Impact of Fish Feed Formulation Training on Feed Use and Farmers' Income: Evidence from Ghana

Background

- Feed accounts for 60–80 percent of tilapia production costs; and high feed cost and limited feed access are major issues faced by fish farmers.
- A potential solution is for farmers to produce their own feeds using cheaper and locally available ingredients.

Study Objective

To evaluate the impact of a 1-day hands-on training on fish feed formulation on small-scale farmers' feed use quantity, productivity, and income.

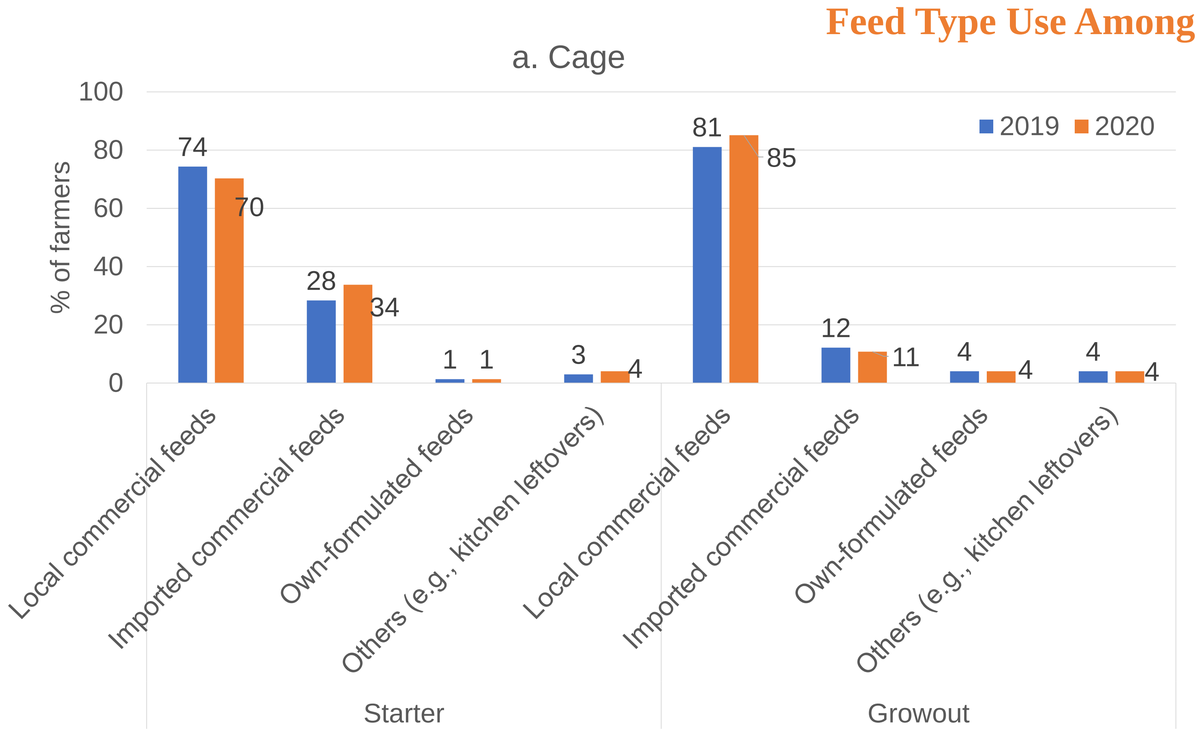
Data Sources

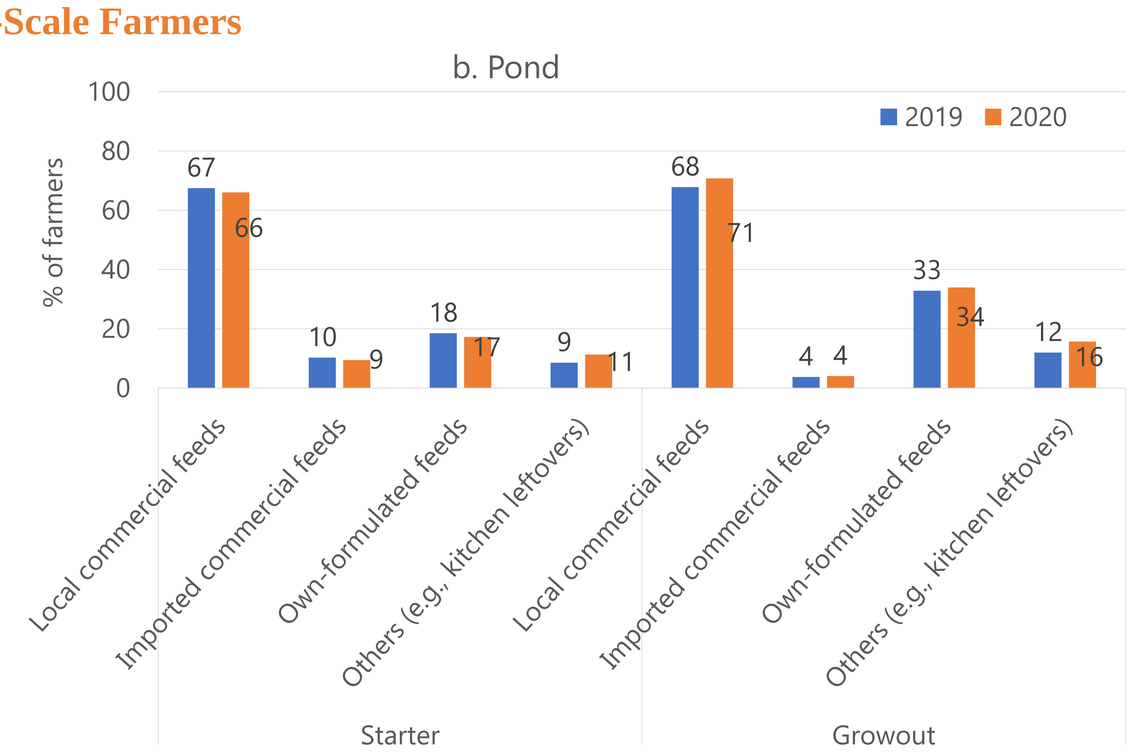
- The face-to-face baseline survey was implemented in June 2019
- A follow-up phone survey implemented in June 2021 to evaluate the impact of the training a year after
- Qualitative interviews

