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Economic Feasibility of Small Scale Organic Production of Rice, Common Bean and Maize in Goiás State, Brazil

ALCIDO ELENOR WANDER¹, AGOSTINHO DIRCEU DIDONET², JOSE ALOISIO ALVES MOREIRA²,
FABIO PIRES MOREIRA², ANNA CRISTINA LANNA², JOSÉ ALEXANDRE FREITAS BARRIGOSI²,
ELIANE DIAS QUINTELA²

¹*Brazilian Agricultural Research Corporation (EMBRAPA); Federal University of Goiás (UFG); Faculdade Alves Faria (ALFA), Brazil*

²*Brazilian Agricultural Research Corporation (EMBRAPA), National Rice and Beans Research Center (CNPAP),*

Abstract

The increasing demand for healthy food and the need for environmental and economic sustainability of agricultural production are promoting organic farming worldwide. Therefore, agricultural researchers are challenged to develop such systems together with the stakeholders. In Brazil, scientists are testing different farming systems to produce organic food. However, the economic feasibility, which is a key factor for technology adoption and sustainable production, has not been analysed so far. This paper assesses the economic feasibility of small scale organic production of rice, common bean and maize in Goiás State, Brazil. During 2004/05 and 2005/06 growing seasons, rice, common bean and maize were produced at the organic farm of Embrapa Rice and Beans under five mulching systems, with and without tillage. All carried out operations and used inputs were recorded. Based on those records, the production costs for each crop were estimated in each cropping season. The costs include operations like seeding, dissection, ploughing, harrowing, spraying and harvesting, as well as inputs like seeds, inoculants, neem oil and organic fertilisers. The benefits include the gross revenue obtained by multiplying the production amount with the market price for non-organic products. For the purpose of analysis of competitiveness of organic production in comparison to conventional farming the market prices assumed were those of conventional production. In the analysis, the costs of certification were not considered yet due to lack of certifiers in the region. For comparison between traits, the benefit-cost-ratio (BCR) was used. In 2004/05 growing season the BCR varied from 0.27 for common bean on sorghum mulch system with tillage up to 4.05 for green harvested maize produced after *Crotalaria* in no tillage system. Common bean and rice were not economically viable in this growing season. In 2005/06 growing season the BCR varied between 0.75 for common bean after sorghum in tillage system and 4.50 for green harvested maize produced after fallow in no tillage system. In this season common bean was economically viable in leguminous mulching systems and green harvested maize was viable in all mulching systems.

Keywords: Benefit-cost-ratio, organic farming, production costs, smallholder production