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The Role of Animals in Human and Planetary Health
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Welcome

The British Society of Animal Science (BSAS) aims to provide an opportunity for those with an interest in animals and animal science to exchange views, ideas and information. It is an energetic and active society with members from countries throughout the world. Today, as ever, the Society is the natural connecting point for all of those with an interest in animal science and related sectors. Its membership is drawn from research, education, advisory work, commerce and practical animal keeping.

BSAS organises major scientific and specialist conferences on key issues facing the science related to animals.

The 2022 annual conference addresses the true 'Role of Animals in Human and Planetary Health'. Debating the role that animals play on the wider stage of dietary, environmental and mental health.

If you would like to join or receive further information about the British Society of Animal Science please contact:

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The international journal for conference proceedings
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The Proceedings of the British Society of Animal Science constitutes summaries of papers to be presented at the Society's Annual Conference, BSAS 78th Annual Conference 2022 held at the East Midlands Conference Centre and virtually on 12th – 14th April 2022

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Aims and Scope
animal - science proceedings is part of the animal family of journals (animal, animal - open space). The journal publishes high-quality conference, symposium and workshop proceedings on aspects of the life sciences with emphasis on farmed, other managed animals, leisure and companion animals, aquaculture and the use of insects for animal feed and human food. These can be in the form of a book of abstracts or one to two-page summaries. The format will highlight the title of the meeting and organisations involved but the publications will have the added advantage of being gold open access and forming a series under animal - science proceedings. This gives conferences wide exposure and conference proceedings a wide circulation.

Subject areas can include aspects of Breeding and Genetics, Nutrition, Physiology and Functional Biology of Systems, Behaviour, Health and Welfare, Livestock Farming Systems and Product Quality. Due to the integrative nature of biological systems, animal - science proceedings will welcome contributions on the translation of basic and strategic science into whole animal and whole system Productivity, on Product Quality and the relationship between products and human health, Food Security, the Environment including ecosystem services and agroecology, and Climate Change. Proceedings can involve research, extension studies, training and education as well as policy development. The conferences can be international or regional/ national.

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Further information can be found here

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Oral Presentations

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significantly inhibited by bark extract (73.28 ± 2.04) compared to 63.53 ± 1.67 and 44.79 ± 1.21 for leaf and root, respectively. The extracts of Tropical almond specie at 100.00μg/mL, 50.00μg/mL and 25.00μg/mL exhibited significantly higher egg-hatch (75.73 ± 4.87, 70.32 ± 2.46 and 69.49 ± 3.91) compared to 55.08 ± 1.67 and 32.05 ± 2.41 for 12.50μg/mL and 6.25μg/mL, respectively. Percentage egg-hatch inhibition (70.38 ± 1.52) at 144hrs was significantly higher than 58.02 ± 4.65 and 53.21 ± 3.11 at 96hrs and 48hrs, respectively.
Conclusion: A 100.00 μg/mL concentration of Tropical almond specie bark extract had anthelmintic effect on Haemonchus contortus at 144hrs post-administration and is recommended for treating Helminthiasis in cattle. Further study should be done on the in vivo activity of the plant.

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28. The Role of Grasslands to deliver Biodiversity and Protect Soils in Sustainable Agri-food Production

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Grasslands cover approximately 25% of the terrestrial Earth surface (3.5 billion ha). Their role is multifunctional, providing both primary feed for forage-based livestock systems, whilst also providing additional ecosystem services, including storing carbon reserves, water management and biodiversity. Current livestock systems occupy about one third of available agricultural lands globally and contribute 40% of global agricultural output value. Globally, livestock production systems provide one third of the protein consumed by humans, with projected increasing demands for animal products due to population growth and increasing consumption per capita. Balancing increasing livestock production against increasing consumer demands to understand the impact of livestock products on the environment requires rapid scientific innovation as we strive to achieve the UK's ambition of net zero carbon by 2050. Grasslands containing diverse forages have the potential to improve agricultural productivity and increase biodiversity. To address the need for net zero agri-food systems, research will be presented on how different forages can help to deliver biodiversity and to protect soils in sustainable net-zero agri-food production systems.

