



EMPOWERMENT OF FEMALE FARMER GROUPS: STRENGTHENING THE CAPACITY OF EXTENSION WORKERS THROUGH A PARTICIPATORY AND INTEGRATED APPROACH

Collaboration between IPB University & University of Illinois at Urbana-Champaign

BACKGROUND

Small-scale agriculture is the backbone of global food security, generating around 70-80% of the world's food supply, especially in developing countries (Ricciardi *et al.*, 2020). In Indonesia, women contribute significantly to the food system. There are around 28.3 million rural women actively involved in national food production (FAO, 2019). Female Farmers Groups (FFG), as a collective entity of women farmers, play a strategic role in improving household welfare and family food security. Many rural women enter the agricultural sector to support the family economy, which has been shown to positively impact household food security (Antriandarti *et al.*, 2023).

The female farmer's contribution has not been fully recognized in policy. The gender gap in access to resources, training, and extension services results in women farmers' productivity being 20-30% lower than that of male farmers (IFC, 2022). If gender barriers are removed, women farmers' crop yields can increase by 20-30%, with the potential to reduce the number of people facing hunger globally by 45 million (FAO, 2021). Cross-border research by Balasubramanian *et al.* (2024) confirms that women's economic empowerment significantly encourages human development in low- and middle-income countries.

Through collaborative research between the Faculty of Social Sciences and Human Ecology (FISEMA) of IPB University and the University of Illinois at Urbana-Champaign (UIUC), as many as 51 extension workers who foster FFG in four districts/cities in West Java (Bogor, Karawang, Purwakarta, Subang) have received capacity-building training. The training is focused on four main aspects: business planning/marketing, participatory extension methodologies, gender approaches in extension, and pluralistic extension. The training, which was carried out online with modules arranged based on competency gaps and with three doctoral students in Development Communication/Development Extension Studies at IPB as the trainers, is a valuable experience for the extension workers who participated in the training to provide extension services. Having been involved in the training, the extension workers are able to improve FFG's capacity in group leadership and group-managed business, and increase the benefits to members' welfare.

KEY POLICY ISSUES

This Policy Brief addresses five strategic issues:

1. Implementation of extension training to foster Female - Farmers Groups (FFG) in West Java
2. The strategic role of female farmer leadership in small-scale agriculture and the increase of household income
3. Challenges of women-led farmer groups
4. Gap in extension worker's capacity
5. Transformation of FFG (empowerment) towards prosperous farming families (socio-economic and environmental independence)



A. IMPLEMENTATION OF EXTENSION CAPACITY BUILDING TRAINING

The implementation of training in participatory, pluralistic BMC integration and gender-sensitive extension, through collaboration between IPB University and UIUC, aims to address gaps in extension workers' ability to effectively assist FFG. Effective women's empowerment programs, according to Quisumbing *et al.* (2023), need to include four dimensions: reach, benefit, empower, and transform. The training materials for 51 extension workers include: (1) business planning and business development; (2) participatory extension methods; (3) gender analysis and approach; and (4) pluralistic extension based on multi-actors.

Table 1. Achievement of the Implementation of Training Materials by Extension Workers who foster FFG in Four Regencies/Cities in 2024-2025

Training Materials	Implementation by Extension Workers in FFG Assistance	Remarks
Business Planning using the BMC method	68% of extension workers have delivered BMC materials to the accompanying FFG	FFGs start to get familiar with the Business Model Canvas (BMC) approach and have started using it to prioritize the products that FFG is working on (including a 35-40% increase in group turnover).
Participatory Extension	84% of extension workers have implemented the principle of participatory extension	FFG members are already actively involved, each member is given space to express their opinions and participate in democratic group decision-making
Gender Analysis	35% of extension workers have begun to know about the concept of gender in development, but the majority of extension workers are able to apply gender analysis in the entire extension cycle	Extension workers still need to deepen their gender analysis skills, access, and use materials on integrating gender-inclusive principles into extension and advisory services.
Pluralistic Extension	40% of extension workers have used and experienced to involve the role of community-based, independent, and private extension workers, but the majority of extension workers have not been able to implement a pluralistic extension approach	Extension activities are still dominated by public extension workers and have limited opportunities to involve the private sector, NGOs, or community-based (peer groups) extension. Private-sector extension services usually focus on increasing the sales of the company's products. .

