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Investigating the Constraints Limiting the Contribution of the National Cashew Producers Union (FO) in Improving the Productivity of the Cashew-Based Agroforestry Systems in Burkina Faso (West Africa)

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The producer organisations contribute to improving agricultural productivity. This research investigated the constraints limiting the contribution of the national cashew producer's Union (FO) in the productivity of the cashew-based agroforestry systems (AF) to help in the planning of future interventions for increasing AF productivity through FO. The study was conducted in the 04 main regions of cashew production. The data relating to the FO characterisation, operation, services and quality and new service delivery expected by the members were collected using the surveys through 33 individual producers and 118 producers through 7 focus groups totalling 151 respondents. The lack of communication, the low education level, the low memberships and memberships fees, the low women memberships, the lack of the supervisory board, the large geographical cover and producer members and the responsible selection method were the identified constraints related to the structure, characterisation and operation that could reduce the FO contribution in AF productivity. The FO services delivery contributes to AF productivity, but they need to be strengthened through providing new services such as producers' access to credit, building the producers' resilience to climate change, construction of storage facilities and increasing memberships for a greater impact on AF productivity. The FO should increase the service delivery related to group sales for FO to improve AF productivity. The results of this research could serve the actors interested in improving productivity through farmers' groups in the planning of their future interventions for increasing AF productivity through the FO.

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INTRODUCTION

The cashew-based agroforestry systems (AF) are widely expanded in the agricultural production systems of Burkina Faso (Somé, 2014; Belem, 2017) due to the economic and social benefits provided by the nuts (Nugawela et al., 2006; Marlos et al., 2007; Sarah, 2014; Sali et al., 2020). However, in Burkina Faso, the cashew productivity in AF remains low between 100 and 200 kg/ha (Ricaud, 2013) compared, for example, to Ivory Coast, which is between 200 and 1000 kg/ha (Soro et al., 2011). It was reported that the producers' institutions could have mixed effects on crop productivity, suggesting the relevance of undertaking research for analysing their contribution to promoting agricultural innovations that contribute to productivity (Mazvimavi & Twomlow, 2009; Anang & Asante, 2020; Bizikova et al., 2020). The farmers' institutions are to promote and encourage small farmers towards the different services to intensify agricultural production and to improve the quality of life of peasant families (Anang & Asante, 2020).

The farmers' institutions help to encourage the improvement of agricultural practices (Benitew-altuna et al., 2021). Research studies reported a positive impact of farmers' organisations on crop yield through the services they delivered to farmers (Abebaw & Haile, 2013; Abate et al., 2014; Bijman & Wijers, 2019; Bizikova et al., 2020). Farmers' organisations can enhance productivity gains through their role in facilitating effective and efficient participation of smallholders in agrifood value chains

(Verhofstadt & Maertens, 2014; Ainembabazi et al., 2017). The farmers' cooperatives were reported to be a determinant social factor influencing the agricultural practices contributing to farm productivity of small farm families in northern Columbia (Diaz et al., 2021). The farmers' organisations can also have a negative impact on crop yield through its negative effect on farmers' technical efficiency due to a low farmers' organisations membership and a low participatory rate in collective actions organised by the farmers' organisations (Gedara et al., 2012). With the support of the government of Burkina Faso and the technical and financial partners, it was created in 2013 as the National Cashew Producers' Union (FO), representing the professional organisation of producers in the cashew value chains.

The promotion of productivity and production at the national level are among the objectives of the FO. Also, the government of Burkina Faso developed a national strategy for cashew value chain development with the targeted objectives of the cashew nuts production of 200000 tons and the cashew yield of 800 kg/ha to achieve by 2030. To achieve these objectives of production and productivity by 2030, the government aims to strengthen the existing cashew producers' organisations for support in service delivery. The literature review did not report research carried out about the impact of the FO on AF productivity in Burkina Faso. This research investigated the constraints related to the FO characterisation, operation, services and quality, and new services delivery expected by the members limiting the contribution of the FO in AF productivity in the

aim to help government, financial, and technical partners interested in increasing the productivity through producers' organisations in the planning of their future interventions for increasing AF productivity through FO.

