

**British Society of
Animal Production**



Winter meeting

18 - 20 March 1991

Grand Hotel
Scarborough

Programme and summaries

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BRITISH SOCIETY OF ANIMAL PRODUCTION

WINTER MEETING 1991

PROGRAMME

DAY	TIME	THEATRE SESSIONS		POSTER SESSIONS
MONDAY 18 MARCH		Ballroom	South Lounge	<u>Animal Welfare</u> Sea View Lounge Session Opens 1410 Authors in attendance 1420-1500 Discussion 1610-1740
	1400	The President		
	1410	<u>Meat Quality</u>	<u>Breeding and Selection</u>	
	1550	TEA		<u>Sheep Production</u> Balcony session opens 1440 Authors in attendance 1610-1740
	1610	<u>Sow Productivity</u>	<u>Ruminant Endocrinology</u>	
	1900	SCARBOROUGH TOWN COUNCIL RECEPTION		
	1945	ANNUAL DINNER		
TUESDAY 19 MARCH	0850	<u>Feed Technology</u>	<u>Sheep and Cattle Breeding</u>	<u>Forage Utilisation</u> Sea View Lounge Session opens 0920 Authors in attendance 1050-1220 Discussion 1350-1520
	1030	COFFEE		
	1050	<u>Dr Aumaitre - President's Lecture</u>		
	1130	<u>Non Ruminant Nutrition</u>		<u>Ruminant Nutrition</u> Sea View Lounge Session opens 0920 Authors in attendance 1050-1220
	1230	LUNCH		
	1350	<u>New Developments in Genetics</u>	<u>Pig Nutrition</u>	<u>Pig Production</u> Balcony Session opens 0920 Authors in attendance 1050-1220
	1530	TEA		
	1550	PLENARY SESSION <u>Nutrient Endocrine Interactions</u>		
	1800	ANNUAL GENERAL MEETING		
1945	DINNER			
WEDNESDAY 20 MARCH	0900	SIR JOHN HAMMOND MEMORIAL LECTURE		<u>Cereal Crop Utilisation</u> Sea View Lounge Session opens 0900 Authors in attendance 1030-1200 Discussion 1340-1510
	1010	COFFEE		
	1030	<u>Meat in the Food Chain</u>	<u>Grazing and Conservation for Dairy Cattle</u>	<u>Goats and Deer</u> Sea View Lounge Session opens 0900 Authors in attendance 1030-1200
	1220	LUNCH		
	1340	<u>Ruminant Nutrition</u>	<u>Pig Behaviour</u>	<u>Dairy Cattle Breeding</u> Balcony <u>Ruminant Endocrinology</u> Balcony Sessions open 0900 Authors in attendance 1030-1200
	1520	CLOSE OF MEETING		

M E A T Q U A L I T Y

CHAIRMAN - DR J D WOOD

- 1400 Opening remarks by the BSAP President, Dr J F O'Grady
- 1410 1 The structure of the British abattoir industry post 1992
 A J Kempster and M J Sloyan
- 1430 2 The effect of water-spraying bacon weight pigs in lairage on
 behaviour and carcass quality
 C M Weeding, H J Guise, E J Hunter and R H C Penny
- 1450 3 A possible explanation on the variation in tenderness and
 juiciness of pig meat
 C C Warkup and A J Kempster
- 1510 4 Relationships among commercial and laboratory methods of
 assessing the quality of pig meat from different joints
 J Planella, G L Cook, A J Kempster and J D Wood
- 1530 5 Effects of growing pig diets containing 0, 150, 300 or 450 g
 molassed sugar beet feed/kg on carcass and meat eating quality
 A C Longland, J D Wood, M Enser, J C Carruthers and
 H D Keal
- 1550 TEA

