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Comparative analysis of youth transition in bean production systems in Ghana and Cameroon

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Youth transition in the common bean (*Phaseolus vulgaris* L.) value chain remains low in Ghana and Cameroon despite the potential of the bean sub-sector in reducing poverty, unemployment, and undernutrition. This study compared youth transition in the bean value chain in Ghana and Cameroon. It investigated how intersectional elements, including age, influence the uptake of bean production among the youth in these two countries. Data were collected from 266 participants from Ghana and 84 from Cameroon. The data were collected through focus group discussions (FGD) and in-depth interviews. The results demonstrated that Ghanaian youth disfavored bean production, while in Cameroon, youth favored bean production. In both cases, parents were instrumental in influencing youth choices. In Ghana, many parents did not approve of their children taking bean production as a primary occupation. By contrast, parents in Cameroon favored bean production and appeared to value agriculture, thus encouraging their children to venture into it. Despite the differences in Ghanaian and Cameroonian youth' perceptions of agriculture, the challenges they faced that hindered their participation in the bean value chain remained the same: lack of financial support, limited access to land, and lack of technical know-how.

Background

Agriculture remains a cornerstone of sub-Saharan Africa's economy and a crucial vehicle for sustainable livelihoods and economic development. Crop production, especially common bean, provides an important platform for youth employment and income generation (Kansiime et al. 2022; Mkuna, 2022; Kondwakwenda et al. 2022). However, the transition of youth—defined in this study as individuals aged 18–35 years into common bean production remains relatively low (Lutomia and Nchanji, 2022), threatening to undermine the sustainability of the value chain and its contribution to local diets and livelihoods. Integrating the innovative dynamism of youth in bean production can enhance agricultural productivity, contribute to food security and nutrition, reduce poverty, and improve the competitiveness of agri-food systems in the region. This may be due to factors such as limited access to land, insufficient collateral for loans, and a prevailing perception of agriculture as an unprofitable venture (Portilla et al. 2022; Adekunle et al. 2009; Maina and Maina, 2012). As a result, the performance of the crop in most parts of sub-Saharan Africa, especially the rural areas, has persistently been below

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its potential. The low transition of youth to common bean can thus be attributed to a wide range of constraints that make agriculture less attractive to youth.

The story of youth in common bean production in sub-Saharan Africa is characterized by a lack of remunerative, secure, or decent work prospects, contributing to their lack of interest in the bean value chain. Consequently, youth abandon agriculture for alternative occupations that earn better income (Byishimo et al. 2022; Olagunju and Dawodu, 2022). The inability of the youth to earn commensurate income from their effort in bean production contributes to their disinterest in the sub-sector. Moreover, pre-existing challenges, including gendered social norms and strong social hierarchies, restrict the autonomy of youth and women. These sociocultural norms and practices result in limited access to land, lack of financial support, and inadequate farm inputs (Stoet and Geary, 2022). These challenges have been identified in literature as major factors limiting youth participation in agriculture, rendering them unable to benefit from their participation in the bean value chain.

In sub-Saharan Africa, land ownership is primarily controlled by adult men, with youth and women holding a minor proportion, a discrepancy largely rooted in traditional inheritance practices that favor male heirs. Particularly marginalized are young women, whose land rights are often overlooked due to cultural norms that typically exclude them from land inheritance (Jayachandran, 2021). Many societies in sub-Saharan countries still adhere to diverse cultural values and pride themselves on traditional belief systems, which define the place of women and youth with respect to land access, use, and ownership (Akinola, 2018). As a result, most youth and women have limited access to land and remain largely disadvantaged in many ways in society because land is not only a source of economic production but also forms the basis for social relationships which influence the performance of social networks – an important asset in ensuring sustainability in society, especially in rural areas (Baloyi et al. 2022; Kalabamu, 2019). Therefore, with limited ownership and access to land, youth do not adequately participate in the social networks that foster sustainable livelihoods of rural households.

Access to farm inputs, such as fertilizers and pesticides, is critically low among youth, hindering their ability to maximize crop productivity and manage pests and diseases effectively. This challenge undermines the potential profitability of bean production (Gaddis et al. 2018). Therefore, their participation in common bean production often fails to yield better outcomes. In Cameroon, youth participation in commercial bean production is relatively low (Adomako et al. 2022; Andukwa and Ntonifor, 2021; Akwa et al. 2020).

Common beans are considered a women's crop because women play a major role in subsistence common bean production to meet household needs. In Cameroon, the bean sub-sector has a woman's face, suggesting a high level of adult women's involvement in bean production (Akwa et al. 2020). However, despite the contribution of adult women to common bean production, the output is low due to low financial endowment compared to men, preventing them from combating the production and post-harvest constraints, thus enhancing yields (Siri et al. 2020). Because of these challenges, the outcome of common bean farming is often less lucrative, discouraging youth's transition to the bean value chain. As a result, most youths aspire for formal sector employment, which is assumed to have better income. Consequently, many youths perceive common bean production as an unrewarding occupation, particularly due to its relatively low-income-generating potential compared to formal sector employment opportunities.

High storage and marketing costs undermine the attractiveness of the bean value chain to the youthful population in Ghana and Cameroon. The high marketing costs are associated with poor road infrastructure from rural areas to markets, inadequate access to market information, poor packaging, lack of processing equipment and plants, inefficient transaction processes to facilitate the exchange, and insufficient credit and insurance, among other constraints (Akwa et al. 2020; Okolle et al. 2022). These constraints increase the cost of getting the produce from the farmers to the consumers. Consequently, youth do not get adequate income from beans and instead earn less from their work (Okolle et al. 2022; Siri et al. 2020). There is a lack of incentive to encourage more young farmers to take up agriculture, especially common bean farming. Therefore, many view common beans as incapable of meeting their financial needs, hence their preference for other professions.

Changing the perception of rural African youth about agriculture requires that constraints facing young farmers are juxtaposed with evidence of the realities that many rural youths live with to find lasting solutions to the inherent challenges young farmers face (Okolle et al. 2022; Siri et al. 2020; Andukwa and Ntonifor, 2021). This will help clarify and ideally highlight more realistic approaches to address the challenges they face. However, there is a need to understand their livelihoods and employment realities to ultimately derive implications for policy solutions and technical support models to improve their employment outlooks. This is of particular importance because a lack of a better understanding of the realities facing the youth in agriculture can substantially impact what would be perceived as the best ways to promote agriculture among the youth to advance the cause of youth employment creation in Sub-Saharan Africa.

