



Africa RISING in Ghana – impact brief

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The [Africa Research In Sustainable Intensification for the Next Generation](#) (Africa RISING) program comprises three research-in-development projects supported by the United States Agency for International Development (USAID) as part of the U.S. Government's Feed the Future initiative.

Through action research and development partnerships, Africa RISING is creating opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three regional projects are led by the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads the program's monitoring, evaluation, and impact assessment.




Africa RISING appreciates support from the American people delivered through the USAID Feed the Future initiative. We also thank farmers and local partners at all sites for their contributions to the program.

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Interventions/Innovations

The Africa RISING project in Ghana was implemented in 25 communities across the Upper East, Upper West, and Northern regions. The project supported the promotion of early maturing maize varieties and maize-cowpea intercropping, optimal crop spacing for increased groundnut yield, and maize-leaf stripping for livestock feed. It also aimed to foster the adoption of improved feeding for livestock to boost manure production, reduce animal mortality, and increase animal reproduction rates. Alongside these interventions, Africa RISING promoted effective natural resource management (leaf stripping, manure production, and use of nitrogen fertilizer). Mechanization for postharvest handling was also supported, especially the use of fuel-powered maize-shelling machines.

Project Monitoring and Evaluation

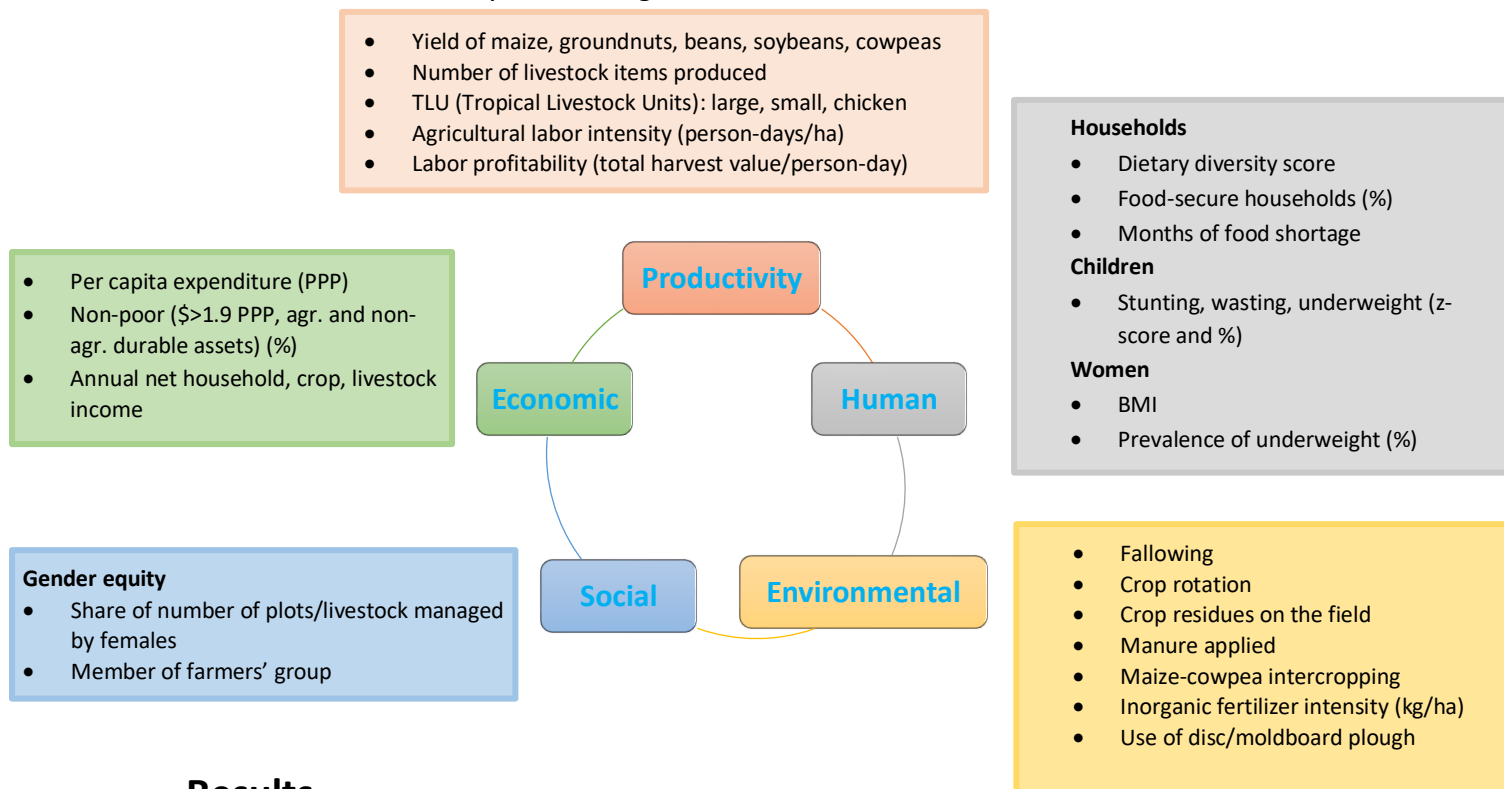
Monitoring and evaluation (M&E) of Africa RISING in Ghana was carried out by IFPRI. Panel data for the empirical analysis were collected as part of the monitoring, evaluation, and impact assessment of the whole Africa RISING program. Baseline and follow-up data were collected in 2014 and 2020, respectively, covering 25 program target and 25 program non-target (control) communities and four groups of households. The first group (group 1) consisted of 435 households that participated in the project. The second group (group 2) included a random sample of 140 households that were recruited into the project but did not participate in any activities at baseline. The third group (group 3) included an additional random sample of 169 households that neither participated nor were recruited at baseline. Finally, the fourth group (group 4) consisted of 452 households from the 25 control communities (controls).

