8 Literature cited

Aerts RJ, Barry TN & McNabb WC (1999) Polyphenols and agriculture: beneficial effects of proanthocyanidins in forages. *Agriculture Ecosystems & Environment* **75,** 1-12.

Ammar H, López S, Bochi O, García R & Ranilla MJ (1999) Composition and *in vitro* digestibility of leaves and stems of grasses and legumes harvested from permanent mountain meadows at different maturity stages. *Journal of Animal Feed Science* **8,** 599-610.

AOAC (1999) *Official methods of analysis of the Association of Official Agricultural Chemists*. 16th Edn. (5th revision). AOAC International Gaithersburg MD (USA).

AOAC (1999) Official Methods of Analysis of the Association of Official Analytical Chemists 16th edition (Cunnif P Ed). AOAC International Gaithersburg MD USA.

Association of Official Analytical Chemists International (1990) *Official Methods of Analysis*, 15th ed., Arlington, VA: Association of Official Analytical Chemists.

Attwood GT, Klieve AV, Ouwerkerk D & Patel BKC (1998) Ammonia-hyperproducing bacteria from New Zealand ruminants. *Applied and Environmental Microbiology* **64**, 1796-1804.

Barry TN & McNabb WC (1999) The implications of condensed tannins on the nutritive value of temperate forages fed to ruminants. *British Journal of Nutrition* **81**, 263-272.

BenSalem H, Nefzaoui A, BenSalem L & Tisserand JL (1999) Intake digestibility urinary excretion of purine derivatives and growth by sheep given fresh air-dried or polyethylene glycol-treated foliage of acacia cyanophylla lindl. *Animal Feed Science & Technology* **78,** 297-311.

Bird SH & Leng RA (1978) The effect of defaunation of the rumen on the growth of cattle on low-protein high-energy diets. *British Journal of Nutrition* **40**, 163-167.

Bird SH, Hill MK & Leng RA (1979) The effect of defaunation of the rumen on the growth of lambs on low -protein high-energy diets. *British Journal of Nutrition* **42**, 81-87.

Boccard R, Dumont BL & Peyron C (1958) Valeur significative de quelques mensurations pour apprecier la qualite des carcasses d'agneaux. 4th European Meeting of Meat Research Workers. Cambridge. UK.

Blümmel M, Steingass H, Becker K (1997) The relationship between *in vitro* gas production, *in vitro* microbial biomass yield and 15N incorporation and its implications for the prediction of voluntary feed intake of roughages. *British Journal of Nutrition* 77, 911-921.

Broadhurst RB & Jones WT (1978) Analysis of condensed tannins using acidified vanillin. *Journal of Science & Food Agriculture* **29**, 788-794.

Broudiscou L, Sylvie P & Poncet C (1994) Effect of linseed oil supplementation on feed degradation and microbial synthesis in the rumen of ciliate free and refaunated sheep. *Animal Feed Science and Technology* **49**, 189-202.

Chang ST, Chen PF & Chang SC (2001) Antibacterial activity of leaf essential oils and their constituents from *Cinnamomum osmophloeum*. *Journal of Ethnopharmacology* **77**, 123-127.

Cheeke PR (1996) Biological effects of feed and forage saponins and their impacts on animal production. In Saponins used in Food and Agriculture pp. 377-385. Edited by Waller GR & Yamasaki K. New York: Plenum Press.

Cheng K-J (1998) A review of bloat in feed cattle. *Journal of Animal Science* **76**, 1997.

Cheng K-J, Hironaka R, Jones GA, Nicas T & Costerton JW (1976) Frothy feedlot bloat in cattle: production of extracellular polysaccharides and development of viscosity in cultures of Streptococcus bovis. *Canadian Journal of Microbiology* **22**, 450-459.

Chesson A (2005) Phasing out antibiotic feed additives in the EU: worldwide relevance for food production. In Proceedings of 'Antimicrobial Growth Promoters: Worldwide Ban on the Horizon?, 31 January – 1 February 2005, the Netherlands, p.20.

Clapperton JL (1977) The effect of a methane-suppressing compound trichloroethyladipate on rumen fermentation and the growth of sheep. *Animal Production* **24**, 169-181.

Colomer-Rocher F, Delfa R, & Sierra Alfranca I (1988) Método normalizado para el estudio de los caracteres cuantitativos y cualitativos de las canales ovinas producidas en el área mediterránea según los sistemas de producción. *Cuadernos INIA* 17, 19-41.

