53rd SASAS CONGRESS 2022

53 Annual SASAS CONGRESS

26 - 28 September 2022

Programme

sasas
South African Society for Animal Science

Monday 26 September 2022

09:00 Registration | Tea & Rusks

Session 1: Chair - S Ncumisa

10:30 Welcome - President of SASAS
10:45 Welcome to KZN – Prof Albert Modi, Deputy Vice-Chancellor & Head of College of Agriculture, Engineering & Science - UKZN
11:00 Opening address - Prof Edward Nesamvuni - Hon President: SASAS
11:30 Early Farmers in KwaZulu-Natal: The archaeological evidence by Gavin Whitelaw - KwaZulu-Natal Museum

12:30 LUNCH

Session 2: Chair - Dr MM Scholtz

13:30 Sustainable, climate resilient livestock production systems for South African livestock? - Dr Jean Rust
14:15 Emerging & re-emerging disease challenges due to increased environmental temperatures – Dr S Mbizeni (UNISA)

15:00 TEA

Parallel Session 1:

	Physiology	Nutrition	Applied animal Science
Venue:	Elephant room	Rhino room	Buffalo Room
Chair	Dr J Rust	Dr L du Toit	Prof C Benga
15:15	Ngcobo, Jabulani Kkululeko et al A comparative study on the reproductive performance of South African indigenous sheep breeds following oestrus synchronization	Mpanza TDE, et al Growth performance, methane emission, ruminal fermentation and microbial composition of the meat-master lambs fed barley sprout	Mogeno RR, et al. Modelling environmental suitability and estimating effective population size of South African indigenous chickens: Implication for conservation
15:30	Lambrechts, H, et al. Assessment of the post-insulation viability and potential fertilizing ability of ejaculated spermatozoa using a sperm functional test	Mbukwane, Mbusa, et al. Apparent ileal nutrient digestibility of broilers fed maize-soy-based diets with elevated levels of sunflower meal supplemented with enzymes	Madilindim M.A et al. Genetic analysis of predicted gross feed efficiency in first-parity South African Holstein cows
15:45	Thabethe, Fortune et al (online) Response in growth performance of South African indigenous Windsnyer pigs to dietary inclusion of Amarula oil cake diets	Matshepo Klohlongoane, et al Effect of game species on shelf life, volatiles compounds and fatty acid profiles of impala, springbok and mountain reedbuck	Sempson, Caitlin Leigh, et al. Preliminary results on the influence of feather harvesting practices on the welfare of ostriches
16:00	Mudau, Fhulufhelo, et al. (online) Application of convolution neural networks in the detection and quantification of tick burdens on cattle.	Bopape M.A., et al B-sitosterol as an alternative to oxytetracycline: effect on growth performance, feed intake and utilization efficiency, and meat quality of broiler chickens	Muvheli, Pfunzo, et al. Genetic and environmental parameters for behavioural responses towards humans in farmed ostriches
16:15	van Rensburg, Waldo, et al. (online) Manipulation of the rumen environment with the inclusion of canola oil to increase the rumen undegradable protein fraction of feedstuffs	Fushele, F Effects on nutrient digestibility of 10% dietary inclusion of high-fibre Macadamia (Integrifolia tetraphylla) oil cake with supplementary exogenous enzymes	Kekana, Maletelo, et al Provision of different degrees of shade influences the physiology and thermoregulatory behaviour of ostrich chicks

17:00 EVENING MEET AND GREET | FINALS OF PLAAS MEDIA ANIMAL SCIENCE STUDENT QUIZ

Tuesday 27 September 2022

08:00 Registration

Session 3: Chair - Prof K Nephawe

08:30 Challenges to livestock production - Dr John Roche : Chief science advisor – New Zealand Ministry of Primary Industries
09:15 Revisiting the matching of livestock with their environment in a era of new challenges – Dr M D MacNeil - Delta, USA
10:00 Improving rural livestock – changing the mind set and market availability - Dr Florence Nherera- Chokuda: CEO NERPU

10:30 TEA

Session 4: Chair - Dr N F Mkhize

11:00 Meat Traceability – its impact on South African producers and international markets – Dewald Olivier SAFA
11:30 Biosecurity measures – Prof Neil Duncan (Poultry Consulant & Veterinary Pethologist)

Parallel Session 2:

