

PROGRAMME

ANIMAL BEHAVIOUR AND WELFARE

- 1 The effect of herbage allowance on day-time preference of dairy cows to be indoors or at pasture
P R Motupalli, S M Rutter, E Bleach, L Sinclair
- 2 The behaviour of continuously housed cows given free choice to access an outside environment
D J Humphries
- 3 What do handling temperament tests tell us about home pen activity in beef steers?
J MacKay, S Turner, J J Hyslop, M Haskell
- 4 The temporal changes in behaviour of beef bulls during exposure to *Ostertagia ostertagi* and subsequent recovery from infection
O Szyszka, B J Tolkamp, S A Edwards, I Kyriazakis
- 5 The topical anaesthesia welfare revolution on wool sheep farms in Australia: can xylazine assist?
P Windsor, N Mikhaleva, C Espinoza, S Lomax
- 6 The effect of radio on the welfare and behaviour of sows and their piglets in farrowing crates
K Langdon, J Amory
- 7 Evaluation of nest design and nesting substrate options for the PigSAFE free farrowing pen
S A Edwards, M Brett, Y M Seddon, D W Ross, E M Baxter
- 8 Assessment of kinematic gait characteristics of pigs reared on three different floor types with a single-plane stereophotogrammetric motion capture method
S Stavrakakis, J H Guy, O Warlow, S E M Lawson, G R Johnson, S A Edwards

CLIMATE CHANGE AND ENVIRONMENT

- 9 Effect of forage type and an extruded linseed supplement on methane production by lactating dairy cows
C K Reynolds, D J Humphries, K M Livingstone, K E Kliem, D I Givens
- 10 Development and preliminary testing of an animal mounted sensor system to estimate methane emission from cattle
D W Ross, M Nath, J A Rooke, C-A Duthie, C Michie, L Deans, D Wills
- 11 Genetic improvement of Australian Angus cattle for lower methane emission
R Herd, S Bird, K Donoghue, R Hegarty, P Arthur
- 12 Gastrointestinal parasitism *per se* has no effect on methane output by lactating ewes
J G M Houdijk, B J Tolkamp, J A Rooke, M R Hutchings
- 13 Greenhouse gas (GHG) life-cycle assessment of mammalian rendered products in the UK
A Ramirez, A Humphries, S Woodgate, R G Wilkinson
- 14 Ruminant feed production in the United Kingdom in 1990 and 2010
J M Wilkinson, A E Wray
- 15 Quantifying the environmental benefits of using home grown protein sources as alternatives to soyabean meal in pig production through life cycle assessment
C F E Topp, J G M Houdijk, D Tarsitano, B J Tolkamp, I Kyriazaki
- 16 Statistical indicators of livestock efficiency related to greenhouse gas emissions
P McDonnell, A E Wray, J M Wilkinson
- 17 Do finishing pigs emit enteric methane like sheep?
B Berenhtein, A L Abdalla, P Pimentel, A Campeche, E Gomes, A L Abdallo Filho, R Peçanha, L Castilho, T Paim, M. Sbardella, H Louvandini, J Santos

