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Small dairy industry: Socio-economic challenges, sustainability and innovation - A study case

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Sustainable growth and food security are the world biggest challenges, as the population is now over 7 billion people. Small enterprise producing traditional foods have a high social, economic and even ecological role as they usually are based on sustainable technology, their products are unique and thus competitive, and are the source of jobs and income for many rural families acting as true guardians of the land. Recall that 2014 was the UN IYFA aiming at promoting policies favoring the sustainability of family agriculture enterprises. Strategies that combine scientific research and technology directed to empowering small enterprises are thus important to maintain this sustainable economy. The Azores are a group of island in the Atlantic that have a fertile soil and a mild climate all year round being ideal for agriculture and dairy cattle. In fact the dairy industry –mainly smallholder dairy enterprises are the main source of income for the local economy. Constant adaptation has been a characteristic of the harsh life and history on the islands, where one makes the overcoming of difficulties a triumph of survival. In fact from a distant place of exile in the past, the island are now an oasis of nature in equilibrium where the dairy products evolved from mere products to abate hunger to highly appreciated cheeses with PDO status. This presentation aims at showing how in the last 20 years our research has been trying to contribute in helping this industry to strive and survive to socio-economic challenges, incorporating innovation and product development as well as environment friendly practices for its sustainability.

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Fatty acid, amino acid and mineral composition of milk from Nguni and local crossbred cows in South Africa

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This study was conducted to determine fatty acid, amino acid and mineral composition of milk from Nguni and crossbred cows in South Africa. Milk samples from 8 Nguni and 8 crossbred cows grazing on rangeland were collected once per lactation phase, i.e. early lactation (January), mid lactation (April) and late lactation (June) in 2009 for milk composition analyses. Nguni cows had higher (P<0.05) protein content, methionine, threonine, tyrosine, glycine and proline levels and n-6:n-3 ratio, and lower (P<0.05) milk yield, fat and total solids content, potassium levels and total mono-unsaturated fatty acids (MUFA) than crossbred cows. Phosphorus levels were higher (P<0.05) in milk from Nguni cows in the early lactation compared to crossbreds. In the early and mid-lactation stages, milk from Nguni cows had higher (P<0.05) essential amino acids (arginine, phenylalanine, histidine, isoleucine and leucine), calcium levels and polyunsaturated fatty acids to saturated fatty acids (PUFA/SFA) ratios compared to crossbreds. Milk from crossbred cows in the mid and late lactations had higher (P<0.05) C12:0, C14:0, C16:0 and C18:0 levels than Nguni cows. It was concluded that milk composition of Nguni cows is more desirable for the calf and human consumption, especially in the early-to-mid lactation compared to that of crossbreds.

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