Given the fast-rising youth populations in Ghana and Cameroon and the state of economic livelihoods in the two countries, the agricultural sector, particularly on-farm production, offers a great opportunity for reducing unemployment and underemployment. Most young people, especially those in low-income economies, can find better opportunities through self-employment in agriculture, particularly bean production (Okolle et al. 2022; Siri et al. 2020; Andukwa and Ntonifor, 2021). Therefore, strengthening the capacity of young farmers and making agriculture attractive to the youth is a crucial step in promoting their transition into bean production to help solve the problems of unemployment, poverty, and undernutrition. Nonetheless, youth employment in agriculture is influenced by several factors, including wage rate, an issue that needs to be addressed to attract youth into agriculture (Fani et al. 2021).

There is a scarcity of comparative studies examining the determinants of youth engagement in common bean production between Ghana and Cameroon. Recent studies, such as those by Kwakye et al. 2021 and Wuni et al. 2017 in Ghana, concentrated on data from young participants, while Mkong et al. (2021) research in Cameroon was confined to university students. The current study identifies this as a significant research gap and posits that a comparative approach can reveal critical insights into the variable socioeconomic and cultural factors affecting youth engagement in agriculture across different countries. The study achieves this by incorporating insights from older community members, particularly parents of youth, to enrich the understanding of intergenerational dynamics in agricultural transition.

This study examines youth transition into common bean farming in Ghana and Cameroon, investigating the reasons behind youth transitions and incorporating the latest research findings to provide a more holistic perspective. It achieves this by exploring how the two countries compare regarding youth participation in the bean value chain using a qualitative approach. The cross-country analysis allows investigation of the gender dimension in the common bean value chain, which has been notably underexplored in existing studies. Focusing on Cameroon

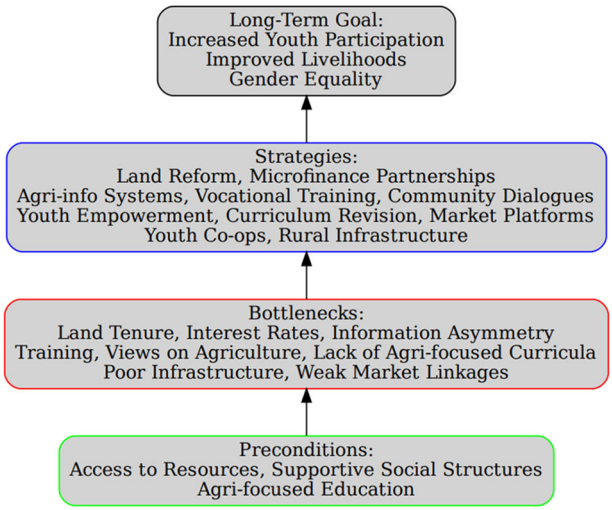

Fig. 1 Theory of change.

and Ghana, the study provides a nuanced analysis of unique geographical, cultural, and economic contexts and how they influence youth participation in bean production.

While several studies have explored youth transition in the agricultural systems in Ghana and Cameroon, there has been limited focus on youth transition into the bean production system. This study aims to fill the identified gap by conducting a comparative analysis of how gender and socioeconomic contexts in Ghana and Cameroon influence the youth's decision to engage in bean production. Furthermore, the study explores parental aspirations and resource access as factors influencing youth transition into common Bean Cameroon and Ghana using a qualitative comparative approach. This offers a fresh perspective in the literature on drivers of youth engagement in the bean value chain. The study also shows how social and gender dynamics may influence youth transitions into the bean value chain. This aligns with Sustainable Development Goal 8, which promotes sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work. The study is not only a novel contribution to literature but also a critical inquiry for policymakers and stakeholders seeking to engage youth in agriculture more effectively. The study also contributes to strategies for addressing gender disparities in the region by setting the stage for interventions to eliminate bottlenecks to youth participation in the common bean value chain.

Theory of change

Youth in Ghana and Cameroon can leverage the common bean value chain for enhanced livelihoods if they have access to essential resources, including land, finance, information, and training. By systematically improving access to these resources and tailored training programs —whose effectiveness will be monitored by youth enrollment and application rates—, youth in both countries can more effectively initiate and sustain bean production and marketing, thus increasing income, health, and nutrition for their households. Supportive parental attitudes and guidance are pivotal in boosting youth participation in bean production and the value chain. Strengthening positive parental attitudes and agricultural education could significantly influence the youth to view bean production and agriculture as a viable livelihood option, motivating them to engage actively in the value chain.

Education is another critical element that bolsters youth participation and transition to bean production. Education and hands-on learning in schools give students the practical skills to engage in agriculture. This consequently leads to increased adoption of best practices and innovation, ensuring higher yields and income. Furthermore, improving other factors, such as enhanced market access, achieved by enhancing access to markets and market information, enables youth to sell their produce effectively, further increasing their income and profitability from bean production.

Contextual specifics, including variations in land access and parental attitudes, may influence the degree to which these factors operate in Ghana and Cameroon. Nonetheless, the theory of change provides a robust framework to guide policymakers and stakeholders in designing targeted interventions that harness the potential of youth in agriculture, ultimately improving their livelihoods and contributing to broader socioeconomic development in both countries.

In summary, the theory of change illustrated in Fig. 1 aims to increase youth participation in the common bean value chain for improved livelihoods and gender equality. Bottlenecks to this long-term goal are land tenure insecurity, high-interest rates for finance, information asymmetry, inadequate training opportunities, traditional views on agriculture and gender roles, lack of agri-focused curricula and practical training, poor infrastructure, weak market linkages. The preconditions for youth transition into the bean value chain is enhanced access to essential resources (land, finance, and information and training), supportive social structures (parental attitudes and gender inclusion), and agri-focused education curricula and practical training. These preconditions can be achieved via advocacy for land reform, partnership with microfinance institutions, development of agricultural information systems, and establishment of vocational training centers. Other could be community dialog programs, initiatives to empower young women and men in agriculture, school curriculums to empower youth with relevant, hands-on agriculture experience, online market platforms, establishment of youth-led cooperative societies, and infrastructural development in rural areas.

Materials and methodology

Study area. The study was conducted in different administrative regions in Ghana and Cameroon, as shown in Fig. 2, where the Pan African Bean Research Alliance (PABRA) has been working closely with the bean research programs to enhance food security, health, and income of resource-poor farmers and the urban poor through research and development of the bean sub-sector. The methodology marks an innovative approach by conducting a comparative analysis across two countries to explore the realities of young people, their future aspirations, their transition to bean farming, and the aspirations of their parents concerning their future lives.

