Index of Subjects

Bacteria, see also individual bacteria and types growth, milk, effect of oxygen availability, 425 **Blood**, β -carotene, cholesterol, metabolism, effect of feeding protected lipids, 39 composition, nutritional effects, 13 Buffalo(es), milk fat, triacylglycerol composition, 81 Calves, salivary, pancreatic lipases, 347 Cameinbert cheese, ripening, proteolysis, 501 Carbon dioxide, addition, raw milk, preservation, Casein(s), hydrolysis, by mould aspartyl proteinases, 487 micelles, casein fractions, location, 631 ionic materials, binding, 87, 99 plastein reaction applied to, 265, 279 synthesis, mammary gland culture, hormonal control, 387 asi-Casein, precipitation, calcium-induced, in presence of citrate or phosphate, 107 Cell count, falsely high, bulk milk, 171, 559 Cheddar cheese, accelerated ripening, food grade proteinases added, 137 making, curd-firming, measurement, 127 Cheesemaking, see also Cheddar cheese coagulum, see Coagulum curd, see Curd Domiati cheese, 671 Cheese ripening, accelerated, proteinases added, Domiati, free fatty acids added, 671 proteolysis, 501 Ras cheese slurries, 337 texture, flavour, development, 737

Chemiluminescence, dried milk, oxidative deterioration, determination, 645 Coagulation, milk proteins, enzymes, identification,

ethanol induced, bovine, 449

caprine, 459

heated, cationic detergents, influence on pH sensitivity, 597

lysine, arginine, modification, effect of, 607 seasonal variation, urea addition, preheat temperature, effect of, 187

ultrafiltration, effect of, 119

urea, carbonyl compounds, influence, 197 rennet, coagulum firmness, strength, 343, 469 curd, syneresis, measurement, 329 pH, effect of, 153

Coagulum, firmness, strength, renneted milk, 343,

Cream, homogenized, UHT, storage-flocculation, 655 Curd, syneresis, measurement, 329

Dairy emulsions, destabilization, 695 Dairy products, see also individual products gram-negative bacterial lipopolysaccharide, detection, Limulus test, 323 lysinoalanine present, 725 recombination (review), 515

Diapedesis, from endotoxin infused udder into other quarters, 381

Diet, fertility, blood composition, effect on, 13 L-methionine supplement, milk-yield, -composition,

protected lipids supplement, β-carotene, cholesterol, metabolism, blood, milk, 39

Disease, see Mastitis

Domiati cheese, from reconstituted milk, flavour, free fatty acids, added, 671

Dried milk, for recombined milk, dairy products (review), 515

oxidative deterioration, determination, 645

Enzymes, see also individual names milk-clotting, identification, 221

Escherichia coli, endotoxin, inflammation, udder, diapedesis into other quarters, 381

Feeding troughs, electronically controlled, 545 Fertility, nutritional effects, 13 Flavour, Cheddar cheese, food grade proteinases, contribution, 137

cheese, other fermented products, development, 737 Domiati cheese, free fatty acids added, 671 oxidized, milk, O₂ uptake, 407

Goat(s), milk, composition, diffusible calcium, magnesium, 179 ethanol stability, 459 metabolites during lactation, 399

Heat stability, see Coagulation, milk proteins, heated

Heat treatment, milk, acid-soluble nucleotides, content, 295

Homogenization, valve, influence on milk fat globule dispersion, 309, 317

Hormones, casein synthesis, control, mammary gland culture, 387

Human milk, acid-soluble nucleotides, during lactation, 301

Keeping quality, pasteurized milk, 619

Lactation, stage, acid-soluble nucleotides, milk, human, 301

metabolites, milk, goat, 399

Lactic acid bacteria, stimulation, compounds, detection, Warburg manometry, 479

Lactobacillus acidophilus, for preparing yoghurtlike product, 665

Lactose, chemistry, 713

Limulus test, gram-negative bacterial lipopolysaccharide detection, milk, dairy products, 323 Lipases, salivary, pancreatic, calf, 347

