




Africa RISING in Zambia

Creating Sustainable Systems for Agriculture




Country brief - March 2019



Outcomes


Technologies validated

13




Farmers worked with to validate technologies

50,000




Long-term trainings

2 MScs



Number of development partnerships

12



Research-in-development scope

1. Cropping systems

- Varieties
- Agronomy

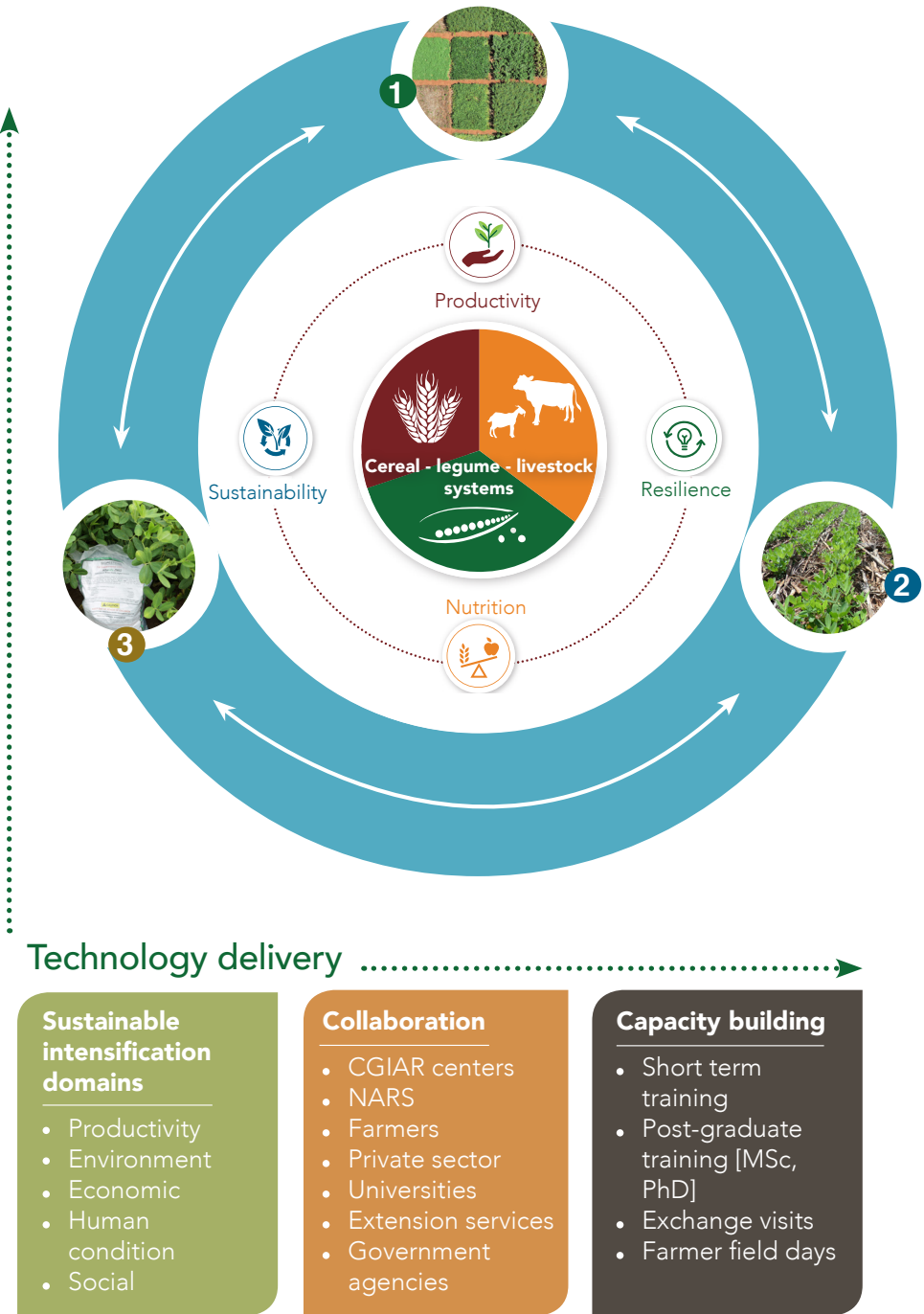
2. Natural resource management [NRM]