The choice of Ghana and Cameroon brings to light the unique socioeconomic and agroecological conditions that may influence youth transition into agriculture, a gap that has not been well-addressed in existing literature. In Ghana, two rural areas representing two different agroecologies and farming systems, Ejura and Atebubu, were purposely selected for the study. Ejura is within the Ejura-Sekyedumasi municipal in the Ashanti region, which lies in the transitional zone of the Semi-Deciduous Forest of the southern part and the Guinea Savannah zone of the northern part of Ghana. It is located within Longitudes 1°5 W & 1°39′ W and Latitudes 7°9′ N & 7°36'N. Agricultural production is mostly done on a subsistence basis. The crops grown in this region include maize, yam, beans, rice, plantain, groundnuts, and cassava, among others. Atebubu is in the Bono East region of Ghana at Latitudes 7°23" N and 8°22" N and Longitudes 0° 30" W and 1° 26" W. Agriculture is the main economic activity in the

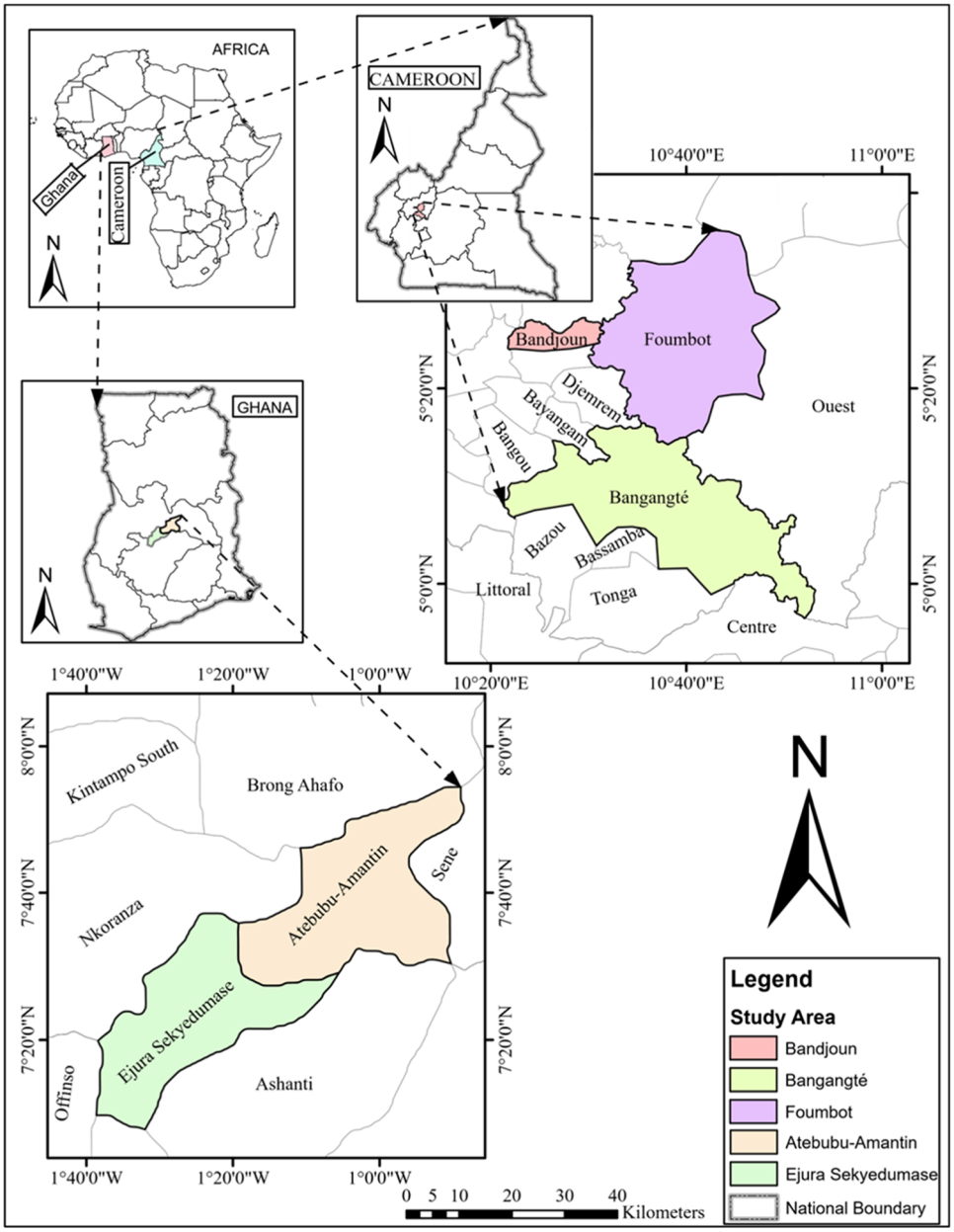

Fig. 2 Study Areas Ejura and Atebubu in Ghana and Bandjoun, Foumbot, and Bangangate in Cameroon.

Table 1 Distribution of participants by gender and country of origin.

	Ghana			Cameroon		
	Men	**Women**	**Total**	**Men**	**Women**	**Total**
Older Farmers	72	59	131	20	13	33
Youth	70	30	100	11	10	21
Key Informants	18	17	35	17	13	30
Total	160	107	266	48	36	84

area. The region had five major study sites: Abamba camp, Abour, Adom, Kokofu, and Ahontor.

In Cameroon, the study was conducted in the West Region in the Western highlands agroecological zone of Cameroon. The West Region is an important common bean production corridor in the country. The University of Dschang, an agricultural college, is in the West Region. The zone lies between latitudes 4054'N and 6036'N and between longitudes 9018'E and 11024'E (Yengoh, 2012). Three divisions (Koung Khi, Nde, and Noun) and three rural areas (Bandjoun, Bangangte, and Foumbot) were purposively selected in the West region.

As shown in Table 1, a total of 266 adult men and women, youth (male and female), and 35 key informants (18 males and 17 females) were interviewed in Ghana (Table 1). There were more adult farmers, totaling 131 persons, of which 72 were men and 59 women. One hundred youth participated in the study. Male youth (young men) were the majority (70 persons) while the female youth (young women) were only 30. Eighty-four farmers, including older farmers and youth, participated in the study in Cameroon. There was a total of twelve groups, four per locality, that participated in the study. Older farmers (33 persons) than youth (21 persons). There were also thirty key informants (17

men and 13 women). The study notably included a significant proportion of youth participants, addressing a critical gap in previous research that often underrepresents this demographic. Data was collected through focus group discussions, which made it possible to obtain information from adults (men/women) and youth (young men and women). In Ghana and Cameroon,

Data collection methods. Primary data were generated from focus group discussions and in-depth key informant interviews conducted in Ghana and Cameroon. The group discussions consisted of an average of seven people and were facilitated by skilled moderators using a predetermined semi-structured guide. The moderator asked broad questions to elicit discussion among the participants. Focus group discussions were primarily used to learn more about farmers' opinions on youth transitioning to bean farming. The discussion questions focused on exploring and comparing the realities of young people, their future aspirations, their transition to bean farming, and the aspirations of their parents concerning their future lives. The data collected during focus group discussions comprised the definition of youth, parents' aspirations for their daughters and sons, parents' views on youth and agriculture, challenges youth face becoming beans farmers, and opportunities to make youth better farmers. Including parental aspirations and the gender dimensions of youth participation in bean farming are new elements in this study, filling a notable gap in previous research. Farmers' responses were captured in audio and noted down in notebooks. The discussions were critical in getting perceptions and experiences.