Lipids, oxidation, in aqueous emulsion, influence of milk proteins, 239, 249

Lipolysis, lipoprotein lipase, activity, 231

Lipopolysaccharide, bacterial, detection, milk, dairy products, Limulus test, 323

Index of Subjects

Lipoprotein lipase, milk, activity, 51, 231 Lysinoalanine, in milk, milk products, 725

Mammary gland, see also Udder

culture, casein synthesis, hormonal control, 387 epithelium, tight junction structure, 1 mice, development, milk yield, effect of fasting, 567

Mastitis, see also names of causative organisms

milk, proteolysis, 587 L-Methionine, supplement, diet, milk-yield, -composition, 25

Mice, mammary gland, development, milk yield, effect of fasting, 567

Milk, bacterial spoilage, O2 uptake, 425

bulk, cell count, falsely high, 171, 559

coagulation, see Coagulation

gram-negative bacterial lipopolysaccharide, detection, Limulus test, 323

homogenization, valve, influence on milk fat globule dispersion, 309, 317

lipoprotein lipase activity, 51, 231

microbial proteinases, detection, 209, 511

oxidized flavour, O2 uptake, 407

pasteurized, keeping quality, 619

recombination (review), 515

Milk composition, acid-soluble nucleotides, during lactation, human, 301

thermal processing, effects of, 295

calcium phosphate content, 29

 β -carotene, cholesterol, metabolism, effect of feeding protected lipids, 39

citrate (review), 159

diffusible calcium, magnesium, goat, 179

lysinoalanine, 725

metabolites, during lactation, goat, 399

L-methionine supplement, diet, 25

Milk fat, breakdown, see Lipolysis

globule, dispersion, homogenization, effect of valve design, 309, 317

interfacial tension studies, 61

triacylglycerol composition, buffalo, 81

triglycerides, fatty acids, distribution, 73

Milk powder, see Dried milk

Milk preservation, addition of carbon dioxide, 439 Milk proteins, breakdown, see Proteolysis

ethanol stability, 449, 459

heat stability, see Coagulation, milk proteins, heated

influence on lipid oxidation, in aqueous emulsion, 239, 249

molecular, colloidal, functional properties, 679

Milk yield, L-methionine supplement, diet, 25 mice, effect of fasting, 567

Milking machine, cluster, udder infection, 361

Nucleotides, acid-soluble, cow's milk, effects of thermal processing, 295 human milk, during lactation, 301

Nutrition, see Diet

Oxygen, availability, bacterial spoilage, O, uptake, milk. 425

oxidized flavour, O2 uptake, milk, 407

Pasteurization, milk, keeping quality, 619

Penicillium caseicolum, P. roqueforti, aspartyl proteinases, casein hydrolysis, 487

pH, milk protein, heat stability, 597, 607

Plastein reaction, applications, 265, 279

Preservatives, see Milk preservation

Proteinase(s), accelerated cheese ripening, 137 aspartyl, Penicillium spp., casein hydrolysis, 487 microbial, detection, milk, 209, 511

zymogen, proteolysis, milk, 577

Proteins, see Milk proteins

Proteolysis, Camembert cheese ripening, 501 mastitic milk, 587

normal milk, proteinase, zymogen, 577

Psychrotrophic bacteria, contamination, pasteurized milk, 619

detection, milk, dairy products, Limulus test, 323 inhibition, milk, CO₂ addition, 439 proteinases, detection, milk, 209, 511

Ras cheese, slurries, ripening changes, 337 Recombination, milk, milk products (review), 515 Reconstituted milk, Domiati cheesemaking, 671 Rennet, coagulation, milk, coagulum firmness,

strength, 343, 469 curd: firming, measurement, 127; syneresis,

measurement, 329 pH, effect of, 153

Skim-milk, heat stability, seasonal variation, urea addition, preheat temperature, effect of, 187 ultrafiltration, effect of, 119

ion exchange processing, 749

plastein reaction, applied to, 265, 279

Starters, yoghurt, single-strain, 147

Storage, cream, homogenized, UHT, flocculation, 655 Streptococcus uberis, faeces, cattle bedding, 369 intestinal, 375

