



IMPACT BRIEF

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Senegal

Agricultural Value Chain Support Project (PAFA)

About the project

Objective. The Agricultural Value Chain Support Project (PAFA) was designed to improve the livelihoods of smallholder farmers in Senegal's groundnut basin. The main intervention, implemented through producer organizations, consisted of a comprehensive package of agricultural inputs, machinery, technical advice, and commercialization contracts with market operators. The project targeted vulnerable smallholder farmers, women, and underemployed youths.

Financing. The total cost of PAFA was US\$31.6 million, with contributions from IFAD, the OPEC Fund for International Development (OFID), the government of Senegal and project beneficiaries.

Timing. Implemented between 2010 and 2016, the project followed three groups of beneficiaries over a three-year period, providing support for eight value chains: millet/sorghum, maize, niebe, bissap, sesame, rice, horticulture, and aviculture.

The project's theory of change

PAFA intervened at various stages of the value chain. The project consisted of five components: (1) agricultural diversification and access to market contracts, (2) development and structuring of specific local value chains through consultation among stakeholders to address the most pressing issues hampering the development of the value chains, (3) national consultation, knowledge management and project coordination to promote dialogue between stakeholders in the agricultural sector and state actors, (4) climate change adaptation to strengthen the resilience of households and their factors of production, and (5) rural finance support services to improve smallholder farmers' access to financing.

This evaluation focuses on the first subcomponent of component 1, the Sous Projet d'Accès au Marché (SPAM) – a support package consisting of the **provision of agricultural inputs, technical support, a regressive subsidy** over three years and the establishment of **contracts** between producer organizations (POs) and market operators. PAFA's main support mechanisms were aimed at addressing farmers' lack of access to inputs and inadequate access to commercial markets. Because of these constraints, farmers had insecure livelihoods with little prospect of independently increasing their productivity. PAFA's support was expected to generate higher crop yields, greater productivity, and a higher share of commercially marketed output. Ultimately, these effects would translate into higher marketable value for crops and agricultural produce, and thus higher incomes and better livelihoods for farmers, especially women and youth, in Senegal's groundnut basin. For farm households, these results in turn should have led to higher incomes and greater resilience in the face of unexpected events. For POs, the intervention was expected to increase institutionalization and to generate contractual agreements lasting beyond the project life, enabling these organizations to better support their members.

Project outreach and outputs

Determining the overall impact of the project requires first understanding whom SPAM reached and what outputs it generated.

Beneficiary POs: **317**

Female beneficiaries: **62%**

Beneficiaries households: **16,035**

Vulnerable beneficiary households: **97%**

Storage units built: **82**

Kilometers of roads rehabilitated or constructed: **132.5**

Contractual agreements established: **313**

Project impact

As part of IFAD's Development Effectiveness Framework, PAFA has been subject to a rigorous impact assessment.

Data and methods

A mixed-methods approach was used to determine the impact of the SPAM subsidy program. Given the likelihood of spillover effects both within and across POs, the sampling strategy identified three groups in addition to the SPAM participants:

1. non-SPAM: members of PAFA POs who did not receive the SPAM (to measure the spillover within POs);
2. controls within: members of control POs in the regions of intervention; and
3. controls outside: members of control POs located outside of the regions of intervention.

Household-level data were collected from a sample of 2,233 rural households: 835 SPAM, 361 non-SPAM, 650 controls within, and 387 controls outside. Additionally, data were collected from 217 POs: 85 treated, 86 controls within PAFA regions, and 51 controls outside PAFA regions. An inverse probability weighting with regression adjustment (IPWRA) estimator was used to determine project impact.

Key impact estimates

The analysis reveals that PAFA, through the SPAM subsidy, was successful in boosting the production capabilities of participating households as well as in encouraging them to adopt particular crops and diversify away from groundnut production, which traditionally dominated the region.



+11%
Total **income** per year



+48%
Crop **income**



+9%
Total **assets**¹



+54%
Quantity **sold** (millet)

Crop harvests, as well as the value of production for millet, niebe and bissap, were higher for SPAM beneficiaries, who also enjoyed a more diverse crop portfolio. Crop adoption was higher for niebe, bissap and millet. SPAM households were also more likely to use fertilizer on their plots, leading to higher yields for millet, niebe and bissap.

As expected, PAFA resulted in higher crop income, higher livestock income and higher overall gross income. It had no impact on wage income, and it lowered income from self-employment. This result suggests that while PAFA may have made agricultural production more remunerative for farmers, it also decreased the need for smallholder farmers to engage in wage employment and self-employment.

Moreover, PAFA beneficiaries were more likely to sell crops and to commercialize larger quantities of all crops. PAFA farmers were also more likely to sell to a market operator, which provides greater assurance that output will be sold and reduces price uncertainty.

The analysis reveals that the treatment increased beneficiaries' food security as well, especially vis-à-vis their counterparts in the control outside regions.

In general, PAFA achieved the goals set up at its inception. The impact of PAFA is more pronounced for POs with a large youth membership. Overall, women's POs experienced greater gains in production quantities, value of crops sold, yields² and income indicators, suggesting that PAFA's targeting was successful. At the PO level, results show that PAFA POs enjoyed greater market access than control POs through a higher quantity and value of commercialized harvest.

Non-SPAM households were better off than households from other POs, with a higher likelihood of selling their harvest, higher quantity sold, and higher crop and gross income than control households. Moreover, the spillover analysis reveals that had the neighbourhood effects been taken into consideration, one could expect higher impacts from PAFA.

¹ Relative to the control group outside the region.

² For all crops except horticulture.

About the brief

This brief draws upon the findings of an IFAD-funded impact assessment of the PAFA project in Senegal, which was prepared by Alessandra Garbero, Dieynab Diatta and Markus Olapade.

The impact assessment report on PAFA is available upon request.

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Lessons learned

- Programs that **simultaneously develop value chains and facilitate market access** are crucial in making production profitable for smallholder farmers. Market access increased at the intensive, and more so at the extensive, margin for SPAM households.
- SPAM households **diversified production** into less traditional crops while maintaining groundnut production at similar levels.
- Income and production diversity gains **did not translate into diet diversification**, possibly owing to biased allocation of resources within households. In addition, production growth might have translated into increased marketed output at the expense of home consumption.
- Targeting was successful because **gender and youth were integrated into the project at an early stage** – with the selection of the value chains. In fact, value chains were selected because they were likely to employ women and youth.
- The impact assessment reflects the **sustainability of the project**; the three cohorts stopped receiving support in 2013, 2014, and 2016, respectively. Five years on, project impacts are still high, suggesting that project gains were sustained over time.
- PAFA's success was due partly to its rigorous design and especially to its flexibility in adapting to realities in the field. A key project component was modified to **accommodate cash-constrained participants**. Because these participants were at times unable to bring their cash contributions, they could give contributions in kind.