Crutzen PJ, Engelhardt WV, Leonard-Marek S, Breves G & Giesecke D editors. Ruminant physiology: digestion metabolism growth and reproduction. Stuttgart Germany: Ferdinand Enke Verlag 1995; The role of methane in atmospheric chemistry and climate. p. 291-331.

Czerkawski JW & Breckenridge G (1977) Design and development of a long term rumen simulation technique (Rusitec). *British Journal of Nutrition* **38**, 371-384.

Dawson KA, Rasmussen MA & Allison MJ; Hobson PN & Stewart CS editors. The rumen microbial ecosystem. Chapman & Hall (1997) Digestive disorders and nutritional toxicity. p. 633-60.

Demeyer D & Van Nevel C (1986) Influence of substrate and microbial interaction on efficiency of rumen microbial growth. *Reproduction Nutrition & Development* **26,** 161-179.

Diaz A, Avendan OM & Escobar A (1994) Evaluation of *Sapindus saponaria* as a defaunating agent and its effects on different ruminal digestion parameters. *Livestock Research & Rural Development* **5**, 1-10.

Eadie JM & Shand WJ (1981) The effect of synperonic NP9 upon ciliate free and faunated sheep. *Proceedings of the Nutrition Society* **40**, 113A.

El Hassan SM, Lahlou-Kassi A, Newbold CJ & Wallace RJ (1995) Antimicrobial factors in African multipurpose trees. In Rumen Ecology Research Planning (ed. RJ Wallace & A Lahlou-Kassi) pp. 43-61. International Livestock Research Institute Nairobi Kenya.

Elgayyar M, Draughon FA, Golden DA & Mount JR (2001) Antimicrobial activity of essential oils from plants against selected pathogenic and saprophytic microorganisms. *Journal of Food Protection* **64**, 1019-1024.

Eugène M, Archimède H & Sauvant D (2004) Quantitative meta-analysis on the effects of defaunation of the rumen on growth intake and digestion in ruminants. *Livestock Production Science* **85**, 81-97.

Finlay BJ, Esteban G, Clarke KJ, Williams AG, Embley TM & Hirt RP (1994) Some rumen ciliates have endosymbiotic symbionts. *FEMS MicrobiologyLetters* **117**, 157-162.

Floret F, Chaudhary LC, Ellis WC, El Hassan S, McKain N, Newbold CJ & Wallace RJ (1999) Influence of 1-[(E)-2-(2-methyl-4-nitrophenyl)diaz-1-enyl]pyrrolidine-2- carboxylic acid and diphenyliodonium chloride on ruminal protein metabolism and ruminal microorganisms. *Applied & Environmental Microbiology* **65**, 3258-3260.

Frumholtz PP, Newbold CJ & Wallace RJ (1989) Influence of *Aspergillus oryzae* fermentation extract on the fermentation of a basal ration in the rumen simulation technique (Rusitec). *Journal of Agricultural Science* **113**, 169-172.

Gibbs MJ & Lewis L. Hoffman JS editor. Reducing Methane Emissions from Livestock: Opportunities and Issues. U.S. Environmental Protection Agency; 1989.

Goering HK & Van Soest PJ (1970) *Forage Fiber Analyses (Apparatus Reagents Procedures and some Applications)* (Handbook No. 379). USDA Washington DC

Goetsch AL & Owens FN (1985) Effects of sarsaponin on digestion and passage rates in cattle fed medium to low concentrates. *Journal of Dairy Science* **68**, 2377-2384.

Gomez JA, Tejido ML & Carro MD (2005) Influence of disodium malate on microbial growth and fermentation in rumen-simulation technique fermenters receiving medium- and high-concentrate diets. *British Journal of Nutrition* **93**, 479-484.

Gutmann, I. & Wahlefeld, A. W. (1974) L-(+)-Lactate determination with lactate dehydrogenase and NAD. In *Methods of Enzymatic Analysis*, 2nd ed. pp. 1464 – 1468 [H. U. Bergmeyer editor]. Weinheim: Verlag Chemie.

Grau R & Hamm R (1953) Eine einfanche methode zur bestimmung der wasserbindung im muskel.*Naturwissenschafen* **40,** 29-30.