Symposium on recent advances in the chemistry of milk and dairy products, 679-749

Syneresis, curd, renneted milk, measurement, 329

Udder, see also Mammary gland

infection, diapedesis into other quarters, 381 milking machine cluster, 361

Yoghurt, flavour, development, 737

from single starter organisms, 147

-like product, made with Lactobacillus acidophilus,

Index of Authors

ABDEL BAKY, A. A., 337 ALLEN, J. C., 239, 249 ANDERSON, M., 51, 231 ANDREWS, A. T., 265, 279, 577, 587 ARCHIERI-HAZE, M.-J., 487 ARUMUGHAN, C., 81 ASHES, J. R., 39 AVIDAR, Y., 13

Blatchford, D. R., 399 Bogin, E., 13 Bramley, A. J., 369, 375, 381 Broster, W. H., 545 Burgess, K. J., 749 Burley, R. W., 39

Chamberlain, D. G., 25 Chaplin, B., 631 Cheeseman, G. C. [Ed.], 679–749 Clements, A. J., 545 Cliffe, A. J., 209 Clough, P. A., 545 Cohen, N., 387 Cole, W. M., 147, 665 Collin, J.-C., 221 Cousins, C. M., 619

Darling, D. F., 695 Davenport, J. B., 39 Davidson, M., 13 Davies, J., 171 DE Koning, P. J., 725 DE RETTA, G. M., 221 DE RHAM, O., 577, 587

EL NESHEWY, A., 337 EL-SAFTY, M. S., 671

FARAHAT, S. M., 337 FAULKNER, A., 159, 399 FORD, G. D., 343, 469 FOX, P. F., 153, 197, 597, 607, 679

Gertler, A., 387 Gil, A., 295, 301 Gordin, S., 13 Green, M. L., 87, 99, 127, 631, 737 Griffin, T. K., 361 Grindal, R. J., 361 Gripon, J.-C., 487, 501

Hansen, K., 323 Hatfield, D. S., 127 Hibbitt, K. G., 171 Hill, A. W., 171 Hoare, R. J. T., 559 Holt, C., 29, 179 Horne, D. S., 107, 449, 459 ISMAIL, A. A., 671 ISRAELI, B.-A., 13

KALOGRIDOU-VASSILIADOU, D., 511 KELLY, P. M., 119, 187 KING, J. S., 439 KJÆRGAARD JENSEN, G., 515 KNIGHT, C. H., 567 KRUZE, J., 375

Law, B. A., 137, 209, 511

Mabbitt, L. A., 147, 439 McKinnon, C. H., 619 Manning, D. J., 737 Manson, W. [Ed.], 679–749 Marshall, R. J., 127, 329 Marshall, V. M. E., 147, 665 Martin, P., 221 Mikkelsen, T., 323 Møller-Madsen, A., 323 Morgan, G., 1 Mulvihill, D. M., 679

NARAYANAN, K. M., 81 NEAVE, F. K., 361 NICHOLLS, P. J., 559 NIELSEN, P., 515

ORMROD, I. H. L., 179

PARKER, T. G., 449, 459 PARODI, P. W., 73 PEAKER, M., 159, 399, 567 PHIPPS, L. W., 61, 309, 317, 655

RABIE, A. H. M., 337 ROGERS, W. P., 645 ROUPAS, P., 645

Sanchez-Medina, F., 295, 301 Schröder, M. J. A., 407, 425, 619 Schultze, W. D., 381 Shalabi, S. I., 153, 197, 597, 607 Sheldrake, R. F., 559 Sidhu, G. S., 39 Siviter, J. W., 545 Storry, J. E., 343, 469 Sukan, G., 265, 279

Temple, D. M., 61 Thelwall, L. A. W., 713 Thomas, P. C., 25, 179 Timms, R. E., 645 Toothill, J., 347 Trieu-Cuot, P., 487, 501

van Rooijen, P. J., 725 Vega, J. R., 665

Index of Authors

WEBB, L. E., 479 WEIL, A., 387 WESTGARTH, D. R., 361 WHITE, J. M., 399 WIGMORE, A., 137 WILLIAMS, R. L., 361 WOODING, F. B. P., 1 WRIEDEN, W. L., 239, 249