MATERIAL AND METHODS

Sites Description

The data were collected in the four main regions of cashew production in Burkina Faso, including the regions of cascades, hauts-basins, southwest and centre-west (Figure 1). The region of cascades (composed of Come and Leraba provinces) located between 10°67' and 12°11'N and 2°84' and 5°49' W is the first region of cashew production with about 1113 producers (UNPA, 2014). In the region of cascades, the average annual temperature is between 17°C and 36°C. The average annual rainfall varies between 1000 and 1200 mm; the soils are vertisol and hydromorphic (Belem, 2017). The region of hauts-basins (composed of Houet and Kenedougou provinces) located between 10°67' and 12°11'N and 2°84' and 5°49' W is the second region of cashew production with 1043 producers

(UNPA, 2014). In the region of hauts-basins, the average annual temperature is between 25°C and 30°C; the annual rainfall is between 800 and 1100 mm, and the soils are low-developed, ferruginous and ferralitic (Belem 2017).

The region of the southwest (composed of Poni, Ioba and Bougouriba provinces) located between 10°67' and 12°11'N and 2°84' and 5°49' W is the third region of cashew production with 884 producers (UNPA, 2014). In the southwest region, the average annual temperature is between 21°C and 32°C; the average annual rainfall is between 900 and 1200 mm. The soils are tropical eutrophic brown on clay material, moderately ferralitic on sandy-clay material and hydromorphic mineral (Belem, 2017). The centre-west region (composed of Ziro and Sissili provinces), located at 11° 45' N and 2° 15' W, is the fourth region of cashew production with 783 producers (UNPA, 2014). In the centre-west region, the average annual rainfall is between 600 mm and 900 mm; the average annual temperature is 37 °C, and the soil is tropical ferruginous, tropical eutrophic brown with low leaching and hydromorphic with low humus content (Asimi, 2009).

Figure 1: The different provinces in the 04 administrative regions (cascades, hauts-basins, southwest and centre-west) of cashew production in Burkina Faso



Source: (DGPER, 2015)

Presentation of the FO

The National Cashew Producer's Union (FO) is the producer's professional organisation of the cashew value chain legally recognised in Burkina Faso as a cooperative of cashew producers and was constituted by the grouping of the cashew

producers' unions at the departmental, provincial, and regional level. The different unions of the cashew producers that constitute the FO are represented by a board where the members are elected by the members. The FO is also represented by a board with the governing members elected and the technical human

resources recruited. The FO is headquartered at Bobo-Dioulasso. The FO has governing bodies, including the general assembly, the administration council, and the supervisory board, which is not yet operational. This information was collected from the available literature review (DGPER, 2019).

Data Collection

The data for the study were collected through the literature review and field surveys. The bibliography consulted was collected from the FO, public structures and projects and programmes. The field surveys concerned the producers who were members of the FO in each of the 04 regions of cashew production in Burkina Faso. However, a small number of producers who were not members of the FO were surveyed through 01 focus group of 21 respondents in 01 region of cashew production. The data relating to the FO characterisation, operation, services and quality and new services delivery expected by the members were collected in the 04 regions of cashew production through surveys with 33 individual producers and 118 producers through 7 focus groups totalling 151 respondents for the investigation of the constraints limiting the AF productivity through the FO.

Data Analysis

The descriptive statistic (the calculation of the percentages and the means) was used for the data analysis using the MS Excel software.

Table 1: The main services delivered by the FO to its members

Services delivered	Percentage of beneficiaries (%)
Training	79
Market and prices information	52
Access to inputs and equipment	31
Group sales	21
Customer search	17

RESULTS

The FO Characterisation

The results revealed that 72% of the respondents had a primary education level. The results indicated that the average years old of the producers were 46. The results showed that only 3.44% of respondents were women.