Hart SP & Polan CE (1984) Effect of sodium bicarbonate and disodium phosphate on animal performance ruminal metabolism digestion and rate of passage in ruminating calves. *Journal of Dairy Science* **67**, 2356-2368.

Headon DR, Buggle K, Nelson A & Killeen G (1991) Glycofractions of the Yucca plant and their role in ammonia control. *In* "Biotechnology in the Feed Industry" (T. P. Lyons Ed.) pp. 95-108. Alltech Technical Publications Nicholasville Kentucky.

Hoffmann EM, Muetzel S, Becker K (2002) A modified dot blot method of protein determination applied in the tannin-protein precipitation assay to facilitate the evaluation of tannin activity in animal feeds. *British Journal of Nutrition* 87:421-426.

Holtershinken M, Plitt U, Tammen FC, Hoffmann P, Scholz H (1997) Influence of mouldy grass on fermentation and thiamine metabolism in bovine rumen fluid (*in vitro*). *Deutsche Tierärztliche Wochenschrift* 104, 17-22.

Hostettmann K & Marston A (1995) Saponins. Cambridge: Cambridge University Press.

Hristov AN, McAllister AT, Van Herk FH & Cheng K-J (1999) Effect of *Yucca schidigera* on ruminal fermentation and nutrient digestion in heifers. *Journal of Animal Science* **77**, 2554-2563.

Imai H, Osawa K, Yasuda H, Hamashima H, Arai T & Sasatsu M (2001) Inhibition by the essential oils of peppermint and spearmint of the growth of pathogenic bacteria. *Microbios* **106**, (Suppl 1) 31-39.

ISO 4120. 2004. Sensory analysis -- Methodology -- Triangle test.

ISO 5495. 1983. Sensory analysis -- Methodology -- Paired comparison test.

Johnson JL (1994) Similarity analysis of rRNAs. In: *Methods for general and molecular bacteriology*. p 691. [Gerhardt P, Murray RGE, Wood WA, Krieg NR, editors] American Society for Microbiology, Washington, D.C.

Johnson KA & Johnson DE (1995) Methane emissions from cattle. *Journal of Animal Science* **73**, No.8 2483-2492.

Julkunen-Tiitto R (1985) Phenolic constituents in the leaves of northern willows: methods for the analysis of certain phenolics. *Journal of Agriculture Food Chemotherapy* **33**, 213-217.

Kayouli C, Demeyer DI, Van Nevel CJ & Dendooven R (1984) Effect of defaunation on straw digestion in sacco and on particle retention in the rumen. *Animal Feed Science & Technology* **10**, 165-172.

Kohler M & Doll K (1996) Studies on the aetiology and treatment of recurrent bloat in calves and young cattle. *Tierarztliche Umschau* **51**, 340-345.

Koroleff F (1976) Determination of ammonia. In: *Methods of seawater analysis*. pp 126-133 [Grasshoff K, editor] Verlag Chemie, Weinheim.

Laemmli UK (1970) Cleavage of structural proteins during the assembly of the head of bacteriophage T4. *Nature* 227, 680-685

Leng RA, Bird SH, Klieve A, Choo BS, Ball FM, Asefa P, Mudgal VD, Chaudhry UB, Haryono SU & Hendratno N (1992) The potential for forage supplements to manipulate rumen protozoa to enhance protein to energy ratio in ruminants fed on poor quality forages. In *Legume trees and other fodder trees as protein sources for livestock* pp. 177-191. FAO Animal Production and Health Paper No. 102.

Lockwood BC, Coombs GH & Williams AG (1988) Proteinase activity in rumen ciliate protozoa. *Journal of General Microbiology* **134**, 2605-2614.

López S, Davies DR, Giráldez FJ, Dhanoa MS, Dijkstra J & France J (2005) Assessment of nutritive value of cereal and legume straws based on chemical composition and in vitro digestibility. *Journal of Science Food Agriculture* **85**, 1550-1557.

Lovelock LKA, Buchanan-Smith JG & Forsberg CW (1982) Difficulties in defaunation of the ovine rumen. *Canadian Journal of Animal Science* **62**, 299-303.

Lu CD & Jorgensen NA (1987) Alfalfa saponins affect site and extent of nutrient digestion in ruminants. *Journal of Nutrition* **117**, 919-927.

Lu CD, Tsai LS, Schaefer DM & Jorgensen NA (1987) Alteration of fermentation in continuous culture of mixed rumen bacteria. *Journal of Dairy Science* **70**, 799-805.