JOURNAL OF DAIRY RESEARCH

EDITED BY

M. ELISABETH SHARPE, Ph.D., D.Sc., F.I.BIOL. National Institute for Research in Dairying,

Shinfield, Reading, Berkshire, RG2 9AT

W. MANSON, Ph.D.

Hannah Research Institute, Ayr, Scotland KA6 5HL

Assistant Editors

A. T. ANDREWS, M.A., D.Phil.B. F. BONE, B.A., A.L.A., A.I.Inf.Sc.L. W. PHIPPS, B.Sc. Ph.D.

Editorial Assistants

DOROTHY SKIDMORE B. GILLIAN DAY, B.Sc.

Secretary

L. C. FITZGERALD

VOLUME, 49, 1982

CAMBRIDGE UNIVERSITY PRESS

PUBLISHED BY THE SYNDICS OF THE CAMBRIDGE UNIVERSITY PRESS

The Pitt Building, Trumpington Street, Cambridge CB2 1RP 32 East 57th Street, New York, N.Y. 10022

© Proprietors of The Journal of Dairy Research 1982

Printed in Great Britain at the University Press, Cambridge

Contents

No. 1 (February 1982)

	PAGE
A freeze-fracture study of tight junction structure in sheep mammary gland epithelium during pregnancy and lactation. G. Morgan and F. B. P. WOODING	1
Effect of nutrition on fertility and blood composition in the milk cow. E. Bogin, Y. Avidar, M. Davidson, S. Gordin and BA. Israeli	13
Effect of intravenous supplements of L-methionine on milk yield and composition in cows given silage-cereal diets. D. G. Chamberlain and P. C. Thomas	25
Inorganic constituents of milk. III. The colloidal calcium phosphate of cow's milk. C. Holt.	29
Effects of dietary supplements of protected lipids on the concentration and transport of β -carotene and cholesterol in bovine blood and milk: unusual chromatographic behaviour of the high-density lipoprotein with high levels of β -carotene. J. R. Ashes, R. W. Burley, J. B. Davenport and G. S. Sidhu	39
Factors affecting the distribution of lipoprotein lipase activity between serum and casein micelles in bovine milk. M. Anderson	51
Surface properties of milk fat globules: interfacial tension studies. L. W. Phipps and D. M. Temple	61
Positional distribution of fatty acids in the triglyceride classes of milk fat. P. W. Parodi.	73
Triacylglycerol composition of buffalo milk fat. C. Arumuchan and K. M. Narayanan	81
Effect on the composition and properties of casein micelles of interaction with ionic materials. M. L. Green	87
Mode of binding of ionic materials to casein micelles. M. L. Green	99
Calcium-induced precipitation of α_{s1} -casein: effect of inclusion of citrate or phosphate. D. S. Horne.	107
Effect of seasonal variation, urea addition and ultrafiltration on the heat stability of skim-milk powder. P. M. Kelly	119
Assessment of two instruments for continuous measurement of the curd-firming of renneted milk. R. J. Marshall, D. S. Hatfield and M. L. Green	127
Accelerated cheese ripening with food grade proteinases. B. A. LAW and A. WIGMORE	137
Yoghurt made from single starter organisms using heat- or enzyme-treated milk or milk to which easein hydrolysate or sodium formate is added. V. M. E. MARSHALL, W. M. COLE and L. A. MABBITT	

