

**JOURNAL OF DAIRY  
RESEARCH**

*Volume 35 Number 3 October 1968*

**CAMBRIDGE UNIVERSITY PRESS**

## THE JOURNAL OF DAIRY RESEARCH

was established in 1929 as a medium for the publication of the results of original research in dairy science and cognate subjects. It is published by the Cambridge University Press.

The annual subscription to the *Journal* is 80s. net (U.S.A. \$13.50) for a volume of three parts. Single copies may be purchased at 30s. net (U.S.A. \$5.00) each, plus postage. Subscriptions may be sent to any bookseller or to the Cambridge University Press, Bentley House, 200 Euston Road, London, N.W. 1. Subscribers in the U.S.A. or Canada should send their orders to Cambridge University Press, American Branch, 32 East 57th Street, New York, N.Y. 10022.

*Back Volumes.* Enquiries about the price and availability of back volumes should be sent to the publishers.

*Claims* for the replacement of journals believed to have been lost in transmission will only be entertained if made within six months of publication.

### *Consultative Committee*

PROFESSOR SIR RONALD BASKETT, O.B.E.

PROFESSOR E. L. CROSSLEY

PROFESSOR R. C. GARRY, F.R.S.E.

DR J. W. HOWIE

SIR ROBERT RAE, C.B.

DR J. A. B. SMITH, C.B.E.

PROFESSOR B. G. F. WEITZ, O.B.E.

---

*Secretary* MR J. C. F. COLES

*Editorial Assistant* MRS DOROTHY SKIDMORE

---

---

# ANIMAL PRODUCTION

## JOURNAL OF THE BRITISH SOCIETY OF ANIMAL PRODUCTION

### *Contents of Volume 10, Part 2, May 1968 include:*

- HINKS, NIELSEN and NIEMANN-SØRENSEN. The use of station and field tests for the improvement of milking performance in dairy cattle. II. Milking rate and time as indicators of a cow's milking ability. III. Breed difference in the yield of milk and butterfat from the fore and rear quarters of the udder.
- BRAEND and KHANNA. Haemoglobin and transferrin types of some West African cattle.
- BOWMAN, MARSHALL and BROADBENT. Genetic parameters of carcass quality in Down Cross sheep.
- HOLMES. Heat losses from young pigs at three environmental temperatures, measured in a direct calorimeter.
- ELSLEY, MACPHERSON and LODGE. The effects of level of feeding of sows during pregnancy. III. Body composition.
- SWAN and LAMMING. Studies on the nutrition of ruminants. 3. The substitution of soya bean meal by urea in diets containing roughage and cereal.
- HALLIDAY. Serum  $\gamma$ -globulin levels in dead lambs from hill flocks.
- TAYLOR. Time taken to mature in relation to mature weight for sexes, strains and species of domesticated mammals and birds.
- KAY, ANDREWS, MACLEOD and WALKER. Urea and cereals as supplements for ruminants offered barley straw.
- IBRAHIM, EL-SHAZLY, KARAM and HAMADA. A note on the effect of diethylstilboestrol on the performance of lambs.
- GRUNDER, ROLLINS, STORMONT and CASADY. A note on differential mortality rates in young rabbits of esterase phenotypes A, AB, and B.
- PROCEEDINGS OF THE 47TH MEETING OF THE BRITISH SOCIETY OF ANIMAL PRODUCTION, HARROGATE, 26-27 MARCH 1968.

### *Contents of Volume 10, Part 3, August 1968 include:*

- CUTHBERTSON and PEASE. The inter-relationships of various measurements, visual assessments and dissection results of pigs of 200 lb. live weight.
- WATSON and BROADBENT. Inherited variation in carcass composition of Suffolk  $\times$  Welsh lambs.
- SLEE. Body temperature and vasomotor responses in Scottish Blackface and Tasmanian Merino sheep subjected to slow cooling.
- MARSHALL, WATSON and SLATTERY. Prediction of eye-muscle area from introscope measurements on carcasses of pigs of bacon weight.
- TROELSEN and CAMPBELL. Voluntary consumption of forage by sheep and its relation to the size and shape of particles in the digestive tract.
- ROBINSON and FORBES. The effect of protein intake during gestation on ewe and lamb performance.
- DAVIES. The effect of cereal and protein source on the energy intake and nitrogen balance of fattening lambs given all-concentrate diets.
- GRIFFITHS. Observations on neonatal changes of body temperature in Blackface lambs.
- LEVY, HOLZER and VOLCANI. The effect of age and live weight on feed conversion and yield of saleable meat of intact Israeli Friesian male calves.
- HINKS, ANDERSON and BECH. Phenotypic aspects of growth and carcass quality in veal calves.
- MORRISON, HINTZ and GRIVENS. A note on effect of exercise on behaviour and performance of confined swine.