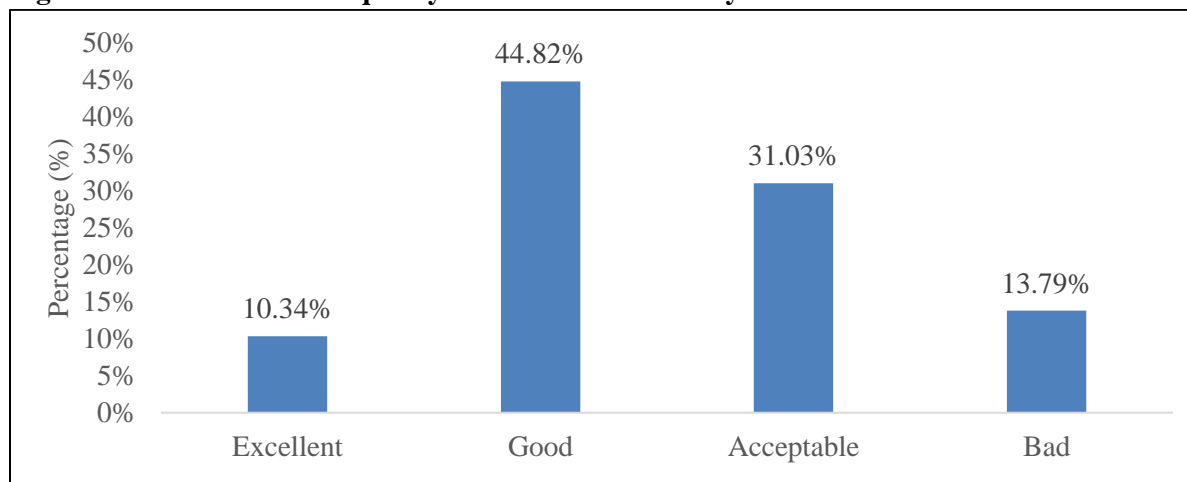
The FO Operation

The results revealed that the statutory meetings of the FO governing boards, including the general assembly and the administration council, were held with the decision-making based on the majority of the voices. The results showed low FO memberships and memberships fees. The lack of communication between the FO and its members was considered by 21% of respondents as a factor that has negatively impacted the FO operation.

The FO Services and Quality

The results showed that the main services delivered by the FO to its members were training, market and price information, access to inputs and equipment, group sales and customer search, and 83% of the respondents have benefited from these services. The training, the market information and prices were the most important services delivered by the FO to its members (*Table 1*). However, a certain number of producers found that the quality of the services delivered by the FO to its members was bad (*Figure 2*).

Figure 2: assessment of the quality of services delivered by the FO to its members



The FO New Services Delivery Expected by The Members

The results revealed that the producers expect new services from the FO, including group sales,

construction of storage facilities, facilitation of access to credit and increase of FO memberships (Table 2).

Table 2: New services delivery expected from the FO by its members

Needs for new services	Interested persons (%)
Group sales	65,51
Construction of storage facilities	58,62
Facilitation access to credit	55,17
Increase of FO memberships	10,34

DISCUSSION

The producers’ organisations are generally structured according to three levels, with each level having a specific role and function (Achancho, 2012). The producers’ organisations of the first level bring together a small number of producers (5 to 30 producers) sharing the same territory, and their main functions are the training and sharing of experiences for knowledge improvement related to agricultural practices, the mutual support in some production activities, the primary collection of agricultural products for marketing, the producers supply in inputs, and the management of small processing units. The second level of producer’s organisations is those including at least 02 first-level producer’s organisations, and their functions are to improve the economic situation of the members, including the marketing (group sales) and the group purchase of inputs for the producers. The third level of producer’s organisations are those bringing together at least two unions (second level

of producers’ organisations), and their functions are focused on marketing and the representation with the partners, in particular the government.

The FO was structured according to these three levels of structuration, and this could be an advantage for more impact on AF productivity through the respect of the function’s separation and the implementation of appropriate actions and activities targeting the AF productivity by each FO level. The existence of governing boards, statutes, and internal regulations is an asset for the producers’ organisations in establishing partnerships with technical and financial partners for the benefit of the members (Achancho, 2012). The FO was legally recognised and had governing bodies that held the different statutory meetings, and this could facilitate the negotiation of partnerships for the implementation of actions and activities contributing to AF productivity. However, one important governing board was not yet operational during our study (the supervisory board), which plays the role of checking and

validation of the FO expenses, and this board should submit their report to the general assembly. This fact could reduce the partnerships established by the FO, the transparency in the FO leading to a reduction of memberships, and as a consequence, the contribution of the FO to AF productivity could be negatively affected.

