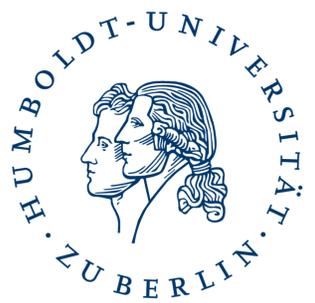
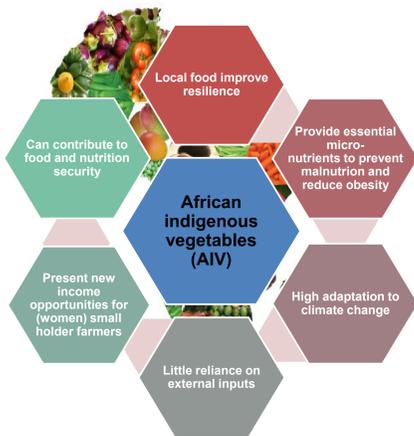


Nutrition, gender and social cohesion effects of the commercialization of African indigenous vegetables on smallholder farmers

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Background AIV



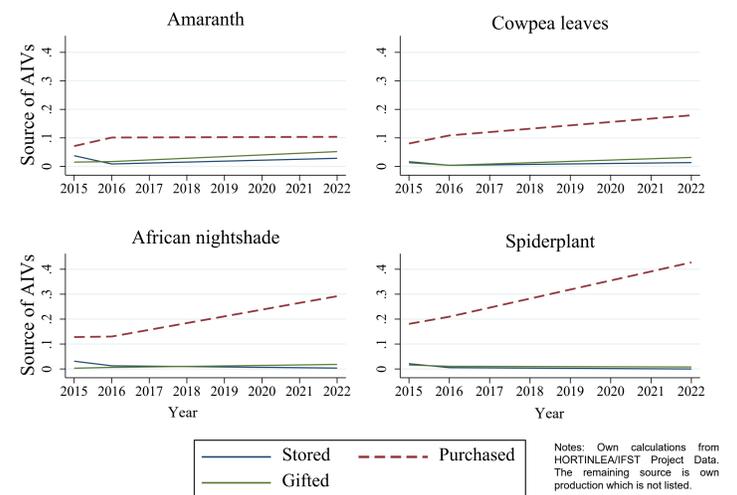
Research focus

The effects of the commercialization of AIV

Within the framework of the project “Inclusive Food System Transition: Social Cohesion, Food & Health” (IFST), our case study analyzed the repercussions of the increasing commercialization of African indigenous vegetables (AIV) on smallholder farmers in Kenya that cultivated AIVs formerly for subsistence. We focus on the effects on:

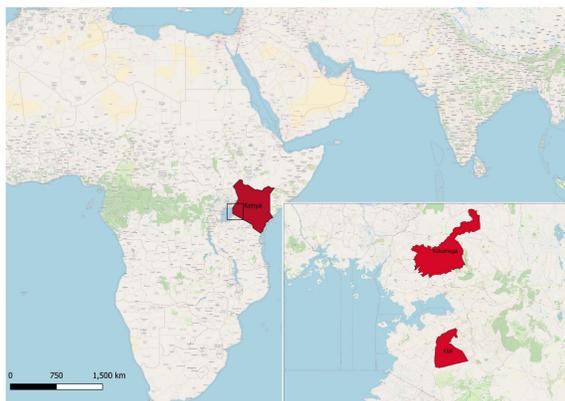
1. Income
2. Nutrition
3. Social cohesion
4. Inclusion of women

Figure: Commercialization of AIV over time



Data

Figure: Map of research region



Data sources:

1. HORTINLEA project smallholder survey (2014-2016)
2. IFST project smallholder survey (2022)
3. IFST project focus group discussions (FDG) with smallholders (2022)

Methods

Qualitative research:

- All transcripts have been deductively coded using the analytical categories that are key in the feminist economics framework and/or the social cohesion framework
- 20 FGDs: 10 women and 10 men-only groups with each 8-15 participants

Quantitative research:

- Panel data for farmers in 2022 (n=363) that were already interviewed in 2016 (n=396) to follow long-term trends (attrition rate of 9%)
- Fixed-effects models: $Y_{it} = \beta_0 + \beta_1 C_{it} + \beta_2' X_{it} + \gamma_t + \mu_i + \varepsilon_{it}$

Results on income, nutrition and sharing

Table: Effects of AIV commercialization

	(1)	(2)	(3)	(4)	(5)
	Non-food expenditure in last 1 month (log PPP\$2015 per cap)	Household consumption of AIV in past 1 week (kg per cap)	Food expenditures in past 1 week (log PPP\$2015 per cap)	Household Dietary Diversity Score (0-12)	Share of AIV production gifted (0-1)
Share of AIVs sold (0-1)	0.238** (0.119)	-0.016 (0.094)	-0.006 (0.097)	0.263 (0.261)	-0.020* (0.010)
Share of other crops sold (0-1)	0.079 (0.131)	-0.148 (0.144)	-0.141 (0.109)	-0.473* (0.285)	0.007 (0.013)
Other controls included	YES	YES	YES	YES	YES
F-Stat	3.612	2.628	3.919	3.694	1.525
Observations	724	724	712	724	724

Notes: Robust standard errors in parentheses. County dummies are included. * p < 0.10, ** p < 0.05, *** p < 0.01

Results on gender

- Men increasingly engage in AIV production with commercialization but do not take over the selling of AIV which is corroborated by various quotes from the FGDs as well as regression analysis (results not shown here).
- This specific finding - that women in the study region are able to retain control over marketing - could potentially have been a key factor in avoiding detrimental effects on women's empowerment such as losing control over the financial revenues from selling AIV.

Conclusion

- With AIV commercialization smallholders' income increased (Table, col. 1) with women retaining largely control over the additional income from selling AIV.
 - Nutrition outcomes such as AIV consumption, food expenditures and household dietary diversity scores remained unaffected (Table, col. 2-4).
 - Informal sharing arrangements for AIVs in the community decreased, although no negative effect on perceptions on intra-community solidarity were found (Table, col. 5).
- We find complex trade-offs in the context of commercialization of subsistence crops in sub-Saharan Africa.
 → With concerns about loss of community solidarity and informal sharing arrangements playing often a secondary role, additional income is a strong incentive for further growth of the AIV sector.



Photo: S. Hackfort.