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Economic Viability of Crop Livestock Integration under Irrigated Conditions in Goiás State, Brazil

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Abstract

On one hand, intensification of production systems is required to raise food production, on the other hand, rotation schemes become more and more relevant regarding the sustainability of the land use. In many countries crop livestock integration is being considered as one important strategy to improve productivity in a sustainable way. In the central region of Brazil there are many central pivot irrigation systems installed, which need to be used all over the year to be rentable. The aim of this study was to analyse the economic viability of crop livestock integration under irrigated conditions in Goiás State (Brazil). Four different levels of crop livestock integration were tested: **(1)** only cultivated pasture (only livestock across the year); **(2)** cultivated pasture during summer and irrigated common beans during winter (livestock from November to Mai); **(3)** maize and grass intercropping during summer and irrigated common beans during winter (livestock from November to Mai); and **(4)** maize during summer and irrigated common beans during winter (only crops; no livestock). The costs include depreciation of irrigation system and fences, inputs and operations (hours at commercial rates). The revenues include pasture renting and commercialising grains (maize and beans). The Benefit-Cost-Ratio (BCR) was used to compare the economic viability each level of crop livestock integration. Considering the four levels of crop livestock integration tested, only one was economically viable: using cultivated pasture during summer and common beans during winter, which obtained a BCR of 1.03. The evaluated levels of crop livestock integration, under the tested conditions, have limitations regarding their economic viability and need to be further researched.

Keywords: Agro pastoral system, economic feasibility, irrigation farming, pasture crop integration