



PART 1: Description and all information of the outcome/impact reported

TITLE

NextGen Agroadvisory Boosts Ethiopian Wheat Yields by 38%

Subtitle

NextGen Agroadvisory increased wheat yields for over 50,000 smallholder farmers in Ethiopia and prompted the government to adopt and promote the approach nationally

YEAR

2023

OUTCOME IMPACT CASE REPORT

Study #AFR-2314

Stage of Maturity of change reported: stage 2

GEOGRAPHIC SCOPE: NATIONAL



Created with mapchart.net

COUNTRY: Ethiopia

Comments: The agroadvisory content developed was piloted at the national level in selected villages (kebele), where wheat is the main cropping system, covering a total of sixteen districts in the Amhara, Oromia, and Southern Nations, Nationalities, and Peoples (SNNP) regions of Ethiopia.

OUTCOME STORY/IMPACT STATEMENT

Site-specific, season-smart fertilizer recommendations boosted wheat yields by 38% among smallholder farmers in Ethiopia, prompting government attention for wider promotion. Piloted with key partners, the approach reached over 50,000 farmers, with 8,316 (16.6%) adopting the recommendations, 20% of whom were women. The initiative marked a shift from the traditional blanket recommendations to precise, digitally-enabled fertilizer advice, efficiently distributed through agile channels to local extension agents and farmers, highlighting effective tailored agronomic advice in Ethiopian wheat-growing areas.



Field Day participants visiting and evaluating (vote green) the SSFR in Shurmu village, Lemo District, SNNP Region, Ethiopia, 2023 - Bioversity International

Contributing external partners:

- Digital Green (DG)
- Ministry of Agriculture (MoA)
- Zonal Bureau of Agriculture
- District Bureau of Agriculture
- Ethiopian Institute of Agricultural Research (EIAR)
- Gessellschaft für Internationale Zusammenarbeit (GIZ) Ethiopia

CGIAR INNOVATION(S) OR FINDINGS THAT HAVE RESULTED IN THIS OUTCOME OR IMPACT

Location-, season- and context-specific fertilizer recommendations were effectively delivered to 50,200 farmers through multiple channels, with a focus on using a telegram bot to communicate the agro-advisory service. Impressively, 8,316 farmers (16.6%) adopted these recommendations, with a notable 20% female adoption rate [1].

GENDER, YOUTH, CAPACITY DEVELOPMENT AND CLIMATE CHANGE

Cap Dev relevance: 1 - Significant. The technical capacity of national and regional research staff from research institutes and universities was enhanced through training in add-on surveys [2]. At the same time, extension agents were trained to improve their knowledge and skills, enabling them to provide advice at both village and individual levels through flexible dissemination channels [1].

Climate Change relevance: 1 - Significant. The advisory system is designed to be 'season-smart,' providing a range of agronomic solutions that can be adapted to suit the local context and specific growing seasons. The tool continuously updates fertilizer and other agronomic recommendations based on predicted seasonal climate for the wheat growing season, as generated by the Ethiopian Digital AgroClimate Advisory Platform (EDACAP) climate model [3]. To manage weather and climate risks and facilitate the implementation of recommended advisories, a strategic approach involves bundling agro-climate advisory services with insurance and credit provision. This integrated approach, exemplified by the private partner LERSHA, not only transfers part of the risk from farmers to insurers but also provides improved financial solutions. In its pilot phase, LERSHA successfully reached 837 farmers [4], ensuring investment security, and enabling farmers to adopt the recommended advisories.

ELABORATION OF OUTCOME/IMPACT STATEMENT

Since 2021 the Alliance of Bioversity and CIAT (the Alliance) has been co-developing, co-validating and piloting an integrated, site-specific, and season-smart decision-support tool (DST)/advisory (SSFR) for wheat, maize, barley, and teff cropping systems at the national level, along with various collaborators in Ethiopia. The project was supported by the Excellence in Agronomy (EiA) of the CGIAR Initiative, the Supporting Soil Health Initiative (SSHI) of GIZ-Ethiopia and Accelerating the Impacts of CGIAR Climate Research in Africa (AICCRA) [2].

