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ATSAF - CGIAR++ Junior Scientists Program
Final Report

Name of student: Matheus Martins Vieira
University: University of Applied Science (HTW) Berlin
Supervisor at University: Prof. Dr. Dimitrios Zikos
International Agricultural Research Center: International Maize and Wheat Improvement Center (CIMMYT)
Country: Mexico
Supervisor at IARC: Lennart Woltering
Start and end date of stay at IARC: -
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Research Report

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This report details the research process that culminated in the delivery of the thesis "The effectiveness of scaling to agricultural and rural development: An evaluation of MasAgro Guanajuato's "Integral Fertility" Strategy", object of the ATSAF - CGIAR++ Junior Scientist Program.

The main research strategy adopted for the thesis was the remote (i.e., virtual) application of Outcome Harvesting (OH) for the evaluation of the Integral Fertility Scaling Strategy (*Estrategia de Fertilidad Integral*) (IFSS) of MasAgro Guanajuato, following a case-study format. MasAgro Guanajuato is an agricultural scaling intervention implemented by the Mexican State of Guanajuato through the Guanajuato State Secretary of Rural and Agri-food Development (SDAyR), and it is coordinated and supervised by CIMMYT Mexico. The design used to guide the evaluation is shown by Table 1. Following is a step-by-step description of the execution of the Outcome Harvesting evaluation (details about OH's evaluation process and about the actors involved in the evaluation following OH terminology can be found in the Appendix).

Prior to the design phase (Step 1), a pre-step was included in the evaluation process. This pre-step phase was an adaptation of the standard OH process and is divided in two subphases. The first subphase of the pre-step consisted mainly of communication between the evaluator and the evaluation's consultant researchers from CIMMYT – working at CIMMYT's scaling team. It aimed at defining the details of the research such as (most importantly, but not limited to): the research aim, research questions, general expectations and the research plan.

Table 1

Outcome Harvest Design of the Evaluation

Design Feature	Design Feature Description
Relevance of the Evaluation	(1) Optimise the employment of resources of MasAgro Guanajuato through the focus on more effective strategies where good practices are leveraged and valuable lessons are drawn (2) Understand the network of cause and effects of the innovation system for the scaling of the strategies of MasAgro Guanajuato
Guiding Questions to the Harvest	(1) Of what does MasAgro Guanajuato's IFSS consist? What have been the effects of MasAgro Guanajuato's IFSS in making the rural areas of the state of Guanajuato more profitable in a sustainable way? What was the extent of this strategy (which social actors were affected)? (2) What are the motivations and incentives of the target social actors to participate in MasAgro GTO's IFSS? Was there resistance at the outset of the implementation of the IFSS from the social actors involved in this strategy to participate in it (if yes, what were the disincentives to participate in the strategy)? How were alliances with local decision-makers created and/or strengthened to cause greater impact at scale through MasAgro GTO's IFSS? (3) What are the determining factors of MasAgro GTO's IFSS? What are the limiting factors of MasAgro GTO's IFSS? (4) What is the role of MasAgro GTO's agronomists in the observed changes to which the adoption of the IFSS contributed?
Uses	Inform MasAgro Guanajuato about the bottlenecks and success factors of the IFSS and provide information on how to redirect the strategy toward higher-yield paths.
Data Collection	Virtual (i.e., online) interviews and a questionnaire.
Municipalities	Valle de Santiago, Yuriria, Celaya, Purísima del Rincón.
Planned Number of Interviews [a]	12

Note. Own elaboration with collaboration of CIMMYT's Scaling Team and the IFSS's management.
[a] Although twelve interviews were planned, only 7 were successfully executed, and 6 were included in the analysis.

Subphase two of the pre-step consisted mainly of the process that culminated in the elaboration of the draft of the harvest design (displayed on Table 1). It involved intensive communication between the evaluator and the evaluation's consultant researchers from CIMMYT. These consultant researchers were supporting the evaluator with the application of OH and facilitating communication between the evaluator and the lead harvest users from MasAGro Guanajuato.

Moreover, during the second subphase of the pre-step, a meeting involving these three parties took place on 09/10/2020, when the evaluator presented the research questions guiding this thesis and the lead harvest users presented MasAgro Guanajuato and voiced their main interests regarding the research collaboration. The three parties also agreed to channel the research into the IFSS during this meeting, and defined the target social actors for the analysis, namely, fertiliser suppliers, local decision makers (members of the local government) and fertiliser suppliers (including Rural Production Associations) that had contact with the IFSS.

Afterwards, to offset the limitations of time and availability of the main harvest users, the draft of the OH design was elaborated by the evaluator. This draft design was developed following the standard recommendations of the OH method and included basic information on the evaluation process such as the guiding questions, the type of information to be collected during the evaluation and its main uses after the harvest is completed.

Since OH focuses on delivering well-substantiated knowledge to inform the users of the evaluation, their opinions about the harvest design – based on their needs – and about the guiding questions were decisive to determine the focus of the evaluation. Hence, although the guiding questions were primarily formulated to achieve the objectives of this thesis, they were directed as much as possible to meet the evaluation needs of MasAgro GTO.

