

Preface

The Novel Trends in Animal Nutrition and Production

Dr. Abdelfattah Z. M. Salem

Member of Life Science Journal Editorial Board

Faculty of Veterinary Medicine and Animal Science, Autonomous University of the State of Mexico, Mexico

Guest Editor: Dr. Ahmed E. Kholif

Dairy Science Department, National Research Centre, 33 Bohouth st. Dokki, Giza, Egypt

For maintaining acceptable and profitable performance of neonatal, growing and producing animals, meeting livestock nutritional requirements is extremely important; in both quantity and quality. Balanced diet from amino acids, carbohydrates (structure and non-structure carbohydrates), fatty acids, minerals, and vitamins with dietary supplementation, in some cases, with certain nutrients (zinc, conjugated linoleic acid, yeast, enzymes, and phytogetic extracts) can regulate gene expression and key metabolic pathways to improve fertility, immune function, neonatal survival and growth, feed efficiency, meat quality, and milk production.

We are very pleased to see that 20 of the manuscripts were accepted by the Editor-in-Chief of the Life Science Journal for publication in this special focus. These manuscripts accepted reflect some of the newer trends in the field of animal nutrition and production research, highlighting novel applications of well researched feeding strategies for potential enhancing feed utilization and animal productivity.

[A. Z. M. Salem, A. E. Kholif. **Preface: The Novel Trends in Animal Nutrition and Production.** *Life Sci J* 2015;12(2s):i-iii]. (ISSN:1097-8135). <http://www.lifesciencesite.com>.

Keywords: neonatal; animal; livestock; nutritional requirement; quantity; quality; diet; amino acids; carbohydrate; fatty acid; mineral; vitamin; dietary supplementation; Life Science Journal

Section 1: Exogenous Enzymes Strategies

Utilization of exogenous enzymes in animal nutrition is a very good strategy, proved to be useful for better feed utilization and animal performance. The use of enzymes in animal nutrition allows to obtain maximum benefit from animals with lower negative effects on the environment. The response to enzymes in animal nutrition depends on (i) enzyme type, (ii) enzyme source, (iii) enzyme level, (iv) the type of diet fed, (v) animal health and (vi) animal productivity. Hence, research focused on the effect of phytase and fibrolytic enzymes, on enteric fermentation, animal health and productivity are desirable.

Mireles-Arriaga *et al.* (2015) reviewed the use of exogenous enzymes for improving animal performance. They stated that exogenous enzyme is safe additives in animal nutrition, with good responses in the increases of nutrient digestibility, health and improved animal performance. They recommended considering many factors than can affect the response in animal growth.

Zhao *et al.* (2015) investigated the effect of commercial exogenous fibrolytic enzymes cellulase and xylanase with different doses on *in vitro* rumen fermentation and methane production from corn stover. They found that cellulase and xylanase supplement

improved fiber digestion of corn stover with reducing methane mitigation.

Moreover, Kholif *et al.* (2015a) studied probable effects of feeding Baladi lactating goats on diet supplemented with two cellulase enzyme preparation on goats performance as milk yield and composition, with evaluation cheese yield, cheese fatty acid profile and cheese properties, produced from goats' milk. They reported that feeding goats on cellulase enzymes increased milk yield without affecting blood serum parameters, milk composition and properties of resultant soft cheese. However, they obtained improved cheese content from unsaturated fatty acids with decreased long chain fatty acids with cellulase enzyme.

Sánchez-Santillán *et al.* (2015) produced lignocellulolytic enzymes with *Pleurotus ostreatus*-IE8 by solid fermentation technique, and studied its effect on the chemical composition of sugarcane bagasse. The crude enzyme extract of *P. ostreatus*-IE8 decreased the lignin and cellulose content of the cell wall of sugarcane bagasse making it useful as a feed for ruminants.

In another study, the response to phytase addition on production variables, and excretion of phosphorus in faeces of finishing Dorper × Pelibuey lambs was studied by Buendía Rodríguez *et al.* (2015a). They

found that phytase increased lambs' daily gain and reduced the faecal excretion of phosphorus.

A very interested economic evaluation study for evaluating the addition of amylolytic enzymes in finishing lambs diet in Mexico was conducted by Mendoza *et al.* (2015), and stated that the inclusion of exogenous amylolytic enzymes results in a very limited margin of profit. However, the profit margin when processing as barbecued lamb is greater than the sale of lambs at farm level in live weight.

Section 2: Feeds Nutritive Value

Improving feeds nutritive value is a very important strategy for better performance, especially when ruminants fed on poor quality diets.

