Competences of Agricultural Extension Agents in Using Value Chain Approach in Advising Farmers in Tanzania

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Abstract

Recently, value chain approach in agriculture has been promoted in order to cope with market challenges which smallholder farmers face. This has necessitated changes in roles of extension agents who are supposed to advice farmers beyond the production node. However, most of the extension agents have assumed the new roles without being equipped necessary knowledge and skills to enable them discharge their roles effectively. In this context, extension agents' competences in advising farmers along the entire value chain and its implication are not fully investigated and understood. The, purpose of this study was to investigate the competences of extension agents in advising farmers along agricultural value chain in Tanzania. Specifically, the study sought to answer three questions; 1) to what extent do extension agents support farmers along the value chain? 2) which aspects of the value chain are well supported and which ones are not well supported? 3) what are the perceived obstacles that limit extension agents advise farmers beyond the production node?. To answer these questions a convenient sample of 196 field extension agents was used. Data was collected using an online questionnaire supplemented by Key Informant Interviews conducted through mobile phones. Quantitative data was analysed by SPSS and qualitative data was analysed thematically. Findings show that extension agents have sufficient knowledge and positive attitude that would enable them to perform their work effectively. However, the knowledge and positive attitude have not been translated into practice. Limited access to retooling training was the major obstacle limiting extension agents perform their roles effectively. For farmers to become competitive in the global market, the study recommends retooling training on marketing and market linkage to be offered to field extension agents.

Keywords: Value chain, extension agents, competence

Introduction

Agriculture is widely recognized as a backbone of Tanzanian economy. The sector contributes over 30% of the country's GDP and it employs over 70% of the population (URT, 2015). Still the sector has not contributed significantly to poverty reduction. Majority of the farmers are still poor and food insecure. To minimize the challenges Tanzania government has implemented a number of programmes such as the Agriculture Sector Development Programme (ASDP) to promote agricultural sector through the provision of relevant extension services to farmers. The current thrust of transformation is commercialization of smallholder agriculture by increasing access by smallholder farmers to remunerative market. In this context, Sokoine University of Agriculture (SUA) through the Department of Agricultural Extension and Community Development (DAECD) has implemented value chain approach in training extension workers since 2010 (DAECD, 2018). The aim was to equip the potential extension workers with skills to link farmers with agricultural markets and thus promote the transition of agriculture from small-scale subsistence farming to market-oriented agriculture (Msuya, 2021; URT, 2015) and transform the livelihood of smallholder farmers. DAECD train extension workers to work with farmers and other actors in the value chain to identify market opportunities, markets

demands, organize farmers and link them with markets (FAO, 2013; Rivera, 2009).

Providing smallholder farmers with relevant extension services is a key to agricultural transformation, poverty reduction and environmental sustainability. Yet the current extension approach that focuses on improving agricultural production only has failed to translate agricultural production into poverty reduction goals (URT, 2015). Normally smallholder farmers' agricultural products fail to meet markets demands in terms of quantity and quality. As a result, majority of smallholder farmers are locked into substance farming and with current situation with limited market and marketing information only few farmers have managed to move into commercial farming (URT, 2015).

In this context, in many countries including Tanzania, Value Chain Extension Approach is highly emphasized (Msuya, 2021; Gwary *et al.,* 2019) as a transformative extension approach. An approach that might help smallholder farmers to access the available markets opportunity, make income, move out of poverty and become more commercial by creating more employment opportunities. Still our own experience and literature report that extension services in Tanzania is still production centred (Msuya, 2021; DAECD, 2018). Farmers have failed to utilize local and external market opportunities normally because of the lack relevant extension services (Rodriguez *et al.,* 2019; FAO, 2013). When farmers are advised beyond production to include post-harvest management and market information they benefit more from agriculture (Msuya, 2021). Therefore, where Value Chain Extension Approach (VCEA) has been adopted by extension officers farmers have increased their production and incomes. Yet research on competencies of extension agents to use the VCEA is scant. In this context this study sought to investigate the competencies of extension agents in advising farmers along agricultural value chain in Tanzania. Also the study aimed to establish the factors influencing the adoption of the value chain training approach among extension agents in Tanzania. The study sought to address three main overarching questions: 1) To what extent do extension agents advise farmers along the entire value chain 2) Which aspects of the value chain are well advised and, which ones are not well supported 3) What are the perceived obstacles that limit extension agents advise farmers beyond the production node.