29. Monitoring insect biodiversity on livestock farms using advanced sound analysis

C. Woodward

AgriSound, UK

The UK is one of the least biodiverse countries in Europe as a result of intense urbanisation, agricultural intensification and mass industrialization over the past few centuries. The introduction of the new Defra Environment and Land Management Scheme (ELMS) aims in part to address the biodiversity crisis in the UK within farming systems and will begin to incentivise farmers for taking action to reverse the decline of pollinators, birds and other wildlife. However, targeting interventions to the areas of greatest need remains challenging. Currently, farmers rely on manual assessments of biodiversity which are subjective and prone to errors under poor weather conditions. Whilst several camera-based trap systems exist for monitoring birds and large animals, very few are capable of monitoring insects and most come with high capital costs due to the need for high grade cameras and require power or high-speed internet connections. AgriSound has developed a pioneering low-cost automated monitoring device that uses bioacoustics to listen out for the sounds of pollinators as an alternative to vision-based techniques. Data is relayed back to a simple web app to help farmers to target interventions to pollinator deficit areas. For livestock farmers, information can be used to measure the impact of existing efforts to protect biodiversity e.g. maintaining hedgerows, to identifying areas that could benefit from the introduction of new biodiversity-enhancing measures e.g. planting or establishment of wildflowers in non-productive areas or creation of new bee habitats. Discussions with livestock farmers has shown that farmers know they have a key role to play in protecting biodiversity. Preventing overgrazing, protecting field margins, maintaining hedgerows and using pollen and nectar rich cover crops where possible are all simple measures that can be taken by farmers and quantified to help encourage local pollinator communities to recover. In return, increasing pollinators helps improve to local ecosystems and improves land value and by extension rural communities. AgriSound is working with farmers to monitor the impact of changing farm management practices and intends to share learnings annually via a 'State of the Nation's Pollinators' report.

30. Apparent nutrient digestibility of broiler chickens fed diets supplemented with probiotics

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Application: Probiotics may be capable of serving as a potential feed supplement for improving nutrient digestibility in broiler chickens, thereby leading to better nutrient utilization and general well-being of birds without residual effect in the meat.
Introduction: Probiotics have been reported to play significant roles in nutrient digestibility and utilization in poultry production (Jha et al., 2020). It also supports a healthy digestive system, thereby stimulating the general performance and health of animals. He et al. (2019) reported improvement in the apparent total tract digestibility of dry matter, organic matter, crude protein and gross energy of broilers fed probiotics. However, there are limited studies on the effect of the use of *Lactobacillus fermentum* as a probiotic (a prominent gram-positive bacteria). Therefore, this research aims to justify the utilization of *Lactobacillus fermentum* probiotics in enhancing the digestibility of nutrients in broilers.

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Table 1
Apparent nutrient digestibility of broilers fed diets supplemented with probiotics.

Parameters	$LF_{0.00}$	$LF_{.1.25}$	$LF_{.2.25}$	$LF_{3.75}$	$LF_{5.00}$	SEM	P-value
Dry matter	98.06[a]	98.00[ab]	96.99[b]	96.77[c]	96.75[d]	0.166	0.001
Crude protein	99.17[a]	99.13[ab]	98.27[b]	97.71[d]	97.88[c]	0.171	0.001
Crude fibre	99.07[a]	98.87[b]	98.88[ab]	98.91[ab]	96.85[c]	0.229	0.010
Ether extract	99.15[c]	99.62[a]	99.62[a]	98.78[d]	99.18[d]	0.099	0.001
Ash	95.07[c]	96.78[a]	95.71[b]	94.96[d]	92.65[e]	0.366	0.001
Nitrogen free extract	98.06[a]	97.53[b]	96.06[e]	96.08[d]	97.04[c]	0.217	0.001

Means in the same row with different superscripts are significantly different ($P < 0.05$).