In-depth key informant interviews were conducted using a set of pre-prepared but not rigidly applied open-ended and closed questions were used to capture data. The number of key informants was uniformly distributed in each region where the study was conducted. Interviews were held with individuals and groups classified in various categories in both countries. The categories comprised young people in junior and senior high schools, those who had completed schooling or dropped out of school, and young and older farmers. Individuals were selected from the groups to explore their views on issues of interest in more detail. In Ghana, key informant interviews were held with development partners such as the Agricultural Development Bank (ADB), Business Service Centre, World Vision, and agricultural extension officers. Group discussions took between 30 and 60 min, while the interviews took 15–20 min. Data collected from individuals and focus group discussions were recorded, translated into English, and subsequently coded to identify major themes.

This combination of the two qualitative methods – focus group discussions and in-depth interview – was specifically chosen to provide a comprehensive understanding of the complexities surrounding youth engagement in bean farming. This approach was critical in obtaining data from the purposely selected group of bean farmers in the two countries concerning parents' aspirations for their sons and daughters, youth perception of bean production, and overall transition to bean farming. Additionally, in-depth interviews benefited the study because they yielded rich data, providing new insights to the discussions. Through face-to-face interaction, the researchers gained additional information from body cues that are relatively impossible to get in a quantitative study. Moreover, in-depth interviews allowed in-depth conversation about youth transition to bean farming, their challenges, and parents' aspirations for their sons and daughters. Using FGD and in-depth interviews allowed the moderator to clarify and explain some of the questions for better responses. Participants' consent was obtained before the study interviews commenced.

Data analysis. A thematic analysis was used to identify major themes and patterns. Thematic analysis enabled an in-depth understanding of cross-cutting themes and differences between Ghana and Cameroon. A two-stage coding process facilitated a rigorous examination of emerging themes, with a specific focus on drawing comparisons across the two countries, highlighting the innovative analytical framework of our research. The first stage was the initial coding, in which numerous categories were generated without limiting the number of codes. At this stage, preliminary codes were assigned to help describe the data as well as to identify and list emerging ideas and relationships drawn between codes while at the same time identifying keywords used by the respondents to mark them as key indicators of important themes. In the second stage, a search for patterns and major themes in the codes across the different interviews was conducted, followed by a review of the themes. The second stage also involved focused coding, where identified categories from the first stage were combined, eliminated, or subdivided to help refine the themes further. This process helped draw attention to recurring and wider themes connecting the codes. This process helped draw comparisons across focus group discussions in Ghana and Cameroon. Data were analyzed as per the specific themes relating to the study. A qualitative approach was adopted to analyze the data.

Results and discussion

Themes and codes. Table 2 presents common themes that emerged during the study. The themes covered a wide range of issues ranging from parents' aspirations for their sons and daughters, the challenges youth face in their transition to bean farming, who is considered a youth in Ghana and Cameroon, to gender dynamics influencing youth transition in bean production systems. Common themes, repeatedly occurring in both focus group discussions (FGD), outlined youth perceptions on agriculture, existing differences between male and female youth' views on agriculture, the realities facing young men and young women, and opportunities that can help these youth transitioning into bean farming and benefit from their efforts in this sub-sector. It also explored parents' aspirations concerning their children's future in Ghana and Cameroon. Parents demonstrated a resounding desire for their children's education. Most parents expressed a strong commitment to sending the youth to school to provide them with opportunities for upward social mobility. This aspiration highlights a desire for parents to have their children break away from bean production and the agricultural sector in general, suggesting that sometimes farming might be seen as a challenging and potentially unrewarding occupation. These are nuances to consider as parents make these choices based on what they want for themselves and opportunities for a better livelihood for their children. This underscores the paramount importance parents place on education as a pathway to a brighter future. Young men are expected to pursue careers that enable them to be self-sufficient and capable of supporting their future families. This juxtaposition of educational aspirations and gender expectations unveils a complex interplay between parental hopes, youth transition to the bean production system, and the broader socioeconomic dynamics at play in the communities across the two countries.

Despite parents' objection to their youth taking up agriculture, youth interest in bean production reflects a positive and enthusiastic perspective on agriculture, suggesting a noteworthy level of interest among the youth in this sector. The youth participant expresses a genuine belief in the nobility of bean production and its accessibility to individuals of all ages and genders. In Cameroon, the selected region has a university

Table 2 Summary of common themes obtained from FGD transcripts in both Ghana and Cameroon.

Themes	Initial Code	Number of respondents contributing		Number of transcript excerpts		Sample quotes from transcripts (Cameroon)	Sample quotes from transcripts (Ghana)	Extracted code
		Ghana	Cameroon	Ghana	Cameroon			
Theme 1	Who are considered youth in your community?	35	30	40	34	*A young person is a person capable of carrying out physical activities. His age is between 18 and 45 years old.* *A young person is someone who has the physical capacity to work; he is still enduring according to the tasks. His age is between 18 and 50 years old.*	*A young person is someone who still has the energy and the strength to exercise the different trades. His age between 15 and 35 years old*	Youths are above 15 years of age but below 55 years.
Theme 2	What are your aspirations for your daughters	35	30	44	42	*We will never allow our children to farm and suffer in the same manner as we are suffering.*	*We will send them to school to become prominent people in society, e.g., doctors, lawyers, nurses, teachers etc*	Farmers suffer more compared to those in other professions
Theme 3	What are your aspirations for your sons	131	33	145	53	*I would like my son to be educated in order to exercise a profession that will allow him to be financially independent in order to be able to help his wife later.*		Sons need professions that provide independence
Theme 4	What can you say about youth and agriculture?					*Agriculture is a noble profession accessible to everyone, young, adult, man, woman. It's a job that opens doors both in the country and abroad, it's the most beautiful job, I think I'll spend the rest of my days in agriculture, and I already own a field and I'm going to invest myself more because I did a training at the school of agriculture.* *I think agriculture is a good thing. In my experience, I saw my grandmother feed her family and send her children and grandchildren to school just through farming. Besides, when you cultivate, you sell, and you can help other people who don't cultivate. We sell both inside and outside, we can transform.*	*Agriculture is not as rewarding as other professions. I think the youth should focus on education*	Youth prefer agriculture but are discourage by inherent challenges

Table 2 (continued)

