



Insecticide Spray Regime Effect on Cowpea Yield and Financial Returns in Northern Ghana

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Key research activities

A split plot design with eighteen replications across the three northern regions was used. Two spray regimes (one spray and three sprays) were the main plots and 6 cowpea varieties (Sangotra, Apagbaala, Padituya, IT 99K 573-1-1, Zaayura, and farmers' local variety) were the sub plots. Grain yield was measured and its gross return, return to labor per person day, benefit cost ratio and stochastic dominance were estimated.

Results and main findings

- Spraying cowpea three times had significant effects on grain yield (Fig. 1)
- Insecticide spraying regime affect gross margin, return to labor per person day and benefit cost ratio (Table 1)
- First degree stochastic dominance analysis also shows that the higher spray regime is dominant over the lower spray regime (Fig. 2).

Implications of the research for generating development outcomes

Spraying insecticides three times on cowpea did not only increases grain yield and net returns, but also reduces the probability of getting lower yields and financial returns which makes it suitable to smallholder farmers who are usually risk averse.

How this work would continue in Africa RISING phase 2

Results from this study can be used for scaling-up activity in Africa RISING phase 2 to improve cowpea productivity in northern Ghana.

Current partnerships and future engagements for out scaling

Current : Ministry of Food and Agriculture (MoFA)

Future: Agricultural Technology Transfer project (ATT)

