Agrociencia Uruguay 2021 | Volume 25 | Number 2 | Article 970
DOI: 10.31285/AGRO.25.970
ISSN 2730-5066

A major challenge for the Uruguayan dairy industry

Sustainable growth

Un gran desafío para la industria láctea uruguaya

Crecimiento sostenible

Um grande desafio para a indústria de laticínios uruguaia

Crescimento sustentável

Correspondence
Pablo Chilibroste
pchili@fagro.edu.uy

Received *24 Aug 2021*
Accepted *26 Aug 2021*
Published *30 Aug 2021*

Citation
Chilibroste P. A major challenge for the Uruguayan dairy industry: sustainable growth. Agrociencia Uruguay [Internet]. 2021 [cited dd mmm yyyy];25(2):e970. Available from: http://agrocienciauruguay.uy/ojs/index.php/agrociencia/article/view/970.

Chilibroste, P.[1]

[1]*Universidad de la República, Facultad de Agronomía, Departamento de Producción Animal y Pasturas, Paysandú, Uruguay*

The Uruguayan dairy industry has enjoyed dynamic growth during the past 35 years, with a mean growth rate of ~4% year^{-1}, which contrasts favorably with the 2.6% year^{-1} growth rate of the global economy[1]. This high growth started in the 1980´s when the main orientation of the industry shifted from the internal to the external market. Indeed, over 70% of Uruguayan milk is now exported, mainly as milk powder with or without fat, cheese and butter. This growth has moved Uruguay to 7th place among world dairy exporters, only behind New Zealand, the European Union, the United States, Australia, Argentina and Belorussia. While milk produced in Uruguay is processed by more than 50 companies, it is a concentrated market with the cooperative Conaprole processing over 70% of the milk shipped by farmers, and with 5 other companies they process over 95% of the milk[1]. As a direct result of the growth in the Uruguayan dairy industry, milk and milk products now comprise 12 to 13% of all agricultural products exported by Uruguay, which represents over 60% of the value of all Uruguayan exports. In addition, the dairy industry employs 7500 people in dairy processing, and 8500 in primary production.[1][2] This increase in the international competitiveness of the Uruguayan dairy chain has been largely based on the low cost of milk production and low levels of indebtedness. However, the strong international orientation of the contemporary Uruguayan dairy industry results in high exposure to milk price volatility since relatively small changes in international production or demand of milk can rapidly and substantively impact on international dairy prices.

Business and farming strategies of the primary dairy sector (i.e. farms) explain most of the long-term increased competitiveness of the Uruguayan dairy industry. The main strategy has been a sustained increase in productivity (liters ha^{-1}) based on higher individual milk production per cow and higher stocking rates (i.e. cows per land area), in addition to higher overall herd efficiency (i.e. higher ratio of productive to non-productive dairy cows in herds). This has occurred without significant change in diet composition, but is based on efficient dietary supplementation levels of conserved forages and concentrates as grazing conditions change throughout the year.[3] This strategy has also involved improvement in agronomic practices such as land use (e.g. >90% incorporation of zero plugging systems that positively impact soil conservation and productivity), and better design and management of rotational grazing systems that include annual and perennial crops used for direct grazing or conservation, as appropriate. Productivity increases at the farm level have also been due to investment in farm infrastructure such as concrete feeding pads, feed mixers and ration delivery wagons. As a result, the Uruguayan dairy system can, be defined as a 'Pasture-Based Dairy System' that has the flexibility to reduce or increase external inputs, mainly feed concentrates and pasture fertilizers, appropriate for changing agronomic conditions in order to minimize the cost of milk production.

A recent event (*Foro Inale 2021*[4]) assessed the competitiveness of the Uruguayan dairy industry from different perspectives. While the previous paragraph highlighted the characteristics that create competitiveness of the primary dairy sector, the weakness in the competitiveness of this sector at the international level includes low productivity of land (i.e. milk yield per hectare) and labor (i.e. liters of milk produced per unit of labor), low efficiency of conversion of the dry matter consumed by cows to milk solids production, and low efficiency of production of replacement cows. While there has been much improvement in pasture management, as well as health and animal welfare, there is much that can be done in herd preventive medicine —especially that directly linked to reducing the use of antibiotics in order to enhance the "green" image of our natural pastoral milk productive system. However, there have also been negative collateral effects during the farm intensification process. These include high losses of farms (over 50%), closure of smaller dairy processors, negative environmental issues in some areas linked to dairy farming (e.g. Santa Lucia basin), and emerging issues related to dairy cow welfare and health. Nevertheless, the environmental impacts of dairy farming have largely been addressed at the farm level based on national and international research, on pasture-based intensive dairy systems which have also shown to have good animal welfare indices. In contrast, the social dimension of farm intensification has been little studied, particularly the reality showing that the mean

age of dairy farmers is now over 50 years and that education levels are low. Indeed, only 22% of owners/employees in the dairy primary sector have a technical or higher education level, and 64% have not completed high school[2]. Conversely, an outstanding aspect of the social dimension is the mostly cooperative organization of milk production in Uruguay, and the high level of articulation and cooperation between farmers organizations, independent professional dairy advisory and milk processors.

The Uruguayan dairy industry has faced, and still does, challenges, but it has the opportunity for further growth within a social, environmental and economical balance. The key challenge, not previously attempted, is to align efforts from the public, private, academic and technical sectors to meet a prioritized dairy agenda driven by clear and measurable multidimensional targets. However, in so doing, the Uruguayan dairy sector must take advantage of its history, ecological potential and productive culture to further develop a productive and flexible high-tech system in order to create a well-monitored and controlled pasture-based dairy system where multidimensional indices of sustainability can be measured, reported and audited in real time.

References

1. Oficina de Planeamiento y Presupuesto (UY). Una prospectiva estratégica del sector agroalimentario uruguayo: hacia una Estrategia Nacional de Desarrollo, Uruguay 2050. Montevideo: OPP; 2019. 46p. (Serie de divulgación; 15).

2. INALE. Encuesta Lechera 2019: resultados preliminares [Internet]. Montevideo: INALE; 2021 [cited 2021 Aug 27]. Available at: https://bit.ly/3yohiLB.

3. Fariña SR, Chilibroste P. Opportunities and challenges for the growth of milk production from pasture: the case of farm systems in Uruguay. Agricultural Systems [Internet]. 2019 [cited 2021 Aug 27];176:102631. Available from: https://bit.ly/3mJPxuN.

4. INALE. Resumen de todas las charlas del Foro INALE 2021 [Internet] . Montevideo: INALE; 2021 [cited 2021 Aug 27]. Available at: https://bit.ly/2UVqHwo.