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- 18 Prediction of intramuscular fat from beef ultrasound scans
C Glasbey, N R Lambe, D W Ross, R I Richardson, E A Navajas, J J Hyslop, R Roehe
- 19 Compensatory growth in early and late maturing steers: Effects on beef colour and sensory characteristics
S M Keady, S M Waters, R Hamill, P G Dunne, M G Keane, R I Richardson, D A Kenny, A P Moloney
- 20 Effect of the Texel muscling quantitative trait locus (TM-QTL) on spine characteristics in purebred Texel lambs
C L Donaldson, N R Lambe, J M Macfarlane, C A Maltin, S A Knott, L Bunger
- 21 Changes in caspase 3/7 activity and shear force during *post mortem* conditioning of the *longissimus* muscle of growing gilts after 7 days treatment with beta-adrenergic agonist or growth hormone
M Mareko, K Ryan, D Brown, J Brameld, T Parr
- 22 Diet and gender effects on lamb meat quality
C Craigie, D W Ross, R I Richardson, C Maltin, R Roehe, S Morris, J G M Houdijk
- 23 Effects of using peas and faba beans to replace soyabean meal on carcass quality in pigs
L A Smith, J G M Houdijk, D Homer, I Kyriazakis
- 24 Nutritional value of diets for growing / finishing pigs containing high levels of home grown legumes compared with one based on soyabean meal 2. Carcass quality
G White, L A Smith, D Homer, J Wiseman, J G M Houdijk, I Kyriazakis
- 25 Effect of packaging and ageing times on shelf life and quality of steaks from commercial beef striploin
M Jaspal, F Whittington, J DeRoeck, R I Richardson
- 26 Comparison of three winter finishing systems on vitamin E content and shelf life in lamb leg meat
F Whittington, E Genever, K Hallett, R I Richardson
- 27 Incorporation of chlorophyll based markers into lamb finishing rations to aid visualization of faecal contamination in the abattoir- a spectrometric approach
S Sagataram, D Leemans, V Theobald, H Fleming, A Gay, M R F Lee
- 28 Microbial load of cheese produced from differently processed White Fulani cow milk
F O Ogunleke, J A Adeneye, O A Akinsoyinu
- 158 Attributes of fresh meat suitable as healthy food from healthy organic animals, (cattle and camel)
P O Fakolade

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- 29 The effects of genotype and dietary lysine concentration on growth performance of weaner pigs
A Taylor, H M Miller, P Toplis, I Wellock
- 30 Prediction of digestible phosphorus and calcium retention and requirements for different pig genotypes
V Symeou, I Leinonen, S A Edwards, I Kyriazakis
- 31 The effect of particle size and feed form on finishing pig performance
E Magowan, M E E Ball, V Beattie, W Henry, K McCracken, F Gordon, A Thompson, R Bradford
- 32 Lifetime performance of gilts bred on first to fifth observed oestrus
P D Cottney, E Magowan, M E E Ball, A Gordon
- 33 Changes in commercial stud boar semen abnormality types throughout the year
A LeMoine, H M Miller
- 34 Effectiveness of starter diets pre and post weaning on lifetime pig performance
E Magowan, M E E Ball

- 35 The effect of *ad libitum* feed post mating on the reproductive performance of gilts
P D Cottney, E Magowan, M E E Ball, A Gordon, W Henry
- 36 Effect of creep diet pre weaning and starter diet allowance post weaning on pig gut structure
E Magowan, M E E Ball

CATTLE: DAIRY AND BEEF

- 37 A genome-wide association study of bovine tuberculosis resistance in the Northern Ireland Holstein-Friesian dairy cattle population
M Bermingham, S C Bishop, J A Woolliams, A Allen, S McBride, D Wright, J Ryder, R Skuce, S McDowell, E Glass
- 38 Relationship between immune profile traits and functional traits in dairy cattle
G Banos, E Wall, M P Coffey, S Gillespie, G Russell, T McNeilly
- 39 Characterising heifer survival in UK dairy herds
T C Pritchard, M P Coffey, R Mrode, E Wall
- 40 How direct and maternal gestation length genetically relate to fertility, milk production, type and lifespan in UK Holstein-Friesian heifers
S Eaglen, M P Coffey, J A Woolliams, E Wall
- 41 Association of herd size and seasonality, with somatic cell count in Irish and UK dairy cows
S C Archer, F Buckley, F McCoy, W Wapenaar, M J Green
- 42 Effects of dietary incorporation of roughages and barley produced with selenium enriched fertilizers on the selenium content in milk and milk products
I Dufrasne, V Robaye, L Istasse, J-L Hornick
- 43 Use of pre-treatment with parenteral tetrathiomolybdate and fractional changes in liver copper concentration to improve the assessment of copper supplements by hepatic copper repletion in cattle
N Suttle
- 44 Dairy cows milked by an automatic milking system located at pasture: practical aspects on technical uses of the paddocks
I Dufrasne, V Robaye, L Istasse, J-L Hornic
- 45 Alkagrain for finishing beef cattle
S P Marsh, J Brown, M Graham
- 46 An assessment of alternative test length periods when measuring liveweight change in finishing cattle during feed efficiency studies
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- 47 Effect of different level of yeast probiotic and prebiotic and their symbiotic interaction on Holstein female suckling calves
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K Bodley, H Fainberg, Li Dongfang, J Bacardit, F Wessely, D Gardner, A Mostyn
- 49 Effects of spray-dried porcine plasma on weaner pig performance and resilience to sub-clinical post weaning colibacillosis
J G M Houdijk, C A van Vuure