Machmuller A, Osowski DA, Wanner M & Kreuzer M (1998) Potential of various fatty feeds to reduce methane release from rumen fermentation in vitro (Rusitec). *Animal Feed Science & Technology* **71**, 117-130.

Makkar HPS, Dawra RK, Singh B (1988) Changes in tannin content, polymerisation and protein precipitation capacity in oak (*Quercus incana*) leaves with maturity. *Journal of the Science of Food and Agriculture* 44:301-307.

Makkar HP & Becker K (1997) Degradation of Quillaja saponins by mixed culture of rumen microbes. *Letters in Applied Microbiology* **25**, 243-245.

Makkar HPS, Sen S, Blummel M & Becker K (1998) Effects of fractions containing saponins from *Yucca schidigera Quillaja saponaria* and *Acacia auriculoformis* on rumen fermentation. *Journal of Agricultural & Food Chemistry* **46**, 4324-4328.

Makkar HPS (2003) Quantification of Tannins in Tree and Shrub Foliage. A Laboratory Manual. Kluwer Academic Publishers Dordrecht (The Netherlands).

Makkar HPS, Sen S, Blummel M & Becker K (1998) Effects of fractions containing saponins from yucca schidigera quillaja saponaria and acacia auriculoformis on rumen fermentation. *Journal of Agricultural & Food Chemistry* **46**, 4324-4328.

Makkar HPS, Singh B & Dawra RK (1988) Effect of tannin-rich leaves of oak (*Quercus incana*) on various microbial enzyme activities of the bovine rumen. *British Journal of Nutrition* **60**, 287-296.

Marino M, Bersani C & Comi G (2001) Impedance measurements to study the antimicrobial activity of essential oils from Lamiaceae and Compositae. *International Journal of Food Microbiology* **67**, 187-195.

Martin, W. B. & Aitken, I. D. (2000) *Diseases of sheep*. 3rd ed. Oxford: Blackwell Science Ltd.

Mauricio, R.M., Mould, F.L., Dhanoa, M.S., Owen, E., Channa, K.S. & Theodorou, M.K. (1999) A semi-automated *in vitro* gas production technique for ruminant feedstuff evaluation. *Animal Feed Science and Technology* 79, 321-330.

Matsumoto M, Kobayashi T, Takenaka A & Itabashi H (1991) Defaunation effects of medium-chain fatty acids and their derivatives on goat rumen protozoa. *Journal of General Microbiology* **37**, 439-445.

McEwan NR, Graham RC, Wallace RJ, Losa R, Williams P & Newbold CJ (2002*a*) Effect of essential oils on ammonia production by rumen microbes. *Reproduction Nutrition Development* **42**, **(Suppl. 1)** S65.

McEwan NR, Graham RC, Wallace RJ, Losa R Williams P & Newbold CJ (2002*b*) Effect of essential oils on protein digestion in the rumen. *Reproduction Nutrition Development* **42**, **(Suppl. 1)** S65-S66.

McIntosh FM, Newbold CJ, Losa R, Williams P & Wallace RJ (2000) Effects of essential oils on rumen fermentation. *Reproduction Nutrition Development* **40**, 221-222.

McIntosh FM, Williams P, Losa R, Wallace RJ, Beever DE & Newbold C J (2003) Effects of essential oils on ruminal microorganisms and their protein metabolism. *Applied & Environmental Microbiology* **69**, 5011-5014.

McLean, J.A., Tobin, G. (1987): *Animal and Human Calo*rimetry. Cambridge University Press.

McSweeney CS, Palmer B, Bunch R & Krause DO (1999) Isolation and characterization of proteolytic ruminal bacteria from sheep and goats fed the tannin-containing shrub legume Calliandra calothyrsus. *Applied & Environmental Microbiology* **65,** 3075-3083.

Mehrez AZ & Ørskov ER (1977) A study of the artificial fibre bag technique for determining the digestibility of feeds in the rumen. *Journal of Agricultural Science Cambridge* **88**, 645-650.

Meier H, Amann R, Ludwig W, Schleifer KH (1999) Specific oligonucleotide probes for in situ detection of a major group of gram-positive bacteria with low DNA G+C content. *Syst. Appl. Microbiol.* 22:186-196.

Morrison M & Mackie RI (1996) Nitrogen metabolism by ruminal microorganisms: current understanding and future perspectives. *Australian Journal of Agricultural Research* **47**, 227-246.

