###### Rondonópolis, February 16, 2017.

To **Emilson França de Queiroz**, Editor-in-chief of Pesquisa Agropecuária Brasileira

We would like to submit our paper entitled “Carbon turnover determination in weanling piglets muscles” by Amorim et al. to your journal. As you certainly know, piglets (*Sus scrofa domesticus*) have been used as an animal model since they are closely related to humans in terms of anatomy, genetics and physiology, and represent an excellent animal model to study various diseases and experiments for additive-testing. Thus, as early-weaning of piglets causes stress characterized by a decrease in feed intake followed by declined growth rates; thus, a fast recovery represents an essential step for the proper growth of these animals.

Previous studies have assessed a potential role for dietary glutamine and glutamic acid as performance enhancing additives. However, beneficial effects to the muscles have been hard to unveil due to technical limitations of the somewhat subjective and error prone morphometric analyses. In face of these uncertainties and the availability of the isotope dillution technique that measures carbon isotopes incorporation in tissues, this study aimed at evaluating the influence of dietary glutamine and glutamic acid on growth performance, feed economic feasibility and δ13C carbon turnover in muscles using mass spectrometry as a tool for characterization of piglet’s diets by tracing its feeding regimen.

We were able to show that 1% dietary supplementation of glutamine and glutamic acid accelerated the carbon turnover in studied muscles, suggesting faster recovery during the post-weaning period. Also, we observed that glutamic acid diet presented lower cost per kilogram of live weight gain, better economic efficiency ratio and better average cost index in studied periods when compared to glutamine diet. These results showed that the stable isotopes technique (δ13C) provides an important and sensitive tool for studies such as this one.

The implication of this study is the knowledge about the magnitude of incorporation to interpret field isotopic data and the inference of temporal variability of additives in piglet’s diets. Indeed, by measuring several tissues with contrasting incorporation rates, we could determine the time-scales at which animals shift among diets with different isotopic values.

 This is an original work that has not been published either in part or as a whole. Furthermore, we state that our text has been reviewed by a native English-speaking editor with scientific background to improve readability. We look forward to your response.

Sincerely, Prof. Dr. Alessandro B. Amorim