

Gendering sugarcane farming: understanding the plight of sugarcane block farmers in Batangas, Philippines

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Gendering sugarcane farming: understanding the plight of sugarcane block farmers in Batangas, Philippines

Pamela Joyce M. Eleazar^a, Sarah P. Cardey^a, Henny Osbahr^a, Maria Stella C. Tirol^b and Maria Ana T. Quimbo^c

^aSchool of Agriculture, Policy, and Development, Whiteknights, University of Reading, Berkshire, United Kingdom; ^bCollege of Development Communication, University of the Philippines Los Baños, Laguna, Philippines; ^cCollege of Public Affairs and Development, University of the Philippines Los Baños, Laguna, Philippines

ABSTRACT

In the Philippines, sugarcane farming is perceived to be a male occupation, meaning female smallholder farmers tend to be overlooked by extension and policy. While research on sugarcane farming and production processes has been extensive, there is limited understanding of the impact of gender dynamics in family farmers' day-to-day lived experiences in the Philippines and the implications these have on the sugarcane production process. This paper asks whether and how recognising gender dynamics in sugarcane farming in the Philippines can identify an enabling environment for production and empowerment for family farmers. Using forty semi-structured interviews and four focus group discussions of forty participants from Balayan and Calaca, Batangas, Philippines, the research adopts a transcendental phenomenological approach to reveal the lived experiences of block farm members and implications for the block farm system and sugarcane production. The thematic analysis finds institutionalising the block farm system to have had a considerable impact in terms of the assistance provided by the government to harness the knowledge of the sugarcane family farmers to adapt to the modern technologies provided to them. Additionally, patriarchal views in Filipino society restrict that of female family farmers, particularly those who hold key positions in the sugarcane block farm system.

IMPACT STATEMENT

The sugarcane industry in the Philippines started way before the Spaniards colonised the country and has generally been perceived as a man's job since then due to the kind of work being done, from land preparation to harvesting. However, in reality, female farmers also play a vital role in maintaining sugarcane production through the indirect roles they have in ensuring the continuity of the sugarcane production process, particularly those who have assumed the responsibility of sugarcane farming following the outmigration within the family and the community. Hence, this study unpacked the experiences of selected sugarcane block farm members in Balayan and Calaca in Batangas concerning the communication dynamics and gender roles within their organisations and their families during the COVID-19 pandemic that expected them to adapt to the changing communication landscape that is the ICT-mediated form of communication and how they adjusted to the interpersonal communication dynamics at this time.

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Introduction

In the Philippines, sugarcane plantation farming remains culturally perceived as a male occupation (Arnaut et al., 2016; Mishra et al., 2017; Tungpalan, 2016). For female farmers, who may inherit the management of their farms due to the death or outmigration of the male members of the family, this leads to difficulties in being recognised for their role as female farmers. The issue of gender equality and

sustainable livelihood are critical issues that need to be addressed in the Philippines, where sugarcane production by family farmers has suffered from decades of government neglect and underrepresentation resulting from the power dynamics between the social actors involved in the sugarcane industry (Barrameda, 2016, Tungpalan, 2016, Billig, 1993). Responses must, however, be informed by the family farmers' needs. Analysing the gender dynamics between female and male farmers when managing their farms and interacting with extension agents contributes to revealing the complexity of their experiences and struggles to sustain their farming enterprise. A transcendental phenomenological study approach (Creswell, 2013) can be useful to explore family farmers' everyday experiences and reveal how family farmers communicate within the sector and access externally provided extension activities. Taking a transcendental phenomenological study approach, this paper asks whether and how recognising gender dynamics in sugarcane farming in the Philippines can identify an enabling environment for production and empowerment for family farmers.

In the Philippines, sugarcane is considered one of the most high-valued crops. For decades, molasses and sugarcane have been raw materials in food production, particularly in beverages. In August 2022 (Sugar Production Bulletin for CY 2021-2022, 2022), the Philippines recorded 397,524 hectares of sugarcane plantation nationwide. From these areas of plantation, approximately 20,841,174 metric tons were milled for raw and refined sugar production and raw sugar. Overall, there are twenty-five sugar mill districts that operate across the Philippines, with four operating in Mindanao, four in Luzon, and seventeen in Visayas (SRA, 2023).

The volume of sugarcane feedstock increased from 130,062 metric tons in 2021 to 203,923 metric tons in 2022 in Region 4-A, where Batangas is located in the southern part of Luzon, the largest among the three main islands in the Philippines (PSA, 2022). This level of production placed the region as the 4th highest sugar producer in the Philippines, competing with Western and Central Visayas and Northern Mindanao. These statistics proved Pantoja's (2019) argument that the productivity of farms under the block farm system tends to be higher compared to the national average. The agricultural sector employs 10.66 million nationally in the Philippines, contributing 24.2% to national employment in 2022 (PSA, 2022), making this an important sector to support through policy and outreach.

Indeed, in order to try improving the livelihoods of family farmers engaged in sugarcane farming for decades, many laws have been passed by the Philippines' legislative department. During the post-Martial Law years, Republic Act No. 6982 (*Philippines - an Act Strengthening the Social Amelioration Program in the Sugar Industry, Providing the Mechanics for Its Implementation, and for Other Purposes* (Republic Act No. 6982), n.d.), and often called 'An Act Strengthening the Social Amelioration Program in the Sugar Industry, Providing the Mechanics for its Implementation, and other Purposes', states that the Government should strengthen the rights of workers in the sugar industry by ensuring a just share in the income from sugarcane and by institutionalising mechanisms between actors in the sugar industry. According to this law, the Government must consider enacting a decent living wage and return on capital investments that can support the needs of the farmers and the workers through establishing a National Tripartite Council, which consists of representatives from the Sugar Regulatory Administration, planters, millers, and workers which the Secretary of Labour appoints from among the nominated individuals. By enacting this law, the sugarcane farmers should be provided with production sharing that would favour them as crucial actors in the value chain process.