A customized decision support tool (DST) was used to guide planners, extension agents, and farmers in making optimal investments in fertilizer and crop-planting decisions in key wheat-growing areas of Ethiopia. Thus, the Alliance is committed to producing advisory content that meets the demands of development organizations and stakeholders. The main demand partner is Digital Green (DG), which was tasked with delivering the generated advisory content to extension agents and farmers through agile and contextualized dissemination channels such as Interactive Voice Response (IVR), Short Message Text (SMS), video, training, and capacity building, while incorporating feedback mechanisms [3]. A Telegram Bot was found to be a user-friendly platform for delivering nuggets of agronomic advice directly into the hands of development agents (DAs) and ultimately farmers. It was also the most widely used digital technology by most of the DAs surveyed in 2023, embodying the success of this digital leap [2].

To formalize the scale-up and integrate the advice into the national extension package, arrangements were made with the Ethiopian Institute of Agricultural Research (EIAR) to validate the DST recommendations. As a result, a joint protocol was developed, and EIAR researchers were trained to independently validate the site-specific fertilizer recommendations at five sites in the Amhara, Oromia, and Southern Nations, Nationalities, and Peoples (SNNP) regions during the 2023 season [3]. The success of the pilot, which reached 50,200 farmers, with 8,316 of whom adopting the recommendations, 20% of whom were women, highlights the need for tailored advisories. This success story has attracted other stakeholders' attention, leading to pilot activities by government organizations and the private sector [3]. Field observations and farmer field-day evaluations of on-farm pilot farmers' plots conducted by the Ministry of Agriculture (MoA) showed encouraging results with DST advisory, outperforming local farmers' practices with an average 38% increase in wheat yields in Ethiopia [3].

In 2023, the insurance/credit facility was bundled with the agro-climate advisory in response to user-centered design assessments. The private sector, LERSHA, piloted this approach, reaching 837 farmers in different districts in the Amhara and Oromia regions. LERSHA became a one-stop digital platform to ensure the resilience of smallholder farmers. An early success of LERSHA was in bundling SSFR with credit access and insurance services in the SNNP region, supporting 725 farmers [4].

PART 2: Mapping to Alliance strategy and structure

KEY CONTRIBUTOR AND STRATEGIC OUTCOMES



Lever 2: Multifunctional Landscapes

- National and subnational authorities in priority countries implement policies and incentives that promote evidence-based agro-environmental solutions that enhance ecosystem services and livelihoods in rural areas.
- Land managers and development actors participate in the co-design and deployment of land uses that are more diverse and reduce the environmental impact of agricultural systems in priority countries.

SECONDARY CONTRIBUTORS

Lever 3: Climate Action

Lever 5: Digital Inclusion

Gender, Youth and Inclusion

An 'add-on' survey was conducted to fine-tune the site-specific and tailored agronomic recommendations, by characterizing farms and households. These provided appropriate advisory for specific yield gaps, household groups, and gender and youth categories. As part of the key activities, capacity building efforts included training sessions for 158 men and 16 women on an add-on survey and data collection using the Open Data Kit (ODK) tool. As a result, the technical capacity of national and regional research staff was strengthened, through training on add-on surveys to collect quality data, which was made available on the ONA website for future initiatives [3].

In general, the collaborative development, validation, and piloting of an integrated, location-specific, and season-smart decision-support tool (DST)/advisory for the major cropping systems in Ethiopia is a ground-breaking initiative, led by the Alliance. The involvement of Digital Green as a demand partner underlines the commitment to deliver advisory content through innovative channels, with a focus on a user-friendly Telegram bot. The collaboration between the Alliance and the demand partners has sparked government interest to have the SSFR independently validated by the EIAR in 2023, a demonstrable change in behavioral and motivation to take the approach to scale.

The success in reaching many farmers with a significant adoption rate (16.6%) reflects the need for tailored extension services. The impact of the initiative extends to piloting by the MoA and the private sector, such as LERSHA, with notable results observed in the 2023 farmer field day. In addition, bundling insurance/credit with agro-climate advisory services by LERSHA reached a significant number of farmers in the first phase. This is encouraging, as it can be seen as a comprehensive approach to enable and encourage farmers with limited financial resources to invest in agro-inputs and adopt locally relevant agronomic recommendations.