The education level of a large number of producers was primary level which is very low, and this could have a negative effect on AF productivity. The education level was reported as a determinant factor for the adoption of most agricultural practices studied by small farm families in northern Columbia (Diaz et al., 2021). The fact that the producers have a low education level limits their knowledge of good agricultural practices that contribute to improving productivity (Achancho, 2012; Garcia et al., 2020). Several authors reported the positive impact of applying agricultural management practices in improving crop productivity (Teklewold et al., 2013; Nkomoki et al., 2018; Darkwah et al., 2019; Abera et al., 2020; Oyetunde-Usman et al., 2021). The producer's population average years old was 46, which corresponds to the age of maturity (Achancho, 2012). This maturity age of a large number of producers could be an asset in improving AF productivity through the FO as at this age, farmers aspire to improve their socioeconomic conditions, and for this reason, they will be willing to invest in the implementation of knowledge on good agricultural practices that they received from the FO. The women's FO membership was very low, revealing the low implication of women in cashew production, and this is in accordance with several studies that reported the low representation of women in farmers' organisations (Achancho, 2012; Abate et al., 2014). The low representation of the women in FO will lead to their lower contribution to AF productivity because of their limited ability due to the fact that they will benefit less from the delivered services by the FO to increase yield (Abate et al., 2014; Bizikova et al., 2020).

In most cases in Burkina Faso, women do not own the farmland, but they are actively involved in the family agricultural production activities. Increasing women's participation in FO by building their abilities in production technology uptake (Meier zu Selhausen, 2016) could help women to take advantage of the services delivered by the FO to increase AF productivity. The FO held the statutory meetings of the governing boards, and this constituted an exchange framework to inform the members about the results achieved, to promote members' involvement in the implementation of certain activities and to facilitate members' retention and memberships, as reported by Achancho (2012).

The statutory meetings held by the FO could then enhance its contribution to increasing AF productivity. However, some FO members reported a lack of inclusion in the implementation of the activities. This was probably due to the large number of members and the large geographical coverage of the FO, which reduces the possibility of an important number of members participating in the statutory meetings. Consequently, this lack of inclusion could reduce the FO membership and the contribution of the FO to AF productivity. The large number of members and geographical coverage of the producers' organisations of the second and third levels were reported to limit the perceptible effects of the services delivered to the members (Achancho, 2012). The election of the FO governing board members allows them to have responsible that are accepted by a large number of the members contributing to the cohesion. But sometimes, the choice of the farmers' organisations responsible through the elections was influenced by the traditional and political leaders in the farmers' community and by the financial resources, and this led to the choice of responsible without leadership and managerial skills (Achancho, 2012).

The limited managerial and leadership skills of the producers' organisations responsible limit the producers' organisations' benefit to the members, including the productivity benefit (Chirwa &

Kydd, 2005; Luviene et al., 2010). Then, the low FO memberships and the low FO memberships fees collected that could negatively affect the AF productivity may partly be explained by the FO responsible leadership and management skills. The low memberships fees collected by the FO could lead to a low internal financial resources mobilisation that would reduce the contribution of the FO to AF productivity through limited activities related to awareness, research of information, purchase of small materials and the movement of the responsible as reported by Achancho (2012).

The low internal financial resources mobilisation of the FO was partly compensated with subsidies from the government through the taxes collected during the export of the nuts. These additional financial resources provided by the government could help the FO to implement activities that enhance AF productivity. Having this additional sustainable financial support from the government can make the FO strong in negotiating relevant programs with the financial and technical partners that contribute to farm productivity through producers' organisations, as reported by Achancho (2012) and Bizikova et al. (2020). The large size of the FO members and geographical coverage could be considered as a major factor leading to a deficit of communication between the FO and its members, and this fact could have a negative effect on yield as a large number of producers members may miss information about the opportunities that could help to increase the AF productivity.