	Nutrition	Applied Animal Science	Physiology
Venue	Elephant room	Rhino Room	Buffalo Room
Chair	Dr D Nkosi	Dr F Fon	Prof S W P Cloete
12:00	Meeske, R., et al. (online) Supplementation of Aspergillus oryzae metabolites to Jersey cows grazing kikuyu/ryegrass pasture in spring	Augustyn, W., et al. Growth performance and carcass characteristics of early castrated, late castrated and intact South African Mutton Merino lambs	Lubisis, M.W.,, et al Plasma metabolic biomarkers of indigenous, exotic and crossbred growing pigs on roasted or sprouted cowpea-maize diets
12:15	Dreyer, D, et al. (online) The effect of extrusion of canola oilcake meal and sweet lupins on the production performance of Meatmaster lambs under feedlot conditions	O'Neill, HA, et al. Carcass composition of early castrated, late castrated and intact South African Mutton Merino lambs	Ngcobo, Jabulani, et al. Effects of dietary flaxseed oil and ascorbic acid on the reproductive performance of South African indigenous sheep
12:30	Theron, P, et al (online) A comparison of various growth models for the modelling of growth in pure- and crossbred lambs	Shingange Rimbilana, et al. The age at which a ram reaches puberty and the contribution of landrace sheep to sub-Saharan Africa's production systems	le Roux Sounes, et al. Semen analyses of Swakara sheep based at Karakul Research Station, Upington
12:45	Mdoda, Bayanda, et al (online) Effects of zingerone on growth performance, feed intake and utilisation efficiency, carcass yield and viscera macromorphometry of Cobb500 broiler chicken	Mulaudzi, M., et al. Effect of ecotype and season on the production and reproductive performance of Nguni cattle in Limpopo Province of South Africa	Lambrechts,H, et al Resilience of ram spermatozoa to heat stress, induced using scrotal insulation

13:00 LUNCH

Session 5: Chair - Prof EC Webb

13:30 Fundamental aspects of successful livestock production on veld: Challenging conventional wisdom -Johann Zietsmann: Zimbabwe (Online)
14:10 Practical application of BLUP/EBV's in grazing livestock systems Norman Maiweshe & Linky Makgahlela, ARC

14:50 TEA

15:10 SASAS AGM
16:30 Online Live student debate - finals - Coordinator Fabian Fon

19:00 SASAS CONGRESS DINNER & AWARD CEREMONY

Wednesday 29 September 2022

08:00 Registration

Session 6: Chair - Paul Bevan

08:30 The 21st Century Animal Scientist: Skills and mindset for the future. Jackie Tucker: Keystone Collection

09:00

Poster Session

	Breeding & Physiology	Applied Animal Science & Meat Science	Nutrition
Chair	H Ela	Dr Z Rani	S Gcumisa
Venue	Elephant room	Kitchen Room	Buffalo Room

10:00 TEA

Parallel Session 3

	Physiology	Nutrition	Applied Animal Science
Venue	Elephant room	Kitchen Room	Buffalo Room
Chair	Prof M L Makgahlela	Dr F Neheroro-Chokuda	M Mapeweme
10:30	King et al. (online) Morphological and genetic characterisation of three Mozambiquedgenous Cattle breeds.	Nkabinde, S.S.M., et al. Determination of the AMEN of maize using in-Vitro vs. in-Vivo methods and determination of the effect of maize quality on efficacy of a xylanase, amylase, and protease enzyme combination	Fon, Fabian Nde, et al. The role of effective microorganisms on broilers' performance, litter odour emission and other gases
10:45	Mafolo, Kgangelo et al. (online) Multi-breed genomic predictions in South African Holstein and Jersey dairy cattle	Ratseka M Moses, et al: Effect of different dietary protein allowances on performance and nitrogen metabolism of Nguni and Hereford heifers	Ramukhithi, T.F., et al Characterization of small-scale broiler production in rural areas of Limpopo Province
11:00	Xeno, Mxolisi Emmanuel et al. Profiling the diversity of the village chicken faecal microbiota using 16S rRNA and shotgun sequencing data	Kolobe,Sekobane Daniel, et al. Effect of Acacia karroo leaf meal inclusion levels on performance and gut morphology of broiler chickens	Dludla, SP, et al. Effects of Bioresource groups on scavenging indigenous chicken production systems, population demographics, reproduction characteristics and challenges in KwaZulu-Natal
11:15	Olivier, W.J et al. The effect of incomplete reproduction data on the prediction of Genomic Estimated Breeding Values	Egbo, CF,et al Effect of Moringa oleifera seed extract on growth performance and haematological parameters in Cobb 500 broiler chickens	Mashamaite, Puleng, et al Mating strategies, incidence of stillbirth and other factors affecting sow productivity traits among Landrace and Large White crossas
11:30	Scholtz, M.M et al. The development of a biological index for cow-calf efficiency for beef cattle	Katsma,T.W., et al. Pre-weaning antioxidant capacity, immunity and growth of calves fed milk from Moringa oleifera supplemented cows	Nyangiwe, N, et al. An update on the ecological distribution of free-living ticks infesting cattle in the Eastern Cape Province
11:45	Visser, C., et al. Population structure and genetic diversity within and amongst three South African dairy cattle breeds	Jordaan, Leanne, et al. Effect of inclusion of specific encapsulated fatty acids in sow's diets on the quality of IgG and weaned piglet performance	Damont, Kaylee, et al. Effects of BCS, parity, and postpartum period on conception rates and days to conception of Bonsmara cows in TAI programs
12:00	Nel, D., et al. The benefit of marker data in the prediction of production traits in South African Merinos: sa3BLUP vs A-BLUP	Marrenia, M, et al. Effect of different inclusion levels of dietary green seaweed (Ulva spp.) on live performance, blood parameters, visceral organs, and carcass and meat quality traits in Jumbo quail	Sihlangu, Ephodie, et al. Assessment of biochemical methane potential from various agricultural substrates
12:15	Namutondeni, K.R.et al. Estimation of breed effects and non-additive genetic variation for ostrich slaughter and skin traits	Grahame, M.M, et al. The effect of different Se sources on egg quality and Se level in eggs	Ntsiapane, Aline, et al. Assessing the efficiency of smallholder wool farmers in the changing paradigms in South Africa
12:30	Nkgapele, K.P. et al. Effective population size, inbreeding coefficient and risk status classification of Kalahari Red goats from 1977 to 2018 in stud flocks of South Africa	Modisaotjeng-Mojanaga, M.M.C, et al Impact of Heartwater (Ehrlichia ruminantium) Vaccination on Mineral Homeostasis as reflected in Bone, Faecal and Blood Phosphorus, Calcium and Magnesium in Friesian calves reared in South Africa	Reinecke, Riana, et al. Determination of the economic and environmental impact of dairy production in South Africa: A system dynamics approach
12:45	Steyn, S, Cloete#, S.W.P. et al. Genetic and environmental parameters for birth weight and behaviour of neonatal merino lambs in relation to cold stress	Soko, Thabisa, et al. Effect of dietary calcium and phosphorus specifications and limestone solubility on performance, bone mineralization and cost of broiler production	Nwafor Ifeoma, et al. Ovicidal and larvicidal activity of indigenous medicinal plant extracts on sheep's Haemonchus contortus

