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Farmers' perceptions regarding Egerton university community engagement activities

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ABSTRACT

This paper articulates perceptions of farmers on Egerton University's community engagement activities as part of the results of a larger study commissioned by Transforming African Agricultural Universities to meaningfully contribute to Africa's growth and development (TAGDev). It analyses the impact of the university-community engagement activities on rural households. Community engagement provides universities with unique opportunities of experiencing community needs first-hand, contributing towards meeting them; not only during the engagement activities, but also through producing graduates with relevant knowledge, skills and attitude and through conducting relevant research. A survey conducted through researcher-administered questionnaires, focus group discussions and interviews on purposively selected 84 beneficiaries of these community engagement activities revealed positive perceptions among farmers. The selected farmers practiced mixed farming with 98.8% growing maize as principal crop and 93.9% keeping cattle for milk production. On average, respondents had engaged with the university four times within the last five years. Almost all (98.8%) respondents engaged with the university to acquire new knowledge. Students facilitated most engagements (97%). Principal Component Analysis extracted five major benefits of these engagements; four of which were related to profitmaking and cost-cutting measures. Keeping farm records was the main component, explaining 55.1% of observed variance. However, follow-up was a major weakness of the university (87.6%). Designing a follow-up system embedded within the university-community engagement framework would ensure sustainability of projects and develop long term relationships characterised by continuous exchange of information between universities and communities.

Key words: Agricultural universities, community outreach, Egerton University, farmer perceptions, higher education, service learning, University-community engagement

RÉSUMÉ

Le présent document articule les perceptions des agriculteurs sur les activités d'engagement communautaire de l'Université d'Egerton dans le cadre des résultats d'une étude commanditée par le Projet de Transformation des Universités d'Agriculture pour une meilleure contribution à la croissance et au développement de l'Afrique. Nous avons analysé l'impact des activités d'engagement communauté de l'Université sur les ménages ruraux. L'engagement communautaire fournit aux universités des occasions uniques d'expérimenter directement et satisfaire les besoins des communautés, en formant des diplômés ayant des connaissances, compétences et attitudes

Farmers' perceptions regarding Egerton university community engagement activities

pertinentes et en menant des recherches de qualité. Une enquête effectuée à l'aide de questionnaires, des discussions de groupe et des entretiens avec 84 bénéficiaires de ces activités d'engagement communautaire, a révélé des perceptions positives. Les agriculteurs sélectionnés pratiquaient l'agriculture mixte avec 98,8% cultivant du maïs comme culture principale et 93,9% conservant le bétail pour la production laitière. En moyenne, les répondants ont été impliqués aux activités de l'université à quatre reprises au cours des cinq dernières années. Presque tous les répondants (98,8%) ont collaboré avec l'université pour acquérir de nouvelles connaissances. Les étudiants ont facilité la plupart de ces engagements (97%). L'analyse en composantes principales a permis d'identifier cinq avantages majeurs dans ces engagements, parmi lesquels, quatre étaient liés aux mesures de profit et de réduction des coûts. La tenue des registres de ferme était la composante importante, expliquant 55,1% de la variance observée. Toutefois, le suivi était une faiblesse majeure pour l'université (87,6%). La conception d'un système de suivi intégré au cadre de travail d'engagement communautaire, assurerait la durabilité des projets et développerait des relations à long terme avec un échange continu d'informations entre les universités et les communautés.

Mots-clés: universités agricoles, sensibilisation des communautés, université d'Egerton, perceptions des agriculteurs, enseignement supérieur, apprentissage, engagement entre universités et communautés

INTRODUCTION

Engaging with communities is one of the key mandates of universities beside teaching and research. It is considered an important aspect of universities in the twenty-first Century especially in the process of generating and transmitting knowledge (Muse, 2000; Sandmann, Saltmarsh and O'Meara, 2008). Community engagement in many universities is restricted to community outreach activities. As Muse (2000) defines it, university community outreach "includes all of those efforts designed to assist individuals, groups and organisations to obtain, understand and apply the information they need in order to be productive and useful citizens and effective organisations" pg. 21. It involves universities reaching out to identify issues in communities and using their expertise to serve these needs (Muse, 2000). In return, universities are exposed to community problems and issues with the potential of transforming teaching and research to be more focused on societies' needs and aspirations thus producing graduates capable of tackling "the multitude of issues facing society" (VanLeeuwen *et al.*, 2017).

