

Leveraging scale up of biofortification through small and medium enterprises in Uganda: What are governance challenges?

Richard Alioma, Manfred Zeller, Regina Birner, Christine Bosch and Bho Mudyahoto



Background

- Consumption of biofortified crops increases micronutrient intake that may lead to reduction of micronutrient deficiency. [1,2]
- Scaling of interventions like biofortification through partnership with small and medium enterprises has gained popularity in the policy agenda. [3]
- Current evidence seem to suggest governance challenges in scaling of mechanization, global value chains and development programs [4, 5]

Objectives

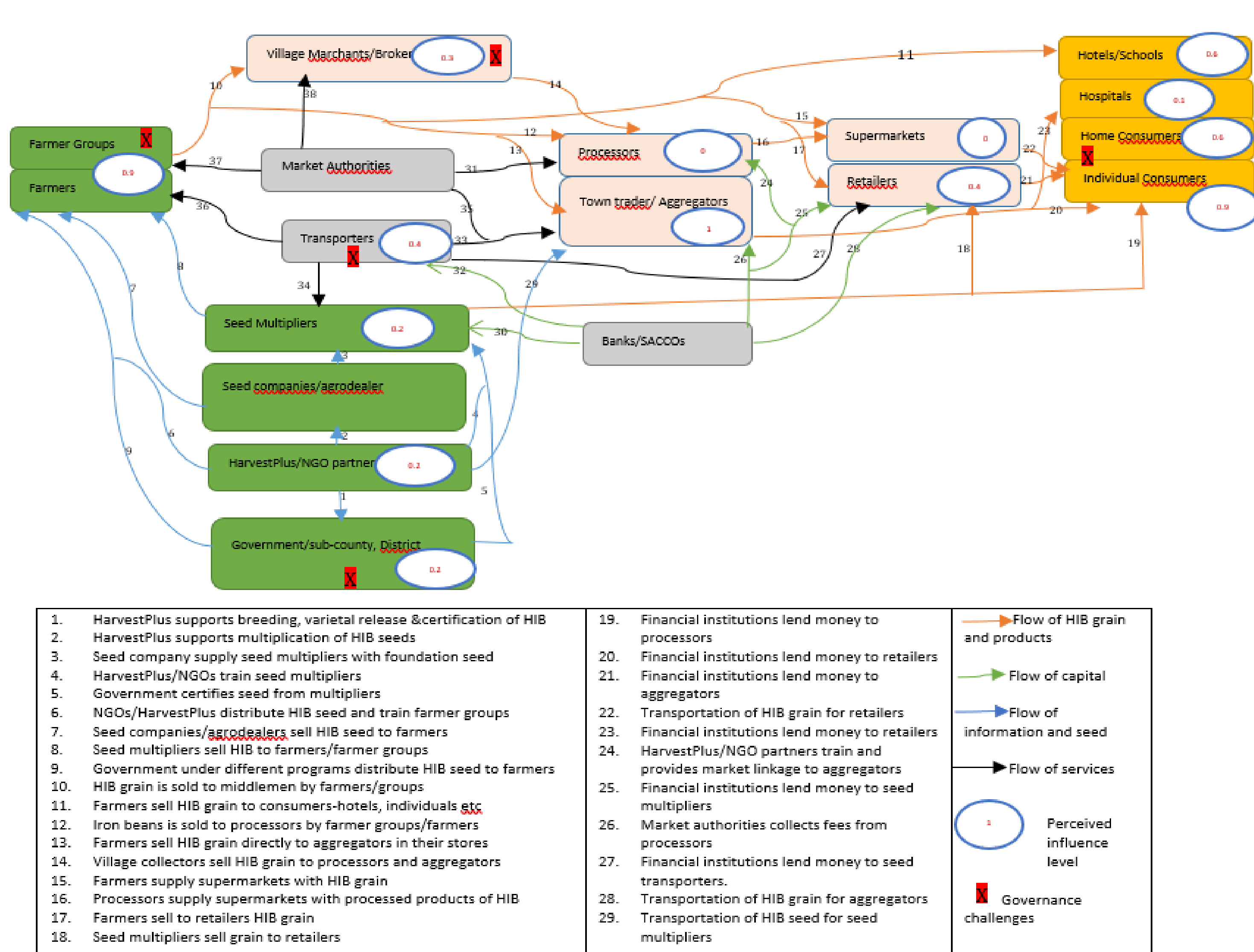
- To identify peculiar governance challenges in the value chain actors of biofortified crops in Uganda.
- To determine the effect of training on iron bean attributes on Identification of their varieties.

Methods

- The study used both qualitative and quantitative approaches
- 63 Process Net Maps were conducted in 3 regions with value chain actors to elucidate the governance challenges.
- 85 farmers participated in the field lab experiment, 42 treatment and 43 in control.
- A total of 22 samples of iron beans and non-iron beans were prepared each weighing 100grams.
- Correlated random effects model was used to analyze the effect of training on identification.