Source: Authors



The results of the application of training materials by extension show that business planning materials and participatory extension have been successfully applied by extension workers and can be adopted, among others, including by FFG Tangguh 10 in Karawang, FFG Sukamandi Alami, and FFG Bina Tani in Bogor. Group members in Subang, for example, were able to compile a Business Model Canvas (BMC) and establish two new business partnerships for each FFG. FFG members in Karawang worked with five new partners. This demonstrates that competency-based training for agribusiness-focused extension workers improves women farmers' ability to identify market opportunities and diversify products (Fatimah *et al.* 2023). Gender analysis and pluralistic extension materials have not been optimally implemented in the field due to several factors, namely, the need to strengthen modules with a more practical, contextual approach, as well as cultural and structural constraints related to women's triple roles. In this case, culturally, women are expected to participate in the household, public, and productive spheres.

B. THE STRATEGIC ROLE OF FARMER LEADERSHIP IN SUPPORTING FOOD SECURITY

Women are actively engaged in agricultural businesses and are important actors in family food security. In rural Java, female farmers play a dual role: managing households and farming to support the family economy (Antriandarti *et al.*, 2023). Globally, women account for 60-80% of the workforce in small-scale farms (FAO, 2019), but their productivity lags up to 30% due to various limitations in access to resources. This paradox reveals a great unrealized potential: empowering women's leadership in the agricultural sector can unlock productivity hidden behind structural inequalities.

When women are given the space to lead at both the household and group levels, the outcomes are more inclusive and sustainable. It is also influenced by social norms and perceptions in society that significantly shape women's participation in agricultural decision-making in West Java (Qanti *et al.*, 2022). The findings of the collaborative research between FISEMA IPB and UIUC were corroborated by Quisumbing *et al.* (2023), who found that programs specifically targeting women's empowerment had a multifold impact: increased productivity, improved child nutritional status, and strengthened household resilience to economic shocks.

At the national level, Indonesia has recognized this potential. The Smallholders Farmers' Horticulture Academy (SFHA) program in Indramayu shows that FFGs who receive intensive assistance achieve a moderate level of empowerment (68%), with government support and field extension workers as key determinants of success (Prayudi *et al.*, 2020). A study by Sraboni & Quisumbing (2021) in Bangladesh found that increasing the agency (empowerment) of women farmers is directly proportional to increasing household food security. Therefore, women's leadership in FFG is not just an issue of gender equality, but an effective strategy to increase agricultural production and national food security.



Key Facts:

If women farmers had equal access to resources and training, their productivity could increase by 20-30%, potentially reducing 45 million lives from hunger globally (FAO, 2021; IFC, 2022). An effective FFG program in West Java has been proven to increase smallholder household income by an average of 35-50% in two years of implementation.

C. CHALLENGES OF WOMEN-LED FARMER GROUPS

FFG in Indonesia faces multi-layered challenges that are interrelated from structural, cultural, and institutional dimensions:

1. Socio-Cultural Barriers and Gender Norms

Social norms that portray agriculture as a "man's affair" restrict women's involvement in agricultural technical decisions. Research by Balasubramanian *et al.* (2024) found, in a meta-analysis of 127 studies, that gender-normative barriers are the single largest factor hindering women's economic empowerment in developing countries. In West Java, similar findings were reported by Qanti *et al.* (2022), which show that gender-based perceptions consistently exclude women from formal agricultural decision-making forums.

2. Limited Access to Resources and Financing

The majority of women farmers do not hold land ownership rights in their own names, so they cannot use land as collateral for credit. A study by Sugden *et al.* (2020) in South and Southeast Asia confirms that inequality in asset ownership rights is a systemic barrier that exacerbates women farmers' poverty. IFC (2022) reported that women farmers have less access to high-quality seeds, fertilizers, agricultural machinery, and formal financial services than their male counterparts.

3. Double Burden

Women in rural areas bear a double burden: agricultural responsibilities and domestic work and childcare. Research by Doss *et al.* (2021) showed that women's unpaid workload is, on average, 2.5 times greater than that of men, limiting their time and energy to fully participate in farmer group training and activities.