The design phase (Step 1) consisted of the presentation of the draft OH design to the harvest users, its adjustment – based on their contributions – and, ultimately, its approval. During this meeting – on 06/11/2020 – the municipalities on which the research would focus were specified, and potential interviewees were identified for each of the selected municipalities. It was decided that the evaluation would focus on four municipalities: Purísima del Rincón, Valle de Santiago, Yuriria and Celaya. Further, the details about the data collection process were also defined.

Step 2 consisted of the elaboration, application and analysis of the results of two research instruments, used for collecting primary data. These are a questionnaire and a first round of interviews, henceforth referred to as exploratory interviews for disambiguation. Moreover, Step 2 also consisted of analysing secondary data sources related to MasAgro GTO. The goal of Step 2 is drafting preliminary outcome descriptions, based on these data. Primary data collection for Step 2 resulted in twelve responses of the questionnaire, collected between 22/11/2020 and 11/01/2021, and seven interviews. Table 2 contains the schedule of the exploratory interviews.

Table 2

Schedule of Exploratory Interviews: Interviewers, Interviewee's Occupation and Date and Time of Interview

Interviewer	Interviewee's Occupation	Interview's Date (of 2021) and Time (Berlin Time Zone)
Matheus Martins Vieira	MasAgro GTO's Coordinator	Monday, 25th of January at 23:00
Matheus Martins Vieira	Senior Manager at rural production association	Monday, 8th February at 20:00
Matheus Martins Vieira	Senior manager at rural production association and farmer	Friday, 12th of February at 16:00
Maria del Refugio Boa Alvarado (CIMMYT)	Senior government official at local level (local decision maker)	Friday, 12th of February at 17:00
Matheus Martins Vieira	Senior government official at local level (local decision maker)	Friday, 12th of February at 17:00
Matheus Martins Vieira	Salesperson at fertiliser supplier and former community-level field promoter [a] at local government level	Friday, 12th of February at 18:45
Matheus Martins Vieira	Senior government official working with agricultural innovation within the Guanajuato State Secretary of Rural and Agri-Food Development (SDAyR) [b]	Tuesday, 16th of March at 17:00

Note. Own elaboration based on information from the exploratory interviews

[a] The name of the position in Spanish is "*promotor*", which literally translates into "promoter" in English, which does not convey the right meaning. [b] Although the interview with Mr. Francisco Becerra Verdín was done, it could not be transcribed in time for inclusion in the analysis. Hence, it will only be included in the paper to be published based on the present thesis.

Secondary data comprised mainly 14 MasAgro GTO's internal reports, and 10 CIMMYT reports on MasAgro GTO. After collecting the responses from both research instruments, the exploratory interviews were transcribed, and primary and secondary data were analysed. The ensuing analysis focused on identifying and describing outcomes related to the IFSS and drafting the preliminary outcome descriptions. The respective sources of each of the outcome descriptions were catalogued and saved for the substantiation phase. At first, any one mention or indication of an outcome related to the IFSS generated an outcome description. After initial analysis, 45 preliminary outcome descriptions were drafted. Then, these outcome descriptions were further analysed, and similar outcomes were merged, and others were excluded from the analysis.

Step 3 was not included in the evaluation process to fit the scope of the thesis and without affecting the quality of the evaluation[1]. The substantiation of the preliminary outcomes (Step 4) was initially planned to comprise three substantiation interviews. Nonetheless, despite the limited scope of the thesis, to offset the low variability of roles of the interviewees and to add further reliability to the substantiation process, another three substantiators were incorporated in Step 4. Hence, this step was done through five interviewees which are members of the management of MasAgro GTO and one from CIMMYT's scientific team, with different degrees of involvement with the IFSS. Table 3 shows a schedule of the substantiation interviews.

[1] This choice was made for many reasons. First, time constraints related to the schedule of the change agents prevented them to engage frequently with the evaluator. Second, travel restrictions related to the COVID-19 pandemic prevented the evaluator to organise in person activities to meet and engage with the harvest users. Third, considering that Step 3 involves further consultations between change agents and other individuals that are knowledgeable about the case study's strategy, the inclusion of Step 3 would entail added difficulties given the previous two constraints. Finally, after thorough analysis of the OH evaluation process, Step 3 was perceived to be non-compulsory rather than a pre-condition for successfully applying the OH evaluation method.