S O W P R O D U C T I V I T Y

CHAIRMAN - DR J R WALTERS

- 1610 6 Effect of feeding regime during rearing and subsequent
 pregnancies on body condition and reproductive
 performance of sows over the first four parities
 P H Simmins, S A Edwards, H H Spechter and J E Riley
- 1630 7 Metabolic and endocrine changes in the sow during lactation
 W H Close, B P Mullen, C E Sharpe and H L Buttle
- 1650 8 The influence of allyl-trenbolone on the steroid hormone
 concentrations of multiparous sows in lactation and after
 weaning
 A N Costa and M A Varley
- 1710 9 The effects of feeding level during both pregnancy and
 lactation on long-term productivity and body composition of
 sows.
 P A Lee and W H Close
- 1730 10 Vertical Integration in the United States Pig Industry
 BRAUDE SCHOLAR 1990 - S Furniss
- 1750 Session ends
- 1900 SCARBOROUGH TOWN COUNCIL RECEPTION
- 1945 ANNUAL DINNER

Monday 18 March

Theatre Session
South Lounge

B R E E D I N G A N D S E L E C T I O N

CHAIRMAN -- DR M K CURRAN

- 1410 11 Genetic effects on carcass and meat quality traits in crosses
 between Meishan and Large White pigs
 C S Haley, J J Serra and M Ellis
- 1430 12 Genetic parameters for lean mass in long term
 selection with mice
 B K Beniwal, R Thompson and W G Hill
- 1450 13 Relationships between growth performance and feeding pattern of
 pigs using electronic feeding stations
 P R Bampton
- 1510 14 Use of pig intake recording equipment in performance testing of
 pigs
 H A M van der Steen, E A Bruce and A N R Brown

1550 **TEA**

R U M I N A N T E N D O C R I N O L O G Y

CHAIRMAN - DR R G RODWAY

- 1610 15 Response of Suffolk and Texel rams to implantation with
 melatonin
 S M Bateman and W Haresign
- 1630 16 Passive immunization against LHRH in cattle using a monoclonal
 antibody
 A F Carson, W J McCaughey and R W J Steen
- 1650 17 Effects of active immunization against inhibin and
 androstenedione, separately or together, on hormone profiles,
 ovarian follicle populations and ovulation rate in heifers
 S M Rhind, S R Schemm and B D Schanbacher
- 1710 18 Manipulation of protein and fat accretion in growing cattle
 J M Dawson, D E Beaver, P J Buttery and M Gill
- 1730 **Session ends**

1900 **SCARBOROUGH TOWN COUNCIL RECEPTION**

1945 **ANNUAL DINNER**

NEW DEVELOPMENTS IN FEED TECHNOLOGY

CHAIRMAN DR J WISEMAN

- 0850 19 *Technological Opportunities and constraints in legume seed processing for animal feeding*
A F S van der Poel, Agricultural University, Wageningen, Netherlands
- 0915 20 *Effects of processing on chemical characteristics and nutritive value of cereals*
M Champ and J Delort-Laval, INRA, Nantes, France
- 0940 21 *Bacterial pathogens in animal feed and their control*
M Hinton and G C Mead, Dept of Veterinary Medicine, University of Bristol
- 1005 Discussion

1030 COFFEE

PRESIDENT'S LECTURE

CHAIRMAN - DR J F O'GRADY

ANIMAL PRODUCTION IN FRANCE
RESEARCH AND ITS APPLICATION

- 1050 Dr A L Aumaitre, INRA, France

NON RUMINANT NUTRITION

CHAIRMAN - DR C A MORGAN

- 1130 22 The effect of tannins on chicks using field beans lines (vicia faba) lines isogenic except for tannin content
C N Wareham, J Wiseman and D J A Cole
- 1150 23 The effect of enzyme supplementation of a wheat/barley-based starter diet on nutrient faecal digestibility in early-weaned pigs
J Inbarr and H Graham
- 1210 24 The effects of the dietary inclusion of rapeseed meal on the performance of young piglets
E A Latymer, A G Low, J S Carter and W H Close
- 1230 LUNCH

S H E E P A N D C A T T L E B R E E D I N G

CHAIRMAN - MR B BASTIMAN

- 0850 25 Physiological responses to selection for carcass lean content
 in a terminal sire breed of sheep
 N D Cameron
- 0910 26 Sire effects on growth and carcass characteristics of Friesian
 steers slaughtered at 500, 550 or 600 kg liveweight
 K J McCracken, C A Moore, E F Unsworth, F J Gordon,
 R W J Steen, D J Kilpatrick
- 0930 27 Autoregressive models for the prediction of constituents of
 milk in dairy cows
 A J Rook
- 0950 28 Heterogeneity of variance between herds for milk production
 traits
 P M Visscher
- 1010 29 An investigation of the use of sire referencing in genetic
 improvement in beef cattle
 C Nimbkar and N Wray
- 1030 COFFEE
- 1050 PRESIDENT'S LECTURE
 See opposite page for details

