

THE USE OF
BLOOD METABOLITES IN
ANIMAL PRODUCTION



AN OCCASIONAL PUBLICATION
OF THE
BRITISH SOCIETY OF ANIMAL PRODUCTION

1978

No. 1

The British Society of Animal Production's *Occasional Publication Series* contains the full papers presented at certain symposia organized by the Society. A full list of titles is given inside the back cover. Copies may be obtained from the Secretary of the Society, Mr J. R. Southgate, Meat & Livestock Commission, P.O. Box 44, Queensway House, Bletchley, Milton Keynes, MK2 2EF.

The *Proceedings of the British Society of Animal Production (New Series)* ceased publication in 1975, and the material is now published as a separate section of the June issue of *Animal Production*. This section includes:

1. Abstracts of papers presented at the winter meeting of the Society.
2. Abstracts of papers presented at symposia organized by the Society.
3. Full length articles based on papers selected from those presented at symposia organized by the Society.
4. Critical reviews of literature invited by the Society.

Front cover centrepiece: Ancient Egyptian corkscrew-horned hair sheep. Beni Hassan ca. 2000 BC (after Griffith, 1896).

THE USE OF BLOOD METABOLITES IN ANIMAL PRODUCTION

Proceedings of a symposium organized by
THE BRITISH SOCIETY OF ANIMAL PRODUCTION
and held at Harrogate in March 1976

BSAP OCCASIONAL PUBLICATION
Number 1

BSAP
MILTON KEYNES
1978

© 1978 THE BRITISH SOCIETY OF ANIMAL PRODUCTION
Printed in Great Britain by T. & A. CONSTABLE LTD.

ACKNOWLEDGEMENTS

We are indebted to the following organizations for their financial assistance towards the cost of the symposium:

Calbiochem Ltd, Thorpeo House, King Street, Hereford HR4 9BQ.

Imperial Chemical Industries Ltd, Alderley House, Alderley Park, Macclesfield, Cheshire SK10 4TF.

Searle Diagnostic, Lane End Road, High Wycombe, Buckinghamshire HP12 4HL.

Boehringer Corporation (London) Ltd, Bell Lane, Lewes, East Sussex BN7 1LG.

Pharmacia (Great Britain) Ltd, Paramount House, 75 Uxbridge Road, London W5.

Sigma London Chemical Co. Ltd, Norbiton Station Yard, Kingston upon Thames, Surrey KT2 7BH.

Glaxo Laboratories Ltd, Greenford, Middlesex UB6 0HE.

The contributions of Dr A. J. F. Russel, Mr G. Alderman and Mr J. R. Southgate in the planning and organization of the meeting are gratefully acknowledged.

PREFACE

The object of the meeting was to bring together some of the research workers in Britain who are attempting to develop methods of predicting or assessing an animal's metabolic and productive status from measurements of blood constituents. This was the first time that a national meeting had been called specifically to identify the value of blood profiles in animal and meat production.

Fifty members attended the meeting, which was particularly concerned with the presentation of recent results from techniques for evaluating energy and protein status in dairy cows, suckler cows and ewes. In addition, an opportunity was provided, within the discussion periods, for a candid examination of the application of such techniques in dairy- and meat-production. Emphasis was placed upon the assessment of nutritional status from blood levels of metabolites such as glucose, FFA, β -hydroxybutyrate, urea-N and albumin and several speakers referred to and presented data on the value of hormones in blood profiles.

One of the most striking features of the symposium was the wide diversity of approaches to metabolic profiles. The complexity of the situation in on-farm profile studies was made apparent in many papers, and the difficulty of transposing conclusions from work in controlled experiments to the farm was also acknowledged. There has been a prominent division between these two approaches in the past which this meeting helped to bridge.

One feature of the deliberations, however, was an apparent lack of conviction in the purported relationships between blood parameters and productive or metabolic status. It is clear that more critical evaluation of such associations is necessary before the use of blood profiles can be promoted as a means of evaluating productive potential in farm animals.