Themes	Initial Code	Number of respondents contributing		Number of transcript excerpts		Sample quotes from transcripts (Cameroon)	Sample quotes from transcripts (Ghana)	Extracted code
		Ghana	Cameroon	Ghana	Cameroon			
Theme 5	Are the realities of young men and young women different or the same in relation to what they want for themselves in the future?	100	21	108	44	*I think we have the same education, the same training and all think we have a job, for our comfort at first, but later the boy thinks even further, he pushes further than the girl, the girl limits herself at one level and no longer continues studies because she thinks of getting married and founding her family and once married, the weight of household responsibilities weighs more on her.*	*The girl normally takes care of household chores, the children, and the whole family, the boy focuses on bringing money home for the whole family's well-being.*	Young men and young women's aspirations are relatively the same.
Theme 6	What challenges do youth face becoming bean farmers	100	21	124	34	*They face the problem of lack of fertilizer, or the land is no longer fertile and requires fertilizer*	*There is lack of farm inputs to enable the youth to have a better performance in the market*	Lack of land and farm inputs is a major challenge for young farmers
Theme 7	Are there opportunities that can make youth better farmers	35	30	40	30	*Funding is needed for young people, fertilizers, and transport to be made available to them, building huts to house them in the fields during the working period, training them on everything about agriculture: agricultural calendar, technical itineraries, how to use fertilizers, etc.*	*You need fertile land, so you need the means to get started.*	Funding, and access to land and farm inputs can make youth better farmers

Table 3 Definition of youth disaggregated by country.

Country	Definition
Ghana	15–35 years, with the upper limit of 35 years seen as the age where people assume "full adult responsibility" (National Youth Council of Ghana (NYCG), Ministry of Youth and Sports 2010).
Cameroon	15–35 years, where the age of 35 years is believed to be the age at which a person attains full responsibility. Government of Cameroon, Ministry of Youth Affairs (2006)

specialized in agriculture, which indicates a tangible commitment to and investment in the agricultural profession, suggesting a strong interest in furthering their knowledge and skills.

Definition of youth. In policy, youth is usually defined with reference to age brackets, as depicted in Table 3 for Ghana and Cameroon. Youth is the transition period from childhood dependence to adulthood's independence. It is also understood as a social category that is historically and socially constructed (Adjei et al. 2022; United Nations, 2022). Whereas official policy definitions of youth remain the same in Ghana and Cameroon, bean farmers in the two countries have slightly different views and definitions of youth. The definition is relatively fluid, which is evident in the differences in farmers' responses during the FGD in Ghana and Cameroon. The results showed little agreement on the upper and lower limits of the age brackets of who is considered a youth. In Ghana, farmers consider a youth between 18 and 35 years old, irrespective of gender. By contrast, farmers in Cameroon had a different view on who is considered a youth. In the three localities in Cameroon, the farmers identified a youth as someone who still has the strength to work. This assertion was further reiterated by one of the respondents in the focus group discussion, who stated:

> A youth is a person between 18 and 45 years old. A young person is an individual who is no longer a child but who can already reflect. Someone who has not worked too much can work physically even until he is 55 years old, but someone who has done heavy work at 40 no longer has any strength. So, youth age can vary according to individuals, ranging from 18 to 55 years old or from 18 to 45 years old.

Additionally, the lower age limit differed by gender as more young women and women considered a youth as a person between the ages of 15 and 45 years old, while young men and men considered a youth to be a person between 18 and 45 years old. Their definition of youth was pegged on the view that it is the age at which people are still active and have all the strength and vigor to make a difference in their lives. This age bracket was also believed to be the prime age for achieving several goals and building their lives. The differences in Ghanaian and Cameroonian farmers' views on who is considered a youth can be explained by varying social or cultural norms that are understood to define the transition from childhood to youth to adulthood. Despite the differences among farmers on the upper and lower age limits, there was a consensus among farmers in Ghana and Cameroon that youth refers to a person(s) in their prime years (Ingram et al. 2019).

Youth transition into agriculture. Youth in Ghana and Cameroon get exposed to agriculture, especially bean production, at a relatively early age. Focus group discussions revealed that in both countries, young people get exposed to bean production by working on their parents' farms (Fani et al. 2021). This finding is consistent with Rada and Fuglie, (2019) who also stated that family members, especially the youth, provide family labor on farms (Mahama et al. 2018). This, in a way, helps to reduce labor costs. While most youth engage in farming activities to assist their parents, only a few engage in agriculture for their own upkeep from the pieces of land provided by their families.

In Ghana, most youth often regard their involvement in their parents' farms as a part-time activity as they wait to transition to their imagined futures. In the different districts where the study was conducted, the result showed that youth had divergent plans, most of whom focused on furthering their education to get professional salaried jobs (Rada and Fuglie, 2019). Nonetheless, despite youth aspiration for off-farm employment, agricultural production (for example, cowpea) remains the primary source of livelihood in Atebubu and Ejura in Ghana. Cowpea is among the leading income earners in the region, besides yam, maize, vegetables, cowpea, and groundnuts. However, youth transition into cowpea production is still low. Despite the youth's limited financial resources and social networks hindering their transition to their imaginary futures, few opt to join bean production, which is an immediate alternative.

At a national level, the FGD results revealed that Ghana's youth were less likely to take up agriculture as their priority source of income compared to those in Cameroon. The lack of interest in agriculture among Ghanaian youth is perhaps influenced by the economic status of their parents, many of whom appeared dissatisfied with their economic status and thus did not wish to have their children venture into agriculture like them. In a focus group discussion at Ejura, one of the women said:

> We will never allow our children to farm and suffer in the same manner as we are suffering. We will send them to school to become prominent people in society, e.g., doctors, lawyers, nurses, teachers, etc

This statement highlights why youth in Ghana take up agriculture as a matter of last resort and explains why youth transition to common bean farming remains low in Ghana compared to Cameroon. The negative perception of agriculture can be attributed to the lack of adequate development in the agricultural sector, which consequently makes parents of the Ghanaian youth view the sector as less lucrative (Andukwa and Ntonifor, 2021; Siri et al. 2020). This also points out a lack of information about the potential of bean production in Ghana. As a result, Ghanaian youth's transition into bean production and farming, in general, is largely due to a lack of better alternatives, implying that they are already a demotivated lot incapable of transforming the sector. Yet, the youth remains a critical resource for developing the agricultural sector in Sub-Saharan Africa, and Ghana is no exception (Ministry of Food and Agriculture, 2022). The discussions showed that farming would not be a first choice if the youth had better options. Both young men and women prefer to have alternative sources of livelihood even if they have to maintain farming because farming is largely viewed as a tedious, unprofitable activity for the poor (Martinson et al. 2019; Rada and Fuglie, 2019). Even young people with secondary education who were already into farming also had other businesses such as kente weaving, hairdressing, masonry, mechanics, tailoring/dressmaking, and trading as supplementary.