The Journal is published quarterly in February, May, August and November.

The annual subscription rate is 90s. (U.S.A. \$14.00) single copy 25s. (U.S.A. \$4.00). Orders and subscriptions may be sent to any Bookseller or direct to:

**OLIVER & BOYD LTD.**

**Tweeddale Court, 14 High Street, Edinburgh 1**

---

# THE JOURNAL OF THE SOCIETY OF DAIRY TECHNOLOGY

17 DEVONSHIRE STREET, LONDON, W. 1. *Tel.* 01-580 5059

The Journal is issued in quarterly parts, four parts constituting a volume. The parts are usually issued in January, April, July and October each year.

The Subscription rate to non-members of the Society, payable in advance, is £3. 5s. net per volume (post free): single numbers, 17s. 6d. net. Subscriptions and all business enquiries should be sent to the Secretary, Society of Dairy Technology, 17 Devonshire Street, London, W. 1.

Each member of the Society receives one free copy of each number. One further copy of each number may (if available) be bought by members for 12s. 6d.

## CONTENTS OF THE JULY ISSUE

The Development of Education and Industrial Training for the Dairy Industry, by J. RIDLEY ROWLING

The Sales Promotion of Milk and Milk Products, by P. P. TURNBULL

An Investigation of the Use of additives in Whipped Cream, by J. ROTHWELL

Spontaneous Rancidity in Milk from Individual Cows, by A. C. HUNTER, JUDITH M. WILSON and GRACE W. GREIG

IDF Seminar on Psychrotrophic Organisms in Milk and Milk Products

Spring Conference, A General Review

Milk and Dairy Product Marketing in the European Economic Community, by J. B. RITZEMA VAN IKEMA

Possible Effects of the EEC Regulations on the UK Milk and Dairy Products Industry if Membership is Assumed, by J. G. INCLIS

Personalalia, Obituaries and Section Notes

New City and Guilds Course for Dairy Operatives

*The Journal publishes not only papers read at meetings of the Society, but also papers on dairy technology by members and non-members*

*Advertising Offices: 9 COUGH SQUARE : LONDON : E.C. 4*

---

## COMMONWEALTH BUREAU OF DAIRY SCIENCE & TECHNOLOGY SHINFIELD · READING · ENGLAND

The Bureau is the world's information centre on all matters concerned with dairy husbandry, science and technology. It prepares abstracts, review articles, Technical Communications in book form, and undertakes to answer technical enquiries from authentic dairy scientists.

### PUBLICATIONS INCLUDE

## DAIRY SCIENCE ABSTRACTS

COMPILED MONTHLY FROM WORLD LITERATURE

*Annual Subscription* 110s. to subscribers in the Commonwealth and the Republic of Ireland, whose Governments contribute to the Commonwealth Agricultural Bureaux

210s. to subscribers in non-contributing countries

THE MILK FAT GLOBULE MEMBRANE by N. KING

*Cloth bound* 99 pp. *Price* 15s. 0d.

MILK AND BUTTERFAT RECORDING by E. D. ASHTON

*Cloth bound* 205 pp. *Illustrated* *Price* 30s. 0d.

*Orders and subscriptions should be sent to*

COMMONWEALTH AGRICULTURAL BUREAUX · CENTRAL SALES BRANCH  
FARNHAM ROYAL · BUCKS · ENGLAND

# Journal of Dairy Research

## Back Volumes

1-4 (1929/30-1932/3). Two numbers per volume.

25s. net (\$4.25) each number

5-30 (1933/4-1963). Three numbers per volume.

25s. net (\$4.25) each number

31-34 (1964-1967). Three numbers per volume.