Theoretical framework

The study was guided by practice theory, developed by Bandura (1976) and advanced by Ajzen (1991) and Nguyen (2019). According to these scholars professional practice is organized around knowledge, skills, social support and attitude. In this context, professional practice is the adoption and utilization of value chain approach by extension workers in advising farmers. According to Bandura, knowledge influence attitude, which is the belief that the practitioner has the relevant skills to execute the course of action meaningfully and effectively. In the context of value chain extension approach the knowledge of markets and marketing strategies, knowledge of available farmers' organizations, knowledge of agricultural products required by the specific markets, and knowledge of specifications and standards are considered important in the realization of value chain approach by extension workers. Extension workers get value chain approach knowledge from different sources but mainly from pre-service training in universities and colleges of agriculture, and from in-service training. Attitude on the other hand develop with time as extension workers internalize the experience of successes and failures in using value chain approach to advise the farmers. The translation of knowledge and attitude into practice with regard to value chain approach is further shaped by organizational and peer support. Individual characteristics including age and sex might shape both knowledge and attitudes and therefore the adoption of value chain approach in extension service delivery.

Nguyen (2019) summarized and mapped the interaction between knowledge, attitude and practice in terms of KAP model, which is widely used and adopted from health- related behavioral studies. The use of KAP model in agricultural extension research provides the room for further development of KAP

framework beyond health and behavioral science. KAP become an important analytical model to understand practice related to the use of value chain extension approach. KAP helped to measure knowledge and attitude at every node of the value chain including support provided at the production node, post-harvest node and marketing node.

Methodology

The study adopted a cross-section study design to explore the competences of extension officers of using value chain approach in advising farmers. The study used a convenience sample of 196 frontline extension agents from 24 regions of Tanzania mainland and one region from Zanzibar. Frontline extension agents were selected due to their rich experience in working with farmers. Convenience sampling was used to exploit the potential of electronic survey to bring great efficiencies to designing and management of self-administered questionnaire and to overcome geographical barriers (Wright, 2005). The data collection instrument was created in online software, Kobotoolbox and shared with a convenience sample of 437 field extension agents. The questionnaire comprised of closed and open-ended questions covering socio-demographic characteristics of the field extension agents and three nodes of agricultural value chain, notably, production, harvesting and post-harvest handling (considered as one node) and marketing as the second node. With the exception of socio-demographic and open-ended questions, we used a 5-point Likert scale to explore the competences of extension agents about their knowledge and skills on each value chain node. Therefore, for each value chain node we used a series of statements that explore different dimensions of the node as indicated in Tables 5, 6 and 7. We used multiple statements to measure knowledge and attitudes because the use of single items has considerable random measurement error whereby this variation average out when multiple items are used (Nunnally &Bernstein, 1994; Spector, 1992). Each statement comprised a 5-point responses ranging from strongly disagree to disagree, neither disagree nor agree, agree, and strongly agree. To ensure the reliability of the scale, Cronbach's alpha, a measure of internal consistency that shows how closely related a set of the items used was calculated. The set of items used to measure the level of extension agents' competences at the production, harvesting and post harvest handling and marketing had a Cronbach's alpha of 0.96, 95.2 and 93.7 respectively inferring that the scale had higher internal consistence (i.e. they all measure the same underlying construct) thus reliable (Bland & Altman, 1997).

In order to understand general knowledge and attitude of extension agents at different value chain nodes, composite scores (means) that represent the knowledge and attitude at the production; harvesting/postharvest handling and marketing nodes were calculated. This is in line with Boone Jr and Boone (2012) who suggest that unlike Likert-type items which fall into the ordinal measurement scale Likert scale data are analyzed at the interval measurement scale. Therefore, means and standard deviations are used to describe the scale. The range of interpreting the Likert scale overall mean score was as follow; 1.0-2.4 (insufficient knowledge or negative attitude), 2.5-3.4 (Neutral attitude), and 3.5-5.0 (sufficient knowledge or positive attitude).

Apart from the mailed online questionnaire, six key informant interviews (KIs) were conducted. These key informants were selected based on having first-hand information regarding the roles and practices of field extension agents. These informants came from six different regions of Songwe, Katavi, Singida, Manyara and Mara. The key informants were District Agricultural Livestock and Fisheries Officer (DALFO) who are principally the overseers of agricultural extension work in their districts. For this category of respondents, phone interviews were used to answer a prepared checklist of questions. Furthermore, One Focus Group Discussion (FGD) involving finalist students in bachelor of science in applied agricultural extension at Sokoine University of Agriculture was conducted. Engagement of the finalist students in FGD was based on the assumption that the students in that year have a deep understanding about agricultural extension services of Tanzania. The FGD focused at

collecting qualitative data on extension officers knowledge related to conducting market surveys, entrepreneurship, price negotiations and digital marketing.