Youth only used bean production to transit to other opportunities such as trading, tailoring, masonry, weaving, and mechanics, among others. Those in school used the resources acquired from bean production to further and complete their education to be able to gain employment from the government and private sectors. Most of the youth who engaged in bean production activities either supported their parents with farm activities or took up farming because there was no more support to further their education. Moreover, young men involved in bean production only did so to generate income to further their education and find jobs in other industries (Martinson et al. 2019; Rada and Fuglie, 2019). One young woman at Abamba camp within Atebubu said their parents had no money to care for their educational needs or help them learn a skill; hence, they ventured into bean production. From observation and participants' responses, most youth who ventured into farming were either school dropouts or those with no educational background. This possibly demonstrates that it has become a laid down tradition for those who perform poorly in school, drop out of school, or those limited by financial constraints and for some reason are unable to further their education to become bean farmers (Martinson et al. 2019; Rada and Fuglie, 2019). This possibly made agriculture be viewed as a venture for the unsuccessful in life, hence the lack of interest in agriculture among Ghanaian youth and adult farmers alike. In all the discussions with the various gender groups, the results demonstrated that farming would never have been a choice if there were alternatives. Still, farming remained the only option because of the lack of other alternatives.

Unlike Ghana, where youth only take up agriculture as a last resort, youth in Cameroon value agriculture and are willing to take up bean production as their major source of income. Besides farming for subsistence and helping their parents on the farm, Cameroon's youth view agriculture as a major source of livelihood and, therefore, seek employment in agricultural fields to earn income to help meet their needs (Yeboah, 2021). The findings from focus group discussions in Cameroon revealed that most youth have already specialized in agriculture, with many having their own plots of tomatoes, common beans, watermelons, and other crops. However, despite the high youth preference for agriculture, they face various obstacles that hinder their success in bean production. Among the obstacles identified during focus group discussions were lack of financial support, inadequate access to land, and lack of technical know-how, which were identified as some of the major challenges facing young farmers in bean production. These findings were further reiterated by one of the men in Foumbot, who said:

> Young people are interested in agriculture, but access to financing remains a headache. They do not have access to credit at the bank because you have to present a land title to get it. They have small credits in the tontines of the village. There is also a lack of technical knowledge, which limits and discourages young people. We can also mention the climatic hazards; sometimes, there are periods of very long drought.

Another man in Bangangte also reiterated the same points, saying,

> Young people face the problems of lack of financial means, land, and technical knowledge in agriculture.

Nonetheless, despite the challenges they face in agriculture, the majority of the youth in Cameroon believe in the potential of bean production and believe that it can help them achieve most of their dreams, just like any other profession. When asked what their hopes and dreams were, one young male farmer said,

> I want to build a house from my farming work so that my family can get someplace to sleep and also be able to take good care of them.

Another said,

> I want to work hard for my children to enjoy life and also to let them know you can make it in life without school.

Cameroonian youth's persistent interest in agriculture can be attributed to their parents' influence. Most parents believe that their children require knowledge in agriculture first before they venture into other professions for the sake of their future. In a focus group discussion, one of them said:

> Before growing up, the child must suffer, learn agriculture, and go to school until he gets tired and has a job, but his first job is agriculture.

The parents' support for agriculture and the cultivation of agricultural knowledge and interest in their children can be attributed to the fact that agriculture is an inherent part of Cameroon's economy and thus appeals to all, irrespective of social status. Moreover, Cameroonian youth's preference for bean production despite their challenges can be attributed to their awareness of inherent opportunities in the bean sub-sector. Cameroonian youth must have gotten more insights into the business of beans following the introduction and implementation of various initiatives by the Pan African Bean Research Alliance (PABRA), which is working closely with the bean research programs to enhance food security in the region. Moreover, agriculture is also highly promoted in Cameroonian universities, especially the University of Dschang in the West Region, where most students take agriculture as their major at the university level (Yeboah, 2021). This could also influence the youth's preference for bean production.

Moreover, the youth's preference for agriculture further demonstrates that perhaps parents must have passed on information about the benefits of bean production to their children. As a result, the youth are aware of the importance of agriculture in society and its multiple opportunities for job creation and income generation. This probably increases their chances of choosing agriculture as a priority profession.

The results also show key insights into gender dynamics within the context of youth transition in the bean production system. The result shows that in Ghana and Cameroon, bean production is a noble occupation open to young men and women, thus promoting equal opportunities for all. Thus, bean production can serve as an economic empowerment tool in Ghana and Cameroon. However, the FGD further reveals that traditional gender roles and societal expectations often come into play, revealing a divergence in young men's and young women's career trajectories. Young men are encouraged to pursue careers beyond agriculture, while societal expectations may constrain young women. These dynamics indicate the presence of gender disparities in opportunities and societal expectations, highlighting the complex interplay of gender within the bean production system.

Parents' future aspiration for their sons and daughters and their aspirations. Overall, parents in Cameroon and Ghana did not have different aspirations for the boy and girl child. They all wanted their children from both sexes to excel and do better than them in life. In Cameroon, the parents from all the localities visited believed that it was first necessary to teach agriculture to young men and women before they learned another trade. The basis of everything must be the work of the land, which will allow the young people to fend for themselves and have their own

income in case they do not get employed after school [30]. Parents also value education and believe that children should be sent to school so that they are educated and have a job according to their abilities and choices. Nonetheless, agricultural knowledge remains mandatory as a safeguard for their future. During the focus group discussions, one of the parents, a woman, said:

> Teaching the school of life to children (going to the field, cleaning the ground, cooking, drawing water, etc.), whatever the standard of living, the child must understand that he must go through a number of steps to being an accomplished man. The children must also go to school, do a profession of their choice and have a job that can allow them to support themselves. A child must set a goal and give themselves all the means to achieve it.

Another one reiterated, "*The child must do more than his father. First, learn agriculture and also go to school to have a job*".

The focus group discussions demonstrate that in Cameroon, parents believe that agriculture is the foundation of a better life and should be a child's first skill before getting a second skill. Agriculture is believed to provide a better foundation for youth to live better lives. While many parents would like to see their children finish school and get white-collar jobs, they are conscious that the country faces unemployment, and one of the ways to solve the problem is through agriculture. By contrast, parents in Ghana desire that their youth complete their schooling and acquire "better jobs." Their youth are of a similar view. In all the focus group discussions in Ghana, many parents opposed having their children venture into agriculture as their primary occupation. Many older women preferred not to have their children engage in farming but should instead seek employment in other professions. In a focus group discussion at Ejura, one of the women said:

> We will never allow our children to farm and suffer in the same manner as we are suffering. We will send them to school to become prominent people in society, e.g., doctors, lawyers, nurses, teachers, etc

Similarly, most young women would also like to quit farming because they perceive it as tedious and unrewarding. Whereas older women believe farming guarantees food security for their families. They reiterated that agriculture was not rewarding because of the low output. The low yields from farming can be attributed to the farmers' low level of education and lack of financial endowment, which is evident in the type of farming practices they adopted, resulting in low yields. A young woman, Abiba Mornu, 30 years of age and with no educational background, said:

> I cannot adopt improved technologies, e.g., planting in line, because of the high labor cost; hence, I go the traditional way of broadcasting.