Mützel S, Lawrence P, Hoffmann EM, Becker K (2005) Evaluation of a stratified continuous rumen incubation system. *J. Dairy Sci*. accepted

Muyzer G, De Waal EC, Uitterlinden AG (1993) Profiling of complex microbial populations by denaturing gradient gel electrophoresis analysis of polymerase chain reaction amplified genes coding for 16S rRNA. *Appl. Environ. Microbiol*. 59:695–700.

Muyzer G, Teske A, Wirsen CO, Jannasch HW (1995) Phylogenetic relationships of *Thiomicrospira* species and their identification in deep-sea hydrothermal vent samples by denaturing gradient gel electrophoresis of 16S rRNA fragments. *Arch. Microbiol*. 164:165-172.

Nagaraja TG, Newbold CJ, Van Nevel CJ *et al*. Hobson PN Stewart CS editors. The rumen microbial ecosystem. 2nd ed. London: Chapman&Hall 1997; 13 Manipulation of ruminal fermentation. p. 523-632.

Nagy JG & Tengerdy RP (1968) Antibacterial action of essential oils of *Artemisia* as an ecological factor II. Antibacterial action of the volatile oils of *Artemisia tridentata* (big sagebrush) on bacteria from the rumen of mule deer. *Applied Microbiology* **16**, 441-444.

Navas-Camacho A, Laredo MA, Cuesta A, Anzola H & Leon JC (1993) Effect of supplementation with a tree legume forage on rumen function. *Livestock Research &. Rural Development* **5**, 58-71.

Navas-Camacho A, Laredo MA, Cuesta A, Ortega O & Romero M (1994) Evaluation of tropical trees with high or medium saponin content as dietary alternative to eliminate ciliate protozoa from the rumen. *Proceedings of the Society of Nutrition Physiology* **3**, 204.

Neuhoff V, Stamm R, Eibel H (1985) Clear Background and highly sensitive protein staining with Coomassie Brilliant Blue dyes in polyacrylamide gels: A systematic analysis. *Electrophoresis* 6, 427-448.

Newbold CJ & Chamberlain DG (1988) Lipids as rumen defaunating agents. *Proceedings of the Nutrition Society* **47**, 154A.

Newbold CJ, El Hassan, SM Wang, J Ortega ME & Wallace RJ (1997) Influence of foliage from African multipurpose trees on activity of rumen protozoa and bacteria. *British Journal of Nutrition* **78**, 237-249.

Newbold CJ, Lopez S, Nelson N, Ouda JO, Wallace RJ & Moss AR (2005) Propionate precursors and other metabolic intermediates as possible alternative electron acceptors to methanogenesis in ruminal fermentation in vitro. *British Journal of Nutrition* **94**, 27-35.

Newbold CJ, McIntosh FM, Williams P, Losa R & Wallace RJ (2004) Effects of a specific blend of essential oils on rumen fermentation. *Animal Feed Science & Technology* **114**, 105-112.

Newbold CJ & Wallace RJ (1988) The effects of the ionophores monensin and tetronasin on the simulated development of lactic acidosis *in vitro*. *Applied & Environmental Microbiology* **54**, 2981-2985.

Odenyo A, Osuji PO & Karanfil O (1997) Effect of multipurpose tree (MPT) supplements on ruminal ciliate protozoa. *Animal Feed Science and Technology* **67**, 169-180.

Oh HK, Jones MB & Longhurst WM (1968) Comparison of rumen microbial inhibition resulting from various essential oils isolated from relatively unpalatable plant species. *Applied Microbiology* **16**, 39-44.

Oh HK, Sakai T, Jones MB & Longhurst WM (1967) Effect of various essential oils isolated from Douglas fir needles upon sheep and deer rumen microbial activity. *Applied Microbiology* **15**, 777-784.

Orpin CG & Joblin KN (1997) The rumen anaerobic fungi. In The Rumen Microbial Ecosystem pp. 140-195. Edited by PN Hobson and CS Stewart. London: Chapman & Hall.

Orpin CG (1977) Studies on the defaunation of the ovine rumen using dioctyl sodium sulfosuccinate. *Journal of Applied Bacteriology* **43**, 309-318.

Palsson H (1939) Meat qualities in the sheep with special reference to Scottish breeds and crosses. I. Carcass measurements and sample joints as indices of quality and composition. *Journal of Agricultural Science Cambridge* **24**, 544-574.

