Potential and constraints for animal feed as an objective of poor farmers in participatory research with multipurpose forage crops in Central-America

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1 Significance
Participatory on-farm research:
• Can identify factors which determine small-scale farmers’ objectives on multipurpose forages.
• Hence provides instruments to enhance their adoption.

2 Objective
• To determine the main factors inducing or inhibiting small-scale farmers to opt for animal feed production as an objective to experiment with multipurpose forages.

3 Background
• Small-scale farmers representing the maize-beans based agricultural system of central Honduras are experimenting with multipurpose forages.
• Objectives are food production, enhancing soil fertility and animal feed, the latter based on a need to improve animal production or a desire to diversify into this.

Table 1. Variables used in animal feed regression model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>ObjectiveFeed</td>
<td>ln (ObjectiveFeed) = ( \beta_0 + \beta_1 \text{Altitude} + \beta_2 \text{LandTenure} + \beta_3 \text{BuyMaize} + \beta_4 \text{UreaMaize} + \beta_5 \text{MaizeYield} + \beta_6 \text{CattleNr} + e_i )</td>
</tr>
<tr>
<td>Objective</td>
<td>1: yes, 0: no</td>
</tr>
<tr>
<td>Altitude</td>
<td>1: &lt; 800 masl, 0: ( \geq 800 ) masl</td>
</tr>
<tr>
<td>LandTenure</td>
<td>1: owning land, 0: landless</td>
</tr>
<tr>
<td>BuyMaize</td>
<td>maize bought for household consumption: 1: yes, 0: no</td>
</tr>
<tr>
<td>UreaMaize</td>
<td>level of urea application on maize (kg/ha)</td>
</tr>
<tr>
<td>MaizeYield</td>
<td>Maize yield (kg/ha)</td>
</tr>
<tr>
<td>CattleNr</td>
<td>Number of cattle</td>
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</tbody>
</table>

4 Methods
• 150 farmers involved in 200 participatory on-farm experiments during three growing seasons.
• Germplasm consisting of grasses (e.g. Brachiaria brizantha), annual legumes (e.g. Vigna unguiculata, Lablab purpureus), and legume shrubs (e.g. Cratylia argentea).
• Experimental outline determined jointly by farmers and researchers.
• Use of a dichotomous logistic regression model to examine the factors influencing the inclusion of animal feed as an objective (Table 1).

5 Results
• Landownership, urea application, maize yield and cattle number were inducing factors for animal feed production.
• Farmers depending on purchased maize for their food security were less likely to grow forages for animal feed.
• Altitude had no effect.

6 Conclusions
• Participatory on-farm experiments with multipurpose forage crops are useful to make farmers acquainted to their opportunities and identify inducing and inhibiting factors.
• Farmers without full land ownership and those who depend on outside acquired basic grains for their food security will be less likely to dedicate resources to produce animal feed.

Figure 1. Factors determining the choice for animal feed as an objective for small-scale farmers

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