

Research Note

CACAO PRODUCTION ON WELL-DRAINED SOILS ALONG THE BANKS OF THE MAMORE RIVER ON NORTHEASTERN BOLIVIA¹

Cacao is produced in many parts of Beni, in northeastern Bolivia, virtually as a wild plant. Currently it appears to be an attractive crop because of the prices that it commands in the world market. Yields are very low, mainly because of the limited yield potential of the wild varieties, infestation with witches' broom (a disease caused by *Marasmius perniciosus*), the almost casual management of the plantations: no fertilization, no adequate pruning, excessive shade, and other factors.

In order to develop a thriving and stable cacao industry it becomes necessary to make new plantings with high-yielding hybrid or clonal cacao types, resistant to witches' broom, while at the same time renewing some of the existing plantings. New plantings should be under full sunlight without any shade other than the temporary shade required by the young plants. Full sunlight plantings will need an intensive fertilization program since photosynthesis will be more intensive than in plantings under shade. Cacao should be intercropped with plantains or similar crops that will provide an income within a relatively short period and until cacao plants begin their production cycle.

The use of legume cover crops, such as *Desmodium* and others that cover the soil quickly, is essential to maintain the levels of soil organic matter, provide nutrients and reduce direct moisture vaporization losses from the soil. If the new plantings are to be made under permanent shade, legume trees such as *Inga* and *Erythrina* should be selected.

Old, almost wild plantings should be gradually renewed. For these purposes, low productive and very sick trees should be identified and replaced progressively with high-yielding, pest resistant trees. The possibility of plantation renewal through grafting with material from highly selected parentage should be considered. In this case advantage will be taken of the strong, good root systems of the already established wild cacao. Pruning, both in new and old plantings, is essential to remove dry or diseased branches. It is also important to permit easier harvesting and pest control spraying programs.

Cacao thrives well in a diversity of soils. It tolerates high soil acidity (even to pH 4) in the soil and subsoil. This fact makes cacao an ideal crop for some of the acid soils of Beni.

The plantings observed during our tour along the banks of the Mamoré

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River, in the vicinity of San Isidro, have a humus layer 2 cm in depth. From 2 to 10 cm the soil is loamy, friable, with stable granular structure, easy to work. After 10 cm the soil is clayey, a lighter color than in the upper layers, with good hydraulic conductivity and good drainage. There are probably some 1 million hectares of soils with similar conditions along the river banks of Beni, suitable for cacao production.

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