Sugar mills have traditionally had a monopoly in buying sugarcane for molasses used in the manufacturing and consumer industries. For decades, sugarcane produced by family farmers has been an essential raw material for industrial, commercial, institutional, and household uses (Pantoja et al., 2019), including domestic sugar products such as sweets, beverages, and table sugar (Billig, 1993). The aforementioned law should have been a first step in addressing the issue of fair pricing of sugar as raw material and increasing extension services for enhanced capacity and financing for family farmers.

By 2006, RA 9367 or the Biofuels Act of 2006 (*Republic Act No. 9367* | GOVPH, 2007), was enacted to use sugarcane in feedstocks identified to be a potential source of renewable energy. Using sugar as a feedstock for bioethanol (Pantoja et al., 2019) was seen as a way to increase rural employment and income by making the buying prices of sugarcane more competitive and challenging the monopoly of central sugar mills. The law required sales of raw materials, such as sugarcane, to be exempted from value-added tax. The government believed that competition would ensure the security of the domestic sugar supply and maintain stable sugar prices.

To establish an enabling environment for improved competitiveness in the sugarcane industry by maximising use, improving income for farmers and farm works by increased productivity, product diversification, job generation, and increased efficiency of sugar mills, a Sugarcane Industry Development Act (*Republic Act No. 10659* | GOVPH, 2015) was approved by then President Benigno S. Aquino III. Government agencies were to provide services for ploughing, harrowing, weeding, fertilisation, harvesting and other farm mechanisation services that small farmers do not have the financial ability to purchase or loan. Most importantly, this law reiterated the institutionalisation of the Sugarcane Block Farm System and recognition of the role of family farmers within the sugarcane agricultural system. The rationale being that small farms consolidated into one larger farm (with a minimum area of thirty hectares in a two-kilometre radius) would benefit from economies of scale, although original land holdings upon which farmers work would remain owned by landowners.

Regarding regulation of the block farm system, this new law meant that block farms that failed to improve productivity would cease to benefit from the programme (*Republic Act No. 10659* | GOVPH, 2015). The government argued that this was to ensure the programme was not abused and self-serving to any parties involved, and more farmers could benefit. It was expected that through this process, farmers would acquire new knowledge to produce better quality sugarcane for food and fuel consumption. Indeed, sugarcane farmers in the Balayan Mill District, in the western part of Batangas, received extension assistance at the block farm level and became the most efficient sugarcane plantation in Luzon, with 16,273 hectares of sugarcane farmland and 86% of the block farmers considered to be family farmers (SRA, 2015). Each block farm must have an accumulated number of at least 30 to 50 hectares (Pantoja et al., 2019) from a minimum of 30 farmers per block farm before becoming accredited as an organisation. Although the system is open to all farmers, most are male farmers. In the case of Balayan and Calaca in Batangas, only three of the ten existing block farms are managed by female farmers, two of whom hold a local position in the community. After five years, this successful organisation in the Balayan Mill District began to be phased out of the scheme changing the dynamic between the farmers' organisation and the local agency.

Despite these historical successes, traditional patriarchal perspectives about gendered roles in agriculture remain an obstacle for female farmers trying to access appropriate extension activities or gaining authority within block farm governance mechanisms. As Barrameda (2016) noted, government and non-government organisations will need to recognise a gendered perspective in every agricultural programme in order to address power dynamics where female farmers are marginalised and overcome a culture where women are seen as helpers rather than farmers. This culture of gendered roles affects the self-esteem and engagement of women, especially those without knowledge of farming. It also endangers the future profitability of sugarcane farming because female farmers have to rely on hired farm workers in the absence of family members now working in non-agricultural jobs. Opportunities in developing urban areas and new industries, especially for the youth, are part of the broader challenges facing the continuity of family farming within sugarcane production. While government policy has defined the current landscape of sugarcane family farming in the Philippines, this paper focuses on how a better understanding of gender dynamics can identify an enabling environment for production and empowerment for family farmers. The following review sections highlight how this paper is positioned within ideas about gender in family farming and the co-creation of knowledge before providing a critical reflection on gender and sugarcane farming in the Philippine context.

Gender and family farming

Gender is a social construct and articulates the social roles of men and women (Angeles & Hill, 2009; Hart, 1991). It is one of the broad categories of social relations, such as class or race, that can be employed as an analytical lens, not only to appreciate different experiences of women and men but to help understand how individuals transform (Lukasiewicz, 2011; Whatmore, 1991). Generally, government and non-government organisations providing programmes and services in agriculture lack a strong gender perspective (Barrameda, 2016). This is due to the deeply embedded social construction that farming is a man's job and fails to consider that women inherit farms or may run farms due to the outmigration of male family members. To lower the cost of hiring labourers, women also participate in farming

activities, from pre-planting to harvesting. As such, gender divisions in farm labour often coincide with family labour since the tasks determine their gender roles in farm work activities (Mackintosh, 1981; Whatmore, 1991). Although seen as a favourable option from the farmers' perspective, this promotes unpaid labour, which tends to devalue women's contributions to work.

This scenario underpins discussion about the reality of attaining the UNDP Sustainable Development Goal addressing Gender Equality by 2030 (UNDP, 2015). Barrameda (2016) highlights that gender roles determine female and male roles and responsibilities in the agricultural sector, skewing benefits. As Agarwal (2002; Ramachandran, 2008) notes, gender is an essential signifier in determining differences in interests and preferences. Household incomes are not necessarily separated. Therefore, bargaining power is affected through the process of assigning roles and limits women's ability to decide for the family, since males still typically lead family-level decision-making in many contexts.