iv	Contents
1 V	Comens

Influence of pH on the rennet coagulation of milk. S. I. Shalabi and P. F. Fox
Reviews of the progress of Dairy Science: Secretion of citrate into milk. A. FAULKNER and M. PEAKER
No. 2 (May 1982)
Particles in bulk milk capable of causing falsely high electronic cell counts. A. W. Hill, K. G. Hibbitt and J. Davies
The inorganic constituents of milk. IV. Soluble calcium and magnesium concentrations in goat's milk and the effect of starvation. I. H. L. Ormrod, C. Holt and P. C. Thomas
Effect of preheat temperature and urea addition on seasonal variation in the heat stability of skim-milk powder. P. M. Kelly
Heat stability of milk: synergic action of urea and carbonyl compounds. S. I. Shalabi and P. F. Fox
A new method for the detection of microbial proteolytic enzymes in milk. A. J. CLIFFE and B. A. LAW
Immunological identification of milk-clotting enzymes. JC. Collin, G. Muset de Retta and P. Martin
Stability of lipoprotein lipase activity in bovine milk. M. Anderson
Influence of milk proteins on lipid oxidation in aqueous emulsion. I. Casein, whey protein and α -lactalbumin. J. C. Allen and W. L. Wrieden
Influence of milk proteins on lipid oxidation in aqueous emulsion. II. Lactoperoxidase, lactoferrin, superoxide dismutase and xanthine oxidase. J. C. Allen and W. L. Wrieden
Application of the plastein reaction to caseins and to skim-milk powder: I. Protein hydrolysis and plastein formation. G. Sukan and A. T. Andrews
Application of the plastein reaction to caseins and to skim-milk powder. II. Chemical and physical properties of the plasteins and the mechanism of plastein formation. G. Sukan and A. T. Andrews.
Effects of thermal industrial processing on acid-soluble nucleotides of milk. A. GIL and F. SANCHEZ-MEDINA
Acid-soluble nucleotides of human milk at different stages of lactation. A. GIL and F. Sanchez-Medina.
Homogenizing valve design and its influence on milk fat globule dispersion. I. Low rate of flow (100 l h ⁻¹ , Re \leq 3000). L. W. Phipps
Homogenizing valve design and its influence on milk fat globule dispersion. II. High rate of flow (1000 l h^{-1} , 6000 < Re < 1500). L. W. Phipps .
Use of the Limulus test to determine the hygienic status of milk products as characterized by levels of Gram-negative bacterial lipopolysaccharide present. K. HANSEN, T. MIKKELSEN and A. MOLLER-MADSEN

Contents	v
----------	---

An improved method for measurement of the syneresis of curd formed by rennet action on milk. R. J. MARSHALL	329
Ripening changes in Cephalotyre 'Ras' cheese slurries. A. A. ABDEL BAKY, A. A. EL NESHEWY, A. H. M. RABIE and S. M. FARAHAT	337
Development of coagulum firmness in renneted milk: a two-phase process. J. E. Storry and G. D. Ford.	343
No. 3 (August 1982)	
Studies on salivary and pancreatic lipases of the pre-ruminant calf. J. TOOTHILL	347
Effect of the method of removal of the milking machine cluster on new udder infection. T. K. Griffin, R. J. Grindal, R. L. Williams, F. K. Neave and D. R. Westgarth	361
Sources of Streptococcus uberis in the dairy herd. I. Isolation from bovine faeces and from straw bedding of cattle. A. J. Bramley	369
Sources of Streptococcus uberis in the dairy herd. II. Evidence of colonization of the bovine intestine by Str. uberis. J. Kruze and A. J. Bramley .	375
Effect of Escherichia coli endotoxin-mediated inflammation of one mammary quarter of the bovine udder on diapedesis into other quarters. W. D. Schultze and A. J. Bramley.	381
Hormonal control of casein synthesis in organ culture of the bovine lactating mammary gland. A. Gertler, A. Weil and N. Cohen	387
Changes in the concentrations of metabolities in milk at the onset and cessation of lactation in the goat. A. FAULKNER, D. R. BLATCHFORD, J. M. WHITE and M. PEAKER	399
Effect of oxygen on the keeping quality of milk. I. Oxidized flavour development and oxygen uptake in milk. M. J. A. Schröder	407
Effect of oxygen on the keeping quality of milk. II. Effect of available oxygen on bacterial spoilage and oxygen uptake. M. J. A. Schröder .	425
Preservation of raw milk by the addition of carbon dioxide. J. S. King and L. A. Mabbitt.	439
Factors affecting the ethanol stability of bovine milk. V. Effects of chemical modification of milk protein. D. S. Horne and T. G. Parker	449
Some aspects of the ethanol stability of caprine milk. D. S. Horne and T. G. Parker	459
Some factors affecting the post clotting development of coagulum strength in renneted milk. J. E. Storry and G. D. Ford.	469
Detection by Warburg manometry of compounds stimulatory to lactic acid bacteria. L. E. Webb	479
Effect of aspartyl proteinases of <i>Penicillium caseicolum</i> and <i>Penicillium roqueforti</i> on caseins. P. Trieu-Cuot, M. J. Archieri-Haze and JC. Gripon	487