- 50 Dietary conjugated linoleic acid (CLA) and its effects on proliferation and production of interleukin 2 (IL-2) of peripheral blood mononuclear cells in pigs infected with porcine respiratory and reproductive syndrome virus (PRRSv).
A Pinelli-Saavedra, H Bracamontes-Hernandez, I R Esquerro-Brauer, S Y Moya-Camarena, J Hernandez
- 51 Identification of risk factors associated with poor growth performance in pigs
S L Douglas, SA Edwards, P W Knap, E Sutcliffe, I Kyriazakis

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- 52 Nutritional value of diets for growing / finishing pigs containing high levels of home grown legumes compared with one based on soyabean meal 1. Growth performance
G White, J Wiseman, L A Smith, J G M Houdijk, I Kyriazakis
- 53 Short term feeding behaviour of newly weaned piglets
F H Reynolds, J M Forbes, H M Miller
- 54 Effects of one week treatment with beta-adrenergic agonist or growth hormone on the growth and feed conversion efficiency of growing gilts
K Ryan, M Mareko, D Brown, T Parr, J Brameld
- 55 Estimation of residual energy intake and its genetic background during the growing period in commercial pigs
M Shirali, C-A Duthie, A Doeschl-Wilson, P W Knap, E Kanis, J A M van Arendonk, R Roehe
- 56 An assessment of straw intake by acid insoluble markers in commercial pigs housed in straw based systems
S C Mansbridge, A H Stewart
- 57 Effects of growth rate on meat quality traits in finisher pigs
S Wilson, H M Miller, A Taylor
- 58 Fatty acid composition of retail organic and non-organic beef in North East England
S Kamihiro, S Stergiadis, C Leifert, M D Eyre, G Butler
- 59 Effect of meat ageing and varying the gas headspace to meat ratio on the oxidative shelf life of beef loin steaks packed in modified atmosphere packs
M Jaspal, F Whittington, K Gibson, R I Richardson
- 60 The implementation of docility and scrotal circumference genetic evaluations for British Limousin cattle
K Moore, R Mrode
- 61 Breeding structure of the pedigree Limousin cattle population in the UK
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G White, J Wiseman
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- 64 Effects of low protein diets on performance and fat deposition in pigs
L Bungler, N Lambe, G Walling, H Whitney, S Jagger, P Fullarton, N Penlington, C Maltin, J Bayntun, J Wood
- 65 Holo-analysis to determine the factors influencing the efficacy of an enhanced *Escherichia coli* phytase on average daily gain of pigs
C Walk, T Santos, M Bedford, P Wilcock

- 66 Beta-adrenergic agonist and growth hormone have differential effects on muscle fibre composition in growing gilts
D Brown, K Ryan, Z Daniel, M Mareko, T Parr, J Brameld
- 67 Effects of dietary potassium diformate in sows during pre-farrowing till weaning on piglet performance and health - a practical approach in Germany
L Durst, P Theobald, C Lückstädt
- 68 Utilization of agro-industrial by products by growing pigs in the tropics
E O Akinfala, O Olagbaju, A C Odewumi
- 69 Effects of different additives in diets of growing pigs containing high levels of palm kernel cake and brewers dried grain in sub-humid tropics
A O K Adesehinwa, O O Mgbere, B A Makanjuola, O O Obi, T Lawal, Y A Popoola
- 70 Effects of maternal supplementation with essential fatty acid (Docosahexanoic acid) on neonatal piglet metabolism and vitality
O O Adeleye, M Brett, D Blomfield, J H Guy, S A Edwards

