

## Potential of FAO's Sustainability Assessment of Food and Agricultural Systems (SAFA) indicators for assessment of integrated crop-livestock-forest systems

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### Introduction

Commercial integrated crop-livestock-forest systems (ICLF) using beef cattle, eucalyptus and cash crops like soybeans and maize are increasing in Brazil, especially in the Central part of the country. Broad ranging sustainability assessments of such systems is crucial for local development policies. FAO's framework for sustainability assessment (SAFA) can be proposed as a tool for addressing local ICLF systems. For such, a previous evaluation of the given framework is important for checking its suitability for the local context. This work shows the results of a preliminary evaluation of the indicators proposed by SAFA in regards to their relevance and feasibility of assessment for typical commercial ICLF systems in Central Brazil.

### Material and Methods

SAFA has been developed by the Natural Resources Management and Environment Department of FAO. The SAFA Guidelines, assessment tools, details regarding their use and liabilities as well as other resources are provided by FAO and can be downloaded from: <http://www.fao.org/nr/sustainability/sustainability-assessments-safa/pt/>. SAFA considers four sustainability dimensions: Good Governance (G), Environmental Integrity (E), Economic Resilience (C) and Social Well-Being (S). These dimensions currently cover 21 themes which are considered core sustainability issues associated with its goals as well as they can be implemented at any level. These themes have 58 sub-themes and 116 indicators (FAO, 2015).

Indicators were analyzed and scored from 0 to 5 for the parameters *relevance* and *feasibility of assessment* in potential sustainability assessments of local ICLF systems. Score 0 meant no relevance or unfeasible while 5 meant of utmost relevance or easily measurable, respectively.

### Results and Conclusions

Results showed that 75 from the 116 indicators (65%) had scores above the intermediate score (3) for relevance, but only 43% were considered easy to assess (scores above 3). On the other hand, 21% of the indicators were considered relevant AND easy to assess (scores above 3) while only 3% were of little relevance AND difficult to assess (scores under 3). Also only 3% had score 3 for both parameters. Only 5 indicators were considered not relevant. Environmental and social indicators showed the highest proportions scores 4 and 5 regarding indicator's relevance (67% and 79% respectively) while economic, environmental and governance indicators (56%; 46%; 42% respectively) were considered easy to access on local ICLF systems. As expected for agricultural systems, even though relevant, social indicators were mostly considered not easy to access, having only 22% reaching scores 4 or 5 while scores under 3 reached 47% of these indicators.

These results show that even though they might be considered relevant in a sustainability assessment, many proposed indicators should be difficult to acquire in a given situation. Therefore, users of SAFA for ICLF systems should carefully evaluate the inclusion of each indicator when designing the scope of their studies in order to have good quality results.

### References cited

FAO. *Guidelines for Sustainability Assessment in Food and Agriculture (SAFA)*. Available online at <http://www.fao.org/nr/sustainability/sustainability-assessments-safa/pt/>. FAO 2015.