1230

LUNCH

Tuesday 19 March

Theatre Session
Ballroom

NEW DEVELOPMENTS IN GENETICS

CHAIRMAN - DR A J WEBB

- 1350 30 *Genetic manipulation of plants - the new opportunities*
D R Davies, John Innes Centre for plant Science Research
Norwich
- 1415 31 *Developments in the germline manipulation of domestic livestock*
A J Clark, A L Archibald, M McClenaghan, J P Simons,
C B Whitelaw and I Wilmut, AFRC, IAPGR, Edinburgh
- 1440 32 *The estimation of genetic merit*
N Wray, APAD, Scottish Agricultural College, Edinburgh
- 1505 Discussion

1530 TEA

PLENARY SESSION

NUTRIENT: ENDOCRINE INTERACTIONS IN
FARM ANIMALS

CHAIRMAN - DR W HARESIGN

- 1550 33 *Maternal: infant interaction and growth in lambs*
J M Basset, University of Oxford
- 1620 34 *Growth, nutrition and the neuroendocrine control of puberty in
female sheep*
F J P Ebling, University of Cambridge
D L Foster, University of Michigan, USA
- 1650 35 *Nutrition: reproduction interactions in cows*
I A Wright, Macaulay Land Use Research Inst
A R Peters, Hoescht UK Ltd
- 1720 Discussion
- 1745 Session ends
- 1800 ANNUAL GENERAL MEETING
- 1945 DINNER

Tuesday 19 March

Theatre Session
South Lounge

P I G N U T R I T I O N

CHAIRMAN - DR S A EDWARDS

- 1350 36 Metabolic adaptation to dietary energy source in the growing pig
W H Close, A C Longland and C E Sharpe
- 1410 37 Effects of feeding level and sex on nitrogen retention and serum insulin-like growth factor 1 in growing pigs
J A Taylor, D N Salter, W H Close, G H Laswai and A Hudson
- 1430 38 The influence of level of feeding on nutrient partition and energy metabolism in pigs of different growth potential
G H Laswai, W H Close, C E Sharpe and H D Keal
- 1450 39 Digestion of disulphide bonds in protein by growing pigs fed diets containing barley, barley plus fish meal, or barley plus soyabean meal as the sources of protein
S M Masvaure and E L Miller
- 1510 40 Digestibility of gross energy and oil of soybean products for growing pigs
J A Agunbiade, J Wiseman and D J A Cole
- 1530 TEA
- 1550 PLENARY SESSION
See opposite page for details

1800 ANNUAL GENERAL MEETING

1945 DINNER

SIR JOHN HAMMOND MEMORIAL LECTURE

CHAIRMAN - PROF A J F WEBSTER

0900 *Current and future problems*
 Sir K L Blaxter

1010 COFFEE

M E A T I N T H E F O O D C H A I N

CHAIRMAN - MR C W MACLEAN

1030 41 *BSE and scrapie in perspective*
 H Fraser, AFRC and MRC Neuropathogenesis Unit, Edinburgh

1100 42 *Recycling animal products*
 P D Foxcroft, Prosper de Mulder Ltd, Doncaster

1130 43 *Growth promoters: reassessing the risk*
 A R Peters, Hoechst UK Ltd, Milton Keynes

1200 Discussion

1220 LUNCH

R U M I N A N T N U T R I T I O N

CHAIRMAN - PROF D G ARMSTRONG

1340 44 *Maize gluten and rapeseed meal as protein supplements to barley or wheat for intensively finished charolais cross Friesian bulls*
 D Pullar

1400 45 *Effect of plane of nutrition and slaughter weight on growth and feed efficiency of Friesian steers during the finishing period*
 C A Moore, K J McCracken, E F Unsworth, R W J Steen,
 F J Gordon, D J Kilpatrick