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- 71 A platform for genotype imputation and discovery of Mendelian inconsistencies
G Banos, M P Coffey, R Mrode
- 72 Development of a cost effective direct DNA sequencing method for rapid SNP detection and genotyping of candidate genes
M Orford, D Miltiadou
- 73 Effect of soaked and urea treated wheat straw based diets on live weight of whether sheep
A M Shirif, A S Chaudhry, A Younger
- 74 Haematological and carcass characteristics of West African Dwarf goats fed with *Moringa oleifera* and *Gliricidia sepium*
O J Oyedele
- 75 Fatter lambs from fostered mums: the benefits of fostering lambs on daily weight gain
S J Ward, W McCormick, G Liste
- 76 Variation in live weight, ultrasonic back-fat and computerised tomography data within a sample of Abermax ram lambs
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- 77 Effect of concentrate feed level and protein source on the performance of ewes in late pregnancy and the performance of their progeny
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- 78 *Broussonetia papyrifera* leaves as supplement increases total feed intake of Djallonké rams offered Napier grass
E L K Osafo, O Alhassan, W Oduro
- 79 Supplementation of *Moringa oleifera* leaves and dried *Samanea saman* pods on intake, N-digestibility and N-balance of Napier grass basal diet in Djallonke sheep
V Attoh-Kotoku, E L K Osafo, E Addey
- 80 Upgrading the *in-vitro* dry matter degradability of wheat straw internodes by using soaking, temperature and time treatments
A M Shirif, A S Chaudhry, K Benelhaj

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- 81 Comprehensive profiling and absolute quantification of equine cartilage extracellular matrix
M J Peffers, R Beynon, D Thornton, P D Clegg
- 84 Assessing therapeutic interventions in the mdx mouse using *in vivo* muscle physiology
R L Terry, D J Wells
- 85 Complex issues surround the use of hormones to improve dairy cow fertility: an insight into veterinary practitioners' attitudes and prescribing practices
H M Higgins, R F Smith, M J Green
- 86 Deer can become infected with bovine and ovine gastrointestinal nematodes and can transmit anthelmintic resistant nematodes to cattle and sheep
C Chintoan-Uta, E R Morgan, P Skuce, K Stafford, C Au, E Bevan, G C Coles

DIAGNOSTICS

- 87 A Proteomic Approach For Biomarker Detection of Pancreas Disease (PD) in Atlantic salmon (*Salmo salar*)
M Braceland, R J S Burchmore, R Bickerdike, D Cockerill, P D Eckersall
- 88 Longitudinal surveys of astrovirus infections of chickens: rapid molecular diagnosis by real time reverse transcription polymerase chain reaction
V J Smyth, H L Jewhurst, D S Wilkinson, B M Adair, A Gordon, D Todd
- 89 Evaluation of immature thrombocytes (reticulated platelets) in young calves peripheral blood
M S Rocchi, E Melzi, E Laming, I McKendrick, C R Bell, K Willoughby

DAIRY

- 90 Effect of grass silage to maize silage ratio and level of starch in the concentrate on the performance and methane production of lactating dairy cows
K J Hart, J A Huntington, R G Wilkinson, C G Bartram, L A Sinclair
- 91 Postruminal degradation of crude protein, neutral detergent fiber and starch of maize and grass silages in Holstein Friesian dairy cows
M Ali, M R Weisbjerg, J W Cone, G van Duinkerken, M C Blok, M Bruinenberg, W H Hendriks
- 92 Effect of calcium salts of either palm fatty acid distillate or a palmitic acid-rich supplement on the fatty acid profile of cows' milk
K E Kliem, R M Kirkland, D I Givens, D J Humphries
- 93 Impact of dietary linseed and rapeseed supplementation on milk fatty acid composition from housed cows under organic and conventional management systems
S Stergiadis, C Leifert, C J Seal, M D Eyre, G Butler
- 94 Effect of forage type and extruded linseed supplementation on milk fatty acid composition
K M Livingstone, K E Kliem, D I Givens, C K Reynolds
- 95 Impact of flavoured water on the performance and health of Jersey calves from birth through weaning
S-M Howe, N Blackie
- 96 Effect of once or twice per day milk replacer feeding systems on performance of purchased dairy-bred beef calves to 12 weeks
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- 97 Effect of feeding a Yeast Culture (Diamond V XP_{LS}) on the performance of artificially reared dairy-bred bull calves
S P Marsh, R Stanbury, H Cromie
- 98 Performance of Holstein calves fed starter containing different levels of fiber and with or without feeding alfalfa hay
A Salarinia, M H Fathi Nasri, H Farhangfar, H Naeimipour, V Kardan Moghaddam, P Rowlinson

