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## The Women Labour Allocation Dilemma in Organic Cotton Production in Benin: Using a Nonlinear Programming Model for Decision Making

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### Abstract

Similarly to most francophone West African countries, the economy of Benin is highly dependent on cotton production. Cotton provides more than 64 % of the export income and 24 % of the Gross National Product. At micro level, it generates 36 to 41 % of household's income.

The adoption of organic cotton farming by households affects significantly the size of women's cotton farms. In Central Benin, a typical household has a common farm, which is managed by the husband. The latter provides his wife with a small plot to grow crops of her choice. However, she is required to work prior on the common farm. Cotton farming improves women's financial independence and women are intended to increase the size of their cotton farm. This trend is subsequent to the adoption of organic farming and constitutes a potential dilemma in the household upon the wife's labour allocation between her own farm and the common one. The present study shows a model that can guide a concerted resources allocation within a household in Central Benin.

As methodology, a nonlinear programming was used to maximise the household farming income under the constraints of land and labour availability. Two scenarios were analyzed: a) increasing women labour demand in the common farm, and b) increasing land demand by women for their own farm.

The first scenario shows that the optimum household income requires an increase by 20 % of wife's labour in the common farm. However, the corresponding income distribution deepens on the gender gap. According to the second scenario, the optimum household income is reached by increasing the share of land used by women from 20 to 40 %. This reallocation reduces the gender gap in income distribution. This scenario is achievable only if, in short term, adequate credit facilities are given to women to hire labour and in long term, relevant policy measures are initiated to ease access to land by women. The model indicates also that, to obtain a consensus within household, the wife should allocate at least one third of her labour to the common farm and she should use less than half of total household's land.

**Keywords:** Benin, household income, organic cotton, women labour