1420 46 *Influence of acetylation on peptide breakdown by microorganisms from the sheep rumen*
 R J Wallace

1440 47 *Use of fishmeal to reduce lamb weight loss on dietary change*
 J E Vipond, J FitzSimons, H Brown, and G Horgan

1500 48 *Cobalt requirements of goats*
 D Wallace and A MacPherson

1520 CLOSE OF MEETING

0900 SIR JOHN HAMMOND MEMORIAL LECTURE
See opposite page for details

1010 COFFEE

G R A Z I N G A N D C O N S E R V A T I O N F O R
D A I R Y C A T T L E

CHAIRMAN - DR D J ROBERTS

1030 49 Energy Balance for dairy cows given grass silage with either
barley or molassed sugar beet feed in the concentrates
D E Beever, J D Sutton, S B Cammell, M J Haines,
M C Spooner and J I Harland

1050 50 An evaluation through finishing heifers of a bacterial inoculant
as a silage additive using difficult-to-ensile herbage
T W J Keady and R W J Steen

1110 51 In vivo nutritional evaluation and feeding value of silage made
from extensive pastures containing wildflowers and herbs
G E J Fisher and N W Offer

1130 52 The effects of sodium fertilizer application to perennial
ryegrass pasture and direct sodium supplementation on dairy cow
production and grazing preference
P C Chiy and C J C Phillips

1150 53 Grazing system, behaviour and milk production in dairy cattle
I Horrell, L Matthews, M Pearce, and A Bryant

1210 Session ends

1220 LUNCH

P I G B E H A V I O U R

CHAIRMAN - DR A B LAWRENCE

1340 54 Feeding behaviour of pigs in groups monitored by a computerised
feeding system
R J Young and A B Lawrence

1400 55 The effect of a plasma derived immunoglobulin supplement on the
survival and growth of neonatal piglets
R A Pullar, M A Varley and D J Anderton

1420 56 The effect of weaning, moving and mixing on the growth and
behaviour of piglets after weaning
K Musgrave, M A Varley, P E Hughes, J Ferlazzo and
G P Pearce

1440 57 The assessment of sow personality and its effects on
reproduction and endocrine status
R C Stedman and M A Varley

1500 58 Relationship between behavioural response to amphetamine and
propensity to develop stereotypic behaviour in pigs
E M C Terlouw, A B Lawrence and A W Illius

1520 CLOSE OF MEETING

Monday 18 March

Poster Session
Sea View Lounge
Authors in attendance 1420-1550
Discussion 1610-1740
CHAIRMAN PROF A J F WEBSTER

Session opens 1410

A N I M A L W E L F A R E

- 59 **WITHDRAWN**
- 60 **Intake and behaviour of cattle at different feed barriers**
 A M Petchey and J Abdulkader
- 61 **The effect of number of single space feeders and the provision of an**
additional drinker or toy on the performance and feeding behaviour of
growing pigs
 A T S Morrow and N Walker
- 62 **Evaluation of a simple adaptation to a farrowing pen designed to**
increase the comfort level of piglets in the narrow creep in the
first 48 hours of life
 C M Menaya, P R English, S A Edwards, O MacPherson, J A Roden,
 A M Robertson and J M Vidal
- 63 **Spatial Preferences of farrowing sows**
 A M Petchey
- 64 **Adrenal cortex activity, reproduction and welfare of pregnant gilts**
in a group housing system
 M T Mendl, D M Broom, and A J Zanella
- 65 **Evaluation of the behaviour of mature boars housed in groups of four**
 J Cordoba-Dominguez, J H Dunne, A H Cliff, O MacPherson,
 C M Menaya, J M A Vidal and P R English
- 66 **The effect of group size, spatial allowance and perch presence on nest**
soiling and nest use in caged hens
 H J Reed and C J Nicol
- 67 **A Survey of the concentration of ammonia recorded in pig housing in**
England
 P E V Williams and T J Fitt
- 68 **Responses to housing conditions and immunological state in sows**
 A J Zanella, D M Broom and M T Mendl
- 69 **The effect of design of mono-place feeders on growth performance of**
finishing pigs
 N Walker
- 70 **An assessment of the stress associated with slaughter in sheep**
 M H Anil, J Preston, P D Warriss and R G Rodway
- 71 **The effects of lairage time on the blood profile of slaughtered pigs**
 P D Warriss, M H Anil, S N Brown, D P Fordham, R G Rodway and
 C C Warkup
- 72 **Plasma B-Endorphin and cortisol in sheep during isolation stress**
 S J Al-Gahtani and R G Rodway