13:00 Closure and Congress Awards for Student Posters

LUNCHTIME

10:30 - 13:00 SASAS Educational Forum meeting
Convenor – Dr Helet Lembrechts

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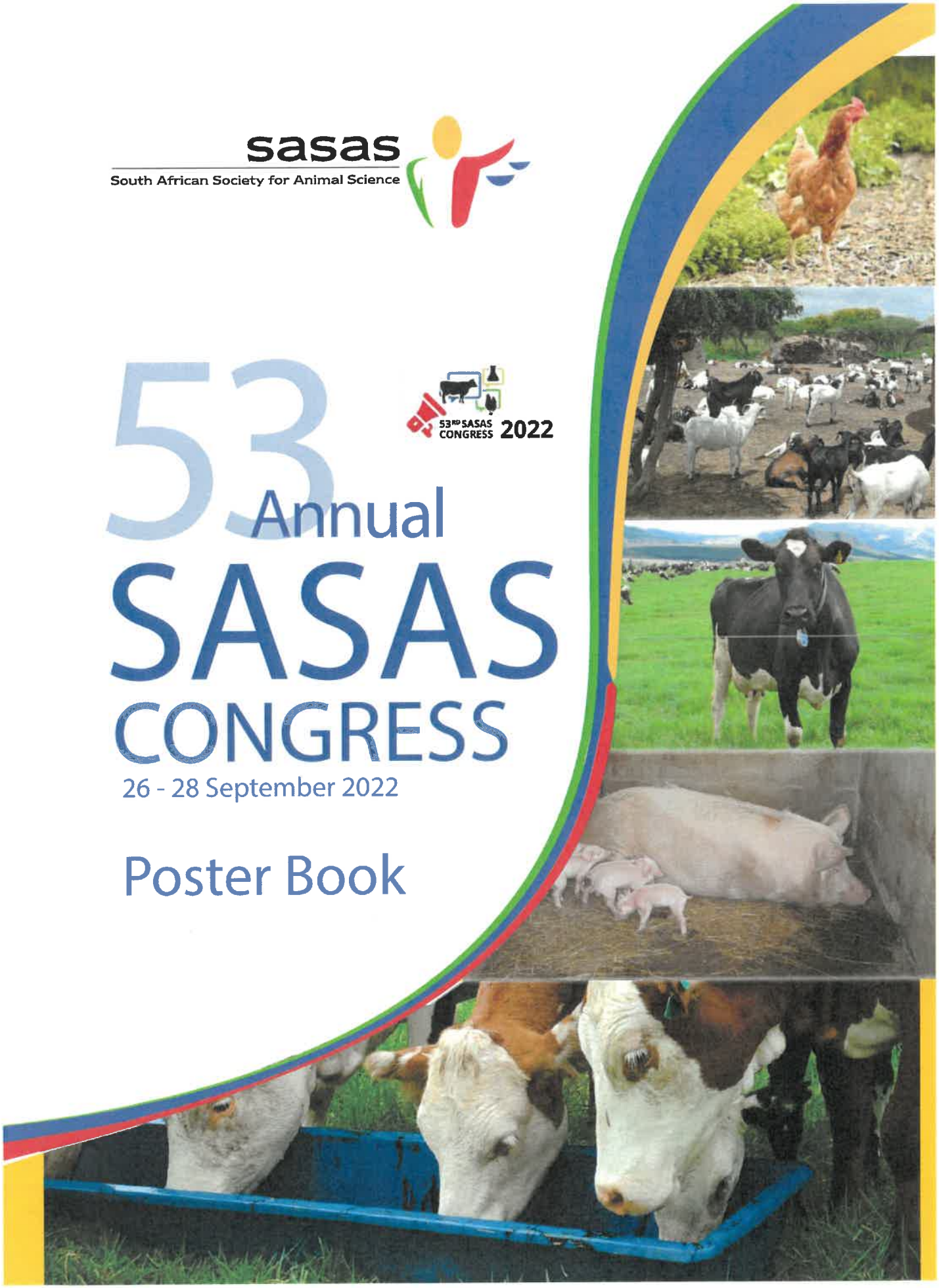
Poster Book