vi Contents

A study of proteolysis during Camembert cheese ripening using isolectric focusing and two-dimensional electrophoresis. P. TRIEU-CUOT and JC. GRIPON
Sensitivity of proteinase detection in milk with Hide Powder Azure: comparison with direct observations of casein proteolysis. D. Kalogridou-Vassiliadou and B. A. Law
Review of the progress of Dairy Science: Milk powder and recombination of milk and milk products. G. KJÆRGAARD JENSEN and P. NIELSEN.
No. 4 (November 1982)
Electronically controlled feeding troughs for dairy cows: some nutritional implications. W. H. Broster, P. A. Clough, A. J. Clements and J. W. Siviter
Investigations into falsely elevated somatic cell counts of bulked herd milk. R. J. T. Hoare, P. J. Nicholls and R. F. Sheldrake
Effects of fasting during mid pregnancy or early lactation on mammary development and milk yield in mice. C. H. Knight and M. Peaker .
The roles of native milk proteinase and its zymogen during proteolysis in normal bovine milk. O. DE RHAM and A. T. Andrews
Qualitative and quantitative determination of proteolysis in mastitic milks. O. DE RHAM and A. T. Andrews
Heat stability of milk: influence of cationic detergents on pH sensitivity. S. I. Shalabi and P. F. Fox
Heat stability of milk: influence of modification of lysine and arginine on the heat stability-pH profile. S. I. Shalabi and P. F. Fox
Effect of psychrotrophic post-pasteurization contamination on the keeping quality at 11 and 5 °C of HTST-pasteurized milk in the UK. M. J. A. Schröder, C. M. Cousins and C. H. McKinnon
Probing the location of casein fractions in the casein micelle using enzymes and enzyme-dextran conjugates. B. Chaplin and M. L. Green
Determination of oxidative deterioration of milk powder and reconstituted milk by measurement of chemiluminescence. R. E. Timms, P. Roupas and W. P. Rogers.
A viscometric study of the flocculation of the components in stored homogenized ultra-heat-treated cream. L. W. Phipps
A yoghurt-like product made by fermenting ultrafiltered milk containing elevated whey proteins with <i>Lactobacillus acidophilus</i> . V. M. MARSHALL, W. M. COLE and J. R. VEGA
Addition of free fatty acids to improve the flavour and to accelerate the ripening of Domiati cheese made from reconstituted milk. M. S. EL-Safty and A. A. Ismail

Contents	vii
Symposium: Recent advances in the chemistry of milk and dairy products Milk proteins: molecular, colloidal and functional properties. P. F. Fox and	677
D. M. MULVIHILL	679
Recent advances in the destabilization of dairy emulsions. D. F. Darling .	695
Recent aspects of the chemistry of lactose. L. A. W. Thelwall	713
Aspects of the formation of lysinoalanine in milk and milk products. P. J. DE KONING and P. J. VAN ROOIJEN	725
Development of texture and flavour in cheese and other fermented products. M. L. Green and D. J. Manning	737
Ion exchange processing of skim-milk for food use K. J. Burgess	749

DIRECTIONS TO CONTRIBUTORS

GENERAL

Two copies of manuscripts should be sent to Dr M. E. Sharpe (*The Journal of Dairy Research*), National Institute for Research in Dairying, Shinfield, Reading, RG2 9AT, England. Submission of a paper will be held to imply that it reports unpublished original work, that it is not under consideration for publication elsewhere, and that if accepted for the *Journal* it will not be published elsewhere in any language, without the consent of the Editors.