Table 3

Schedule of Substantiation Interviews: Interviewer, Interviewee's Occupation and Date and Time of Interview

Interviewer	Interviewee's Occupation	Interview's Date (of 2021) and Time (Berlin Time Zone)
Matheus Martins Vieira	MasAgro GTO's Coordinator	Tuesday, 16th of March of 2021 at 18:00
Matheus Martins Vieira	MasAgro GTO's lead manager and current Bajío hub's [a] Coordinator	Wednesday, 17th of March of 2021 at 16:00
Matheus Martins Vieira	Principal Scientist at CIMMYT	Wednesday, 17th of March of 2021 at 21:00
Matheus Martins Vieira	MasAgro GTO's West team Coordinator	Thursday, 18th of March of 2021 at 16:00
Matheus Martins Vieira	MasAgro GTO's technical Coordinator	Monday, 22nd of March of 2021 at 23:00
Matheus Martins Vieira	MasAgro GTO's East team Coordinator	Monday, 23rd of March of 2021 at 01:00

Note. Own elaboration based on the substantiation interviews.
[a] The Bajío hub is one of the hubs established to advance the development and promotion of desired agricultural practices.

The substantiation interviews consisted of inquiries into the outcome descriptions, their veracity and accuracy, and requests for their complementation with additional information. After conducting the interviews, these were transcribed by outcome, and the outcomes were classified as substantiated or unsubstantiated according to a substantiation analysis. For this analysis, full outcome descriptions were elaborated for each outcome.

After the substantiation process, 24 final outcomes were successfully substantiated. Those six unsubstantiated outcomes were removed due to lack of sufficient evidence either from the substantiation interviews or from initial sources (or both). Only outcomes that were confirmed by solid evidence were included in the analysis. This was especially important to guarantee validity during the implementation of the OH evaluation, especially as Step 3 could not be included in the evaluation process.

After substantiation of the outcomes, the analysis and interpretation process began (Step 5). It comprised answering the nine useful questions defined in the OH design (see Table 1) using evidence from the substantiated outcomes, the exploratory and substantiation interviews and from the questionnaire. Finally, the support for the use of the findings from the evaluation (Step 6) constituted a core objective of this thesis. It was done by providing recommendations to MasAgro GTO to improve the IFSS and included at the finishing chapter of the thesis.

Appendix

Table A1

Six Steps of Outcome Harvesting

1. ***Design the outcome harvest***: Harvest users (individuals who rely on the findings of the harvest to make decisions) and harvesters (responsible for conducting the evaluation) identify useful questions to guide the harvest. Both users and harvesters agree on what information is to be collected and included in the outcome description as well as on the changes in the social actors and how the change agent influenced them.

2. ***Gather data and draft outcome descriptions***: Harvesters glean information about changes that have occurred in social actors (actors that changed as a result of an intervention by a change agent) and how the change agent (individual or organization that influences an outcome) contributed to these changes. Information about outcomes may be found in documents or collected through interviews, surveys, and other sources. The harvesters write preliminary outcome descriptions with questions for review and clarification by the change agent.

3. ***Engage change agents in formulating outcome descriptions***: Harvesters engage directly with change agents to review the draft outcome descriptions, identify and formulate additional outcomes, and classify all outcomes. Change agents often consult with well-informed individuals (inside or outside their organization) who can provide information about outcomes.

4. ***Substantiate***: Harvesters obtain the views of substantiators about the outcome(s) and how they were achieved. Substantiators are independent individuals knowledgeable about the outcome or outcomes in question. The substantiation process validates and enhances the credibility of the findings of the evaluation.

5. ***Analyse and interpret***: Harvesters organize outcome descriptions through a database in order to make sense of them, analyse and interpret the data, and provide evidence-based answers to the useful harvesting questions.

6. ***Support use of findings***: Drawing on the evidence-based, actionable answers to the useful questions, harvesters propose points for discussion to harvest users, including how the users might make use of findings. The harvesters also wrap up their contribution by accompanying or facilitating the discussion amongst harvest users.

Note. Extracted from Wilson-Grau and Britt (2012, pp. 4–5) and complemented with additional information from the same source to better fit the scope of this thesis.

Table A2

Outcome Harvesting Terminology Applied to the Case Study of MasAgro Guanajuato's Integral Fertility Scaling Strategy

Outcome Harvesting Term	Outcome Harvesting Related Term Applied to the Thesis's Case Study
Harvester	Matheus Martins Vieira
Harvest Users	MasAgro Guanajuato's staff involved with the Integral Fertility Scaling Strategy and the strategy's management (e.g., Erick Ortiz Hernández, Amador Tranquilino Aguillón Aguillón, Francisco Buenrostro Rodríguez, Paúl García Meza, Manuel Ibañez Puig)
Target Social Actors	Local decision makers (i.e., elected or appointed local government officials), Fertiliser distributors (privately owned companies and RPAs) and farmers
Change Agents	MasAgro Guanajuato agronomists and their direct managers
Substantiators	Amador Tranquilino Aguillón Aguillón, Erick Ortiz Hernández, Ivan Ortiz-Monasterio, Paúl García Meza, Francisco Buenrostro Rodríguez, Manuel Ibañez Puig (refer to Table I2 in Appendix I for details).

Note. Own elaboration based on OH terminology as presented in Wilson-Grau and Britt (2012) and on this thesis's OH evaluation design.

References

Wilson-Grau, R., & Britt, H. (2012). *Outcome harvesting*. Ford Foundation's Middle East and North Africa Office. http://outcomeharvesting.net/outcome-harvesting-brief/