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H A Shakir, J I Qazi, A S Chaudhry
- 100 Effect of industrial pollution on heavy metals, total oxidants and antioxidants of *Labeo rohita* domiciled in the River Chenab
F Jabeen, R Shaukat, A S Chaudhry
- 101 Detecting molecular features of structural and non-structural carbohydrates in co-Products from bioethanol production using diffuse reflectance infrared Fourier transform (DRIFT)
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- 102 Effects of bioethanol processing co-products type on estimated ruminal and intestinal availability of protein
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- 103 Reproductive performance of rabbit bucks fed diets containing probiotics
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- 104 Fatty acid composition of different forages
M M H Khan, A S Chaudhry
- 105 Fermentation characteristics and chemical evaluation of processed cassava by-products as dry season feed for ruminants
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- 106 Effects of 3-carene, resorcinol and *p*-cresol on the metabolism of polyunsaturated fatty acids by rumen microorganisms *in vitro*
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- 107 Comparative evaluation of haemagglutination potential of haemolymph from two species of giant African land snails using erythrocytes from cattle, sheep, goat and chicken
J Abiona, A Akinduti, M Oyekunle, A Osinowo, O Onagbesan
- 108 Effect of different tea-to-water ratios on proximate, fibre and secondary metabolite compositions of spent tea leaves as a potential ruminant feed additive
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- 110 Quantifying the effect of agricultural co-products inclusion in broiler and layer diets on Global Warming Potential of poultry products
I Leinonen, A G Williams, A Waller, I Kyriazakis
- 111 Effects of feeding distiller's dried grains with soluble in broiler diets on performance and digestibility
N B Rano, A S Chaudhry, S A Edwards
- 112 Dietary supplementation of organic broilers with *Melissa officinalis* L.: effect on meat quality
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- 113 Greenhouse gas (GHG) life-cycle assessment of broiler production and the effects of replacing soya bean meal with processed animal protein (PAP)
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- 114 Effect of feeding distiller's dried grains with soluble on carcass characteristics and digestive organs of broiler chickens
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C E Walls, T W Lewis, S C Blott, D J Mellor, K K H Lam, B D Stewart, T D H Parkin
- 117 Phenotypic analyses support investigations of phylogeny in the Skyrian pony and other breeds
S A Brown, M J S Moore-Colyer, D J Hannant
- 118 UK sport horse market requirements
K Hennessy, M Lambkin
- 119 International brand representation of competition sport horses in the UK
K Hennessy, M Lambkin
- 120 Brand associations of international sport horse brands in the UK market
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- 121 The Effects of two endocrine treatments on the size of ovulatory follicles in Lusitano mares in Portugal
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- 123 Habitation of horses to the equine hydrotherapy spa unit
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K Yarnell, C Hall, C Royle