Pérez-Maldonado RA & Norton BW (1996) The effects of condensed tannins from *Desmodium intortum* and *Calliandra calothyrsus* on protein and carbohydrate digestion in sheep and goats. *British Journal of Nutrition* **76**, 515-533.

Porter LW, Hrstich LN & Chan BG (1986) The conversion of procyanidins and prodelphinidins to cyanidin and delphinidin. *Phytochemistry* **25**, 223-230.

Regensbogenova M, Pristas P, Javorsky P, Moon-van der Staay SY, van der Staay GWM, Hackstein JHP, Newbold CJ, McEwan NR (2004) Assessment of ciliates in the sheep rumen by DGGE. *Lett. Appl. Microbiol.* 39:144-147.

Reid CSW, Clarke RTJ, Cockrem FRM, *et al*. McDonald IW Warner ACI editors. Digestion and Metabolism in the Ruminant. Armidale Australia: University of New England Publishing Unit 1975;Physiological and genetic aspects of pasture (legume) bloat. p. 524-36.

Reilly J, Prinn R, Harnisch J, Fitzmaurice J, Jacoby H, Kicklighter D, Melillo J, Stone P, Solokov A & Wang C (1999) Multi-gas assessment of the Kyoto Protocol. *Nature* **401**, 549-555.

Roessler RM, Pangborn JL & Stone H (1978) Expanded statistical tables for estimating significance in paired preference paired difference duo-trio and triangular test. *Journal of. Food Science* **43**, 940-943.

Rossi J **(**1995) Additives for animal nutrition and technique for their preparation. European Patent EP 0646321 B1.

Russell JB, Onodera R & Hino T (1991) Ruminal protein fermentation: new perspectives on previous contradictions. In: TsudaT. Y.Sasaki & R.Kawashima (eds). Physiological aspects of digestion and metabolism in ruminants. Academic Press San Diego pp. 681-697.

Russell JB & Hino T (1985) Regulation of lactate production in Streptococcus bovis: a spiraling effect that contributes to rumen acidosis. *Journal of Dairy Science* **68**, 1712-1721.

Sambrook J, Fritsch EF, Maniatis T (1989) Molecular Cloning, A Laboratory Manual, 2nd ed. Cold Spring Harbor, NY, Laboratory Press.

Sen S, Makkar HPS & Becker K (1998) Alfalfa saponins and their implication in animal nutrition. *Journal of Agricultural & Food Chemistry* **46**, 131-140.

Shapiro SA, Meier & Guggenheim B (1994) The antimicrobial activity of essential oils and essential oil components towards oral bacteria. *Oral Microbiolology Immunology* **9,** 202-208.

Sierra I (1973) Producción de cordero joven y pesado en la raza Rasa Aragonesa. I.E.P.G.E. nº 18 p.28.

Stewart CS, Flint HJ & Bryant MP (1997) The rumen bacteria. In: Hobson PN & CS Stewart (eds). The rumen microbial ecosystem. Chapman & Hall London pp. 10-72.

Teferedegne B (2000) The use of foliage from multipurpose trees to manipulate rumen fermentation. Ph.D. thesis University of Aberdeen UK.

Teferedegne B, Osuji PO, Odenyo AA, Wallace RJ & Newbold CJ (1999) Influence of foliage of different accessions of the sub-tropical leguminous tree *Sesbania sesban* on ruminal protozoa in Ethiopian and Scottish sheep. *Animal Feed Science & Technology* **78**, 11-20.

Teferedegne B, McIntosh FM, Osuji PO, Odenyo A, Wallace RJ & Newbold CJ (1999) Influence of the foliage from different accessions of the sub-tropical leguminous tree *Sesbania sesban* on ruminal protozoa in Ethiopian and Scottish sheep. *Animal Feed Science & Technology* **78**, 11-20.

Theodorou MK, Williams BA, Dahona MS, McAllan AB & France J (1994) A simple gas production method using a pressure transducer to determine the fermentation kinetics of ruminant feeds. *Animal Feed Science Technology* **48**, 185-197.

Ushida K, Jouany J-P & Demeyer DI (1991) Effects of presence or absence of rumen protozoa on the efficiency of utilization of concentrate and fibrous feeds. In Physiological Aspects of Digestion and Metabolism in Ruminants pp. 625-654. Edited by T Tsuda, Y Sasaki & R Kawashima. San Diego California: Academic Press Inc.