Monday 18 March

Poster Session

Balcony

Session opens 1440

Authors in attendance 1610-1740

S H E E P P R O D U C T I O N

- 73 Home Wintering systems for replacement ewe lambs
 L M Mitchell and M E King
- 74 Performance of a summer lambing flock grazing clover rich swards
 maintained at two sward surface heights
 L M Mitchell M E King and C K Mackie
- 75 Integration of sheep with dairy cows in a leader-follower system
 G Swift, T H McClelland, N A Scott, L S Hodgson-Jones and J FitzSimons
- 76 Effects of feeding small amounts of ammonia treated straw on
 degradation rate and intake of untreated straw in sheep
 B Manyuchi, E R Orskov and R N B Kay
- 77 Long-term changes in rumen fermentation in defaunated sheep
 P P Frumholtz, R J Wallace, C J Newbold and E R Orskov
- 78 Influence of ionophores on in vitro fermentation by rumen fluid from
 sheep receiving yeast culture (yeasacc; yc)
 C J Newbold, R J Wallace and I M Nevison
- 79 Colostrum production by prolific ewes
 S Pattinson, D A R Davies and A C Winter
- 80 Lamb performance on two silages and two concentrates fed alone and in
 combination
 C Morgan, A R Henderson, D H Anderson, J FitzSimons and T H McClelland
- 81 Energy source and protein level in supplements to silage for finishing
 store lambs - B Bastiman and S Marsden
- 82 The voluntary intake and digestibility by sheep of grass silages
 treated with different silage inoculants
 J A Rooke and F Kafilzadeh
- 83 Effects of supplementary hay in the diet of concentrate fed early weaned
 lambs - J E Vipond, J FitzSimons, M Lewis and G Horgan
- 84 Comparative performance of white clover and perennial ryegrass swards
 for finishing store lambs - O D Davies and D W Howard
- 85 Response of fast growing lambs to compound protein level
 J S Blake, T D A Brigstocke and P J Kenyon
- 86 Effect of molassed sugar beet feed either ensiled or fed separately
 with big bale grass silage on silage quality and performance of male castrate
 sheep - Y Rouzbehan, H Galbraith, J H Topps, J R Weddell, D R Fenlon and
 J G Perrott
- 87 The effect of calcium hydroxide treatment of spent grains on their
 digestion and utilisation by finishing lambs
 J E Barker and N W Offer
- 88 A study of premature wool loss in sheep
 J E Clark, J A Roden, O MacPherson and P R English
- 89 Sheep health survey of lowground purchasers of breeding sheep in
 Grampian and the Borders of Scotland
 A W Alexander, G Burgess, P R English, D C MacDonald & O MacPherson

Tuesday 19 March

Poster Session
Sea View Lounge
Authors in attendance 1050-1220
Discussion 1350-1520
CHAIRMAN DR B R COTTRILL

