



PRACTICE ABSTRACT N°9

Renewed approach of extension services to advance modern intercropping in South Mozambique

Problem

Smallholders' farmers of Inhambane and Gaza region in Mozambique are subsistence-oriented, with most of households suffering from seasonal food insecurity. When engaged in the national strategy of transitioning from subsistence farming to more market-oriented farming, farmers are advised by extension agents to shift from intercropping (Figure 1a and 1b) to input-intensive growing of sole crops. A growing number of farmers in areas where the market is becoming attractive may respond favourably to this advice, which is then economically sound for farmers on the short term but is not sustainable on the long-term. However, to date this is an emerging issue as a majority of farmers are still subsistence oriented with limited access to market or poorly connected to a value chain.

Solution

Researchers from the University Eduardo Mondlane, CIRAD, National Extension Services, agricultural private companies and the representative of smallholder farmers, discussed¹ the farmers and the extension services perspectives. The participants agreed that the extension services need to adjust their strategy based on farmers' profile and practices towards reconciling the agricultural economic growth and long-term sustainability. All actors need to acknowledge the soundness of intercropping as a traditional practice of subsistence farming and promote the use of modern and profitable forms of intercropping, instead of transitioning toward sole cropping.

Benefits

- Increased food diversity and security.
- Enhanced biodiversity, nutrient cycling, soil protection against erosion and atmospheric nitrogen capture by legume compared with sole crops like cereal and cassava.

¹ in a workshop held in March 2024 at Bilene, Mozambique (Figure 2).



Applicability box

Theme

Biodiversity and nature conservation, Agroecology, Sustainable Communities, Cropping systems, People and skills.

Keywords

Ecosystem services; intercropping; Socioeconomic development; Indigenous knowledge.

Context

Coastal area of Maputo, Inhambane and Gaza provinces in Mozambique, under subhumid tropical climate.

Application time

NA

Required time

NA

Period of impact

A year

Equipment

Not applicable

Best in

NA

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- Reduced weeds pressure, integrated diseases and pest control maintained at high level when compared to sole crops.
- Reduced needs for organic or inorganic fertilizer inputs compared to sole crops.
- Reduced labour demand at farm scale.

Practical recommendations

- First, conduct a participatory diagnosis to collectively assess the drivers and farmers' motives of the intercropping practices in Maputo, Gaza and Inhambane provinces of Mozambique.
- Second, identify higher productivity, "modern" intercropping models consistent with farmers' profile and needs, based on literature review and the results of the experiments conducted in the framework of the IntercropVALUES case study.
- Third, co-design extension strategies to advance the advantage of modern intercropping through facilitated discussions among extension agents, farmers' representatives, and researchers to establish efficient knowledge flow (Figure 2, all referred actors engaged in one of these facilitated discussions).
- Fourth, adopt a "coaching" approach as an alternative to top-down approach and provide farm-tailored advice based on active listening and consistent with the context, farmers' profile, and needs, strengthening the peer-to-peer process, whereby facilitating sharing of practical experiences.



Figure 1a: a "modern intercrop" of maize with cowpea planted in row. Soil is poor and not sufficiently fertilized, and very low yield was expected here, making uncertain this specific arrangement of crops was advantageous for farmer compared to the traditional intercropping practice. Photo: Sebastião Famba.



Figure 1b: A typical farmer's field of the coastal area in Inhambane and Gaza provinces in Mozambique, with maize intercropped with groundnut and cowpea. Availability of nutrient is as low as in picture 1a. Crops are not in rows. The practice tends to maximize soil cover by crops and hence soil protection against erosion, radiation use efficiency and labour use efficiency notably for manual sowing and weed control. Photo: François Affholder.

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Figure 2: A presentation of the concepts of ecosystem services and trade-offs among ecosystem services in agriculture at the “Stakeholders engagement workshop”, organized as part of the Co-Innovation Case Study of IntercropVALUES project. This session was followed by a lively debate on the messages of extension service regarding current and possible future intercropping in coastal area of Maputo, Inhambane & Gaza provinces in Mozambique. Photo: Nícia Givá

Further information

Further readings

- German, L. A., Tiani, A. M., Daoudi, A., Maravanyika, T. M., Chuma, E., Jum, C., ... & Yitamben, G. (2012). The application of participatory action research to climate change adaptation in Africa. *Ottawa, Canada and Bogor, Indonesia: International Development Research Centre and Center for International Forestry Research*. [link](#)

Weblinks

- intercropvalues.eu

About this practice abstract

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IntercropVALUES aims to exploit the benefits of intercropping to design and manage productive, diversified, resilient, profitable, environmentally friendly cropping systems acceptable to farmers and actors in the agri-food chain. As a multi-disciplinary and multi-actor project, it brings together scientists and local actors representing the food value chain. It includes 27 participants from 15 countries (3 continents) from a wide diversity of organizations and stakeholders. The project will run for four years and started in November 2022.

Project website: <https://intercropvalues.eu/>