As part of the task of enhancing the value of such tailored agronomic advice, an 'add-on' survey in 2023 will have a far-reaching effect to further refine and hyper-localize any future agronomic solutions at scale based on specific yield gaps, household types, and gender and social categories.

SDG TARGETS



- **1.5** - By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social, and environmental shocks and disasters.
- **2.4** - By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

PART 3: One CGIAR Alignment

LINK TO IMPACT AREAS AND GLOBAL TARGETS



- **Impact Area 1: Nutrition, Health, and Food Security** - End hunger for all and enable affordable healthy diets for the 3 billion people who do not currently have access to safe and nutritious food.



- **Impact Area 4: Climate Adaptation and Mitigation** - Implement all National Adaptation Plans and Nationally Determined Contributions to the Paris Agreement.



- **Impact Area 5: Environmental Health and Biodiversity** - Stay within planetary and regional environmental boundaries: consumptive water uses in food production of less than 2500 sq. km. per year (with a focus on the most stressed basins), zero net deforestation, nitrogen application of 90 Tg per year (with a redistribution towards low-input farming systems) and increased use efficiency, and phosphorous application of 10 Tg per year.



Farmers are happy with the performance of the Site-specific and season-smart fertilizer recommendations (SSFR) in Kore District, Oromia Region, Ethiopia, 2023 - Bioversity International

PART 4: References, evidence and COM material

EVIDENCE

1. Mesfin, T.; Liben, F.; Ebrahim, M.; Tesfu, D.; Gashaw, G.; Bekele, H.; Tilaye, A.; Erkossa, T.; Abera, W.; Ayele, K.; Tamene, L. (2023) Empowering smallholder wheat farmers with NextGen Agroadvisory in Ethiopia: A tailored, season-smart, and scalable approach. 10 p. available [here](#)
2. Zewdie, E., Asfaw, T., Gashaw, G., G/Giorgis, H., Tesfu, D., Ebrahim, M., Liben, F., Ayele, K., Tamene, L. (2023). Site-Specific Fertilizer Recommendations for Wheat in Ethiopia: An Assessment Report on Advisory Dissemination and Feedback Collection. Technical Report by Digital Green Ethiopia and Alliance of Bioversity and CIAT. available [here](#)
3. Liben, F.; Abera, W.; Ebrahim, M.; Mesfin, T.; Tesfu, D.; Gashaw, G.; Bekele, H.; Tilaye, A.; Erkossa, T.; Ayele, K.; Adimassu, Z.; Tamene, L. (2023) Assessing the performance of the NextGen agroadvisory on wheat yields in Ethiopia. 9 p. available [here](#)
4. Ebrahim, M.; Abera, W.; Liben, F.; Tilaye, A.; Tibebe, D.; Mesfin, T.; Tolosa, D.; Endrias, A.; Desalegn, T.; Ayele, K.; Egu, Y.; Erkossa, T.; Tamene, L. (2023) Site-specific fertilizer recommendation spilled over to other partners: The opportunity and potential for facilitated scaling up. 17 p. available [here](#)

LINKS TO ANY COMMUNICATIONS MATERIALS RELATING TO THIS OUTCOME

- Alliance of Bioversity and CIAT blog Alliance of Bioversity and CIAT blog (available [here](#))
- Empowering Smallholder Farmers: The Benefits of Bundling Agricultural Recommendations with Insurance, Credit, and Climate Advisory Services by the Alliance with its client. (available [here](#))
- Growing Smarter: Embracing Site-Specific Fertilizer Recommendations in Ethiopia by the Alliance with its client. (available [here](#))

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The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT) delivers research-based solutions that harness agricultural biodiversity and sustainably transform food systems to improve people's lives. Alliance solutions address the global crises of malnutrition, climate change, biodiversity loss, and environmental degradation.

The Alliance is part of CGIAR, a global research partnership for a food-secure future.



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