Session opens 0920

F O R A G E U T I L I S A T I O N

- 90 The effect of silage characteristics and level of concentrate on intake, substitution rate, and milk constituent output
R D Baker, K Aston, C Thomas and S R Daley
- 91 The effect of sugar beet pulp and rolled barley as absorbents on effluent production, silage fermentation and animal performance
P N Johnson
- 92 Effect of date of cutting and method of preparation of grass silage for dairy heifers
J D Sutton, F I Ogundola, S R Daley, D E Beever and A B McAllan
- 93 An investigation of factors influencing nutrient loss from absorbant materials during ensiling
C P Ferris and C S Mayne
- 94 The influence of level and pattern of allocation of concentrates given with grass silage ad libitum on the performance of lactating cows
K Aston, W J Fisher and R D Baker
- 95 The response of limousin x friesian steers fed silage and concentrates to the addition of supplemental yeast culture (yea-sacc) and/or an antibiotic additive (avotan)
I E Edwards, J H Topps, M El Sheikh, and G F M Paterson
- 96 The effects of ensiling molassed sugarbeet feed with grass on dairy cow performance
O D Davies and G Perrott
- 97 The value of white clover in grass/clover silage when fed to dairy cows
O D Davies
- 98 The preference of dairy cows for combinations of high ryegrass and high clover feeds and the effects on production
C J C Phillips, N L James and H Nyallu
- 99 The effect of sodium fertiliser application to pasture on the ingestive behaviour of grazing dairy cows
C J C Phillips, M Bello and P C Chiy
- 100 The performance of summer calving cows on different grass swards
G E J Fisher, A Dowdéswell and D J Roberts
- 101 The effect of harvesting height of the basal forage Pennisetum purpureum and level of supplementation with Leucaena forage on the performance of crossbred dairy cows in the subhumid tropics
R W Muinga, W Thorpe and J H Topps
- 102 Milk production of summer calving dairy cows from grass alone compared to low rate concentrate feeding during the grazing period
P J Rawlings

Tuesday 19 March

Poster Session

Sea View Lounge

Session opens 0920

Authors in attendance 1050-1220

RUMINANT NUTRITION

- 103 Soya oil in diet for growing fattening bulls: effects on metabolism in the rumen and on apparent digestibility
A Clinquart, C Van Eenaeme, L Istasse, K Neirinck, G Midy & J M Bienfait
- 104 Soya oil in diet for growing fattening bulls: effects on animal performance and fatty acid composition
A Clinquart, L Istasse, C Van Eenaeme, I Dufrasne, V Hollo & J M Bienfait
- 105 Compensatory growth in Mashona steers of two ages grazing natural pasture in Zimbabwe - B Manyuchi and T Smith
- 106 Chemical composition of commercial steers, heifers and young bull carcasses
D B Lowe, A J Kempster, M W Fogden and C F White
- 107 The use of cytosine as a marker to estimate microbial protein synthesis in the rumen - L A Sinclair, P C Garnsworthy and P J Buttery
- 108 Effect of plane of nutrition and slaughter weight on carcass characteristics of Friesian steers slaughtered at 500, 550 or 600 kg liveweight
K J McCracken, C A Moore, E F Unsworth, F J Gordon, R W J Steen and D J Kilpatrick
- 109 Rate of passage calculations based on marker or rumen evacuation technique - U Kukkonen and P Huhtanen
- 110 Evaluation of models to describe neutral detergent fibre digestion in cattle fed at two levels of dry matter intake - P Huhtanen and U Kukkonen
- 111 Investigation of in vitro methods for screening fungal probiotics
C J Newbold, P P Frumholtz and R J Wallace
- 112 Combined effects of aspergillus oryzae fermentation extract (amaferm; ao) and monensin on fermentation in the rumen simulation technique (rusitec)
N McKain, C J Newbold and R J Wallace
- 113 Dietary effects of energy and crude protein content on lactation and intake in dairy cattle - B L Wood, D J Roberts and E A Hunter
- 114 Leucaena Leucocephala as an alternative protein supplement to fishmeal for lactating cows in Bangladesh
M A S Khan, M A Jabber, M A Akbar and J H Topps
- 115 Comparison of date palm leaves with barley straw for Friesian and Holstein cows given a high concentrate diet in Kuwait - A R M Bahman and J H Topps
- 116 The evaluation of draff (malt distillers grains) as a concentrate replacer for dairy cows - E J McKendrick and D J Roberts
- 117 Detection and identification of animal-derived protein in feedingstuffs by enzyme-linked immunoassay - P A Brett and P R Goodwin
- 118 Effects of beta-carotene or polyunsaturated fatty acids and selenium supplementation on immune status of single and twin calves
A M MacKenzie, D C MacDonald, J R Scaife, T Acamovic, M Warren and F A C Paton
- 119 Interactions between concentrations of metabolizable energy in calf milk replacers and calf starter diets - J R Newbold, J S Blake and N G Haggis
(SEE ALSO PAPER 157 - F A C PATON et al)