Despite this, women are an important part of the agricultural workforce, albeit paid below the standard wage, or even unpaid (Barrameda, 2016; Dankelman & Davidson, 2013; Dutta & Thaker, 2019). In the case of Filipino female farmers, although they participate in farm activities, they assume less laborious tasks, which are less likely to be decided by male farmers (Mishra et al., 2017). Apart from inequality from an economic perspective, female farmers often require permission to access opportunities that enhance their capabilities in managing the farm (Lamontagne-Godwin et al., 2019). A Magna Carta of Women policy exists in the Philippines, highlighting the importance of equal treatment of women of all civil status (Briones, 2019), but in practice this is generally not experienced on the ground. Moreover, aside from farming, women are involved in multiple income-generating activities within the household in order to address the family's financial needs, and these opportunities often coincide with male farmers' part-time work in the service industry (Tungpalan, 2016). Rural youth also gravitate to non-farm industries, leading to further outmigration, labour shortages and concerns about the continuity of family farming, and leaving women to manage the farms, which create a tripartite role consisting of productive, reproductive, and social activities (Widodo, 2018). This triangulation of gender inequality can often lead to limited access to information that females generally experience in family farming. According to Lukasiewicz (2011), while these female farmers typically challenge cultural assumptions that sugarcane farming is male-dominated, it also highlights the need to support women in farming. Lastly, rising production and marketing costs affect poorer family farmers (Ureta et al., 2016; Balisacan et al., 2005), pushing farmers to choose crops that provide high-income benefits, such as sugarcane (Ureta et al., 2016).

Family farming and co-creation of knowledge

An effective communication process between farmers and other social actors is an essential element to attaining success in family farming. Improved collaboration between the stakeholders can help farmers make informed choices, and understanding this process explains how knowledge occurs. In the agricultural sector, experts and researchers have traditionally been expected to develop new knowledge to be relayed to farmers, undermining the farmers' role in the process (van den Ban, 2002). Dowsing and Cardey (2020) argue that extension services should be delivered as an informal educational process that provides advice to enable farmers to solve problems through informed decision-making, learning, dialogue, and adoption. This supports the co-creation of knowledge between farmers and other social actors. Where there is limited communication with other social actors, interaction between family farmers can still lead to the co-creation of knowledge.

The cohesiveness of a community increases participation in this process and is observed when development interventions include collective work or knowledge sharing among locals (Walters et al., 1999) since acquiring and generating knowledge can be incorporated with local knowledge (Benzanson & Sagasti, 1995; Nath, 2001). van den Ban (2002) argued that farmers must increase their capacity to make informed decisions and choices by combining knowledge from research and traditional knowledge. However, while willingness to share knowledge is essential in promoting agricultural development, the roles that social actors take in this process of generating knowledge led to the type of interpersonal communication and agricultural policies. In the Philippines, family farmers tend to be passive recipients of technology or knowledge, especially when they do not own the farm where they work. The World Bank (2020) argues that extension services in the Philippines must develop a demand-driven service

approach, that includes consideration about what is inclusive, adequate, integrated, coherent, sustainable, and timely for family farmers in order to enhance the co-creation of knowledge.

Gender and sugarcane farming in the Philippine context

The Philippines is one of the top sugar-producing countries worldwide and is the fifth largest crop in the country based on the output value (Briones, 2020). According to national data (SRA, 2015), Negros Island has the largest sugarcane plantation with 53%, followed by Mindanao at 22% and Luzon at 14%. Sugarcane thrives well in tropical countries and is a viable feedstock choice for biofuel due to its ethanol component and the short growing time of one year (Mendoza et al., 2007; Odum, 1996). However, in Batangas, hiring farm workers during planting and harvesting season is challenging due to the province's rapid industrialisation and growing disinterest in doing farm work. The children of the farmers increasingly prefer to focus on obtaining a good education and pursuing a non-agricultural path. Hence, the future of sugarcane production using family farmers is threatened due to shortages of farm workers, especially during critical seasons such as harvesting.

Historically, during the Martial Law years, social actors in the sugarcane value chain, such as planters, millers, and traders, became influential people in the country (Billig, 1993). At this time, land for sugarcane production was divided into milling districts to centralise the delivery of harvested canes. However, this design reduced the options for farmers on where to send their canes for milling. Moreover, although large plantations are still in place, the trend in the succeeding years has been toward smaller landholdings (Billig, 1993) because the proliferation of the natural land reform or subdividing the lands for inheritance has been adopted. After the 1986 People Power Revolt, the government changed the structure of the organisation, leading to the foundation of the Sugar Regulatory Administration (SRA). The SRA was not mandated to buy and sell sugar or set prices (Billig, 1993) but focused on sponsoring research, conducting extension services, approving licenses to traders, overseeing the sugar mills, coordinating with governments that import sugar, and acting as a liaison between the government and the industry.

One of the critical issues for sugarcane farmers and traders in recent years revolves around where to sell their harvested sugarcanes. Since the enactment of RA 9367 or the Biofuels Act of 2006 (Demafelis et al., 2009), traders can decide whether to sell the farmers' produce to sugar mills or bioethanol plants. In addition, based on the Implementing Rules and Regulations, farmers should receive production revenue when they sell their produce to bioethanol plants.

This law addressed the monopoly on the longstanding use of domestic sugar production for ingestible products such as sweets, beverages, table sugar, and rum (Billig, 1993; Pantoja et al., 2019), which diversified the opportunities for sugarcane farmers. As practised before, the cane produce would be subdivided into several industrial, commercial, and exportation use types with a set quota per harvesting season. Product pricing would depend on demand and generally favour large planters.

In order to improve services available to smallholder farmers, large hectares of land were legally transferred to the family farmers through the Comprehensive Agrarian Reform Program (Demafelis et al., 2009). This required the problem of manual labour to be addressed, although modernisation and technological advancements have been implemented in many parts of sugarcane production (Tungpalan, 2016). The Sugarcane Regulatory Administration (SRA) started to implement the Sugarcane Block Farming (SBF) System in 2012, to increase farm productivity and sugarcane yield (Matsuura, 2020; SRA, 2015). While the SRA consolidated farmers' groups using multi-purpose cooperatives, few empirical studies have been conducted on their economic performance and impact on members.