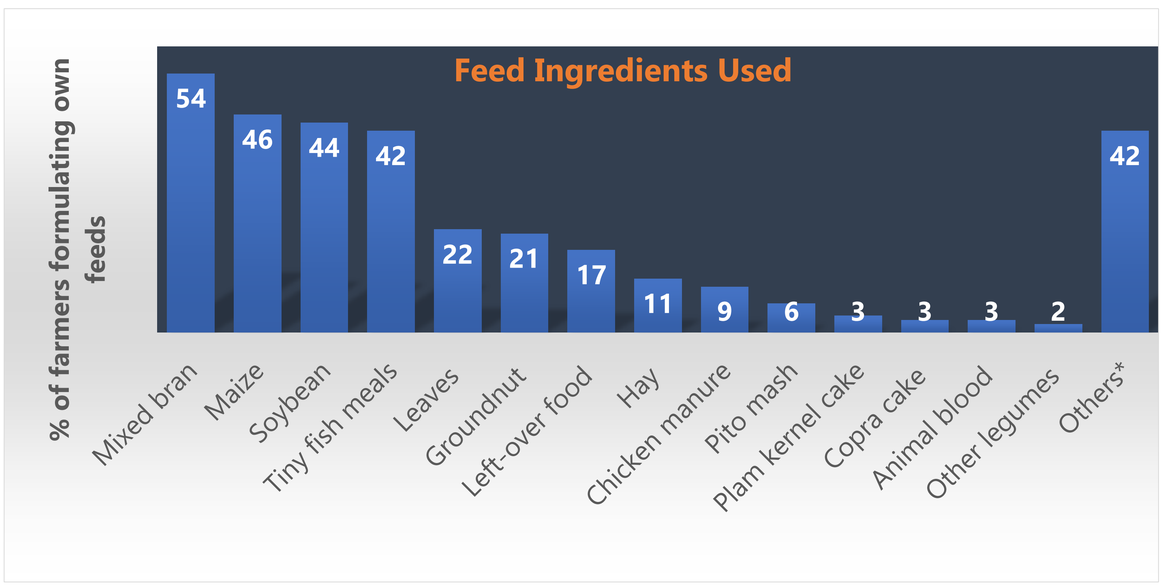
Empirical methods

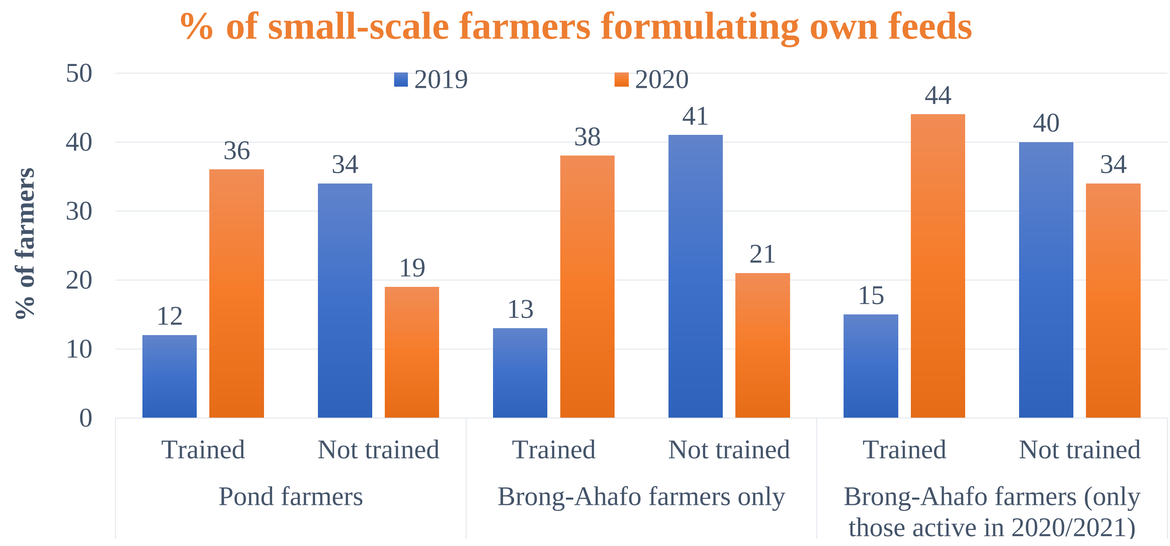
The impact of the training was analyzed using the difference-in-difference (DID) estimation and analysis of covariance (ANCOVA) in Stata

