

## PRODUCTION OF ON-FARM FERTILIZERS IN BRAZIL

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*A practical case in the Midwest*

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**INTRODUCTION**

Producing on-farm fertilizers based on local organic residues is an empowering action for family farmers. For this reason, we conducted the project "Development of alternative fertilizers to support the agroecological management of family-based agriculture production systems in Goiás, Midwest Brazil", from June-2014 to May-2017, aiming at developing and validating on-farm organic fertilizers in order to (1) help farmers to produce their own organic fertilizer by recycling local residues, and, by using these fertilizers, to (2) improve soil quality at low cost.

**IMPLEMENTATION**

We worked in a participatory approach, along with two associations of small farmers, the G-Vida group (from the rural area of a city called Orizona) and the COOMAFAB farmers' cooperative (from the rural area of a town called Buritizinho). Together with each group, we started the project through a survey of the most common and "easy to find" organic residues, which were: dairy cattle manure, grasses and banana leaves. From these materials, we worked on formulations of organic composts that would reach a final carbon:nitrogen ratio between 25:1 and 35:1. The farmers organized their groups to produce the composts, which were ready for use in 90 days.

**TESTS AND RESULTS**

Tests were conducted in the farmers' areas, comparing the new fertilizers with the sources they normally used (or not) prior to the project (no-composted dairy cattle manure or no fertilizer at all). The composts were used to cultivate beans, rice and sugarcane, obtaining good grain yields (beans and rice) and biomass (sugarcane to feed animals).

We collected samples of the fertilizers and of the soil where these fertilizers were applied, to verify, by laboratory analysis, chemical, physical and biological quality. The costs of the fertilizers production on the farms were close to zero, since the only cost was farmers' own labor. The multiplication and dissemination of knowledge occurred not only at the end of the project, as usual in conventional (non-participatory) research, but throughout the execution of the project, since farmers were the "multipliers" themselves. For this, some workshops were carried out during the project in both rural areas, involving the neighborhood.

**CONSIDERATIONS**

As a principle in Agroecology, local characteristics should be taken into account. Available organic residues vary over short distances, but any place in the world will have its own local/regional residues that are often wasted or underutilized. Our experience shows that it is possible to produce good quality on-farm organic fertilizers, starting with a survey of local organic waste and especially bringing together engaged people (farmers, researchers and agricultural technicians) to achieve the same goal. In addition, our approach is successful because the farmers representing each community are opinion makers.

**LINK TO THE SDGs**

Strengthening family farmers and promoting their independence are crucial to ending poverty (SDG 1) and achieving zero hunger (SDG 2), good health and well-being (SDG 3) (70% of hungry people live in rural areas of developing countries), to create decent work in rural areas and generate local economic growth (SDG 8) and, consequently, reduce inequalities (SDG 10).