Ushida K, Jouany JP Demeyer D. Tsuda T. Sasaki Y. Kawashima R editors. Physiological aspects of digestion and metabolism in ruminants. London: Academic Press 1991; Effects of presence or absence of rumen protozoa on the efficiency of utilization of concentrate and fibrous feeds. p. 625-54.

Valdez FR, Bush LJ, Goetsch AL & Owens FN (1986) Effect of steroidal sapogenins on ruminal fermentation and on production of lactating dairy cows. *Journal of Dairy Science* **69**, 1568-1575.

Van Nevel C & Demeyer D. Wallace RJ & Chesson A editors. Biotechnology in animal feeds and animal feeding. Weinheim Germany: VCH 1995; Feed additives and other interventions for decreasing methane emissions. p. 329-49.

Van Nevel CJ & Demeyer DI (1990) Effects of antibiotics a deaminase inhibitor and sarsaponin on nitrogen metabolism of rumen contents in vitro. *Animal Feed Science and Technology* **31**, 323-348.

Van Nevel CJ & Demeyer DI (1996) Control of rumen methanogenesis. *Environmental Monitoring & Assessment* **42**, 73-97.

Van Nevel CJ & Demeyer DI (1996) Control of rumen methanogenesis. *Environmental Monitoring Assessment* 77-101.

Van Soest PJ, Roberston JB & Lewis BA (1991) Methods for dietary fibre and nonstarch polysaccharides in relation to animal nutrition. *Journal Dairy Science* **74**, 3583-3597.

Wallace RJ & McPherson CA (1987) Factors affecting the rate of breakdown of bacterial protein in rumen fluid. *British Journal of Nutrition* **58**, 313-323.

Wallace RJ Arthaud L & Newbold CJ (1994) Influence of *Yucca shidigera* extract on ruminal ammonia concentrations and ruminal microorganisms. *Applied & Environmental Microbiology* **60**, 1762-1767.

Wallace RJ, McEwan NR, McIntosh FM, Teferedegne B & Newbold CJ (2002) Natural products as manipulators of rumen fermentation. *Asian-Australasian Journal of Animal Science* **15**, 1458-1468.

Wallace RJ, Onodera R & Cotta MA (1997) Metabolism of nitrogen-containing compounds. *In* "The rumen microbial ecosystem" (PN Hobson & CS Stewart Eds) Chapman & Hall London.

Wallace RJ, Onodera R & Cotta MA. Hobson PN Stewart CS editors. The rumen microbial ecosystem. 2nd ed. London: Chapman & Hall 1997; 7 Metabolism of nitrogen-containing compounds. p. 283-328.

Wallace RJ & McPherson CA (1987) Factors affecting the rate of breakdown of bacterial

Wallace RJ, Arthaud L & Newbold CJ (1994) Influence of *Yucca shidigera* extract on ruminal ammonia concentrations and ruminal microorganisms. *Applied Environmental Microbiology* **60**, 1762-1767.

Wang Y, McAllister TA, Newbold CJ, Rode LM, Cheeke PR & Cheng K-J (1998) Effects of *Yucca schidigera* extract on fermentation and degradation of steroidal saponins in the rumen simulation technique (RUSITEC). *Animal Feed Science and Technology* **74**, 143-153.

Wang Y, McAllister TA, Yanke LJ & Cheeke PR (2000) Effect of steroidal saponin from *Yucca schidigera* extract on ruminal microbes. *Journal of Applied Microbiology* **88**, 887-896.

Weller R, Glöckner FO, Amann R (2000) 16S rRNA-targeted oligonucleotide probes for the *in situ* detection of members of the phylum Cytophaga-Flavobacterium-Bacteroides. *System. Appl. Microbiol.* 23:107-114.

Williams AG & Coleman GS (1992) *The rumen protozoa*. Springer Verlag New York Inc.

Williams AG & Coleman GS (1997) The rumen protozoa. In The Rumen Microbial Ecosystem pp. 73-120. Edited by PN Hobson and CS Stewart. London: Blackie Academic and Professional.

Williams AG & Coleman AG (1992) The rumen protozoa. New York: Springer-Verlag; 1992.

Zentek J (1997) Case report: bloat and diarrhoea in calves. *Deutsche Tierarztliche Wochenschrift* **104**, 153-155.