- Soil & water management

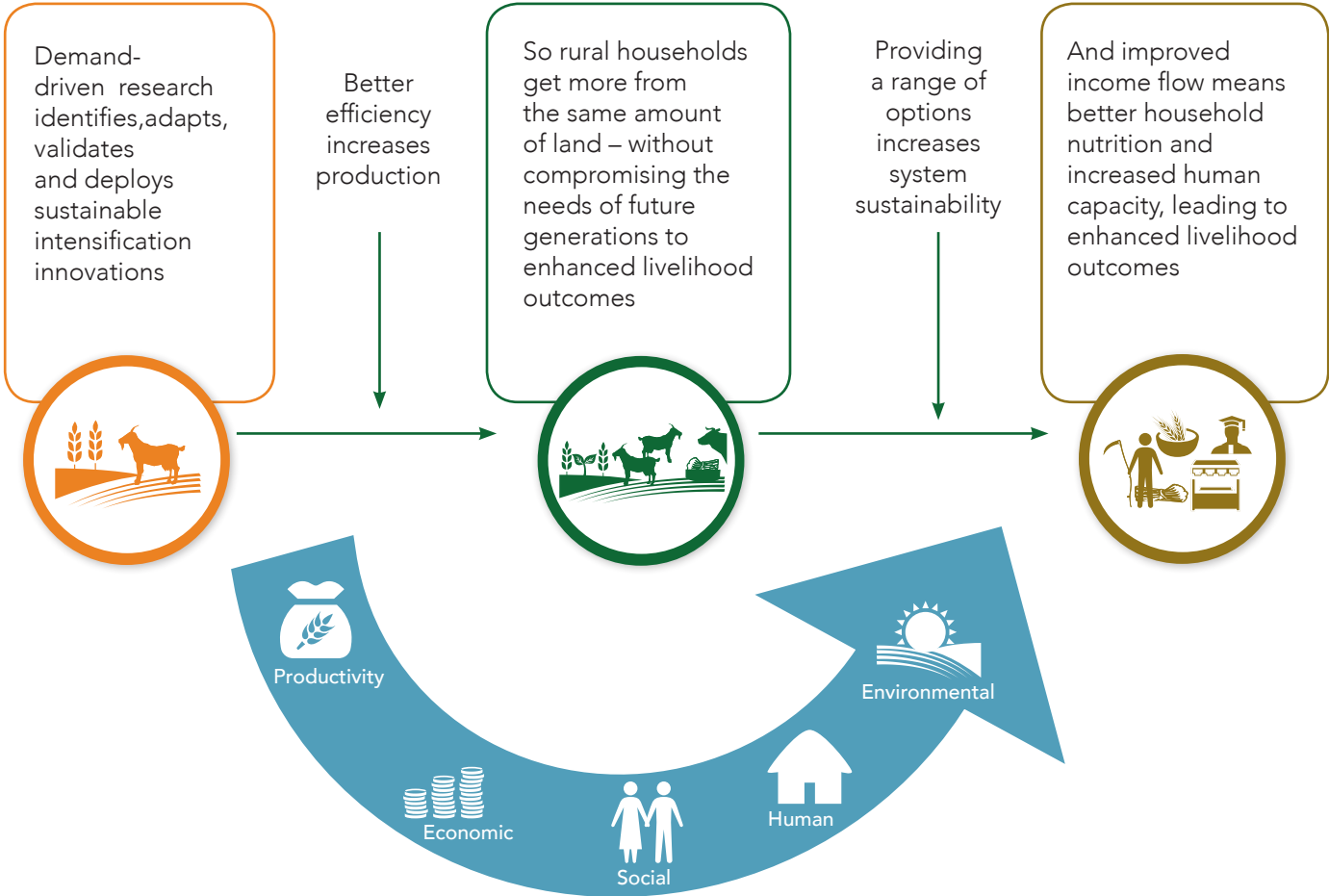
3. Human condition

- Nutrition
- Food safety

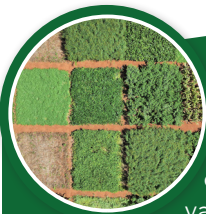
*Appropriate technologies are integrated within and across the components above.