University community engagement takes different forms: service-learning, community-

based participatory research, community-responsive clinical and population based care, and community service, outreach and advocacy (Calleson *et al.*, 2005). It aims at forming mutual and reciprocal partnerships (O'Meara *et al.*, 2011) where each party benefits from the relationship. Ideally, the three mandates of universities (teaching, research and community engagement) should be integrated in a seamless manner such that each informs the other for effectiveness and relevance of university education to societal needs and aspirations. However, in many African universities, these three have for long operated more or less independently with community engagement receiving the least attention and largely neglected.

Consequently, there has been a marked mismatch between society needs and university outputs resulting into ineffectiveness of university research in generating solutions to societal problems and graduates who are ill-prepared to address or solve societal problems and aspirations. This separatism approach has limited universities' contribution towards addressing immediate and relevant community, social and national issues (O'Meara *et al.*,

2011) and led to teaching and research that is not anchored on societal needs and aspiration. Massification of university education has worsened the situation through reduced resource allocation to community engagement and a fatigued faculty unable to meaningfully engage with communities; all these happening against shrinking budgets and ballooning student numbers (Cletzer *et al.*, 2016).

In the last few decades, many universities have experimented with engaging communities in knowledge generation and dissemination. With the emergence of the innovation systems approach to revitalising agricultural production, universities with agricultural inclination are expected to engage more deeply with communities and build linkages along agricultural innovation systems. Egerton University has over the years engaged with communities, either directly or through collaborations and partnerships. This has mainly been through students' service-learning activities, community-based participatory research, community service, outreach and advocacy in the areas of crop and livestock production, nutrition, health and sanitation, environmental conservation, rain water harvesting, value addition and income generation, family dynamics, among others.

Several departments in the university have direct engagements with communities in various ways, mainly through students and research activities. For instance, students pursuing Diploma in Animal Health and those pursuing Bachelor of Science in Animal Health Management are engaged in ambulatory clinical services to communities surrounding Egerton University. These services are offered once weekly where students, under the guidance of lecturers, treat livestock and give advice to farmers. Resources used in this activity include drugs and transport and are all provided by the university. In addition, students collect samples

from communities, test them in the laboratory and give feedback to the communities as part of their course work.

Similarly, students pursuing Bachelor of Science in Foods, Nutrition and Dietetics conduct community nutrition surveillance and provide nutritional advice to communities as part of their course work. A different kind of community engagement is conducted by members of the Egerton University Environmental Association. These students organize mentorship sessions in primary and secondary schools with the aim of developing an environmentally conscious culture among school-going children.

However, the most elaborate community engagement is carried out in the Department of Applied Community Development Studies. Since 2005, the department has engaged with communities within its environs in service-learning and community-based participatory research activities. The objectives of these engagements have been:

- i. To improve the livelihoods of community members through sustainable development
- ii. To co-generate knowledge that can be utilized by community members for socio-economic development, and
- iii. To provide students opportunities for experiential learning

The Department was started in 2005 as a successor of the then Department of Agriculture and Human Ecology Extension, a move that was necessitated by change in focus from individuals and families to communities made up of households and individuals, who collectively are better placed to engage in sustainable development. The Department aims at contributing towards addressing these challenges through encouraging and enhancing active participation of community members at the grass root level in development interventions.

Through the Bachelor of Science programmes in Community Development and in Agriculture and Human Ecology Extension, and Master of Science in Community Studies and Extension, the Department trains students who are able to build capacities of community members in order to take charge and drive their own development. Experiential learning is therefore paramount in these programmes. Courses such as extension methods, outreach programmes, projects planning and management and family therapy entail that students work with communities on needs-based projects as part of their class work.

Beneficiaries of these community engagement activities are majorly rural communities in the environs of the university though other communities spread over other counties have benefitted from community-based participatory research. Over the years, the beneficiaries' perceptions on these engagements have not been sought and therefore have not been factored in the reviews of university community engagement activities. As Allahyari *et al.* (2016) point out, beneficiaries' perceptions can inform policy formulation. Perceptions can also play the crucial role of assessing the importance of an activity to beneficiaries and can inform the delivery methods advocated for. This paper therefore reports on the perceptions of farmers on Egerton University's community engagement activities as part of the results of a larger study commissioned by TAGDev (Transforming African Agricultural Universities to meaningfully contribute to Africa's growth and development Programme) in June 2017 to document the impact of Egerton University community engagement activities on rural households.

