Impact of the PISA Program on the sustainability of smallholder dairy farms in Rio Grande do Sul

G. G Silva*[1], R. Dominschek[2], D. R. Machado[1], B. M. Centeno[1], P.C.F. Carvalho[1]
[1]Universidade Federal do Rio Grande do Sul, Porto Alegre/RS; [2]Aliança SIPA, Porto Alegre/RS.
*Master's student – Gabriellegenros@gmail.com

Milk production is an important economic activity in Rio Grande do Sul - RS, especially on the northern part of the state. However, over the last decade, a significant number of dairy farmers have left the activity, which raises the question about the dairy farming sustainability in the state. There is an agricultural extension and advisory service (AEAS) initiative named PISA Program (acronym in Portuguese for *Produção Integrada de Sistemas Agropecuários*) focused on the sustainable intensification of agricultural systems that is aimed at smallholder dairy farmers in RS. The PISA Methodology comprises several tools and technologies combined in a holistic and site-to-site approach. In this sense, the work intended to study the impact of the PISA Program by assessing the sustainability of 128 smallholder dairy farms that participated in the PISA *Fronteira Noroeste* project (from 2016 to 2020). To do so, interviews with the 100-question survey from the SAFA Smallholders App/FAO Framework were performed on farm at the beginning and at the end of the PISA *Fronteira Noroeste* project. Data were compiled to calculate the sustainability index for each theme within the four sustainability dimensions (Good Governance, Economic Resilience, Environmental Integrity, and Social Wellbeing). After the PISA project, farmers have significantly improved agricultural planning and farm long-term management, as well as the frequency and detail of recording their production processes indicated by the increase in the sustainability index for the holistic management and accountability themes of the Good Governance dimension. Within the Economic Resilience dimension, the PISA Project contributed to improving the sustainability index in the Investment theme, linked to two main indicators: profitability of the farms and knowledge of revenues and production costs. At the beginning of the project, less than ¼ of farms presented an annual positive financial balance. After the technological intervention, almost 80% of the participant farms presented a good financial performance. This result was attributed to improvements in the dairy production system of farms. The adoption of *rotatinuous* stocking, adjustments in the forage budgeting and ration management were reported as the main drivers of changes in the production system. Regarding the Environmental dimension, a positive impact of the project was observed due to an increase in the adoption of the *rotatinuous* stocking and conservation agricultural practices among dairy farmers. Furthermore, at the end of the project most dairy farmers (96%) reported improvements on their quality of life, mainly due to changes in wage level and the perception of overall wellbeing. The PISA *Fronteira Noroeste* Project, thus implementation of PISA methodology as an AEAS initiative, contributed to enhance overall sustainability of the dairy farms, considering a positive impact in all four sustainability dimensions assessed by the SAFA/FAO Framework.

Keywords: dairy farming, family farming, sustainable intensification, rural extension.

Acknowledgments: We thank all farmers that participated on the survey.