4. Information Gap and Innovation Adoption

Extension workers tend to prioritize male farmers as targets for information dissemination and innovation, creating a significant knowledge gap. Saidu & Gadagin (2022), in their study in West Africa, found that extension services are biased towards male farmers, causing women to lag behind in adopting superior varieties and modern agricultural technologies. Similar conditions occur in Indonesia, especially in the adoption of post-harvest technology and market access.



5. Lack of Representation in Formal Forums

FFG is rarely involved in formal decision-making forums, such as village planning deliberations or joint farmer group meetings. As a result, the specific needs of women farmers are not addressed in the planning of regional agricultural programs. Research by Twyman *et al.* (2023) confirms that women's participation in formal forums on local agricultural governance is positively correlated with the quality of gender-responsive agricultural policies.

D. GAP IN EXTENSION CAPACITY

Agricultural extension workers serve as the spearhead of FFG empowerment, but the current capacity gap limits the effectiveness of this role. Based on data on extension training throughout West Java in 2024, at least four dimensions of capacity gaps have been identified:

a. Gender Competence and Inclusive Facilitation

The majority of extension workers have not received adequate training in gender perspectives and inclusive participatory facilitation techniques. A study by Saidu & Gadagin (2022) in Nigeria found an institutional bias in extension services that consistently prioritized male farmers, a pattern that was also observed in West Java. Recommendations from cross-country studies emphasize the need to invest in gender training for all agricultural workers to ensure that programs are designed and implemented inclusively (Balasubramanian *et al.*, 2024).

b. Business Development and Financial Literacy Competencies

The competency gap among extension workers in small-scale agribusiness and microfinance is a real obstacle in guiding FFG in developing productive businesses. Fatchiya *et al.* (2022), in their research on the capacity of agricultural extension workers in Indonesia, found that extension workers' ability to guide business development and access to capital remains far below the standard of field needs.

c. Digital Literacy and Technology Utilization

In the era of digital transformation, extension workers who can use digital platforms for remote assistance are urgently needed. show that integrating information technology into agricultural extension significantly increases the reach and effectiveness of mentoring, especially for farmers in remote areas (Mulyandari *et al.* 2020). The IPB-UIUC collaboration initiative in West Java has begun integrating digital training, with positive results in expanding access to FFG information through educational videos and social media groups.

d. Pluralistic Extension Approach

Indonesia's agricultural extension system remains highly dependent on civil servant extension workers, while the potential of non-governmental actors (private actors, NGOs, academics, master farmers) has not been fully realized. Klerkx & Jansen (2020), in their study of global agricultural innovation systems, emphasized that pluralistic extension, involving diverse actors, is better adapted to farmers' diverse needs and yields more sustainable impacts.



Policy Implications:

The professionalization of extension workers through the gap competency analysis approach needs to be a priority in the BPPSDMP Strategic Plan 2025-2029. Every extension workers who fosters FFG must undergo gender-sensitive extension training at least once every three years, with nationally standardized competency certification.

E. TRANSFORMATION OF FFG TOWARDS PROSPEROUS FARMING FAMILIES

The ultimate goal of empowering FFG through extension assistance is a comprehensive transformation: from a traditional learning group to a driving force for the welfare of farming families who are socio-economically independent and environmentally friendly. This transformation has three mutually reinforcing dimensions:

1. Economic Transformation: From Subsistence to Productive Business

In West Java, the 2024 gender-perspective extension training program encourages 100 FFGs in Karawang, Subang, Bogor, and Purwakarta to launch new economic activities, ranging from value-added processing to modern market penetration. Several FFGs have achieved year-over-year sales increases of more than 70%. A comparative study from India shows that women farmers' participation in Farmer-Producer Organizations (FPOs) is associated with crop diversification, higher incomes, and greater empowerment at the household level (Tripathi *et al.*, 2021). In Sub-Saharan Africa, when women join cooperatives, their negotiating skills and bargaining position in their markets increase significantly (Verhofstadt & Maertens, 2020).