According to SRA (2015) data, the Philippine sugarcane sector consists of 78,276 farmers, wherein 81% have less than five hectares of land (Matsuura, 2020). That same year, Batangas was cited as the fourth-largest sugarcane producer in the country. As Pantoja et al. (2019) note, sugarcane farmers, particularly those who were considered smallholders, were encouraged to form themselves into organisations so that farm operations that include land preparation, planting, fertiliser and chemical application, weeding, and harvesting could be provided to attain economies of scale. Modernisation, higher yields, and land consolidation into 30 to 50 hectares have driven the institutionalisation of the sugarcane block farming system. However, members can have less than two hectares two kilometres apart. As members of the block farm system, they are entitled to access facilities for harvesting, processing, storage, and packaging.

Through this approach, sugarcane farmers who owned less than five hectares of sugarcane farms were grouped per '*barangay*' or village, each having at least 30 to 45 members per block farm. They have access to support services, such as extension activities introducing innovative technologies and loan privileges to help pay for production costs. Four of the 30 mill districts overseeing block farms nationwide are found in Luzon, and the Balayan Mill district covers the ten participating block farms in Calaca and Balayan, Batangas, Philippines (Lagagino, 2020). Based on the 2020 data from Balayan Mill District, there are 344 sugarcane family farmers with 545.8 hectares of land supervised by seven male and three female chairpersons (Ronario, 2020).

Matsuura (2020) examined block farm governance and found that differences in gender among household heads influence participation in the sugarcane block farm system. However, for women to be empowered into these governance structures, they need better assistance and opportunity to participate (Widodo, 2018). This is only possible by rethinking the model of implementation for extension services and involving female farmers in the process of promoting technology adoption. In addition, activities exploring leadership, roles, cultural change, and education must also be conducted locally to promote inclusivity and provide equal platforms to female and male farmers.

However, overall, it can be argued that the productivity of the farms under the Sugarcane Block Farm System has increased, especially compared to national statistics before institutionalisation (Pantoja et al., 2019), and the provision of extension and production services, has supported members in improving their capacity to make informed choices in farm management.

Materials and methods

Research design

A qualitative study following the transcendental phenomenological approach was utilised in this research. This approach is ideal for this study because it helps to reveal participants' everyday experiences with a phenomenon by exercising intuition in perceiving, reflecting, and conceiving the phenomenon's core as it appears to people in their lived experiences (Creswell, 2013). In their 2021 paper, Chang and Wang argue that this methodology focuses on life experiences that relate to changes in a specific environment and encourages individuals to reflect on those experiences. By exploring these experiences, individuals can gain valuable insights that can be applied to their future lives.

Locale and timeline of the study

Balayan Mill District was identified as the local research partner in January 2021. They supervise two areas, the Municipality of Balayan and the City of Calaca (Figure 1), known to be agri-industrial communities with a sugar milling company and a bioethanol plant that processes sugarcane, one of the area's leading agricultural products. The combined sugarcane plantation hectareage of the two areas is 6,203.6 hectares, where at least 1.29 hectares are being tilled per family.

Initial scoping meetings in 2021 were conducted online, influenced by COVID-19 restrictions and in-person data collection with family farmers of sugarcane conducted between January and December 2022, following local health protocols. Semi-structured interviews and focus group discussions were collected in *Tagalog*, the local language of Filipino people living on Luzon Island and spoken by the researcher.

Study participants and ethical consideration

Forty participants were purposively chosen to participate (Table 1). While the study sought to include equal numbers of female and male block farm members, this was not possible because male farmers ran most block farms. Two rounds of in-person semi-structured interviews with ten sugarcane block farm chairpersons with an average age of 56 years old and thirty sugarcane block farm members with an average age of 55 were conducted between January and April 2022 in Balayan and Calaca. Meanwhile, four focus group discussion sessions, conducted in person, consisted of ten participants per session