Data collection was done in a period of three weeks and in that period a total of 204 questionnaire were received (a response rate of about 45%). However, after going through each questionnaire, eight (8) of them were not included in the final analysis because they did not meet inclusion criteria. To be taken into account as a valid sample two main criteria were set for inclusion i) no duplicate and ii) reaching a set threshold of proportion of answered questions per section (at least 98% of the questions answered). Quantitative data were analyzed using SPSS software to generate descriptive statistics. On the other hand, the open-ended qualitative data were analyzed through thematic analysis.

Results and Discussion

Socio-economic characteristics of respondents

Table 1 shows that there were more male respondents 67.8% than female respondents 37.2%. The findings show that extension service provision is still male-dominated. In terms of age, the participants seem to be within the active age (20-40) which was 77.1% compared with 22.9% who formed the remaining part of the group. In terms of marriage majority were single 75% compared with 24% respondents who were married. The gender distribution supports the changing structure of Tanzania families, in which the majority of people tend to delay marriages (URT, 2023). In terms of education and as expected, the majority of respondents had a diploma and bachelor's degree 95.7%, which are the required qualification to work as an extension officer in Tanzania. The majority were working at either village or ward 73.7% and they had at least 5 years of work experience. The government of Tanzania has been training and deploying the extension workers to villages and wards where extension services are highly needed under decentralized extension service (Komba, 2018). The results depicts the true nature of extension providers in Tanzania (Mattee & Rutatora, 2001).

Table 1: Socio-economic characteristics of the respondent

Socio-demographic characteristics (N=196)	Percentage
Sex	
Male	62.8
Female	37.2
Total	**100.0**
Age	
20 – 30	43.0
31 – 40	34.1
41 – 50	16.3
51 - 60	6.6
Total	**100.0**
Marital status	
Single	75.0
Married	24.0
Others	1.0
Total	**100.0**
Level of education	
Secondary education	2.1
Diploma	35.3
Bachelor degree	60.4
Master degree	2.1
Total	**100.0**
Duty station	
Village	21.1
Ward	52.6
District	15.8
Ministry	10.5
Total	**100.0**
Years of experience	
1 – 3 years	20.0
3.1 – 5 years	14.7
5.1 – 7 years	33.7
7.1 – 9 years	24.2
Above 9 years	7.4
Total	**100.0**

Source, Survey 2023

Knowledge and attitude at the production node

Extension officers' knowledge on advising farmers at the production node

Table 2 shows that, the respondents had knowledge and skills required to advise farmers on proper use of fertilizers, proper use of pesticides, improved seeds, spacing, pest and diseases control, weed control and land preparation. For example, out of 196 respondents, 43.9% agreed and50% strongly agreed that they had sufficient knowledge and skills to advise farmers on proper use of fertilizers. Furthermore, out of 196 respondents 45.4% agreed and 43.4% strongly agreed that they have sufficient knowledge and skills to advise farmers on proper use of pesticides. Also, 45.9% agreed and 45.9% strongly agreed that they had sufficient knowledge and skills to advise farmers on improved seeds. The finding suggests that majority of extension officers participating in this study had sufficient knowledge and skills to offer production related extension services. The findings are in line with Msuya (2021) who found that extension service in Tanzania is organized around production. Key informants' interviews indicated that the existing system of job appraisal is the main driver for extension workers to provide more production related services. While emphasizing the point one of the Key informants said;

I understand what you are saying but how do you expect an extension agent put more emphasis on educating farmers on issues of marketing while he is not going to be assessed on the same. You know, extension agents are assessed on whether they are helping farmers to increase productivity and not how many farmers have accessed the market. If for example tomato gets rot because of lack of access to market, no one is going to blame an extension agent in that area. On the other hand, if farmers do not adopt production technologies, an extension agent is blamed. So, although they have some knowledge and skills of advising farmers beyond the production node but they do not do it because no one is going to give them credit based on that aspect (Interview with K2 from Katavi on 12th May 20203).