Materials and methods: This experiment was conducted at the Poultry Unit of the Federal University of Technology Minna, Niger State, Nigeria. One hundred Cobb 500 broiler chicks were used for the study, birds were weighed and assigned randomly to five treatments in a completely randomized design. The experiment was approved and followed the standard ethics of the Animal Production Department of the University. The probiotics used contained 10 CFU/g of *Lactobacillus fermentum*. Treatment 1 (control, $LF_{0.00}$) had no probiotics, while treatments 2, 3, 4, 5 were diets supplemented with 1.25, 2.50, 3.75 and 5.00g of probiotics per 1 kg of feed and were tagged $LF_{1.25}$, $LF_{2.50}$, $LF_{3.75}$ and $LF_{5.00}$, respectively. The birds were raised on deep litter. Iso-caloric and iso-nitrogenous diets were formulated for the broilers. Feed and water were provided ad libitum. Broilers were weighed weekly and feed intake was measured daily. An apparent nutrient digestibility study was conducted. The difference in the feed nutrients and the excreted nutrients were expressed in percentage to obtain the apparent digestibility coefficient of the feed. The content of dry matter, crude protein, ether extract, crude fibre, ash and nitrogen free extract of the feed and faeces were determined. All data were subjected to One-Way Analysis of Variance (ANOVA) and significant treatment means where it occurred were separated by Duncan multiple range test using (SPSS, 2017) version 16.0.
Results: All parameters measured showed ($P < 0.05$) significant differences (Table 1). Control birds had the highest ($P < 0.05$) nitrogen free extract digestibility. Treatments 2 and 3 had similar ether extract digestibility which was significantly higher than the control. However, Treatment 2 had better ash digestibility when compared with the other treatments. The dry matter and crude protein digestibility for Treatment 2 and Treatment 1 (control) were similar.
Conclusion: Birds on probiotics of 1.25g/ kg of feed (Treatment 2) compared favourably with the control and did better than most of the other probiotics treatments. Probiotics of 1.25g/ kg of feed could be included in diets of broilers to stimulate better digestibility of ash and ether extract. Further research may employ the use of other types of probiotics at lower levels in the diets of broilers.

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31. Productive performance response of broiler chickens to water supplementation with sweet orange peel powder in a hot humid environment

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Table 1
Live weight, Feed intake and feed conversion ratio of broiler chickens given water supplemented with sweet orange peel powder in the tropics.

Treatments	Week 3	Week 4	Week 5	Week 6	Week 7	Final weight (g)
		Live weight (g)				
Control	581.5	953.7	1301.2	1574.3	1838.4[b]	1838.4[b]
2g SOPP	605.4	970.0	1316.2	1634.3	1879.2[ab]	1879.2[ab]
4g SOPP	603.3	993.3	1297.9	1646.3	1960.6[ab]	1960.6[ab]
6g SOPP	633.3	1033.3	1375.0	1791.1	2164.6[a]	2164.6[a]
SEM	13.34	18.06	23.43	42.67	53.07	53.07
P-value	0.657	0.488	0.688	0.359	0.001	0.001
		Feed intake (g)				
Control	506.48	696.56	822.69	941.20	797.69	
2g SOPP	502.08	624.58	872.08	849.77	762.73	
4g SOPP	497.08	677.92	913.33	886.25	861.81	
6g SOPP	529.17	710.42	860.42	1004.29	810.42	
SEM	11.56	22.47	24.24	25.68	23.29	
P-value	0.822	0.615	0.683	0.147	0.569	
		FCR				Average FCR
Control	1.65	1.87	2.39	3.60	3.02	2.40[a]
2g SOPP	1.59	1.71	2.52	2.67	3.12	2.26[ab]
4g SOPP	1.58	1.73	3.09	2.64	2.75	2.30[ab]
6g SOPP	1.62	1.77	2.52	2.64	2.40	2.11[b]
SEM	0.03	0.04	0.12	0.22	0.04	0.04
P-value	0.929	0.714	0.187	0.372	0.369	0.001

SEM = Standard error of mean.
[a,b] Means in the same column with different superscripts are significantly different ($P < 0.05$).

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