RESEARCH APPROACH

A survey was conducted in Nakuru County among households that participated in Egerton University community engagement activities between 2011 and 2016. Though the university's

community engagement activities are spread over many counties of Kenya (especially those involving research activity), this study concentrated on only five Wards in Nakuru County namely, Elburgon Ward, Menengai West Ward, Mosop Ward, Njoro Ward, and Soin Ward purposively selected to reflect areas where Egerton University community engagement activities have been concentrated. Nakuru County enjoys a bimodal rain season, recording on average between 700 mm and 1200 mm of rainfall annually. Long rains are experienced between April and August and short rains between October and December. Both subsistence and large-scale commercial farming are practiced in the County (GoK, 2013).

A sample of 84 community members were purposively selected from communities that had benefitted from Egerton University community engagement activities between 2011 and 2016. Ten villages were selected: Cheponde, Kamungei, Kapchorwa, Kaptembwo, Kerma, Kipseyen, Kiptenden, Migaa, Piave, and Subuku villages, spread over the five (5) wards: Elburgon, Menengai West, Mosop, Njoro, and Soin Wards.

With the help of two extension officers, data were collected through researcher-assisted questionnaires, interviews and focus group discussions. Bearing in mind that no baseline study was done before the implementation of the community engagement activities, much of the analyses were qualitative and descriptive in nature, relying heavily on frequencies, percentages and thematic analysis of responses.

RESULTS AND DISCUSSION

Profile of respondents. Over two thirds (69%) of those studied were females and a large majority (87%) were married. Of the females interviewed, 27.6% were heads of their households, presenting a good mix of male and female headed households in the study sample.

As shown in Fig. 1, a third of the respondents were young, aged 35 years and below, indicating that Egerton University is reaching a sizeable proportion of young farmers. However, close to a third (31%) were over 55 years old, representing the aging farmer. Research has established that farmer's age is a critical determinant of farming activities engaged in and adoption of agricultural technologies (Mugo, 2012; Mulu-Mutuku *et al.*, 2013). Understanding the age composition of the likely beneficiaries of university community engagement activities would inform the teaching and learning approaches adopted and the kind of message passed to them. Young farmers are better adopters of new technology and take risks more often than older farmers (Mugo, 2012; Mulu-Mutuku *et al.*, 2013).

The levels of formal education attained by respondents and reported in Figure 2 were comparable to the national levels of 43% for secondary or tertiary education level and 7% without formal education (Kenya National Bureau of Statistics, 2014).

Agricultural activities in study area. Much of Nakuru County can support the production of a variety of crops and rearing of a variety of livestock due to its relatively good climatic conditions. However, the range of crops grown, and prioritised, by farmers in the study area was

quite narrow. When asked to indicate their first three crops in order of importance, almost all farmers (98.8%) selected maize as their number one crop with beans being selected by 1.2% of the farmers. The second important crop was beans selected by 96.3% with the third crop being the potato (50%). Millet/sorghum and wheat were third crops for 26.9% and 9% of farmers, respectively. Other crops selected as the third most important were vegetables, mango, paw paw, banana and star grass.

Though much of Nakuru County is agriculturally productive, some parts are semi-arid receiving less than 850 mm of rainfall per year and maize which is the main staple crop, being a water-stress sensitive crop, does not do very well. Therefore, Egerton University has conducted community-based participatory research to popularise cassava and mushroom production as an alternative, or supplement to maize. However, none of the farmers in these regions selected cassava and mushroom as an important crop to them, implying that the uptake of these two crops has not been good. Farmers have complained of lack of clean planting material especially for cassava and lack of follow up as possible bottlenecks to the adoption of these crops. Further research is needed to unearth the exact impediment to the adoption of these crops. This has potential of informing future community-