FORM OF PAPERS

The author should follow these directions carefully, and consult a current issue of the *Journal* for guidance on details of typographical and other conventions.

Every paper should be headed with its title, the names and initials of the authors (each author supplying one given name) and the name and address of the laboratory where the work was done.

Papers should be in English, using the spelling of the Shorter Oxford English Dictionary. They should be typed with double spacing, on one side only of the sheets, and with ample margins for editorial annotations.

Papers should in general be divided into the following parts in the order indicated: (a) Summary, brief and self-contained; (b) Introductory paragraphs, briefly explaining the object of the work but without giving an extensive account of the literature; (c) Experimental or Methods; (d) Results; (e) Discussion and Conclusions; (f) Acknowledgements without a heading; (g) References. With some types of material headings other than (c), (d) and (e) may be preferable.

The use of footnotes should be avoided if possible. Underlining should be used only to indicate italics. Proper nouns, including trade names, should be given a capital initial letter. Wherever possible numerals should be used unless this leads to ambiguity. The typescript should carry the name and address of the person to whom the proofs are to be sent, and give a shortened version of the paper's title, not exceeding 45 letters and spaces, suitable for a running title in the *Journal*.

TABLES

Tables should be numbered and should carry headings describing their content. They should be comprehensible without reference to the text. They should be typed on separate sheets and their approximate positions in the text indicated. To minimize the cost of printing, the number and size of tables should be kept to an absolute minimum.

ILLUSTRATIONS

Line drawings and photographs, which must be originals, should be numbered as Figures in Arabic numerals. Drawings should be in Indian ink, on Bristol board or cartridge paper. However, a technique which may be more convenient to authors is to use a double-sized piece of tracing paper, or translucent graph paper faintly lined in *blue* or *grey*, folded down the centre with the drawing on one half and the other half acting as a flyleaf.

Attached to every figure and plate there should be a translucent flyleaf cover on the outside of which should be written legibly: (a) title of paper and name of author; (b) figure or plate number; (c) the figures and lettering, which are intended to appear on the finished block,

in the correct positions relative to the drawing underneath. Each paper should have a separate typed sheet listing figure and plate numbers with their legends, and the approximate positions of illustrations should be indicated in the text.

The photographs and diagrams should be about twice the size of the finished block and not larger overall than the sheets on which the paper itself is typed. For a figure measuring 250 mm \times 150 mm all lines, axes and curves should be 0.4 mm thick, thus

Graph symbols in order of preference are \bigcirc \bullet , \triangle \blacktriangle , \square \blacksquare , \times +, and for a 250 mm \times 150 mm graph the circles should be 3 mm in diam. The triangles should be equilateral of 3 mm side, and the squares also of 3 mm side. The crosses should have lines 3 mm long at right angles. Scale marks on the axes should be on the inner side of each axis and should be 3 mm long.

SHORT COMMUNICATIONS

Short communications or notes of not more than 2500 words or the equivalent space in print and without a summary will also be published.

REFERENCES

In the text, references should be quoted by whichever of the following ways is appropriate: Arnold & Barnard (1900); Arnold & Barnard (1900a); Arnold & Barnard (1900a, b); (Arnold & Barnard, 1900). Give both names for 2 authors. For 3 or more authors give the first name et al. on all occasions, adding a, b, etc., to the date if there is any ambiguity.

References should be listed alphabetically at the end of the paper. Titles of journals should be given in full, authors' initials should be included, and each reference should be punctuated in the typescript thus: Arnold, T. B., Barnard, R. N. & Compound, P. J. 1900. Title of paper. Journal of Dairy Research 18, 158–165 and references to books should include names of authors, year of publication, title, names of editors, town of publication and name of publisher in that order, thus: Arnold, T. B. 1900 Dairying. London: Brown and Chester. References should include titles of papers to which they refer.