2. Social Transformation: From Marginal to Empowered

When women are organized and have their own income, they tend to invest additional income in family well-being: nutritious food, health care, and children's education. Sraboni & Quisumbing (2021) show that increasing women's agency in agriculture directly reduces child stunting and increases school participation. At the community level, a strong FFG becomes an agent of social change through active involvement in village programs and local policy advocacy.

3. Ecological Transformation: From Consumers to Environmentalists

Women traditionally possess in-depth knowledge of natural resource management and local biodiversity. When empowered, they are encouraged to adopt sustainable farming practices. In West Java, FFG, which actively initiates yard optimization, urban farming, and sustainable food housing programs, significantly contributes to conserving local varieties and reducing the use of chemical pesticides. Agarwal (2023), in a review of gender and the environment, found that female-led groups consistently showed a higher commitment to sustainable natural resource management than mixed or male-dominated groups.



This transformation process does not occur automatically without a supporting ecosystem. Research in Indramayu identified three determinants of FFG transformation success: (1) consistent government institutional support; (2) the availability of infrastructure and market access; and (3) the quality of extension assistance (Prayudi et al., 2020). Without these three factors, the transformation risks stalling at the training stage, with no sustainability in the field.

Contribution to the SDGs:

FFG's transformation directly contributes to SDG 1 (No Poverty), SDG 2 (No Hunger), SDG 5 (Gender Equality), SDG 8 (Decent Work & Economic Growth), and SDG 15 (Terrestrial Ecosystems). Investment in FFG empowerment is one of the development interventions with the highest cost-benefit ratio, with every Rp 1 invested resulting in an economic impact of 5-8 times (IFPRI, 2022).

POLICY RECOMMENDATIONS

Based on the analysis of the five strategic issues above and the support of empirical evidence from the latest scientific literature, the following are policy recommendations addressed to the Central Government (Ministry of Agriculture), the West Java Regional Government, and related stakeholders:

No.	Policy Recommendations	Main Actors	Urgency
1	Integration of gender-sensitive & gap competency training in the national agricultural extension training system	Ministry of Agriculture, BPPSDMP, Agriculture Office	Very High
2	Strengthening regulations for gender-inclusive agriculture programs with measurable FFG targets	Regional Government, Ministry of Agriculture, BAPPEDA	High
3	FFG's special microfinance scheme & facilitation of digital marketing of agricultural products	State-Owned Banks, OJK, Cooperative Office	High
4	Development of FFG's extension e-learning platform and digital mentoring system	Ministry of Agriculture, Higher Education (IPB, ILUIC)	Medium-High
5	FFG's peer mentoring program advances as a model of national replication	District/City Agriculture Office, BPTP	Medium
6	Gender-disaggregated data-based M&E system for all extension programs	Ministry of Agriculture, BPS, Local Government	High



Implementation Notes:

- Recommendations 1 & 2 are urgent and can be implemented in the annual budget cycle soon, by revising the Ministerial Regulation on Agricultural Extension.
- Recommendation 3 requires coordination across ministries, including the Ministry of Agriculture, the Ministry of Cooperatives, Financial Authority Services (OJK), and can be integrated into the Strengthening the Inclusive Financial Ecosystem Program.
- Recommendation 4 can leverage the infrastructure built through the Digital Village and digitally based Village-Owned Enterprise (BUMDes) programs.
- Recommendations 5 & 6 are medium-term investments whose results will be significant in 3-5 years, in line with the 2025–2029 RPJMN (National Medium Term Development Plan).

CONCLUSION

Empowering Female Farmer Groups (FFGs) by strengthening the capacity of extension workers is a strategic investment with a multifold impact: increasing agricultural productivity, family food security, social welfare, and environmental sustainability. The experience of the IPB University-UIUC collaboration in Subang Regency provides convincing field evidence that, with the right approach based on competency gaps, participation, and gender responsiveness, the transformation of FFG towards a prosperous farming family is a necessity that can be realized.

Agricultural extension workers, as the frontline, must be equipped with relevant competencies: not only agronomic techniques but also integrating gender into agricultural extension services, financial literacy, and the use of digital technology to support extension. An empowered FFG will give birth to prosperous farming families that are not only economically independent but also become pillars of national food security and responsible environmental managers. This agenda is fully aligned with the vision of the development of the Golden Indonesia 2045 and the global commitment to the Sustainable Development Goals.

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