The opinion of the key informant indicates that having knowledge alone is not sufficient for extension workers to provide service beyond production. The findings contradict that of Chikaire *et al.* (2017) who argued that knowledge of post-production technologies among extension workers was an important predictor for extension workers to advise farmers beyond production. Contextual

Table 2: Knowledge at the production node

Statements on knowledge (N=196)	Responses in percentages (%)				
	SD	D	N	A	SA
I have enough knowledge and skills to advise farmers on the proper use of fertilizers	3.1	1.0	2.0	43.9	50.0
I have enough knowledge and skills to advise farmers on the proper use of pesticides	3.6	3.6	4.1	45.4	43.4
I have acquired enough knowledge and skills to advise farmers on using improved seeds	3.1	1.5	3.6	45.9	45.9
I know the spacing of planting various crops therefore I can advise farmers on this aspect	3.1	2.0	3.1	37.2	54.6
I have enough knowledge on land preparation thus I can advise farmers on this aspect	3.6	0.5	2.0	38.8	55.1
I know how to control pests and diseases of various crops	4.1	3.1	4.1	48.0	40.8
I know how to control weed thus I can advise farmers on this aspect	3.6	1.0	1.0	41.8	52.6

Source: Survey 2023

Key: SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree

factors including support and recognition from organization leaders is equally important.

Extension officers' attitude on advising farmers at the production node

Table 3 shows that respondents had positive attitude toward provision of extension services on matters related to agricultural production including advising farmers on matters related to land preparation, fertilizer application, spacing, weed control and pesticide and diseases management. For example, of 196 respondents, 48.0% agreed and 40.3 strongly agreed that they were confident in linking farmers with agricultural input suppliers; Furthermore, out of 196 respondents, 27.6 agreed and 67.9 strongly agreed that advising farmers on the proper use of fertilizer is among the role of an extension agent. On top of that, 32.1 and 61.7 strongly agreed that advising farmers on the proper use of pesticides is among the role of an extension agent. The response on the statements suggests that the extension agents' attitude toward advising farmers on production is favorable. The findings is in line with findings of Al-Rimani (2003) who found a favorable attitudes toward provision of production related extension services among Iranian extension officers.

Knowledge and attitude at the Harvesting and Post-Harvesting node

Extension Officers' Knowledge about Harvesting and Post-Harvesting handling

Findings in Table 4 indicate the respondents' knowledge on advising farmers on harvesting and post-harvesting activities. Of the 196 respondents, 50.5% strongly agreed on the statement that they knew proper timing of harvesting some crops. 49% agreed to know some improved technologies of storing harvest of various crops. Furthermore, out of 196, 48% agreed to know some technologies to be applied before storing harvest of various crops. On top of that Table 4 shows that 46.9% of 196 responded agreed to know some technologies of processing some crops. The results imply that the extension officers had knowledge regarding timing for harvesting, storage technologies and value addition through processing. However, the majority could not translate the knowledge into professional practice as reported by one Key informant:

"I think that extension agents in my district try their best to advise farmers beyond the production node, however, their practice may be improved by offering them retooling course especially on postharvest, processing

Table 3: Extension officers' attitude on advising farmers at the production node

Statements on attitude (N=196)	Responses in percentages (%)				
	SD	D	N	A	SA
Linking farmers with suppliers of agricultural inputs is among of core my functions	2.6	3.6	4.1	46.4	43.4
I am confident in linking farmers with suppliers of agricultural inputs	4.1	3.6	4.1	48.0	40.3
Advising farmers on proper use of fertilizer is among of my role	3.1	1.5	0.0	27.6	67.9
Advising farmers on proper use of pesticides is among of my role	3.6	1.0	1.5	32.1	61.7
As an extension agent I have a duty of advising farmers to use improved seeds	4.1	1.0	1.0	25.5	68.4
I have ability of advising farmers on proper time for planting	3.6	1.0	1.5	35.7	58.2
I can advise farmers on how to control pests and diseases	3.1	2.6	3.1	44.9	46.4

Source: Survey 2023

Key: SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree

and marketing. This is because these aspects were not very much covered in their training programmes" (KI from Songwe on 14th May 2023).

that extension workers in Tanzania lacked the competencies required to advise farmers beyond production.