D. LISTER

N. G. GREGORY

Editors for the symposium proceedings

LIST OF PARTICIPANTS

Dr F. H. DODD—President BSAP

- ALDERMAN, Mr G. MAFF, Coley Park, Reading.
- ANDERSON, Dr D. M. Organon Laboratories Ltd, Newhouse, Lanarkshire ML1 5SH.
- BADCOCK, Miss J. University of Nottingham, School of Agriculture, Sutton Bonington, Leicestershire.
- BAILEY, Miss L. E. University of Nottingham, School of Agriculture, Sutton Bonington, Leicestershire.
- BINES, Dr J. A. National Institute for Research in Dairying, Shinfield, Reading, Berkshire RG2 9AT.
- BLOWEY, Mr R. W. 124 Stroud Road, Gloucester.
- BOOTH, Mr J. M. MMB Veterinary Research Unit, Cleeve House, Lower Wick, Worcester WR2 4NS.
- BURNS, Mr K. N. Agricultural Research Council, 160 Great Portland Street, London W1N 6DT.
- CARR, Mr W. R. ARC Animal Breeding Research Organisation, Dryden Field Laboratory, Roslin, Midlothian EH25 9PS.
- COGGINS, Dr C. R. E. Animal Diseases Research Association, 408 Gilmerton Road, Edinburgh EH17 7JH.
- DOWNIE, Dr J. G. School of Agriculture, 581 King Street, Aberdeen AB9 1UD.
- EATON, Dr P. Charing Cross Hospital Medical School, Fulham Palace Road, London W6 9HH.
- EDWARDS, Dr R. A. Edinburgh School of Agriculture, West Mains Road, Edinburgh EH9 3JG.
- ELSLEY, Professor F. W. H. Edinburgh School of Agriculture, West Mains Road, Edinburgh EH9 3JG.
- FIELD, Dr A. C. Animal Diseases Research Association, 408 Gilmerton Road, Edinburgh EH17 7JH.
- FILMER, Mr D. G. Dalgety Crosfields Ltd, Crosfields House, The Promenade, Clifton, Bristol BS8 3NJ.
- GREGORY, Mr N. G. ARC Meat Research Institute, Langford, Bristol BS18 7DY.
- GRIFFITHS, Dr M. W. Hannah Research Institute, Ayr KA6 5HL.
- HART, Dr I. C. National Institute for Research in Dairying, Shinfield, Reading RG2 9AT.
- HEAP, Dr R. B. ARC Institute of Animal Physiology, Babraham, Cambridge.
- LISTER, Dr D. ARC Meat Research Institute, Langford, Bristol BS18 7DY.
- LAMMING, Professor G. E. University of Nottingham, School of Agriculture, Sutton Bonington, Leicestershire.
- LAND, Dr R. B. ARC Animal Breeding Research Organisation, Dryden Field Laboratory, Roslin, Midlothian EH25 9PS.
- LEWIS, Miss G. MAFF, Central Veterinary Laboratory, New Haw, Weybridge, Surrey KT15 3NB.

- LINDSAY, Dr D. B. ARC Institute of Animal Physiology, Babraham, Cambridge.
- MCMURRAY, Dr C. H. Veterinary Research Laboratory, Stoney Road, Stormont, Belfast.
- MILLER, Dr T. B. School of Agriculture, 581 King Street, Aberdeen AB9 1UD.
- MILLS, Mr C. University of Nottingham, School of Agriculture, Sutton Bonington, Leicestershire.
- MORGAN, Mr D. E. MAFF, Woodthorne, Tettenhall, Wolverhampton.
- MOSS, Dr B. W. Queen's University of Belfast, Newforge Lane, Belfast.
- PARKER, Mr B. N. J. MAFF, Central Veterinary Laboratory, New Haw, Weybridge, Surrey KT15 3NB.
- PAYNE, Dr J. M. ARC Institute for Research on Animal Diseases, Compton, Newbury, Berkshire.
- PRESCOTT, Dr J. H. D. Edinburgh School of Agriculture, West Mains Road, Edinburgh EH9 3JG.
- ROOK, Professor J. A. F. Hannah Research Institute, Ayr KA6 5HL.
- ROWLANDS, Mr G. J. Institute for Research on Animal Diseases, Compton, Newbury, Berkshire.
- RUSSEL, Dr A. J. F. Hill Farming Research Organisation, Bush Estate, Penicuik, Midlothian EH26 0PY.
- SKEDD, Mr E. Hill Farming Research Organisation, Bush Estate, Penicuik, Midlothian EH26 0PY.
- SOUTHGATE, Mr J. R. Hon. Secretary, British Society of Animal Production, Meat and Livestock Commission, P.O. Box 44, Queensway House, Bletchley, Milton Keynes MK2 2EF.
- SWAN, Dr H. University of Nottingham, School of Agriculture, Sutton Bonington, Leicestershire.
- SYKES, Dr A. R. Animal Diseases Research Association, 408 Gilmerton Road, Edinburgh EH17 7TH.
- TAYLOR, Dr St C. S. ARC Animal Breeding Research Organisation, West Mains Road, Edinburgh EH9 3JQ.
- THOMAS, Dr P. C. Hannah Research Institute, Ayr KA6 5HL.
- TOPPS, Dr J. H. School of Agriculture, 581 King Street, Aberdeen AB9 1UD.
- TREACHER, Dr R. J. ARC Institute for Research on Animal Diseases, Compton, Newbury, Berkshire.
- WIENER, Dr G. ARC Animal Breeding Research Organisation, West Mains Road, Edinburgh EH9 3JQ.
- WILDING, Dr P. Wolfson Research Laboratories, Queen Elizabeth Medical Centre, Edgbaston, Birmingham B15 2TH.
- WILSON, Professor P. N. BOCM Silcock Ltd, Basing View, Basingstoke, Hampshire.
- FORBES, Dr J. M. University of Leeds, Leeds LS2 9JT.
- MADDISON, Mr A. 28 Church Road, Richmond, Surrey.
- PICKARD, Dr D. W. University of Leeds, Kirkstall Laboratories, Vicarage Terrace, Leeds LS5 3HL.