P I G P R O D U C T I O N

- 120 The influence of nutritional status during lactation on the energy metabolism of the weaned sow
W H Close and C E Sharpe
- 121 Effects of body condition at farrowing and protein content of the lactation diet on sow performance
S A Edwards, A G Taylor and J M Vidal
- 122 Effect of environmental temperature on dietary selection in lactating sows
J M Vidal, S A Edwards, O MacPherson, P R English & A G Taylor
- 123 The effects of feeding diets containing molassed sugar beet feed during pregnancy and lactation on sow performance
R M Kay, J I Harland and P H Simmins
- 124 The digestion of non-starch polysaccharides from diets containing plain sugar beet pulp by piglets, growing pigs and sows
A C Longland, A G Low, W H Close, C E Sharpe, J C Carruthers and J I Harland
- 125 The effect of dietary energy source during lactation on sow milk production and piglet performance
J J Raison, S A Edwards, P R English, O MacPherson and K Thomson
- 126 Effects of high inclusion levels of sugar beet pulp in diets for dry sows
S A Edwards, A G Taylor and V R Fowler
- 127 Fibrous raw materials in sow diets: Effects on voluntary food intake, digestibility and diurnal activity patterns
F Brouns, S A Edwards and P R English
- 128 The nutritional value of rapeseed meal for piglets
E A Latymer, A G Low, M A Ingham and W H Close
- 129 Effect of porcine gammaglobulin colostrum supplement on the performance of light-weight born piglets on a commercial unit
P H Simmins, D J Anderton, S Corning and S Goodman
- 130 The effects of water and creep feed provision on the performance of sucking piglets
B P Gill, P H Brooks and J C Carpenter
- 131 The inclusion of sugar beet pulp in diets for early weaned piglets
S A Edwards, A G Taylor and J I Harland
- 132 The effect of cereal flaking and diet pelleting on the voluntary intake and performance of weaned piglets
S McCone, P R English, V R Fowler, B P Gill, M Birnie and F M Davidson
- 133 Comparison of Meishan and White pigs for voluntary intake and digestibility of high fibre diets
S A Edwards, V R Fowler, E Berges, A G Taylor and C Haley
- 134 The role of the large intestine in the utilization of feeds containing non-starch polysaccharides
A C Longland, W H Close and A G Low

Cont/.....

Tuesday 19 March

Poster Session

Balcony

Session opens 0920

Authors in attendance 1050-1220

P I G P R O D U C T I O N

- 135 The voluntary feed intake of modern pig genotypes
G H Laswai, W H Close and H D Keal
- 136 The effects of water to feed ratio on the digestibility, digestible energy and nitrogen retention of a grower ration
J Barber, P H Brooks and J L Carpenter
- 137 The effect of four levels of feed on the water intake and water to feed ratio of growing pigs
J Barber, P H Brooks and J L Carpenter
- 138 Effects of feeding level and sex on fat deposition and serum cholesterol in growing pigs
J A Taylor, D N Salter, W H Close and G H Laswai
- 139 Adipocyte beta-adrenoceptor numbers in growing pigs of different genotypes
J A Taylor, D N Salter, A I Montgomery and B Seve
- 140 Factors affecting the response of working boars to changing environmental temperature
A H Cliff, J H Dunne, P R English, J S M Hutchinson and O MacPherson
- 141 The effect of prostaglandin F-2 α on the production and quality of boar semen
R Melendez, O MacPherson, J A Roden, S A Edwards, J S M Hutchinson, A G Taylor and P R English
- 142 Exponential smoothing parameters when batch sizes are unequal
S P Simpson, G L Cook and J R Walters
- 143 Selection differentials in a pig dam line group nucleus
A J Webb, P R Bampton and R Mitchell

