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Editorial

Special issue:

A balanced perspective on animal production, from environment to human health

Why is it considered necessary to devote a whole issue of the South African Journal of Animal Science (SAJAS) to the topic: “A balanced perspective on animal production, from environment to human health”?

Many consumers in South Africa, as in other parts of the world, are concerned about the safety of the food they eat, the welfare of the animals involved in food production, and the effect of animal agriculture on the environment. Unfortunately, negative perceptions exist among the public, especially those who are not familiar with animal agriculture. These perceptions are fuelled by propaganda from groups that have adopted practices and tactics to convey messages that can only be described as activism.

The Council of the South African Society of Animal Science (SASAS) therefore approved the publication of this special issue, and an editorial committee was appointed, consisting of two eminent animal scientists who have been active in investigating aspects related to the central theme. They are Michiel Scholtz (convener) and Heinz Meissner, with the assistance of myself, Jannes van Ryssen, editor-in-chief of SAJAS. Other authors who are prominent in relevant disciplines were approached to contribute, namely Judith Capper of Montana, USA, who is a prolific researcher and publisher in this field; Hettie Schönfeldt and her team of experts on human nutrition; Eddie Webb, an expert in animal physiology and the meat sciences; Jean and Tina Rust, who have investigated the effect of climate change on livestock production; and Linde du Toit, who, as part of his PhD studies, made an inventory of greenhouse gas (GHG) emissions for the various animal species in South Africa.

The objective of this publication is to supply scientifically based evidence about various aspects of livestock production. Misconceptions about animal products and livestock production systems are addressed. Furthermore, the importance of the livestock sector to the country in terms of food security and its economic contribution is covered, as well as the challenges facing the industry, such as global warming.

The public must be assured that the food they eat is healthy, and was not produced under conditions where the animals were ill treated. Food safety and food security are worldwide concerns and international organizations such as the Codex Alimentarius Commission, USA Food and Drug Administration (FDA), and European Food Safety Authority (EFSA) are guiding, protecting and policing the production and international trading of food and feed. In South Africa numerous acts, regulations and codes of conduct are in place to protect the consumer, the producer, the animal, the feed manufacturer, the environment and the registration of pharmaceutical products used in the livestock industry. These measures are based on scientific evidence and not on emotional responses of people to what they regard as acceptable or not.

The livestock industry in general is well aware that there are negative issues in animal agriculture, often simply because of the nature of the enterprise. However, opportunists in the industry probably do try to get away with illegal or unacceptable activities. However, most disciplines and interest groups have controlling bodies, such as the SA Pork Producers Organisation, the Red Meat Producers' Organisation and the Animal Feed Manufacturers Association (AFMA), which have codes of best practice, in which, among others, inadequacies and negative activities are addressed. There are also bodies such as animal welfare organisations and consumers' councils that act as watchdogs to keep the industry alert and contribute positively towards a healthy livestock industry. SAJAS also stipulates that, where applicable, animal experimentation must be conducted within standard ethical norms, and a statement indicating compliance with these norms must be included in such articles.

Disinformation and negative publicity originate mainly from two groups: vegetarians/vegans and organizations and individuals that are opposed to intensive farming systems, such as the feedlot finishing of

sheep and cattle, and intensive milk, poultry and pig production systems. However, the South African public are also exposed to the views of well-meaning participants in radio and television programmes who are not always well informed about animal agriculture, and rely on information obtained from the Internet, a channel that is used effectively by activists to publicize their views.

Some activist groups that act under the banner of animal rights condemn and discredit any activity in which animals are utilized by human beings. They use slogans such as “Go vegetarian and save the world”. Suffice it to record a quote from Feedstuffs, a weekly newspaper for agribusiness in the USA, which is quite explicit in expressing its views about activists targeting animal agriculture in the USA. “Animal rights extremists and others opposed to food animal production will use misinformation, emotion and outright lies to turn consumers away from meat, milk and eggs.” In her contribution in this issue, Judith Capper explains the underlying motive of the meat-free Mondays campaign, initiated by vegetarians,¹ and calculates that if all inhabitants of the USA adopt one meat-free day per week, the projected annual reduction in national GHG emissions would be only 0.3% of the total GHG released in the country.

There are groups that advocate that livestock production should be conducted under “natural” and/or extensive conditions such as organic farming and “meat production from grass”. Unfortunately, these proponents of “back to natural” became emotional about it and often thrive on incorrect information in order to run down intensive livestock production systems. This could be from lack of knowledge, but may simply involve sales gimmicks to promote their products as being healthier than intensively produced products. The SASAS is not opposed to production systems such as organic farming or “meat from the veld (rangeland)” ventures. In this country, people have freedom of choice and if these farming practices meet the desires of consumers who can afford to pay a premium on products from such production practices, nobody can condemn that. However, discrediting an opponent’s products is an advertising practice that is permitted in some countries, but not in South Africa. A more serious concern is that these pressure groups, based on emotionally driven arguments, might constrain retailers to dictate animal production systems in the country.