Whereas young people desire to finish school and acquire better jobs, this does not turn out to be so in most cases. Only a handful of the young in rural communities succeed in gaining tertiary education, while the majority transition into farming as a last resort. This group comprises people who have attained primary or higher education or no education. The women are the most vulnerable among the groups, most of whom have no educational background, as revealed in the focus group discussions, with few having primary and high school education.

Young men and women wanted to succeed as their parents wished, but the reality often differed. Focus group discussions with young women revealed the following:

> "We hang out together, and we look for a job together, but it happens that boys change at some point; they have a different vision from the one they had from the start. The boy thinks even further; he pushes further than the girl. The girl limits herself to one level and no longer continues her studies because she thinks of getting married and starting her family. Once married, the weight of household responsibilities weighs more on her. While the girl takes care of the household chores, the children, and the whole family, the boy focuses on bringing money home for the whole family's well-being."

This was reiterated by young men who also said:

> "There is no difference in dreams between girls and boys at the start, but in the realization, boys are more willing to achieve than girls, even the physical constitution of men and women gives the boy the advantage of doing certain activities more easily than the girl. Girls, they don't like the fields. In reality, the boys think about riding motorcycles, but the girls are at home or working in the field."

Most young people, especially those who don't attend school, start assisting their parents with farming operations at a young age. When they become young adults, they are often given portions of land to farm because that is often the only source of livelihood for them when they fail to get alternative opportunities. The majority of these youth receive some support from their parents. However, their progress is limited, perhaps because they only practice what they see their parents do, which is often basic. Only those with higher levels of education, supplementary jobs, and assets such as land perceive farming as lucrative, perhaps because they have access to information about the sector's potential (Rada and Fuglie, 2019).

Gender and agriculture – the choice of young women. Most young women did not achieve higher education because they dropped out of school due to teenage pregnancy or financial constraints. As a result, the majority only had primary, secondary, or no education, with very few having higher education. In both countries, women were more inclined to marry and raise families. Many women who did not have the skills and capabilities to support themselves and their families ventured into bean production, which became their primary source of livelihood (Adomako et al. 2022; Andukwa and Ntonifor, 2021). Women's involvement in bean production to assist their husbands can be attributed to the perception that common bean production is a woman's crop. Therefore, old and young women played a major role in bean production to provide for the family. Therefore, it is likely that they are sometimes given portions of land to farm for their own use. However, the low level of women's education likely denies them the opportunity to seek formal employment. Eventually, they are left with no other option but to farm to cater for their family's needs. Nonetheless, in both countries, young women were not largely involved in the most laborious activities on the farm, especially commercial agriculture, because farming is perceived as a "masculine job" rather than "feminine." As a result, most women cannot perform tasks such as spraying, land clearing and planting, so they hire labor at a cost.

Additionally, young women cannot effectively adopt improved technologies due to their low level of education and limited finances. Consequently, they gain little in terms of yield despite all efforts put into farming. As a result, this makes them less financially empowered. Again, this demotivates them since they see farming as labor-intensive yet unrewarding. Nonetheless, being able to feed their families keeps them in the bean value chain (Mahama et al. 2018; United Nations, 2022). Comparatively, their male counterparts are financially endowed and

capable of participating in commercial bean production. In Cameroon, for instance, young men and men participate in commercial farming while the women are left to do subsistence farming to provide food for the household. Whereas farming is a significant source of livelihood for smallholder families in both countries, Cameroonian women are more willing to invest in bean production than Ghanaian women. Inherent differences in the perception of agriculture in the two countries possibly influenced this difference in Ghanaian and Cameroonian women youth's preference for agriculture (Mahama et al. 2018; United Nations, 2022). In Cameroon, farming is considered an important venture, while in Ghana, it is considered a venture for the less successful. As a result, Cameroonian women can perform most of the farm operations themselves compared to Ghanaian women.

Young women in a focus group discussion in Cameroon said:

> "We weren't too interested in beans before because they didn't give money. Beans were grown for self-consumption only, but now we sell them, and they give a lot of money, so I'm ready to get involved in this venture that I have already started. I want to produce and sell the beans, but I do not have the financial means to get started; the space is available."

Despite these differences in perception between Ghanaians and Cameroonians, young men and women from both countries face challenges of limited land access and ownership and high labor and input costs, among others.

Challenges and opportunities facing youth in agriculture. Limited access to land is a significant challenge farmers face in Ejura and Atebubu face. Most young farmers interviewed reported that they did not own land and had to rent it instead. One youth in the focus group discussions mentioned that the cost of renting land per year was GH¢120.00, equivalent to US$19.81. This amount only covers the cost of renting land for two planting seasons, highlighting farmers' financial burden in cultivating crops. This result is consistent with the findings of Kumeh and Omulo (2019), that land access and gender relations and roles are important barriers to youth entry into agriculture in sub-Saharan Africa. The result also aligns with the finding by Kidido et al. (2017) that youth in Ghana have lower access to land – in terms of land sizes – irrespective the of the mode of access – market or non-market.

Besides, farmers depend solely on rainfall. In fluctuating rainfall patterns, crop production is significantly affected (Adomako et al. 2022; Andukwa and Ntonifor, 2021). This has been one of the major challenges in all the discussions. Moreover, at other times, landowners demanded their lands back, meaning the farmer had to vacate the farms, leading to a great loss if the crops were not matured enough to be harvested. When the youth acquire loans, they are confronted with the issue of how to pay them back when they cannot get land to continue with agricultural activities. These results are reinforced by Abay et al. (2021) findings from six countries in sub-Saharan Africa – Ethiopia, Niger, Nigeria, Tanzania, Uganda, and Zambia – which showed that youth engagement in rural economies, especially in agriculture, remains sparse due to limited access to credit. However, Abay et al. (2021), noted that the limited access to finances affects both older and younger generations of farmers.

During discussions with one of the banks, it was indicated that farmers are unable to pay back loans because of various reasons, including limited availability of land coupled with the risky nature of farming; hence, it was difficult for such banks as the Agricultural Development Bank to fulfill its mandate of serving farmers with its loan packages. This resonates with Yeboah et al. (2019) paper that identified the lack of collateral as an impediment to youth involvement in agriculture in the region. To overcome the collateral challenge, farmers acquire credit through group contributions or micro-credit called "Susu" and "Njangi" in Ghana and Cameroon, respectively. However, they still face challenges, such as high labor costs, low price bargaining power, and unfair loan repayment terms from individual lenders. One youth said: *We have the produce but don't get a good market price*.

