

## Evidences

### Study #4267

**Contributing Projects:**

- P1571 - CIAT Contribution to RICE Flagship project 1

**Part I: Public communications**

**Type:** OICR: Outcome Impact Case Report

**Status:** Completed

**Year:** 2021

**Title:** The adoption of an improved rice variety (MAC18), which has reached 25% of Bolivian rice farmers, contributes to the adoption of other technologies and the increase of productivity and market access

**Short outcome/impact statement:**

The Bioersity-CIAT Alliance and the Latin American Fund for Irrigated Rice (FLAR) have disseminated germplasm through local partners across Latin America, which has contributed to breeding hundreds of improved varieties now supporting rice production. Bolivia is no exception, where the main variety adopted (MAC 18) comes from the breeding programs of the Alliance and FLAR. Its adoption has been associated with a greater likelihood of adopting other high-productivity technologies and with increased smallholders rice sales .

**Outcome story for communications use:**

<Not Defined>

**Links to any communications materials relating to this outcome:**

- <https://doi.org/10.1017/AGE.2021.9>

**Part II: CGIAR system level reporting**

**Link to Common Results Reporting Indicator of Policies :** No

**Stage of maturity of change reported:** Stage 3

**Links to the Strategic Results Framework:**

Sub-IDs:

- Increased household capacity to cope with shocks
- More efficient use of inputs

Is this OICR linked to some SRF 2022/2030 target?: Yes

SRF 2022/2030 targets:

- # of more farm households have adopted improved varieties, breeds or trees

Description of activity / study: <Not Defined>

**Geographic scope:**

- National

Country(ies):

- Bolivia

Comments: <Not Defined>

**Key Contributors:**

Contributing CRPs/Platforms:

- Rice - Rice

Contributing Flagships:

- F1: Accelerating impact and equity
- F5: New rice varieties

Contributing Regional programs: <Not Defined>

Contributing external partners:

- CIAT (Bolivia) - Centro de Investigacion Agrícola Tropical (Bolivia)
- FLAR - Fondo Latinoamericano para Arroz de Riego

**CGIAR innovation(s) or findings that have resulted in this outcome or impact:**

MAG -18 Released in 2008 MAG-18 is a variety released in Bolivia in 2008. It was released from a CIAT/FLAR line and was developed within FLAR's partnerships with the Centro de Investigaci?n Agrícola Tropical CIAT-in Bolivia. It has been the main planted variety nationwide in the last years, covering between 51% and 59% of the planted area between 2014 and 2020 [1]. It is an extra-long grain variety appreciated for its high yields, good adaptability to both rainfed and irrigated systems, and good grain and cooking quality [4].

**Innovations:** <Not Defined>

**Elaboration of Outcome/Impact Statement:**

As a strategic partners, FLAR and the Bioersity-CIAT Alliance have contributed to developing improved rice varieties in Bolivia, working with FLAR in Santa Cruz, Bolivia as the local partner. As a result of this alliance, the MAC-18 variety has been released, among other improved varieties of rice. Within t six years of being released in 2008, it had been adopted by one out of every four Bolivian rice producers[4]. Currently, the variety is the most planted, representing 58% of the total area produced, , both in rainfed and irrigated systems [1]. Its good adaptation in different production systems and its high grain quality have resulted in a popular reception by both producers and the industry. MAC 18 is also the first variety developed by a national breeding program to reach these dissemination rates.

Furthermore, for smallholders, the adoption of this variety has increased the adoption-likelihood for other improved management decisions, such as fertilizer use and land mechanization [4], as well as to having access to a more significant market share in terms of rice volumes sold [3]. Thus, the benefits of MAC 18 have been sustained since this initial success strengthened collaborative work between the Alliance, FLAR, and CIAT in Santa Cruz in Bolivia. For example, new biofortified varieties were released (in collaboration with Harvest Plus). In addition, capacity-building and knowledge exchange in breeding, agronomic management, and grain quality, among other topics of interest, has increased. Although collaboration has increased, the yield gap in rice production systems needs to be further closed in Bolivia. The results obtained with the development and dissemination of MAC 18 are evidence of the impact of strategic alliances with local breeding programs

### References cited:

- [1] INE. (2017) Censo Agropecuario 2013 ? Bolivia. Instituto Nacional de Estadística. <http://anda.ine.gob.bo/index.php/catalog/24> (<http://anda.ine.gob.bo/index.php/catalog/24>)
- [2] Lopera Villamarin, D. C. (2019). Autoconsumo vs. Comercialización?: explicando las decisiones de participación de los productores en el mercado de arroz en Bolivia [Pontificia Universidad Javeriana]. <http://hdl.handle.net/10554/44470> (<http://hdl.handle.net/10554/44470>)
- [3] Martinez, J. M., Labarta, R. A., Gonzalez, C., & Lopera, D. C. (2021). Joint adoption of rice technologies among Bolivian farmers. *Agricultural and Resource Economics Review*, 50(2), 252-272. <https://doi.org/10.1017/AGE.2021.9> (<https://doi.org/10.1017/AGE.2021.9>)
- [4] Andrade, R.; Urioste, S.; Lourido, D.; Vergara, J. D.; Marin, D.; Loaiza, K.; Mona, A.; Garcia, C.; Graterol, E.; Labarta, R. (2020) Rice Observatory: Monitoring survey and open access data for the rice sector version 1.0. [Digital Platform] (<https://riceobservatory.org>)

### Quantification:

**Type of quantification:** a) Actual counts or estimates from a particular study (please provide reference)

**Number:** 201.00

**Unit:** farmers

**Comments:** 4] Data from a nationally representative sample of rice growers collected during 2014 across the main rice-producing regions in the country. The sampling design followed a multistage procedure distributed among 98 communities, consisting of 802 small and medium-scale farmer households.

**Type of quantification:** b) Extrapolated estimates

**Number:** 14456.00

**Unit:** farmers

**Comments:** 201 out of 802 producers surveyed in a nationally representative survey reported using the variety [4]. Considering an average size of a rice farming unit estimated by the Agricultural Census of 3.16 hectares [2] and a planted area of 182,274 hectares for the given year [4], a total of 14,456 farmers were estimated to be adopting the variety

### Gender, Youth, Capacity Development and Climate Change:

**Gender relevance:** N/A - Not applicable

**Youth relevance:** N/A - Not applicable

**CapDev relevance:** 1 - Significant

Main achievements with specific **CapDev** relevance: CIAT-Bolivia's breeding program receives basic material and its research and technical staff retrained through technical committees and field visits

**Climate Change relevance:** N/A - Not applicable

**Other cross-cutting dimensions:** No

**Other cross-cutting dimensions description:** <Not Defined>

**Outcome Impact Case Report link:** [Study #4267](#)

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