Therefore, some of the topics and misconceptions that are addressed or put in context in this special issue of SAJAS are:

- The 2006 FAO publication *Livestock’s Long Shadow*, which concluded that livestock is a major contributor to global warming, indicated that livestock is responsible for 18% of the world’s GHG emissions.
- “Livestock worldwide emit seventy million tons of methane gas per year and that feedlots are by far the biggest culprit.” Du Toit *et al.* (2013, in this issue) calculated that feedlot cattle contribute 3.5% of the methane emitted by cattle in South Africa.
- Cattle in organic beef production systems emit less GHG than cattle in feedlots.
- Water usage in the production of products from livestock is inefficient and wasteful.
- “Intensive farming methods are turning our food into a toxic wasteland.”
- Misguided perceptions exist among the public about the role and significance of additives and growth promoting substances that are used in animal production.
- Doubts are cast on the importance of animal food products in healthy, balanced diets for humans.

By 2050, the world population will probably be nine billion people. Scientists and informed policy makers are confident that it is possible to supply food to this ever-increasing human population. However, there is limited scope for expansion in land use. Feeding this growing world population can be achieved only through optimising efficient livestock and crop production systems. Conventional, high-technology, large-scale food production provides a more abundant and affordable food supply than any other production system. That is, intensification of livestock and crop production is the only way to meet the challenge. Per kilogram of product, they need the lowest input, use less water, and emit the least amount of GHG with the smallest impact on the environment. A return to small-scale or traditional farming is not a solution to feeding the world. More food must be produced more sustainably. One authority² stated: “We cannot feed today’s world with yesterday’s agriculture. We certainly cannot feed the world of tomorrow with the agriculture of today. However, highly productive sustainable agriculture can feed a multiple of today’s world population.”

¹ Animal Agriculture Alliance: www.animalagalliance.org.

² Rudy Rabbinge, 2010. In: “Feeding the future”, Nutreco, Amersfoort, The Netherlands.

Many scientific presentations state that as human beings become affluent, they tend to eat more animal products. Worldwide, the demand for meat is expected to grow by more than 75% towards 2050. Ironically, the undernourished will benefit most from the consumption of animal products. Referring to the undernourished, Schönfeldt *et al.* (in this issue) used a quote: “Research has shown that adding even small amounts of animal proteins to a plant-based diet can yield large improvements in maternal health and child development.”

In light of the ever-increasing demand for animal products, production systems are required that are intensive and highly efficient in terms of feed production, feed utilization, management, healthcare, distribution, etc. However, in South Africa substantial progress in increasing the production of livestock products can be made immediately if the shortcomings pointed out by Meissner *et al.* (in this issue) are attended to.

The use of feed additives and non-antibiotic growth promoting substances will contribute to this increased efficiency through more efficient utilization of feed, boosting of animal health and performance, and reduced pollution to land, air and water. The development of these products is currently one of the most active fields of research related to livestock production in the world. Any product forthcoming from such research, as is true of products currently in use, is scrutinized meticulously and approved by controlling bodies only after extensive experimentation on all possible aspects related to effectiveness and the safety of the animal, the consumer and the environment. Therefore, negative statements about these products have to be treated with some reservation. Judith Capper, in her contribution in this issue, stated: “Despite considerable evaluation by national and global health agencies and the prevailing opinion no human health threats are presented by the use of such technologies, political and social agendas often oppose the approval or registration of these product within specific regions. The input of academics, researchers, veterinarians and animal science professionals will be crucial within future debates in order to ensure that science is not lost amongst public perception or political considerations.”

This publication addresses some of the aspects of livestock production and animal products in which the public are exposed to conflicting information. However, the subject is so wide that all facets could not be covered.

A panel of prominent scientists has been used to peer-review the papers submitted. I would like to extend a sincere word of thanks and appreciation to them for undertaking this important task:

Dr J.L. Capper, Livestock Sustainability Consulting, Bozeman, MT 59718, USA

Dr C.H.M. de Brouwer, Potchefstroom Agricultural College, North West, RSA

Prof R. Eckard, Primary Industries Climate Challenges Centre, University of Melbourne & Department of Primary Industries, Victoria, Australia

Ms N. Hall, Associates of the Institute of Food, Nutrition and Well-being, University of Pretoria, RSA

Dr H.H. Meissner, Private consultant, Centurion, RSA

Dr C.J.C. Muller, Institute for Animal Production, Elsenburg, West Cape Department of Agriculture, RSA

Prof J. Mupangwa, Department of Animal Science, University of Swaziland, Luyengu, Swaziland

Prof V. Muchenje, Department of Livestock & Pasture Science, University of Fort Hare, Alice, RSA

Dr N.B. Nengovhela, Animal Production Institute, Agricultural Research Council, Irene, RSA

Prof J.W. N’Gambi, University of Limpopo, Sovenga, Limpopo, RSA

Dr J.M. Rust, Döhne ADI, Stutterheim, Eastern Cape Department of Agriculture, RSA

Dr T. Rust, Döhne ADI, Stutterheim, Eastern Cape Department of Agriculture, RSA

Prof M.M. Scholtz, Animal Production Institute, Agricultural Research Council, Irene, RSA

Ms A. Theunissen, Northern Cape Department of Agriculture, Land Reform and Rural Development, Jan Kempdorp, RSA.

J.B.J. van Ryssen

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