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Genetic and environmental parameters for early live weight and tail length in Merinos

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Introduction:

- Breech strike compromises welfare as well as wool production and quality of Merinos
- Intact tails in lambs contribute to dags, thus increasing breech strike risk
- Tail docking reduces dags and is practised widely
- This practice is seen as invasive and painful in lambs
- Stronger legislation to promote animal welfare is expected
- Breeding for a reduced TL (tail length) to reduce breech strike may be more socially acceptable

Aim:

- To use historic tail length, birth weight (BW) and docking weight (DW) data to derive genetic parameters for these traits
- It was hypothesised that TL is heritable and it will be possible to breed lambs for shorter tails.

Figure 1: Merino lambs tail length prior to docking.

Methodology:

- Historic data of Merino lambs born from 2016 to 2021 (with the exception of 2020 because of the Covid-19 pandemic) of the Elsenburg Merino flock for TL, BW and DW were used.
- The flock was separated by divergent selection for and against number of lamb weaned per ewe mated in a High (H) and a Low (L) line.
- The fixed effects of birth year (2016-2019, 2021), selection line (H or L), sex (ram or ewe), dam age (2-6+ years) and birth type (single or multiple).
- ASReml was used to analyse the fixed effects to obtain an operational model, before adding the random direct genetic (h^2), maternal genetic (m^2) and maternal permanent environmental (c^2) effects.

Parameter	Birth weight (kg)	Docking weight (kg)	Tail length (cm)
h^2	0.26±0.07	0.06±0.04	0.30±0.08
m^2	0.11±0.06	0.20±0.06	0.08±0.04
c^2	0.20±0.05	0.11±0.06	N/A

Table 1: Birth weight and tail length were moderately heritable compared to weight at docking which was not heritable (0.06±0.04). Maternal genetic and maternal permanent environmental effects were significant for birth weight and weight at docking; however, the effects were not significant for tail length.

Results:

- H-line lambs were heavier at birth and tail docking also with longer tails than L-line contemporaries (all $p > 0.01$). The line difference in TL seemed to be size-dependent. The same trend was observed for sex, dam age and birth type. Thus, TL was only significantly ($p > 0.01$) affected by birth year.
- Regressions of TL and DW on age at tail docking were highly significant ($p<0.01$).
- Estimates of h^2 (± SE) were 0.26±0.07 for BW, 0.06±0.04 for DW, and 0.30±0.08 for TL.
- TL and DW was highly correlated at all levels (r_G = 0.91±0.09; r_M = 0.99±0.18; r_P = 0.65±0.02 and r_E = 0.47±0.04).
- The inclusion of m^2 improved log-likelihood ratios for TL (0.08±0.04) and DW (0.20±0.06). Estimates of c^2 improved log-likelihood ratios for BW at 0.20±0.05 and DW at 0.11±0.06.

Conclusion:

- TL was moderately heritable with a relatively small m^2 and nonsignificant c^2 effects. Therefore it will be possible to directly select for TL.
- Further studies in the genetic basis of TL as well as its genetic correlations with other traits of economic importance are warranted.