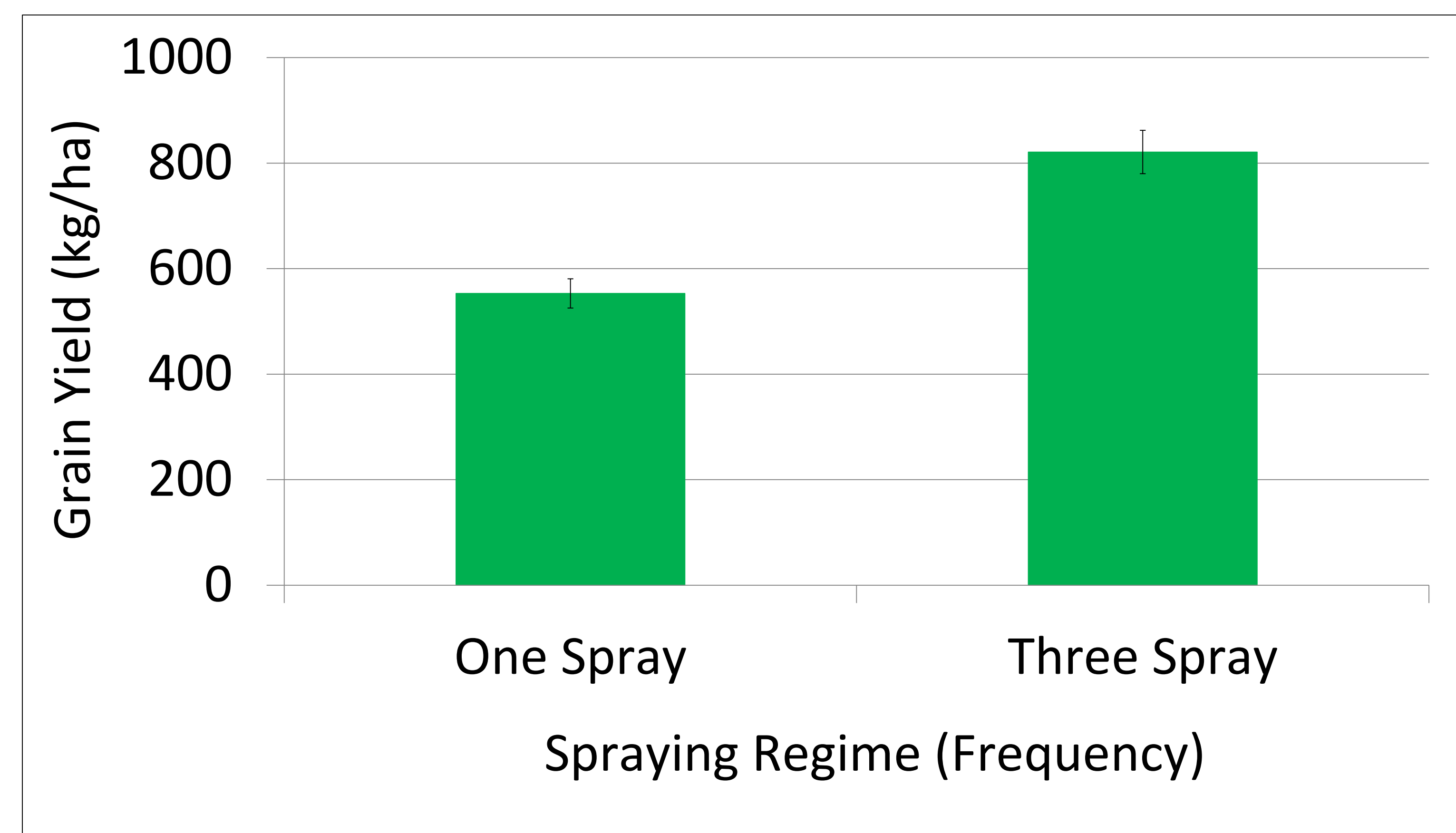


Fig. 1: Cowpea grain yield as affected by spraying regime

Table 1: Effect of spraying regime on net financial returns

Spraying regime (frequency)	Gross margin (Ghc ha ⁻¹)	Return to labor day ⁻¹ (Ghc)	BCR
One	508	9.1	1.4
Three	1066	14.0	1.8
s.e	36.77	0.34	0.13
P-value	0.0086	0.0135	0.0148

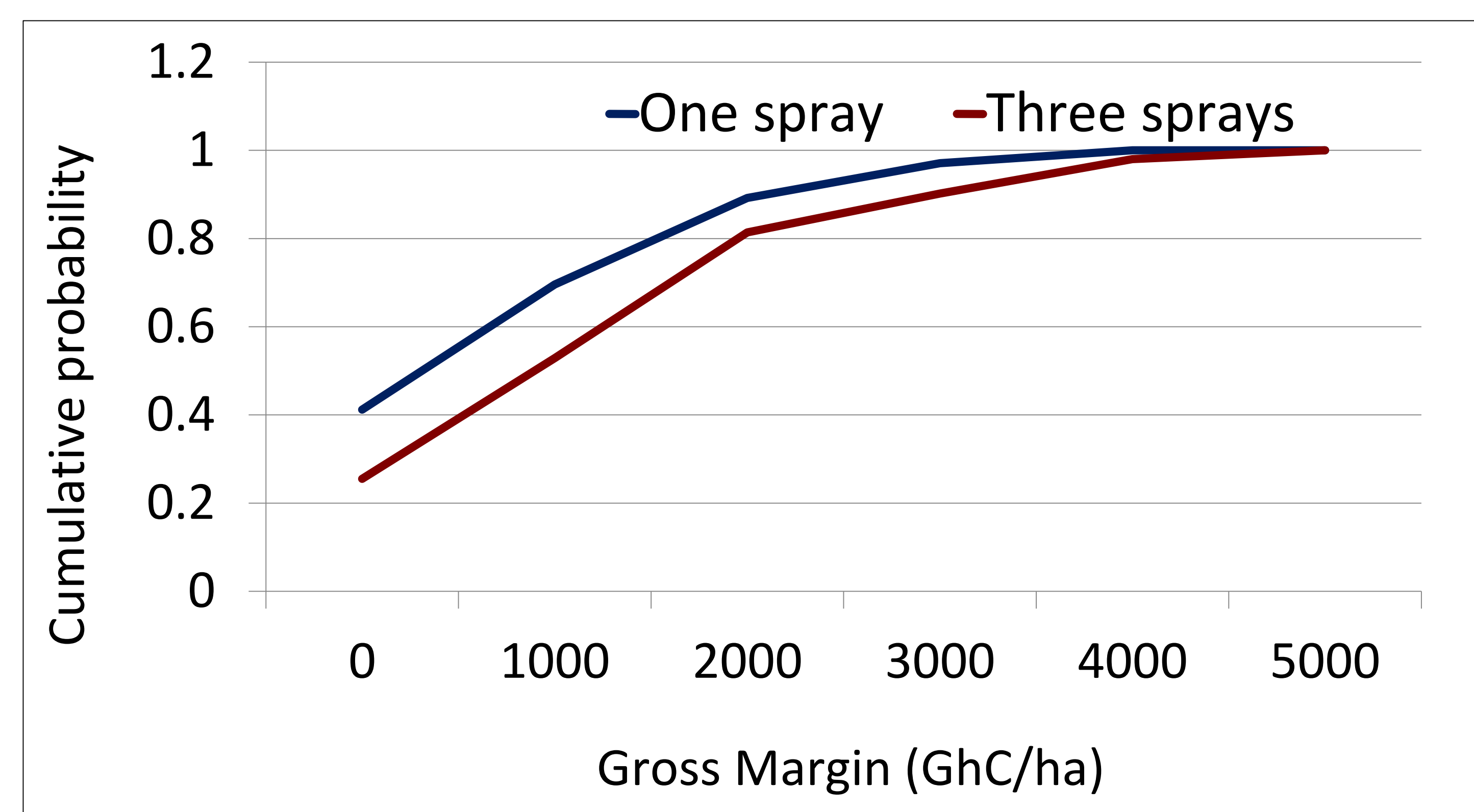


Fig. 2: Stochastic dominance for spraying regime on cowpea
\$1= GHS 3.3



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 will create 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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