Wednesday 20 March

Session opens 0900

Poster Session

Sea View Lounge

Authors in attendance 1030-1200

Discussion 1340-1510

CHAIRMAN - PROF J D LEAVER

C E R E A L C R O P U T I L I S A T I O N

- 144 Effect on forage intake and milk production of including maize silage in early or mid lactation in dairy cow rations based on grass silage
R H Phipps, R F Weller, W J Fisher and T Poole
- 145 Effect on silage intake and milk production of incorporating maize silage in dairy cow rations based on grass silage of either average or high energy concentration
R F Weller, A J Rook and R H Phipps
- 146 Preliminary observations on the production and quality of whole crop wheat
R H Phipps, R F Weller, H Clark and A Reeve
- 147 Intake and digestibility of enzyme-treated whole-crop winter wheat silage by steers
T Adogla-Bessa, E Owen, R M Tetlow and R D Baker
- 148 Influence of crop stage of growth on aerobic-stability and chemical profile of enzyme-treated whole-crop wheat silage
T Adogla-Bessa, E Owen, R M Tetlow and R D Baker
- 149 Live and carcass weight gains of cattle offered whole-crop barley silage harvested at an immature growth stage
P O'Keily and A P Moloney
- 150 Effect of stage of growth and urea addition on the preservation and nutritive value of whole crop wheat
J Hill and J D Leaver
- 151 Replacement of whole crop wheat by grass silage in the diet of dairy cows
J Hill and J D Leaver
- 152 Integration of grazing and whole crop wheat for calves in Spring
M Castejon and J D Leaver
- 153 Effect of animal size and supplementation on the feeding value of whole crop wheat for calves
M Castejon and J D Leaver
- 154 Feeding sorghum stover to Ethiopian goats and sheep: Effect of amount offered on growth, intake and selection
A A O Aboud, E Owen, J D Reed, A N Said and A McAllan
- 155 Feeding sorghum stover to Ethiopian sheep: Effect of chopping and amount offered on growth, intake and selection
E L K Osafo, E Owen, A A O Aboud, A N Said, E M Gill and A McAllan
- 156 Assessment of the nutritional value of Colombian ricepolishings (crp) for ruminants by in vitro and in vivo techniques
D Cardenas Garcia, H Galbraith and J H Topps
- 157* The effect of linoleic acid and/or vitamin E supplementation of calves on plasma vitamin status, erythrocyte membrane fatty acid composition and oxidation of membrane lipids
F A C Paton, J R Scaife, T Acamovic, D C MacDonald and A M MacKenzie
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 Md Shahjalal, H Galbraith, J H Topps and J M Cooper
- 159 The effect of dietary molybdenum supplementation on copper metabolism, fibre characteristics and body and carcass measurements of growing Angora goats
 H Galbraith, W Chigwada, J R Scaife and W R Humphries
- 160 Relationship between dietary protein, mohair fibre and carcass characteristics and fatty acid composition of Angora goats
 H Galbraith, J J Baloyi and J R Scaife
- 161 Cholesterol content and fatty acid composition of red deer carcasses
 M B Enser, F M Whittington, A V Fisher and M H Davies
- 162 Effects of water additives on water consumption, urine output and urine mineral levels in Angora goats
 R A Cooper, S Evans and J A Kirk
- 163 Effect of water temperature on water consumption in female Angora goats
 R A Cooper, B Hill and J A Kirk
- 164 Amount of concentrates and protein source for dairy goats on hay-based diets
 J D Sutton, J E Cook and F I Ogundola
- 165 The effect of breeding cashmere doe kids on their subsequent reproductive and physical performance
 L C Roger, G J Gunn and A Waterhouse

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167 **Estimation of genetic parameters for temperament and ease of milking
assessed on a linear scale in Friesian/Holstein heifers
H J Bellamy and G J T Swanson**

168 **Estimation of genetic parameters for milk cell count and correlations with
production traits in Friesian/Holstein heifers
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169 **Estimation of genetic parameters for conformation traits assessed on a
linear scale in Friesian/Holstein heifers
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 M Stewart, P J Broadbent, D F Dolman and D McMillan
- 171 The effect of treatment with a gonadotrophine releasing hormone analogue on
 the fertility of dairy cows
 S B Drew and A R Peters
- 172 Effects of body condition on ovarian sensitivity to exogenous FSH in ewes
 in which endogenous gonadotrophin secretion is suppressed
 S R McMillen, S M Rhind and A S McNeilly
- 173 MOET in Suffolks: Increasing the superovulation rate
 W S Dingwall, K Fernie, J FitzSimons and W A C McKelvey
- 174 Response of growing Hereford x Friesian heifers to immunisation against
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 J Flint, H Galbraith and A S Jones