Africa RISING's theory of change



Multiple sustainable intensification domains in an enabling policy environment result in long-term equity and viability



1 Cropping systems

> Varieties

- o Drought-tolerant and nutritious maize varieties have been introduced by Africa RISING and its predecessor SIMLEZA project and have a yield benefit of more than 30% over commercial control varieties.
- o The project supported the release process for four high yielding and farmer-preferred orange-fleshed sweet potato varieties - Olympia, Twatasha (Chunfwa), Chiwoko (Orange Chingovwa) and Kokota. These varieties have a yield range of 15 (Chiwoko) to 25t/ha (Olympia) against the national average of 5.8t/ha for sweetpotato in general.
- o Over 23,000 vines of high yielding and farmer preferred orange-fleshed sweet potato varieties were produced and distributed to smallholder farmers. To ensure sustainability and continued access by farmers to clean planting materials, the project also trained 279 decentralized vine multipliers in different intervention communities.

> Agronomy

- o Among the different intercropping options tested and validated with farmers, the project team established that delaying cowpea planting by 7–10 days is beneficial for both maize and cowpea and provides adequate yields for both crops without a penalty. In the drought years, where maize failed, farmers were thankful for an additional crop (cowpea or pigeonpea) that could be harvested and provide additional food security and nutritional benefits. When lablab was intercropped, it provided groundcover, soil fertility improvements, and additional animal feed for the dry season. Intercropping maize with cowpea under conservation agriculture provided yield benefits of up to 51% (1114 kg/ha) compared with a conventionally ploughed system without intercrop.
- o Farmers gained yield benefits of up to 82% (1788 kg/ha) and 66% (1380 kg/ha) if they planted their crops with a dibble stick or a ripper tine and rotated them with cowpea or soybean, respectively. Rotating maize with lablab under half the rate of fertilizer led to a yield benefit of 56% (1545 kg/ha).
- o The doubled-up legume system involving pigeonpea and groundnut led to an increased Land Equivalent Ratio of up to 1.64.



2 Natural resource management (NRM)

> Soil & water management

- o Conservation agriculture systems tested since 2011 had an increased return on investment of 30%, a return to labor of 13.3 USD per labor day invested, and increased water infiltration rates by between 20 and 50%. Other benefits included: a reduction in soil erosion (between 111 and 140%), soil quality improvement (by up to 40%), and a reduction in labor days (25–35 labor days/ha) when compared to the conventional ridge and furrow land preparation.
- o The application of gliricidia led to a yield benefit of more than 79% (1643 kg/ha) against a no-fertilizer control in on-farm trials on different soil types.



3 Human condition

> Nutrition

- o To make pigeonpea more socially acceptable and reduce farmers' dependence on legume exports to India, the project collaborated with Catholic Relief Services and Grassroots Trust who conducted cooking classes with smallholders to familiarize smallholders with the taste and recipes of pigeonpea dishes.

> Food Safety

- o Working with national partners in Zambia, Africa RISING supported the testing and registration of aflatoxin biocontrol products Aflasafe ZM01 and ZM02. These products have been tested with smallholder farmers and have been confirmed to reduce aflatoxin contamination in maize and groundnut by 90– 99%, thereby ensuring consumption of safe foods.



Partners:



The Africa Research In Sustainable Intensification for the Next Generation (Africa RISING) program comprises three research-for-development projects supported by the United States Agency for International Development 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 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 an associated project on monitoring, evaluation and impact assessment.

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