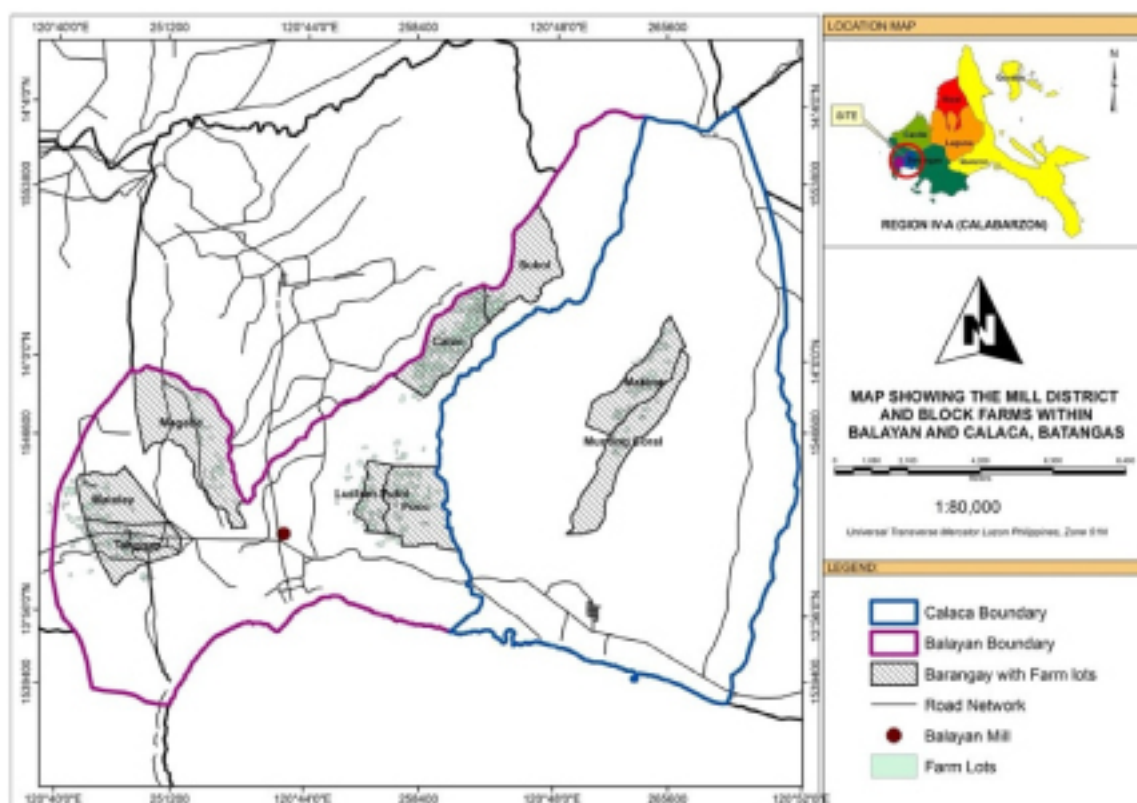


Figure 1. Map of Balayan and Calaca, Batangas, Philippines, where the research was conducted from January 2021 to December 2022.

Table 1. Breakdown of the profile of participants and data gathering methods.

Type of Participants	No. Of Male Participants	No. Of Female Participants	Average Age	Data Gathering Methods	Data Analysis
Block Farm Chairpersons	7	3	56	Two Semi-structured Interviews and Focus Group Discussion	Thematic Analysis
Block Farm Members	21	9	55	Two Semi-structured Interviews and Focus Group Discussion	Thematic Analysis
TOTAL	28	12			

between November and December 2022. The study followed an ethical protocol approved by an Ethics Board, and this included the utilisation of photographs with the consent of the participants. Moreover, the anonymity of participants was guaranteed through the assignment of pseudonyms because sugarcane became a politically sensitive issue in the country at the time of the conduct of the research.

Data analysis

The study followed Chang and Wang (2021) thematic analysis approach through developing a codebook, data reduction techniques, and cluster analysis. According to their study, this type of analysis is essential in phenomenology since it points out the participants' perceptions, feelings, and experiences (Chang & Wang, 2021; Guest et al., 2012). Through manual coding, the data followed these steps: familiarisation with the data, generating initial codes, searching for themes among codes, reviewing themes, defining and naming themes, and producing the final report (Braun & Clarje, 2013; Chang & Wang, 2021). Based on the data from the interviews and the focus group discussion sessions, the differences in responses and the relationship in the gendered social roles, role in sugarcane farming, and experiences of sugarcane farmers were among the themes explored in the analysis.

The study does not seek to generalise or represent other sugarcane production areas since the lived experience of a selection of farmers in one locality will offer some unique insights. However, the analysis aims to understand the farmers' experiences and the implications of gender roles in the sugarcane block farm system. Since sugarcane farmers are continuously challenged to produce high-quality sugarcane as raw material in the industry, it is essential to understand the implications of gender inequality in fostering the co-creation of knowledge.

Results and discussion

This section presents the findings about the experiences of sugarcane block farm members and chairpersons, with a focus on the gender and communication dynamics in sugarcane farming and management of the block farms. The section first provides oversight and reflection on the lived experiences of smallholder farmers participating in the sugarcane block farming system from 2016 to 2020, including gender dynamics in sugarcane farming. The impact of the COVID-19 pandemic on these dynamics was also included, given the effect on farm activities and participation in extension activities. The second section explores gender and communication, particularly the implications of gender inequality in sugarcane farming.

Sugarcane farming challenging the gender inequality in the agricultural sector

As shown in [Figure 2](#), wherein the selected participants were composed of male block farm members, including its male chairperson, this section encompasses the farmers' struggles in engaging their family members in sugarcane production, particularly their decision to allow their children or spouses to focus on other industries to compensate for the limited income they are experiencing in producing sugar. It also provides a description of the struggles of female chairpersons in leading their specific block farms and how these hinders their capacity to promote leadership within the group.

Based on data from the Balayan Mill District, 344 family farmers were registered by the end of 2020 (Ronario, 2020), belonging to ten block farms in Balayan and Calaca, Batangas (Lagagino, 2020). The sugarcane family farmers consisted of 12 women and 28 men, albeit a small group of participants, providing a representation regarding the status of membership of farmers based on assigned sex at birth. Based on the lived experiences of the farmers from Balayan and Calaca, eight of twenty-eight male sugarcane farmers preferred not to involve family members in farming because they had other non-farm activities or allow their children to prioritise education and opportunities outside the agricultural sector, which tends to aggravate outmigration from the community (Barrameda, 2016; Widodo, 2018). This situation is particularly true for those who own small land areas or are only hired as farm workers. As



Figure 2. A session on rapport-building and the first round of semi-structured interviews with a sugarcane block farm in Balayan, Batangas, Philippines.

Tungpalan (2016) notes, female farmers are not expected to participate as much since they are generally preoccupied with other income-generating activities to augment their family's income.

"Syempre yun hong Misis ko, kapag ka kwan, hindi naman yon makapag-araro nga e di halimbawa kami ang...ako ang nag-aararo. Kung minsan natulong sya sa mga...yung pag...pagtataad ho...halimbawang mangunguha ng itatamin, yon! Nakakapag-kwan naman sila...ay yung akin pong Misis kasi...yun nga, may tinda e di dun na laang nagfofocus siya..." (Crisostomo, Male, Block Farm Chairperson)

"Since my wife cannot plough, I do the ploughing. She sometimes helps in planting, for example, gathering the stalks for planting! There! She and the children would help, but since she has a small store, she focuses on that..." (author's translation)

In the case of Crisostomo above, one of the block farm chairpersons, his wife would typically help during the planting season, particularly in preparing the planting materials. He does not expect his wife to contribute to working on the farm since she manages a small store, typical in Filipino communities. However, when it comes to handling the financial needs of farming, he always seeks assistance from his wife because their store provides a stable source of income for the family. This scenario reflects the debate about control over household decision-making (Widodo, 2018), which is always assumed to be in the hands of the male farmers, but based on the lived experiences of the sugarcane farmers in the study, decision-making can involve both spouses. Furthermore, those already separated, widowed, and widower are consulting their children regarding decisions on the farm.