30s. net (\$5.00) each number

Index to Volumes 1-10.

7s. 6d. net

Volume 15, Numbers 1 and 2, was issued as a double part, price 50s. net (\$8.50)

The following numbers are out of print

Volume 6, Number 2

Volume 8, Number 1

Volume 8, Number 3

Volume 9

Volume 10

Volume 11, Number 1

Volume 12, Number 1

Volume 13

Volume 14

Volume 24, Number 1

*Order from your bookseller or from the publishers*

**CAMBRIDGE  
UNIVERSITY PRESS**

# The Journal of Applied Bacteriology

Edited by

G. Sykes

and F. A. Skinner

*The Journal of Applied Bacteriology* (previously known as the proceedings of the Society for Applied Bacteriology) is published for the Society to advance the study of microbiology, particularly bacteriology, in its application to industry.

Long established as an international medium for original papers embracing the many aspects of *applied bacteriology* the Journal serves the widening interests of microbiologists in all fields of research.

The Journal is published four times a year (comprising one volume) in March, June, September and December.

The Editors are ready to consider for publication papers appearing on all aspects of applied microbiology. Review articles may also be accepted.

Papers submitted for consideration should be addressed to:

G. Sykes,  
Microbiology Division,  
Boots Pure Drug Co. Ltd.,  
Pennyfoot Street,  
Nottingham, England

## SUBSCRIPTIONS

Vol. 31, 1968 140s./\$20.00 per annum.  
Postage outside England 6s. per year.  
Certain back volumes are obtainable from the publishers. All enquiries regarding subscriptions/advertisements should be addressed to the publishers.

Published by

**ACADEMIC PRESS**  
LONDON and NEW YORK



Berkeley Square House,  
Berkeley Square,  
London, W. 1

# The Journal of General Microbiology

Edited by **B. C. J. G. KNIGHT & A. F. B. STANDFAST**

Volume 53, Part 2, September 1968

- G. IVÁNOVICS, E. MARJAI AND A. DOBOZY The growth of purine mutants of *Bacillus anthracis* in the body of the mouse
- R. MARCHANT AND D. G. SMITH Bud formation in *Saccharomyces cerevisiae* and a comparison with the mechanism of cell division in other yeasts
- R. J. WHITE AND A. HURST The location of nisin in the producer organism, *Streptococcus lactis*
- W. F. LOOMIS, JR AND J. M. ASHWORTH Plaque-size mutants of the cellular slime mould *Dictyostelium discoideum*
- W. T. DOBRZAŃSKI, H. OSOWIECKI AND M. A. JAGIELSKI Observations on intergeneric transformation between Staphylococci and Streptococci
- D. PITT AND C. COOMBES The disruption of lysosome-like particles of *Solanum tuberosum* cells during infection by *Phytophthora erythroseptica* Pethybr.
- F. J. BERGERSEN AND G. L. TURNER Comparative studies of nitrogen fixation by soybean root nodules, bacteroid suspensions and cell-free extracts
- D. TAYLOR-ROBINSON AND Z. DINTER Unexpected serotypes of mycoplasmas isolated from pigs
- M. J. GRIFFIN AND J. R. COLEY-SMITH The establishment of hop tissue cultures and their infection by downy mildew *Pseudoperonospora humuli* (Miy. & Tak.) Wilson under aseptic conditions
- J. R. COOK AND B. HEINRICH Unbalanced respiratory growth of Euglena
- Y. KOGA AND I. KUSAKA Involvement of autolysis of cytoplasmic membranes in the process of autolysis of *Bacillus cereus*
- S. I. T. KENNEDY AND C. A. FEWSON Metabolism of mandelate and related compounds by bacterium NCIB 8250
- T. NURMINEN AND H. SUOMALAINEN Location and activity of the respiratory enzymes of baker's yeast and brewer's bottom yeast grown under anaerobic and aerobic conditions
- I. B. HEATH AND A. D. GREENWOOD Electron microscopic observations of dividing somatic nuclei in *Saprolegnia*

45s. net (\$7.50). Annual subscription £25 net (\$87.50) for fifteen issues

**CAMBRIDGE UNIVERSITY PRESS**