Multiple pairwise comparisons were conducted to assess the sensitivity of impact estimates and test different impact pathways:

- beneficiaries vs. non-beneficiaries in project target villages (*within-village* comparison)
- beneficiaries vs. non-beneficiaries in control villages (*out-of-village* comparison)
- beneficiaries vs. non-beneficiaries in project target and control villages (*overall* comparison)
- non-beneficiaries in project villages vs. non-beneficiaries in control villages (*placebo* comparison).

Sustainable Intensification Assessment Framework (SIAF)- domains and indicators

We adopt the SIAF approach that provides guidance on indicators, metrics, and means to explore five domains of sustainability (agricultural production and productivity, economic, environment, human, and social). The set of impact indicators considered is meant to capture both year-specific outcomes (e.g., input use, yields, and agricultural income) as well as longer-term outcomes (e.g., durable asset accumulation and children's and women's nutrition). The longer-term outcomes better capture changes in the state of household agricultural production and welfare between the two survey rounds. Figure 1 below identifies the indicators used.



Results

Under the environmental domain, participation in the project increased the likelihood of fallowing by 13 percentage points, the prevalence of the use of disc/moldboard plough by 6 percentage points, and the practice of maize-cowpea intercropping by 4 percentage points. Africa RISING beneficiaries were also almost 16 percentage points more likely to employ manure than non-beneficiary households. While project participation did not lead to any increase in the use of inorganic fertilizer, it increased groundnut yield (+0.22 ton/ha). Also, beneficiary households experienced an increase in the number of livestock by-products produced (+0.56). In terms of economic impact, Africa RISING participation boosted household net total and crop income (+\$480 and \$519 PPP, respectively). On the other hand, participation in the project led to a decrease in the percentage of households with diversified livelihoods (-15 percentage points). Under the social domain, the project increased the share of households belonging to farmers' group (+20 percentage points). Consistent with findings from other program countries, we find no evidence of a positive impact on household nutrition or children's and women's nutrition.

Results at a glance

Environmental indicators

- Positive effect (+13 percentage points) on the prevalence of fallowing
- Positive impact on the use of disc/moldboard plough (+6 percentage points)
- Practice maize-cowpea intercropping (+4 percentage points)
- Increased use of applied manure (+16 percentage points)

Productivity indicators

- Positive impact on groundnut yields (+0.22 tons/ha)
- Positive impact on the number of livestock items produced (+0.6)

Economic indicators

- Increase of annual net household income (+\$480 PPP)
- Increase in annual net crop income (+\$519 PPP)
- Decrease in percentage of households with diversified livelihoods (-15 percentage points)

Social and human indicators

- Increase in the percentage of households belonging to farmers' group (+20 percentage points)
- No evidence of positive impact on household food security
- No evidence of positive impact on children's and women's nutrition

Conclusions

Africa RISING interventions in Ghana have been focused on improving the adoption of early maturing maize varieties, maize-cowpea intercropping, optimal crop spacing for increased groundnut yield, and maize-leaf stripping for livestock feed while also boosting natural resources management. While participation in Africa RISING has positively affected the prevalence of households practicing fallowing, using disc/moldboard plough, and maize-cowpea intercropping, we document no significant increase in yields except for groundnut, which drives the surge in net crop income. Our results point to a significant positive increase in the number of livestock produced, albeit livestock income has remained unchanged. The project also increased the share of households belonging to farmers' groups, but it did not affect food security and household dietary diversity. These results, coupled with inconclusive effects on social and human dimensions, call for long-lasting interventions to reach long-term goals, such as changing social norms or improving nutrition.