"Sa amin po naman, ako po usually sa preparation ako ng food...minsan yung, alam mo yung nagbubudbod, yung naglalagay ng taad sa mga naprepare na. Yung mga anak ko ganun din, yung dalawa kong maliit, tapos yung asawa ko at yung anak ko na panganay, sila yung nagtatanim. Kasi dito po ang pagtatanim na ay yung patapak, yung paa na, hindi na po kamay. Hindi na po kamay, yung po halimbawa tutudling, yayapakan mo lang, nang ganun tas tatabunan na lang po." (Clara, Female, Block Farm Chairperson)

"In our case, I usually prepare the food...at times, I help during planting...I only participate after the farm has been prepared for planting the stalks. When it comes to our children, it has been the same. My two small children, my husband, and my eldest do the planting. Because in our community, we practically use our feet in planting, not with our hands. For example, when you have placed the stalk on the soil, you will use your feet to cover the perimeter of the sugarcane stalk." (author's translation)

In the case of one of the female chairpersons, she and her husband assigned a particular role to their children in sugarcane farming. As with other wives and daughters of farmers, Clara is assigned to prepare refreshments for the workers and participate in planting the canes. Their children are also skilled in planting using their feet rather than their hands to secure the cane stalks. This is the technique that replaced the traditional way of planting cane stalks, which is less tedious and known to be easier for female farmers to do. The roles assigned to wives and daughters are seen as non-farm tasks, particularly food preparation, which are an extension of their household tasks (Barrameda, 2016; Mishra et al., 2017; Widodo, 2018).

"Ang tulong ko... pagka ayun nga halimbawa sya ay may mga trabahador, ikaw ang nagdadala ng mga pagkain, tapos eh... ayan kalimitan naman nga ay ano eh pahurnal dito... dahil ang mister ko naman ay hindi sadya magbubukid din, dating sundalo." (Lina, Female, Block Farm Member)

"My help...for example, when we have farm workers, you (sic) bring them food, then...most of the farm owners would hire farm labourers...in our case, my husband does not do farming since he is a soldier by profession." (author's translation)

In the case of Lina, she assumes the management of their sugarcane farm, inherited by her husband, by hiring farm workers since her husband has a full-time job as a soldier and cannot engage in farming. This is particularly true in cases where male heads of households cannot assume the responsibilities on the farm. Their spouses take on farm management which puts them in charge of day-to-day activities (Pantoja et al., 2019).

"Kaysa ako'y magbabayad pa ng tao, eh kaya namang tumulong, ganyan ang ginagawa ko... pag minsan may alaga nga akong mga hayop, kasama ko rin sa pangungumpay...maige nga sila'y natuturuan, kahit yung babae e andun." (Crispin, Male, Block Farm Chairperson)

"Instead of paying for farm workers, since my family members can help, I just ask them to help me...sometimes, when I have farm animals, I also involve my daughters in taking care of them...it is good that I am teaching them although they are female." (author's translation)

"Doon lang sya nakakatulong halimbawa kami ay may patanim, yung paghahanda ng pagkain, dun siya nakakatulong... (on wife's role of preparing the food for workers)" (Isabelo, Male, Block Farm Member)

"She only helps in food preparation when we hire farm workers during planting season; that is the only time she is helping..." (author's translation)

One of the primary motivations for most farmers to engage their family members in sugarcane farming is to lessen the cost of production. Through the help of wives and children, they do not need the services of farm workers, but while this is cost-efficient, it undermines the work being done by other family members (Barrameda, 2016; Dutta & Thaker, 2019). Crispin was open in explaining that, apart from the usual tasks in sugarcane farming, he would also instruct his daughter about animal raising as part of the farming activities. However, Isabelo's mention of the word "*lang*," connotes that his wife's role in food preparation implies that the specific task is not as important as the other roles in the field. Although these dynamics may seem demeaning and promotes unpaid labour among family members, they can also be seen as a reflection of culturally accepted practices among the farmers in the Philippines (Pantoja et al., 2019).

"Habang nag-aaral yung mga anak namin, dahil kami naman mahirap din laang eh. Parang itinaguyod laang namin ang pag-aaral ng mga anak namin, ayaw nga lang namin na sasapitin ng mga anak namin yung sinapit ng...Yung pinagmulan namin..." (Pablo, Male, Block Farm Chairperson)

"While our children are studying, since we are just poor, we just wanted to support them and spare them from all the hardships we endured...our life experiences..." (author's translation)

Married participants, representing 53% of block farm members and 80% of block farm chairpersons, felt their primary motivation was providing education for their children. It was the root cause of discouraging their children from working on the farm. As farmers who have experienced the hardships of tilling the soil since they were young, Pablo and his wife wanted to spare their children from the same experience.

"Wala akong trabaho, sa bahay lang. Tapos yun nga may lupa edi akin na ding pinagpatuloy...Magkatulong na kami ngayon..." (with husband who was a former overseas Filipino worker (OFW)) Siguro mas mahands-on sya pagdating siguro sa aming tubo, sa pagsasaka." (Julie, Female, Block Farm Member)

"I do not have any work; I stay at home. Since we have a farm, I decided to continue propagating it while my husband worked as an Overseas Filipino Worker...when he lost his job, that was the time he helped in the farm and became more hands-on in doing the farm activities." (author's translation)

Unemployment can push people to venture into farming. Julie said she needed to manage the farm because her husband worked outside of the country as an overseas Filipino. It was only during the COVID-19 pandemic that her husband lost his job due to the pandemic and was able to focus on sugarcane farming.