Bizikova et al. (2020) reported that access to market information by the farmers' organisations members increased yields. Horizontal communication refers to information exchange between farmers about their production methods, and vertical communication refers to communication between the farmers with superior production knowledge and the chief executive officer with superior marketing experience are reported to be key factors influencing the production innovations in the farmers' organisations to increase the products price and

demand on the market (Xiao et al., 2016). Horizontal and vertical communication influence farm productivity through its effect on agricultural product prices and demand on the market, and they could be recommended to the FO. A large number of members benefited from the services delivered by the FO, and the main services delivered were training, market information and prices. The farmer's access to inputs and equipment, group sales, and customer search were the other services delivered by the FO to the members.

Bizikova et al. (2020) reported that the main services delivered by the farmers' organisations that contributed more to yield improvement were output marketing services. Farmers training through extension services and access to market information are the other two services that are associated with higher yields (Bizikova et al., 2020). The extension services delivered by the farmers' organisations to its members contributed to improving productivity through a significant increase in fertiliser use or high-quality and climate-resilient seeds use (Deshmukh et al., 2009). The extension services, in combination with access to inputs delivered by the farmers' organisations to its members, led to yield improvement (Chindi et al., 2017; Wassie et al., 2019). However, an important number of producers were not satisfied with the quality of the services delivered by the FO to its members, probably due to the issue of communication. In fact, this group of farmers that are not satisfied with the quality of the satisfied current services delivered by the FO may not have participated in the activities of the FO probably because of the lack of information or the producers of this group may not have been informed about the progress and achieved results of the FO.

The current services delivered by the FO to its members, according to the literature, can contribute to improving the AF productivity, and they should be intensified. However, the research revealed new other services expected from the FO by the members that could significantly contribute to improving the AF productivity, and these

include the construction of storage facilities, the farmer's access to credit and the increase of awareness for a greater FO membership. Coulibaly et al. (2022) and Diaz et al. (2022) reported positive effects of farmers' access to credit in improving productivity. The storage facilities and knowledge services provided by the producer's organisations to its members improved the production quality, which was reported to be the second most common impact of farmer organisations on the producers (Bizikova et al., 2020).

The improvement of production quality through storage facilities and knowledge services delivered to the producers by the producer's organisations could then contribute to increasing productivity because they improve the output marketing services, which was reported to have a greater impact on productivity. Moreover, the FO members suggested that the FO put more emphasis on group sales (outputs marketing services) which, according to Bizikova et al. (2020), was the first service delivered by the farmer organisations that contributed to improving the yields. Climate change and variability were reported to be major external factors that negatively affect the production and yield, and this calls for the FO to deliver services to its members that build the resilience of AF productivity to climate change, including flood protection, wetland management, water and land conservation, improved water quality and quantity and soil conditions and reduced erosion (Bizikova et al., 2020). Price fluctuation has been reported as a major factor that can affect productivity (Assouto et al., 2020). It would be important that the FO delivers services to the members that help mitigate the negative effects of the fluctuating cashew prices, such as crop diversification, with the aim of maintaining and/or improving AF productivity.

CONCLUSION

The investigations revealed that the lack of communication, the low education level of the producers, the low memberships and the low memberships fees, the low women memberships,

the lack of the supervisory board, the large geographical cover and the producers' number and the method of the choice of the responsible were the constraints related to the characterisation and operation that could limit the FO services delivery effect in AF productivity. The investigations also revealed that the services delivered by the FO to its members contribute to AF productivity, but these services need to be strengthened through new services delivery as producers' access to credit, building the resilience of producer's productivity to climate change, construction of storage facilities, mitigation of the negative effect of cashew nuts prices fluctuation and awareness increase for a greater impact of the FO in AF productivity. The investigations showed that the FO should put more emphasis on delivering services related to output marketing services (group sales) for more impact of the FO on AF productivity. The results of this research could serve the actors interested in improving productivity through producers' groups in the planning of their future interventions for increasing AF productivity through the FO.

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