Table 4: Extension Officers' Knowledge at the Harvesting and Post-Harvesting node

Statement on knowledge (N=196)	Responses in percentages (%)				
	SD	D	N	A	SA
I know proper timing of harvesting some crops	3.6	0.5	2.6	42.9	50.5
I know some technologies to be applied before storing harvest of various crops	4.1	2.6	3.6	48.0	41.8
I know some improved technologies of storing harvest of various crops	3.6	2.0	4.6	49.0	40.8
I know some technologies of processing some crops	4.1	4.1	6.6	46.9	38.3

Source: Survey 2023

Key: SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree

The above quote from the key informant indicates that aspects of harvesting, post harvest and value addition are not sufficiently covered in extension training programmes. The results suggest that extension officers had basic knowledge of harvesting and post-harvest handling as evidenced from key informant. Still the extension agents could not translate the knowledge into professional practice. This means, knowledge alone is not enough for extension officers to effectively promote the transition of agriculture from small-scale subsistence farming to market-oriented agriculture. The study findings corroborate with that by Rodriquez *et al.* (2019) who found

Extension officers' attitudes on advising farmers on harvesting and post harvesting activities

Results in Table 5 indicated that of the 196 respondents, 61.2% has positive attitude towards advising farmers on appropriate time for harvesting their crops as their duty, while, 53.1% has positive attitude towards advising farmers on appropriate technology for storing their produces as among their core activities (Table 5). The results on strongly agree imply that extension officers had positive attitude regarding their role of advising farmers on proper harvesting of crops and storage along the entire value chain. However, as noted during

Table 5: Extension Officers' Attitude at the Harvesting and Post-Harvesting node

Statement on attitude (N=196)	Responses in percentages (%)				
	SD	D	N	A	SA
As an extension agent I have a duty of advising farmers on appropriate time for harvesting their crops	4.1	1.0	1.0	32.7	61.2
Advising farmers on appropriate technology for storing their produces is among my core activities	3.6	1.5	3.6	38.3	53.1
I can advise farmers regarding when they should harvest their crops	3.1	2.0	3.1	44.4	47.4
I can advise farmers on proper storage of harvest of some crops	4.1	1.0	3.1	46.9	44.9
I can confidently advise farmers on how to process some crops	4.1	2.0	10.2	45.4	38.3

Source, Survey 2023

Key: SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree

the key informant interviews, there exists a wide gap between attitude of extension officers towards advising farmers on post-harvesting and practice. This because even though extension officers had positive attitude on their role on advising farmers on post-harvesting. The finding is supported by Maziku (2019) who found that lack of extension services related to post-harvest handling contributed to post-harvest losses of maize which was between 20-40 % in rural areas in Tanzania.

Knowledge and attitude at the marketing node

Extension officers' knowledge on advising farmers on marketing activities

Interviews indicated that extension officers had different knowledge on advising farmers on marketing activities. Of the 196 respondents, 56% agreed on the statement that they knew some grading specifications approved by relevant crop grading authorities, 49% agreed that they learned some strategies of linking farmers to market and 92 48.2% agreed to know the recommended crop packaging materials for some crops as depicted in Table 4. However, these findings contradict with the results from the study by Davis *et al.* (2021) who found that extension officers in South Africa lack knowledge on entrepreneurship and marketing. price negotiations and digital marketing. Furthermore, two key informants quoted saying that:

"Yes, extension agents in my district do advise farmers on aspects of harvesting, processing and marketing. But they don't do it frequently as compared to the way they advise farmers to increase production. There are many reasons for this: their training emphasised on production, and some still perceive that their core mandate is to promote adoption of production technologies and not marketing of agricultural produce" (Interview with K4 from Mara on 4th June 20203).

The study findings indicate that extension officers' low translation of value chain into practice especially on advising farmers on marketing activities. Key Informant reported lack of motivation from extension organizations, low linkages with research institutions and lack of knowledge in information technologies as the main barriers toward translating knowledge into practice. This might be a setback for extension officers' in translating the value chain approach in extension services delivery. Furthermore, this questions the relevance and effectiveness of extension services delivery if it is not focusing on all aspects of the value chain from input supply, production, transportation, storage, processing, marketing to consumption.