Results

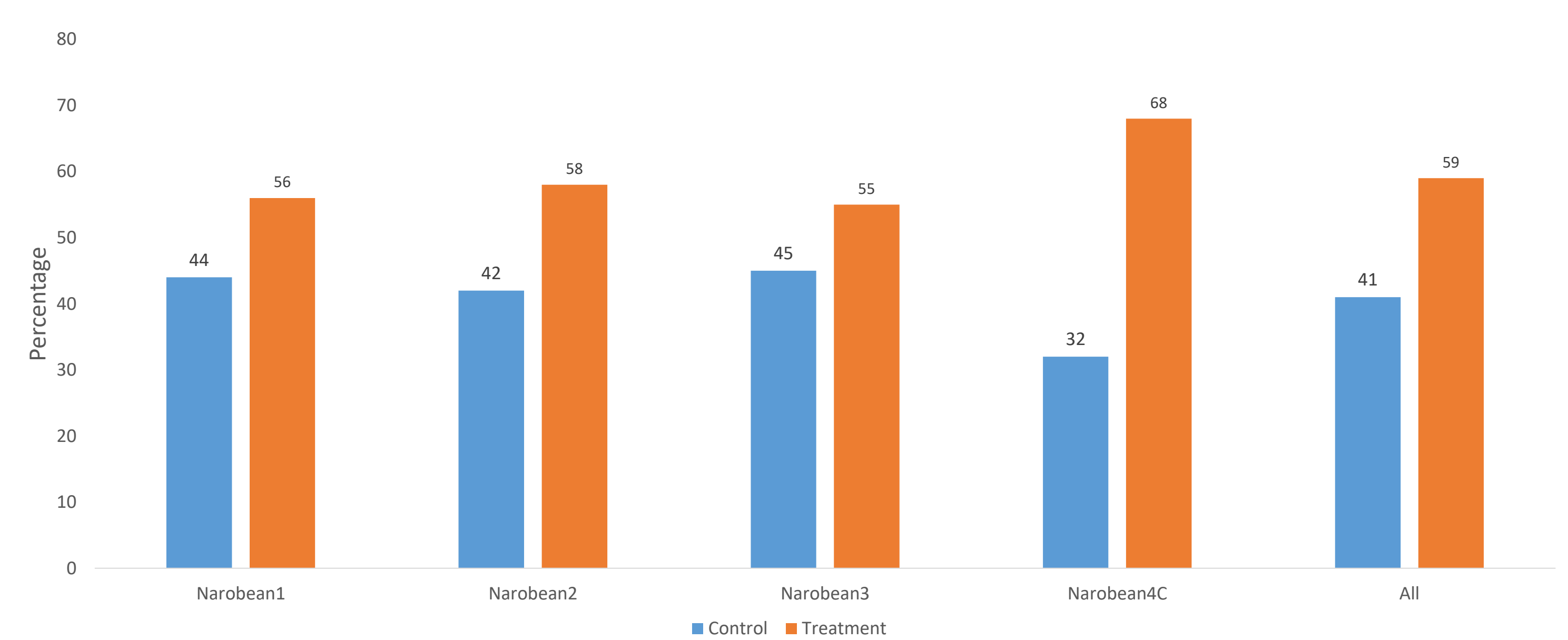
i) The process net map



ii) Governance challenges

- Smaller household land allocation for biofortified crops
- Corruption in the supply of OFSP vines
- Maintaining the quality of biofortified products
- Low willingness to pay a premium price for biofortified crop products
- Problems in the modular governance system

iii) Percentage of farmers that can identify HIB



iv) Effect of training on identification of HIB

Variables	Coefficient
Training	0.092
Access to extension service	-0.173*
Access to credit	0.185*
Distance to the nearest agrodealer	0.095***
Location-Kakumiro	0.227*
Location-Kamuli	0.366***
N	340
Wald chi2	-137***
aic	316

* p<0.05, ** p<0.01, ***p<0.001. Covariates age of the farmer, household size, TLU, income, land, sex, district, education, distance to the nearest road, and distance to the output market

Conclusions & Policy recommendations

- Aggregators and individual consumers were found to be influential in scaling up of biofortified crops in Uganda.
- Heterogeneous governance challenges exist among the various SMEs participating in the biofortified crop food chain
- Training of farmers need to be combined with other interventions such as certification and subsidies to scale biofortified crops.

References

- [1] Low, J. W., Mwanga, R. O., Andrade, M., Carey, E., & Ball, A. M. (2017). Tackling vitamin, A deficiency with biofortified sweet potato in sub-Saharan Africa. *Global food security*, 14, 23-30.
- [2] Murray-Kolb, L. E., Wenger, M. J., Scott, S. P., Rhoten, S. E., Lung'aho, M. G., & Haas, J. D. (2017). Consumption of iron-biofortified beans positively affects cognitive performance in 18-to 27-year-old Rwandan female college students in an 18-week randomized controlled efficacy trial. *The Journal of nutrition*, 147(11), 2109-2117.
- [3] Schut, M., Leeuwis, C., & Thiele, G. (2020). Science of Scaling: Understanding and guiding the scaling of innovation for societal outcomes. *Agricultural Systems*, 184, 102908.
- [4] Birner, R., & Sekher, M. (2018). The devil is in the detail: understanding the governance challenges of implementing nutrition-specific programs on a large scale. *Hidden Hunger: Strategies to Improve Nutrition Quality*, 118, 17-44.
- [4] Adu-Gyamfi P., Birner, R., & Gupta, S. (2018). Why do maize farmers in Ghana have a limited choice of improved seed varieties? An assessment of the governance challenges in seed supply. *Food security*, 10(1), 27-46.