Moreover, no special agricultural packages target the youth in the major areas where the study was conducted. This lack of support is perhaps responsible for the youth's waned interest in farming.

Youth engaged in bean production systems also grapple with limited accessibility to farm inputs like fertilizer, which are essential for maintaining healthy bean crops. The high cost or scarcity of fertilizers can strain their financial resources and limit their capacity to achieve optimal yields. Additionally, the declining fertility of agricultural land poses a substantial challenge. Many young farmers find that their land is no longer as productive as it once was, necessitating using fertilizers to compensate for nutrient deficiencies. These challenges can hinder the sustainability and profitability of bean production for youth. Other challenges are limited land access, high cost of inputs such as fertilizers, poor rainfall patterns, low bargaining power, and limited access to credit. Factors such as lack of the right seeds, inadequate agricultural information, limited access to land, poor rainfall patterns, and lack of capital, which limit bean production, are common to youth in the two countries.

Nevertheless, despite these challenges, key informants highlighted existing opportunities for innovation and growth. Youth in bean production can explore sustainable farming practices to reduce their reliance on chemical fertilizers. Techniques such as organic farming, composting, and cover cropping can naturally enhance soil fertility and reduce external fertilizer dependency. Moreover, access to education and training programs in modern agricultural practices equips them with valuable knowledge and skills, enabling them to manage soil fertility effectively. Innovative solutions like creating natural fertilizers from locally available organic materials or collaborating with agricultural research institutions can offer cost-effective alternatives. Crop diversification through intercropping or crop rotation can further improve soil health. Most international and government institutions have programmes to provide youths with this information on bean varieties that can produce well within the changing climate and connect them to markets for better prices and income.

Conclusion

In both Ghana and Cameroon, the definition of youth reflects the fluidity of this concept and the influence of cultural and societal factors. Youth in these countries are exposed to agriculture from a young age through work on their parents' farms. While some aspire to pursue off-farm employment, others see bean production as a viable alternative. As a significant contributor to household food security and income, bean production plays a major role in their lives. However, there are common challenges faced by youth in both nations that can be detrimental to their success as farmers. Limited access to land for bean production, the high cost of inputs—especially fertilizers—unfair pricing by intermediaries, and the burden of high labor costs are some of the obstacles they encounter. Nevertheless, there are opportunities that provide motivation, such as access to extension services and loans from group contributions or micro-credit facilities.

In Cameroon, young men exhibit ambition but often lack the necessary resources to exploit the bean value chain's potential

fully. Conversely, in Ghana, the youth's lack of interest in agriculture can be attributed to economic factors and the perception of farming as a last resort. Notably, Cameroonian youth tend to value agriculture more and are willing to engage in bean production as a significant income source. This is influenced by their parents' support and their awareness of the sector's potential, partly due to the presence of an agricultural university in the country. Gender dynamics also play a significant role in shaping youth aspirations. In many cases, young men are encouraged to explore careers beyond agriculture, while young women may face constraints due to societal expectations. Despite these challenges, bean production offers economic empowerment and job creation opportunities for both genders in Ghana and Cameroon.

Overall, the study points out that lack of access to land, financial resources, and a lack of skills are the top three significant limitations to youth participation in agriculture. Although it is debatable if these structural barriers are only unique to young people (given that older populations are marginalized in the same ways), youth- and gender-specific issues occur in all of them. Therefore, skills development initiatives can help positively impact youth employment and earnings outcomes. Skills transfer in the bean sub-sector can also be implemented to enhance youth interest in bean production through work-based learning venues like farmer field schools, on-site employer-based training, internships, and volunteer opportunities. Interventions targeting financial support are also important and can improve youth transition to agriculture. This approach provides financial education to the youth to help them benefit from their effort in the bean value chain. Initiating interventions that bolster youth organizations and participation in land policymaking processes and awareness-raising activities for youth to understand their land rights is necessary to help bolster youth access to land and legal services and defend the right to land.

Recommendation. Young men and women are engaged in agriculture, especially bean production, for commercial or subsistence use, despite Ghanaian and Cameroonian youth' varying perceptions of agriculture. Whereas bean production has potential and can lift more youth out of poverty, the lack of investment in the sector possibly leads to the negative perception of agriculture in Ghana, consequently leading to a low youth transition to bean production. While there is some evidence that youth are not attracted to agriculture in Ghana and are leaving the sector, the absolute number of youth dependent on crop farming is likely to increase because of population growth and unemployment. Therefore, more effort must be directed at modernizing agriculture to make it more attractive to the youth. Because youth decisions to engage in bean production are shaped by social norms and customs, parental and peer influence and gender relations, interventions focusing on improving youth's uptake of bean production should consider incorporating parents in the initiatives because they significantly influence youth' choices.

Because youth is a formative period in which young men and women acquire gender norms, programs focused on youth and agriculture can provide a good opportunity for gender transformation. While research on women's empowerment in agri-food systems is expanding, the literature rarely accounts for age or life stage differences. Therefore, it is necessary to re-evaluate research on women's empowerment to consider factors such as whether or not a woman is a primary breadwinner in her household, whether or not she is a parent, and whether or not she is married, among others. Furthermore, the needs and challenges experienced by teenage males coming of age in the agriculture sector are often overlooked in efforts to empower women, which leaves the plight of young men unaddressed. Thus, it is necessary to provide comprehensive research that covers the plight of both male and female youth.

Policymakers need to recognize the specific context of the country's agricultural and food system because every country has unique circumstances, challenges, and strengths related to agriculture, and policies should be tailored accordingly. Additionally, considering the local context, including the needs and concerns of individual communities, is significant. It is thus important to involve and consider the perspectives of the youth because the future of agriculture depends on attracting and nurturing young farmers.

Future studies using this body of evidence must consider the heterogeneity of young subgroups and the complex relationships among them in the agri-food system. To fully appreciate the advantages of a youth-inclusive strategy, it is necessary to compare it with more conventional methods of agriculture.

Data availability

The data is available from the authors upon request. This is because the data is qualitative, so we are careful with sensitive information provided and want to make sure the participants are protected.

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Author contributions

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Competing interests

The authors declare no competing interests.

Ethical approval

This study's ethical review and approval were waived in 2022 when this data was collected. It was waived because it was conducted by agricultural research institutes in Cameroon and Ghana. The government institutions that carried out this study were the Crops Research Institute in Kumasi, Ghana and the Institute of Agricultural Research for Development in Cameroon in Bamenda, Cameroon.

Informed consent

Informed consent was obtained from all subjects involved in the study.

Additional information

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