The main issues experienced by the participants of the study, particularly regarding gender inequality in sugarcane farming, go beyond mere gender distinctions. The problems also include limiting children's involvement in farming due to a focus on education and outmigration within the family and community. The non-farming tasks, such as preparing food for family farmers, are typically regarded as household chores, which restricts the involvement of women and children as helpers in the field. Moreover, there is a challenge of financial sustainability in sugarcane production, particularly when female farmers are responsible for managing the farm, as they are expected to hire more workers. On the other hand, when male farmers manage the farm, they often rely on family members for help, which leads to the exploitation of unpaid labour to reduce production costs.

With the patriarchal view still dominating the agricultural sector, the focus group discussion highlighted the challenges of having women as chairpersons. This is especially important in the context of the COVID-19 pandemic when communication dynamics adjusted in response to health protocols (Lasco

et al., 2022). Mobility and the ability to address issues between farmers were cited as particularly challenging for female chairpersons. However, female chairpersons argued during the focus group discussion that, on their part, they were able to instill a “motherly approach” in leading their block farms. They felt this lacking among their male counterparts, who are perceived as “straightforward” by their members.

“Para sa akin po, sa experience ko, syempre babae kami parang meron kaming soft ano e, yung parang pakiusap na i-touch yung parang ganon. Yun lang po ang para saakin... merong advantage din naman ang mga babae... Siguro po maaring ahm mas masisipag ang mga babae... Kapag po tumanggap talaga yung mga babae ng obligasyon parang nakikita ko talagang mas kwan sila...” (Several female chairpersons during their FGD session)

“In my experience, as females, we are inclined to be more gentle in doing our role (as chairpersons)...That’s it for me...I see it as an advantage that, for me, is a mother’s touch...Perhaps, we tend to be more diligent in doing our tasks...When we accept an obligation, we make it a point to try our best to do well...(author’s translation)

One female leader said she thought of quitting because she felt her members tended to undermine her. However, her fellow chairperson encouraged her and cited their “mother’s touch” as an advantage over the male chairpersons and argued that this depicts their dedication and perseverance to succeed. This insight about perceived alternative leadership styles by women reflects interesting local observations about how the group is using culturally accepted gender norms to its advantage. However, some are more difficult to overcome. For example, it is culturally inappropriate for a woman to go with the farmers to the farms alone, where mobility restrictions influence their efficiency in leadership (Friman, 2022). These perceived issues and experiences of female chairpersons tend to highlight the issue of dualism regarding the advantages and disadvantages of leading a group with a majority of male farmer members. Although there is an effort to address the inequality within the system, the intrinsic belief that males should lead the group would be evident and, in the process, affect the leadership capabilities of female farmers.

The implementation of the Sugarcane Block Farm System has provided opportunities for female farmers to lead family farmers’ groups. However, the study also revealed that these chairpersons still face challenges in leading a male-dominated field since they are expected to be accountable to the members and partner institutions, which can be a difficult task for female farmers in general due to the issue of dualism in leadership. This is often the case, which affects the participation in extension and block farm activities and is critical to the success of the sugarcane value chain.

Co-creation of knowledge in a patriarchal sector

As van den Ban (2002) notes, researchers must develop and relay new knowledge to farmers. However, farmers’ role in the knowledge co-creation process in the Philippines has been undermined by difficulties in access to extension services that provide innovations. Understanding a community’s dynamics and how communication flows between the group is a useful starting point when considering stakeholder participation in extension activities (Walters et al., 1999). In particular, as seen in the above findings, there are underlying reasons that explain unequal engagement by men and women farmers. Although participants felt there was a degree of equality regarding the provision of space for women in these activities, most believed that male farmers remained superior in knowledge to their female counterparts. This is highlighted by the comment from Pilo:

“Ay mas madami ang lalaki... syempre ang farming kasi nga e parang sa lalaki lang naaangkop e. kumbaga lang, wala ang lalaki yun saka lang papaattendin ang babae.” (Pilo, Male, Block Farm Member)

“The majority of those attending the activities were male farmers...of course, farming is considered a man’s job. In other words, only when the males are not available is the time that females would attend the activities.” (author’s translation)

Accepted cultural views are of women as substitutes or helpers on the farm. Lamontagne-Godwin et al. (2019) argued that women must be enabled to access the opportunities that could enhance their

capabilities, and only then would they be able to participate in the co-creation of knowledge, maybe with alternative creative solutions that reflect their own needs. However, building confidence that they can manage the farm effectively is challenging, as highlighted by Lina, who argues that men have a louder voice during extension services:

"Mga lalake ang kalimitang nagtatanong... siguro nahihya ganun (ang mga babae)... Mas malaki ang boses ng lalake eh... Mas may alam ang lalake lalo na sa tubo." (Lina, Female, Block Farm Member)

"Men would often ask questions...perhaps women were afraid to ask questions since the male voice tends to be louder... since they know better when it comes to sugarcane." (author's translation)

More positively, 75% of participants felt that women within their group can voice their concerns and acquire information to make their sugarcane farm productive. For them, equality and their common goal to succeed in learning new innovations create a shared sense of purpose and opportunities to integrate ideas with local knowledge (Nath, 2001). Dowsing and Cardey (2020) argue that extension services must be a venue for an educational process, which can provide advice through learning, dialogue, and adoption and develop a more open space for the co-creation of knowledge.

"Pantay, lalo pa't ngayon mas matalino pa ang mga babae kaysa sa mga lalake, hindi naman lahat ng matalino ay lalake." (Crisostomo)

"Equal, since females tend to be smarter than males and not all males are intelligent." (author's translation)

"Mas matanong ang babae eh... Siguro mas gusto nilang matuto." (Rina, Female, Block Farm Chairperson)

"Females tend to ask more questions...They want to learn more." (author's translation)

"Parang patas naman. Di ba isa naman ang aming adhikain sa kwan e, walang kamong... Parang priority ang lalaki? Hindi, parehas... kami minsan naman merong hindi nakakaattend e walang pagkakataon yung asawang lalaki, edi syempre yung asawang babae ang syang sumasama..." (Don, Male, Block Farm Member)

"Perhaps, it is equal. Since we all want to succeed as our motivation, there is no... prioritisation of males over females? No, there is equality...since we cannot attend in some cases, we send our wives to attend on our behalf." (author's translation)

Nevertheless, a double burden is apparent for female sugarcane farmers in Batangas, especially for those left to manage their farms as a result of outmigration or the death of a male household head. This triangulation of work, as discussed by Widodo (2018), means the entire work burden expected of female farmers needs to be fully recognised in the sector. This must include the reproductive and productive work that women do, particularly in the case of female chairpersons in charge of their specific block farms. It makes it more difficult for female leaders to have the time and energy to be innovative and challenge cultural norms.

