., Ferris, C. P., Agnew, R. E., Porter, M. G. and Patterson, D. C. 1997. The fasting heat production and effect of lactation on energy utilization by dairy cows offered forage-based diets. *Livestock Production Science* **52**: 177-186.