EQUINE NUTRITION

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- 126 The effect of freezing on the fermentative activity of equine faecal inocula for use in an *in vitro* gas production technique
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- 129 Reliability of genomic selection for different reference population designs
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- 130 Genomic selection in UK beef cattle terminal traits using commercial phenotypes
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- 131 Comparison between BayesC and GBLUP methods to estimate genomic breeding values in threshold phenotypes
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- 132 Genetic factors controlling wool shedding in an Easycare composite sheep flock
O Matika, S C Bishop, R Pong-Wong, V Riggio, D Headon
- 133 Regional Genomic Relationship Mapping to indentify loci underlying nematodes resistance variation in Scottish Blackface sheep
V Riggio, R Pong-Wong, O Matika, S C Bishop
- 134 Ruminomics: Connecting the animal genome, gastrointestinal microbiomes and nutrition to improve digestion efficiency and the environmental impacts of ruminant livestock production
R J Wallace
- 135 Vendeen sheep prolificacy: no evidence for role of known major genes with large effects on ovulation rate
M P Mullen, H Waters, S Lennon, M A Crowe
- 136 Do genotype by environment interactions (GxE) exist in Scottish Blackface ewes?
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- 138 Amylase addition increases starch ruminal digestion in dairy cows
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- 139 Evaluation of the efficiency of utilisation of nitrogen for Holstein heifers and steers at age of six months
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- 140 Measurements of enteric methane emissions from Holstein heifers and steers at age of six months
H Jiao, T Yan, D A McDowell, A F Carson, C F Ferris, D L Easson
- 141 The effect of the breeding program at Terling dairy farm Essex on the resistance and susceptibility to disease in Holstein dairy cows
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- 144 Estimation of correlated response selection for 305 day milk yield using monthly test day milk records in Iranian primiparous Holsteins
H Farhangfar, A Arab, P Rowlinson, A Riasi, M H Fathi Nasri, M Bashtani
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- 146 Evaluation of nitrogen utilisation efficiency of dairy cows offered diets containing two levels of concentrates with or without yeast supplementation
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- 147 Regional and seasonal variation in the fatty acid profile of bulk milk, predicted using infra-red spectroscopy, from farms across the United Kingdom
K E Kliem, T Hampton, P Charlton, D I Givens

- 148 Effects of dietary rumen-protected conjugated linoleic acids on fatty acid composition of lipids of milk, liver, muscle and adipose tissue of dairy German Holstein heifers in early lactation
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C Rymer, R Snape, H Mason, R Morris, S Todd, H Rymer
- 150 The effect of different C₃₂alkane dosing regimens on forage intake predictions for grazing beef cattle of either dairy or suckler origin
A Richmond, F Lively, A Wylie, S Laidlaw, A Carson, N E O'Connell
- 151 Roughage intake by captive browsing ruminants: The case of the greater kudu (*Tragelaphus strepsiceros*)
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A Belanche, G G Allison, C J Newbold, M R Weisbjerg, M Chrenkova, J M Moorby
- 154 Simultaneous HPLC analysis of alkaloid and phenolic compounds in green and black teas (*Camellia sinensis* var. Assamica)
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- 156 Chemical composition, *in situ* degradation and *in vitro* gas production of saffron (*Corcus sativus*) residues
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- 160 The refractory UK sheep production system
E A Bruce
- 161 Effects of plane of nutrition during the rearing phase and pregnancy on the performance of ewes lambing at 2 years of age
T W J Keady, J P Hanrahan
- 162 Effect of different levels and frequency of concentrate feeding on growth performance and carcass characteristics of Texel cross lambs
M I Mustafa, A S Chaudhry, A Shakir
- 163 Utilization of Wheat offal-carried pineapple waste by West African Dwarf goats
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A C Venter, C A Adams
- 165 Effect of different levels of urea and molasses on organic matter digestibility and estimation of metabolizable energy with *in vitro* methods (gas test, Tilley and Terry) in ensiled pistachio epicarp
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- 167 Modelling the effects of behavioural economics in animal disease surveillance: impact on BVD eradication in Scotland
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- 168 Modelling the impact of *Teladorsagia circumcincta* larvae contamination of pasture and anthelmintic treatment on genetic parameter estimates for parasite resistance in grazing sheep
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- 169 A mechanistic approach to modelling macro-parasite transmission in a grazing system
N J Fox, G Marion, R S Davidson, P C L White, M R Hutchings
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COMPANION ANIMALS

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