Table 6: Respondents' knowledge on marketing activities

Statement on knowledge (N=196)	Responses in percentages (%)				
	SD	D	N	A	SA
I have learned some strategies of linking farmers to market	4.1	7.7	12.8	49.0	26.5
I am aware of some grading specifications approved by relevant crop grading authorities	5.2	9.3	9.8	56.0	19.7
I am aware of recommended crop packaging materials for some crops	5.2	6.8	7.3	48.2	32.5

Source: Survey 2023

Key: SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree

In addition, during the Focus Group Discussion (FGD at Sokoine University of Agriculture with finalist mid-career Bachelor of Science in Applied Agricultural Extension students, they agreed that extension officers lack specifics in conducting market surveys, entrepreneurship,

The influence of extension officers' attitudes on advising farmers on marketing activities

Results in Table 7 indicated that, about half of the respondents 52.6% had positive attitude towards advising farmers on crop grading among their core activities. The responses to

Table 7: Extension officers' attitude on advising farmers on marketing activities

Statement on attitude (N=196)	Responses in percentages (%)				
	SD	D	N	A	SA
Linking farmers with market of agricultural produces is among activities of extension work	3.6	3.6	6.7	44.0	42.0
I am confident in linking farmers to market	4.1	12.8	12.8	48.5	21.9
I can advise farmers to perform crop grading	3.6	4.6	7.1	52.6	32.1
I can advise farmers to use suitable packaging materials as per requirement of consumers/buyers	3.6	5.2	6.2	49.2	35.8
I can confidently advise farmers to package their crops as per market needs	4.1	4.1	8.2	49.2	34.4

Source: Survey 2023

Key: SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree

statements on the other domains showed that majority of the extension officers consistently indicated moderate positive attitude towards advising farmers on using suitable packaging materials as per requirement of consumers/ buyers, packaging of their crops as per market needs and linking farmers to markets.

The results show that extension officers' attitude towards their role about advising farmer on marketing activities especially crop grading, packaging materials, packaging and linking farmers to markets was positive. When extension officers cannot provide advice on marketing, farmers' attitudes towards extension officers tend to change negatively as observed by Sebeho and Stevens (2019).

Overall extension agents' knowledge and attitude at different nodes

Findings of the study show that overall extension agents had knowledge and positive attitude at the three nodes. However, as indicated in Table 8 when knowledge and attitude at the three nodes are compared, the extension agents reported to have adequate knowledge (mean equal to 4.3) at the production node as compared to harvesting node (mean equal to 4.2) and marketing node (mean equal 3.9). Similarly, extension agents' attitude was more positive (mean equal to 4.4) compared to other nodes (mean equal to 4.3 and 4.0) at harvesting and marketing respectively. From the KAP model (Nguyen, 2016) these findings would imply that because extension agents have sufficient knowledge and positive attitude they would be advising farmers beyond production node. However, contrary to the expectations this is not happening at any significant measure. Qualitative findings from key informants shed light on this conundrum as explained depicted in the following quote:

With the current situation where agriculture is a business, advising farmers beyond the production node cannot be overemphasised. However, very few extension agents in my district do that because they are overwhelmed because they work with many farmers. Therefore, they have to prioritize food security over income. Even our government prioritize food security of the country over the income of farmers and this affects the practices of extension agents. I hope you have heard sometimes the government does

Table 8: Overall mean of knowledge and attitude at different nodes

Value chain nodes	Knowledge		Attitude	
	Overall Mean	Std. Deviation	Overall Mean	Std. Deviation
Production node	4.3	0.78	4.4	0.76
Harvest and postharvest	4.2	0.81	4.3	0.79
Marketing	3.9	0.92	4.0	0.85

Source: Survey 2023

not allow export of cereals especially maize outside the country; this is because farmers' income is secondary to the national food security. (Interview with K3 from Manyara on 18th June 20203).

Conclusion and recommendations

This study sought to investigate extension agents' competences in advising farmers along the entire value chain and its implication to farmers in Tanzania. In general, the findings show that extension agents have sufficient knowledge and positive attitude for advising farmers along the entire value chain. However, the knowledge and positive attitude have not been translated in practice due to many factors including lack of motivation to advise farmers beyond production node, limited retooling training on using value chain approach and emphasis on national food security over farmers' income. Some of the barriers reported are 1) the system of performance appraisal which does not consider activities beyond production as important 2) Limited retooling courses on using value chain approach in advising farmers 3) The government and some extension agents prioritize food security over income 4) Because of extension agents have many farmers to advise, they consider that dealing with post-harvest and marking linkage will increase their work load. Limited use of value chain approach has negative implication to farmers' competitiveness in the global economy. Therefore, for farmers in Tanzania to become competitive in the global market, the study recommends retooling training on using value chain approach to be offered to field extension agents.

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