Extension activities that support leadership, gender and development training are essential to equip female chairpersons with skills to grow their position within the block farm and earn the respect of members (Matsuura, 2020; Widodo, 2018). Implementing agencies are ultimately responsible for facilitating these inclusive approaches, ensuring each member has access to the services and responding to national policy and laws. These policies and laws require gender-sensitive approaches in the development of governance and support processes in the block farm system. If higher yields in sugarcane production are to be maintained, gender-inclusive development must be realised and family farming livelihoods must be sustained.

The power dynamics between genders in sugarcane farming significantly affect the level of involvement of female farmers in the system. The social constructs of gender could either facilitate or impede the progress of sugarcane production. In the case of female sugarcane farmers in Balayan and Calaca, Batangas, giving them access to opportunities that enhance their skills and knowledge as block farm chairpersons and members would enable them to increase their participation in the co-creation of knowledge within the system. Furthermore, providing equal opportunities for both male and female farmers encourage women to express their views and reduces the perception that male farmers are more knowledgeable than they are. Although the group acknowledges that efforts are being made to promote

equality within the group, there is still room for improvement in creating a space for learning and dialogue, which are essential for co-creating knowledge.

Conclusion

The plight of family farming has similar challenges globally, including gender inequality in accessing extension services and unequal power dynamics between stakeholders within the agricultural sector. In the Philippines, family farmers recognise that the younger generation has a preference to venture out of agriculture to find a livelihood that will be unlike to their own difficult lived experience. This narrative has been shaped by the failure of government policy to be translated into on-the-ground practical support that protects the family farmers' livelihoods and well-being in the sugarcane industry.

This paper asked whether, and how, recognizing gender dynamics in sugarcane farming in the Philippines can identify an enabling environment for production and empowerment for family farmers. It finds that while the institutionalisation of the block farming system was seen as an innovation to facilitate the co-creation of knowledge between farmer organisations and extension agents, the approach used by extension services hindered potential gains that could have been made towards gender inequality. Specifically, an approach is needed that values the role and perceptions of female farm leaders. Dualism in leadership between genders must be properly addressed, but this will require stakeholders to work with block farms to enable wider social change. To address these issues, gender and development activities must be included as standalone programmes in future extension services to allow the farmers to learn the value of gender equality within and among the group. In this way, the male family farmers would be able to understand and practice engaging with female family farmers as their equals and not as mere helpers or substitutes on the farms. The addition of these activities to the co-creation of knowledge would not only empower the female farmers, but most importantly, enable their members to value them as co-equal in the sugarcane value chain.

There is also a need to revisit the laws directed toward sugarcane farmers' enhanced capacity and livelihood conditions, particularly after the COVID-19 pandemic. Based on the experiences of the selected sugarcane farmers, despite government ambition in the Philippines to deliver growth in the sugarcane sector, there is a need to consider in the gendered nature of rural life, and the roles and expectations within those societies, particularly now that outmigration has been slowly affecting the quality and quantity of farm workers left to work on the field. Based on the lived experiences of female family farmers, particularly those of the chairpersons, there are still limited opportunities for female farmers to engage in the system that would help them increase their potential in sugarcane farming and management without being treated as second-class citizens. At present, female family farmers are only given the opportunity to participate in extension activities in the absence of male family farmers. While female farmers and their children are not expected to participate during harvest season, their roles, such as food preparation for farm labourers, planting and weeding, should be seen as essential to the success of farm activities. Albeit unpaid for these tasks, they play an important role in keeping labour costs low for the family. These issues and challenges were not deterring these farmers from continuous propagating sugarcane as it is already a part of their cultural life. However, on a wider scale, there is a need to target gender inequality in the sugarcane sector, which will help achieve inclusive growth through the value chain and empower marginalised farmers.

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Author contributions

The team contributed to the conception and structure of the paper. The lead author (PJME) wrote the initial draft while the co-authors reviewed and critiqued the output. SPC, MSCT, and MTQ were in charge of the substantive editing. Meanwhile, and HO was in charge of the substantive and mechanical editing. All authors have read and agreed to the published version of the manuscript.

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About the authors

Pamela Joyce M. Eleazar – An Assistant Professor at the College of Development Communication-University of the Philippines Los Baños taking up her Dual PhD by Research at the University of Reading and the University of the Philippines Los Baños. Her research interests involve gender and communication, communication for development, and international development.

Sarah P. Cardey – Associate Professor, University of Reading, and an interdisciplinary social scientist, who is specialising in gender and development, development communication and rural livelihoods. She also conducts both qualitative and quantitative research bringing in gendered lens to the implementation, analysis, and conduct of research.

Henny Osbahr – Professor of International Development, University of Reading and a Geographer interested in agricultural innovation processes to support climate change adaptation, participatory approaches in rural development and food security, particularly in marginalised livelihoods. She also works on the role of knowledge systems in shaping decision-making and the governance of natural resources.

Maria Stella C. Tirol – Dean and a Professor at the University of the Philippines Los Baños – College of Development Communication. Her research and academic experience revolve around participatory communication, rural communication services, agricultural and natural resource management communication systems, and communication research.

Maria Ana T. Quimbo – Professor at the University of the Philippines Los Baños – College of Public Affairs and Development. Her research and academic experiences include community development, communities in transition, and climate-resilient development. With her expertise, she is also tapped as a research and evaluation consultant within and outside the University.

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