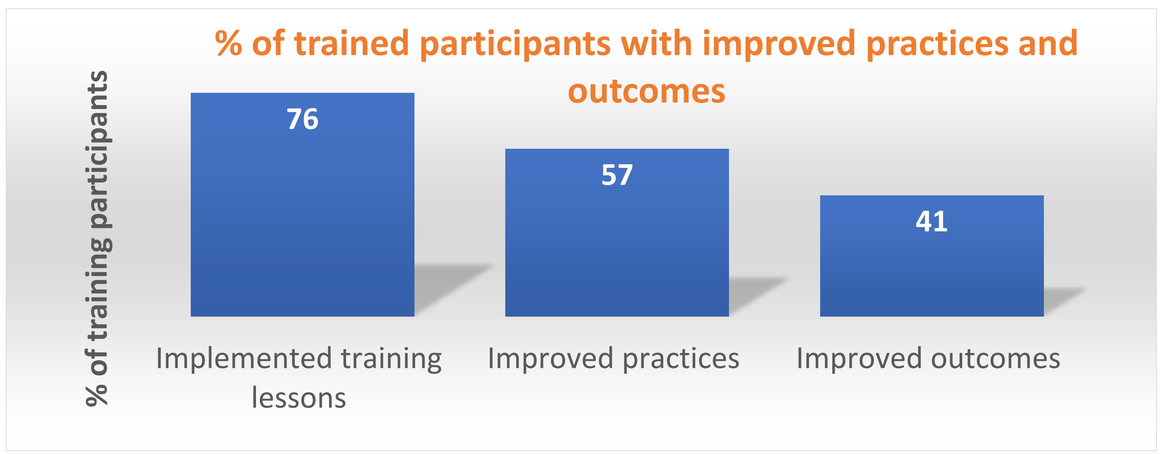
Feed Type Use Among Small-Scale Farmers











Average revenue, production costs, and profits of small-scale farmers by feed formulation and training received (GHC per m²)

Indicators	Trained & formulating own feed	Trained & not formulating own feed	Not trained & formulating own feed	Not trained & not formulating own feed
Revenue	30.24	32.97	23.75	23.50
Total cost	21.42	24.26	16.95	17.31
Seed	0.17	2.19	1.57	0.64
Commercial feed	12.90	17.71	9.05	13.58
Own feed	3.94	0.00	2.93	0.00
Other costs	4.41	4.36	3.40	3.09
Profit	8.81	8.71	6.80	6.19
Number of farmers	25	39	91	269

Results

- 98 farmers participated in 1-day practical feed formulation training in Brong Ahafo, Ghana
- Trained farmers achieved higher productivity improvement by 0.77 kg per m2 than those not trained.
- Trained farmers earned higher profit increase by GHC 2.70 per m2 than those not trained.
- Training increased average quantity of feed formulated and improved feeding and management practices.
- Farmers complement commercial feeds with own feeds using cheaper and locally-available inputs.
- The training has resulted also in overall improvement in stocking density and other management practices and farmers taking fish farming more seriously as a business.

Implications

- Training content and delivery can be further improved. Both trained and non-trained farmers scored very poorly on responses to questions related to feed formulation knowledge. Among those trained, only 31% had correct responses to the crude protein content in feeds and only 13 had correct responses to the question on daily feeding quantity.
- More practical and interactive workshops, having experienced "model" farmers as speakers or resource persons during trainings, and using locally available feed inputs that farmers are familiar and conversant with.
- Complementary support in developing markets and for promoting Ghanaian tilapia and catfish and the nutritional effects of fish in general.
- Experimental studies are highly recommended and will be crucial to identify the best and most cost-effective combination of locally available raw materials and optimal combinations of own-formulated feeds and commercial feeds to maximize growth, productivity, and incomes.

For more details, check out our paper: Catherine Ragasa, Yaa Oguabi Osei-Mensah, Sena Amewu. 2022. Impact of fish feed formulation training on feed use and farmers' income: Evidence from Ghana. *Aquaculture* 558. DOI: 10.1016/j.aquaculture.2022.738378