In an *in vitro* study for evaluating the potential use of a spineless cacti and *Opuntia* species as alternative feed supplements for ruminants, Cordova-Torres *et al.* (2015) found that both plants can be used as a ruminant feed; however, some mechanical treatments are required for removing of thorns before being fed to animals.

Montañez-Valdez *et al.* (2015) evaluated the effect of *Pleurotus djamor* on the chemical composition and ruminal disappearance of maize stover. Treatment with *Pleurotus djamor* decreased neutral detergent fibers and hemicellulose contents, with decreasing the potentially digestible fraction. However, *Pleurotus djamor* did not improve the nutritional quality of the maize stover, which make it not ideal forage for ruminants nutrition.

Cipriano-Salazar *et al.* (2015) made a biological devil fish silage (*Plecostomus* spp.) with different molasses proportions, in two modalities (whole and headless) and two physical forms (ground and chopped) with inoculation of 5% of *Lactobacillus* spp. They reported that biological devil fish (*Plecostomus* spp.) silage is considered an excellent alternative of use for animal feeding in Mexico.

Buendía Rodríguez *et al.* (2015b) evaluated the nutritive value of safflower seeds at different level as a feed ingredient in ration of finishing cattle. They stated that addition of safflower seeds at 15% of the diets of finishing cattle improved feed intake and dry matter digestibility with positive effects on ruminal fermentation.

Quiroz Cardoso *et al.* (2015) evaluated the use of *Acacia cochliacantha* and *Acacia farnesiana* fruits in nutritional blocks for sheep nutrition. They concluded that the use of the fruits of acacias in nutritional blocks in the diet of sheep increased feed intake, without affecting the digestibility of the diet or weight gain of the animals.

Mireles-Arriaga *et al.* (2015) determined the effect of the addition of different levels of dehydrated

noni (*Morinda citrifolia*) in the diet of rabbits. Their obtained results indicated that antioxidant potential as dietary noni could be helpful to improve rabbits meat quality characteristics such as color, water drip loss, and lipid stability.

Section 3: Meat and Milk Production

Meat and milk are the final products of animal production. Higher meat and milk productions can ensure good profit of animal keeping. García-Muñiz *et al.* (2015) assessed the effect of drinking water quality on milk production and composition of dairy cows in a Mexican semiarid environment. They showed that lactating cows that had access to reverse osmosis desalinated drinking water produced higher with more health and productive performance advantages. However, they recommended an economic evaluation for implementing desalination by reverse osmosis on a large scale.

Kholif *et al.* (2015b) assessed milk production, milk composition, and milk fatty acids of lactating Damascus goats fed linseed or linseed oil as diet supplement. They reported that adding the linseed whole or linseed oil improved the productivity of goats and enhanced milk components with no deleterious effects on general health.

Characterization and sheep meat quality of finishing breeds specified for markets fin cuts was studied by Buendía Rodríguez *et al.* (2015c). They concluded that the use of finishing crosses breeds allows obtaining animals with a higher production with producing fine cuts for both a national and international opportunities.

Section 4: Animal Physiology

Jaramillo *et al.* (2015) evaluated the effect of bypass fat and mineral supplementation on reproductive performance of Alpine puberal goats. Bypass fat and mineral supplementation increased the pregnancy rate and litter size.

Moreover, Hernández-Meléndez *et al.* (2015) supplemented the diet of growing male Boer × Nubian bucks with Cu and Zn. They noted that supplementation with Cu and Zn increased blood serum Cu and Zn levels and improved the percentage of sperm motility and viability from the ejaculate.

Lara *et al.* (2015) assessed the progesterone and LH concentrations in response to protected methionine at different levels in postpartum dairy cows and concluded that addition of protected methionine increased accumulated progesterone and improved the function of the corpus luteum without effecting LH concentration.

Section 5: General

In two different reviews, Mwamwenda (2015) showed a general looking about myths and misconceptions regarding global pandemic HIV/AIDS using descriptive with sample comprised 366 participants selected from three universities located in Kenya, South Africa and Tanzania. He showed that it was rather clear that myths and misconceptions are in competition with how much participants know about HIV/AIDS as a means of reduction of the spread of HIV/AIDS infection.

He also, examined African and American adolescents' claim to HIV/AIDS invulnerability frequently expressed stance that they are not

susceptible to the transmission of HIV/AIDS. He argued that HIV/AIDS public education ought to underscore this misconception to advance the cause against HIV/AIDS pandemic.

Conclusion

It could be concluded that animal performance can be improved for better milk and meat production with improved animal reproduction through improving nutrition. Many strategies can be followed to achieve the previously mentioned goals. Exogenous enzymes, improving feeds nutritive value and utilization, and improving animal reproduction are good strategies for higher animal performance and productivity.

2/11/2015