



Effects of the calving concentrate pattern at the early spring in Cuban dairy farms over the milk production, global warming potential, energy use and the sustainability of the livestock systems.

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Abstract:

A research was development with the objective to evaluate the effects of different factors that affect the efficiency of the calving concentrate pattern at the early spring dairy systems in Cuban conditions since 1988 until 2010 measured like milk production, global warming potential, total energy balance and sustainability in the principal dairy basin in Camagüey at the east of Cuba. This general research is supported per many thesis on diploma, master and doctoral levels and were used four software. The results were obtained for the information of 210 dairy farms with high concentration of calving in early spring (60-80% of calving of annual) and find an important effects on more milk production and minor quantities of fuel oil consumed /1000 kg of milk produced than non concentrate calving pattern dairy systems. In theses cases the responses on milk production was great in the range of 21506kg to 46250kg respect to others non seasonal milk production dairy systems, and in some studies of cases on seven years the different responses reached 22 725 kg with 81% of calving occurred in the spring, with 65.2% in the first eight weeks of this period. The operational costs were diminished in all time with pattern of early spring calving on 35.1% - 29.7%, and it was an important factor because the low expenses in concentrate feeds external to the farms and the reduced additional costs of transportation of theses feeds to the farms and its proper industrial fuel oil consumption that is low. The results for indicators of agro-environment sustainability on pattern of major efficiency reached, with low supplements, minor energy costs per kg of milk produced per/cow and ha in the systems with high calving concentration in spring respect to the others systems with disorder in calving pattern, where is required more land/kg. The global warming potential (GWP) in the systems with high concentration of calving in early spring was approximately 31-27 % minor the methane production based in more better Forage-Concentrate relation (81% forages-19% concentrates) in the feed than the others systems, and positives balances of Nitrogen with values of -7.2 kg./ha./year to 16.4 kg./ha./year and values of 14-29 % and 11-36% of minor discharge of the Sulfur (S) and Phosphorus (P) to the environment respectively. The necessary energy in whole systems with high concentration of calving in early

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