It is the duty of the author to check all references.

UNITS, SYMBOLS AND ABBREVIATIONS

SI units must be used, as explained in British Standards Institution publication PD 5686:1972. The use of SI units. Until SI units are widely understood, it is permissible to give the equivalent value in other units in parenthesis. Symbols and abbreviations used are those of British Standard 1991: Part 1: 1967. Letter Symbols, Signs and Abbreviations.

DESCRIPTIONS OF SOLUTIONS

Normality and molarity should be indicated thus: N-HCl, $0.1 \text{ M-NaH}_2\text{PO}_4$. The term '%' means g/100 g solution. For ml/100 ml solution the term '% (v/v)' should be used and for g/100 ml solution the correct abbreviation is '% (w/v)'.

OFFPRINTS

Order forms giving quotations for offprints are sent to authors with their proofs.

Journal of Dairy Research Vol. 49, Number 4, November 1982 CONTENTS

ORIGINAL ARTICLES	
Electronically controlled feeding troughs for dairy cows: some nutritional implications	
W. H. BROSTER, P. A. CLOUGH, A. J. CLEMENTS and J. W. SIVITER pages	545-557
Investigations into falsely elevated somatic cell counts of bulked herd milk R. J. T. HOARE, P. J. NICHOLLS and R. F. SHELDRAKE	559-565
Effects of fasting during mid pregnancy or early lactation on mammary	
development and milk yield in mice C. H. KNIGHT and M. PEAKER	567-575
The roles of native milk proteinase and its zymogen during proteolysis in	
normal bovine milk O. DE RHAM and A. T. ANDREWS	577-585
Qualitative and quantitative determination of proteolysis in mastitic milks O. DE RHAM and A. T. ANDREWS	587-596
Heat stability of milk: influence of cationic detergents on pH sensitivity S. I. SHALABI and P. F. FOX	597-605
Heat stability of milk: influence of modification of lysine and arginine on	
the heat stability-pH profile s. I. SHALABI and P. F. FOX	607-617
Effect of psychrotrophic post-pasteurization contamination on the keeping	
quality at 11 and 5 °C of HTST-pasteurized milk in the UK	(10 (20
M. J. A. SCHRÖDER, C. M. COUSINS and C. H. McKINNON	619–630
Probing the location of casein fractions in the casein micelle using enzymes	
and enzyme-dextran conjugates B. CHAPLIN and M. L. GREEN	631-643
Determination of oxidative deterioration of milk powder and reconstituted	031-043
milk by measurement of chemiluminescence	
R. E. TIMMS, P. ROUPAS and W. P. ROGERS	645-654
A viscometric study of the flocculation of the components in stored homo-	
genized ultra-heat-treated cream	
L. W. PHIPPS	655-664
A yoghurt-like product made by fermenting ultrafiltered milk containing	
elevated whey proteins with Lactobacillus acidophilus	
V. M. MARSHALL, W. M. COLE and J. R. VEGA	665–670
SHORT COMMUNICATION	
Addition of free fatty acids to improve the flavour and to accelerate the	
ripening of Domiati cheese made from reconstituted milk	
M. S. EL-SAFTY and A. A. ISMAIL	671-675
SYMPOSIUM: Recent advances in the chemistry of milk and dairy products	
Milk proteins: molecular, colloidal and functional properties	
P. F. FOX and D. M. MULVIHILL	679-693
Recent advances in the destabilization dairy emulsions	017-073
D. F. DARLING	695-712
Recent aspects of the chemistry of lactose	0,5 /12
L. A. W. THELWALL	713-724
Aspects of the formation of lysinoalanine in milk and milk products	
P. J. DE KONING and P. J. VAN ROOIJEN	725-736
Development of texture and flavour in cheese and other fermented products	
M. L. GREEN and D. J. MANNING	737-748
Ion exchange processing of skim-milk for food use	
K. J. BURGESS	749

© Proprietors of The Journal of Dairy Research 1982 Printed in Great Britain at the University Press, Cambridge