

EDITORIAL

Innovative and Sustainable Multi-Service Models to Boost Livestock Farming System

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The third issue of Slovak Journal of Animal Science 2023 gives to me the possibility to discuss the innovative and sustainable multi-service approach of scientific community to boost and develop, in terms of competitiveness and profitability, the livestock farming system.

The challenge of managing increasing quantity of waste, particularly from agro-food industry, represents a significant cost to society and puts pressure on the natural environment. But this by-product material also represents a valuable resource, which can be exploited by embracing a more circular economy that reduces waste and allows for the continual use of resources. Today's "take-make-dispose" economic model is wasteful and unsustainable. Research institutes, enterprises, academic institutes are therefore plotting ways to reuse products or their components via the circular economy and restore more of their precious materials and energy. This practice will help to conserve environment and to protect society from the impacts of climate change.

On the other hand, it has been commonly used the definition "non-conventional feed resources" that generally refer to all those feeds that have not been traditionally used for feeding livestock and are not commercially used in the production of livestock feeds. Several known examples include palm leaf meals, palm press fiber, cassava foliage, spent brewer's grains, sugar cane bagasse, rubber seed meal and some aquatic plants. Defined in this manner non-conventional feed resources (NCFR) can be looked at as covering a wide diversity of feeds and their nutrient contents. A common feature about feeds is that the traditional feeds tend to be mainly from annual crops and feeds of animal and industrial origin. In this sense, the usage of "non-conventional feed resources" could really be more appropriately referred to as "new feeds", and this term is increasingly being used. Thus the term NCFR has been frequently used to describe sources such as oil palm by-products, single-cell proteins and feed materials derived from agro-industrial by-products of plant and animal origin, poor-quality cellulosic roughages from farm residues and other agro-industrial by-products such as slaughter-house by-products and those from the processing of sugar, cereal grains, citrus fruits and vegetables from the processing of food for human consumption. However it is sometimes difficult to draw a distinct line between traditional feeds and NCFR. In some countries what may now be classified as NCFR may in fact be conventional/traditional owing to the fact that it may have been in use as livestock feed over a long time, an example is wheat straw which is very widely used in South Asian countries, in addition, the availability of NCFR, especially of plant origin, is dependent to a large extent on the type of crops being cultivated and the prevailing degree of application of the crop technology.

In the framework of applied science as tool for livestock practice, to successfully control reproduction, obtain primary genetic material, gametes, oocytes, eggs and spermatozoa in the field of reproduction, the use of various biotechnological methods has been practiced for many years. Artificial insemination of livestock has been a staple technology for producers worldwide for over sixty years. This reproductive technology has

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allowed for the rapid improvement of livestock genetics, most notably in dairy cattle and pigs. The primary benefit of utilizing artificial insemination is the ability to rapidly improve the genetic quality of a herd using a premier male animal's genetics without a producer having to purchase that specific male. Despite its massive contributions to livestock production, there are numerous ways in which artificial insemination can be improved. These improvements are driven by new technologies and deeper understanding of reproductive physiology.

In the third Editorial article of 2023, I am going to introduce the contents of the articles collected and published in the third issue of 2023 year.

Agbetuyi *et al.* investigated on broiler chickens to determine the dietary effect on organoleptic attributes, tibia bone growth and mineral retention feeding *Moringa oleifera* leaf powder and *Allium sativum* bulb powder. Authors recommended the safe and profitable usage in animal feed industry in the extend of 1 % of *Moringa oleifera* leaf powder and 0.1 % of *Allium sativum* bulb powder.

Akinduro *et al.* designed a study to investigate the effect of fermented dried pawpaw seed fed at varying level of inclusion in the diets of broiler chicken at finisher stage on their general performance, carcass and organs characteristics. The result of this study showed that the use of the fermented dried pawpaw seed flour can be tolerated up to about 10 % inclusion as it gave the lowest FCR (feed conversion ratio) which could bring about high profitability, hence, encourage more people to go into Poultry business.

Olanloye *et al.* published a study aimed at predicting and evaluating the variation in the amino acids of cassava roots from their crude protein. The results indicated that equations generated for Total Essential Amino acid (TEA) and Total Amino Acid (TAA) revealed that r^2 increased as the number of variables increased. Prediction equations generated values for TEA and TAA of cassava roots were much close to the actual values obtained.

Mekonnen & Berhe performed a survey to assess the efficiency and role of artificial insemination (AI) service in cattle production in the Western Zone of Tigray Region, Ethiopia. The overall conception rate at first insemination (CRFI) was also very poor and thus calving rate (CR) was poor. The approach of the artificial insemination service system should be revised and modified to improve the existing poor AI reproductive efficiency.

Editorial Team looks forward to evaluating your submitted contributions and providing all necessary support to Authors in order to best serve animal science and the scientific community, with commitment to research integrity and the highest publishing ethics.

Enjoy reading!

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