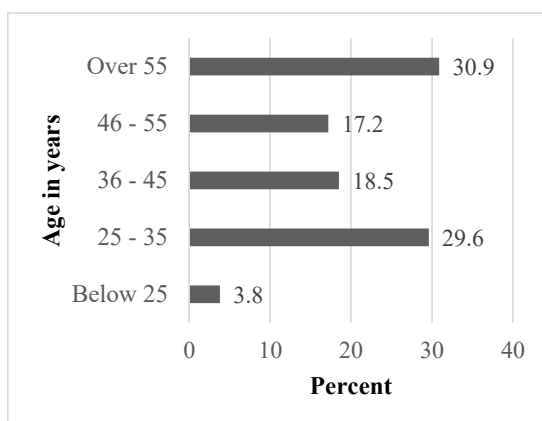


Figure 1. Age of respondents

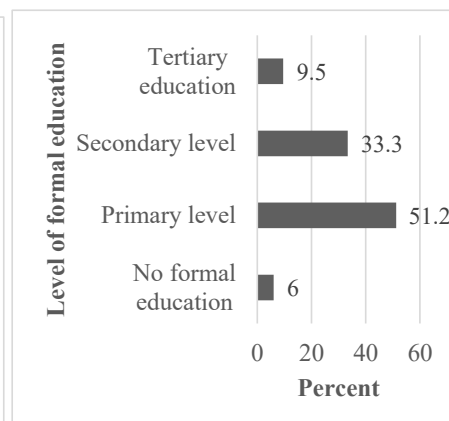


Figure 2. Level of formal education

Farmers' perceptions regarding Egerton university community engagement activities

based participatory research engagements. The most important livestock reared in order of economic significance were cattle, goats, and chicken. Cattle, mainly for milk production were selected by 93.9% of the respondents as their most important animal. Goats were the second important animals for 46.5% of the respondents followed by chicken as third important. Others were bees being the most important for one farmer and rabbits being second most important for another one farmer.

Participation in Egerton University community engagement activities. On average, respondents had engaged with Egerton University four times within the last five years with more than three quarters of them (78%) engaging with the university more than three times. Interestingly, almost all the respondents (97%) had participated in Egerton University community engagement activities facilitated by students, an indication of the crucial role service-learning is playing in these communities. Only 2% of the respondents did not engage with students but with staff members only (see Fig. 3).

When asked what motivated them to participate in these engagement activities, almost all (98.8%) did so to acquire new knowledge and skills while 1.2% participated for networking purposes. Various subjects were covered during

the university community engagement activities, which could be broadly categorized into seven areas:

1. Crop production (good agricultural practices, improved seed and planting material, and soil testing)
2. Livestock production (dairy farming, poultry keeping, silage making, and animal disease management)
3. Environmental conservation (tree planting, garbage management and prevention of soil erosion)
4. Agribusiness (record keeping and farm planning, value addition on farm produce e.g. yoghurt making, crisps making and other snacks, cake baking)
5. Non-farm income generating activities (making and selling non-food products e.g. shoe polish, floor and table mats, detergents and laundry whiteners and bleaches, and simple record keeping for small businesses.
6. Family dynamics (domestic violence, divorce, communication in the home, and parenting and handling of children)
7. Nutrition and health issues (disease prevention and management, good nutritional practices, feeding vulnerable members of society e.g. pregnant and breastfeeding mothers, under-fives, the aged and the sick, weight and weight management, and drugs and substance abuse).

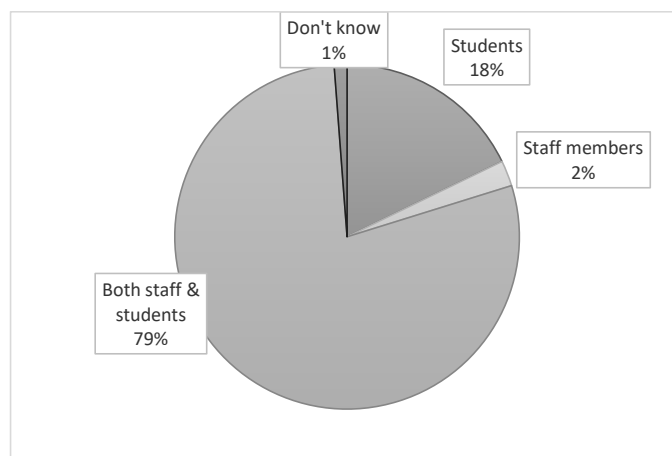


Figure 3. Who provided services

Perceived benefits of community engagement activities on rural households. Farmers were asked to respond to a set of statements that expressed benefits of participating in Egerton University community engagement activities. Their responses are presented in Table 1.

Using Principal Component Analysis with

Varimax Rotation Method, only five components were extracted as key in explaining benefits of participating in community engagement activities as reported by farmers. Together, these five components contributed 87.8% of the observed variance. The first to be extracted was 'Keeping farm records has helped me to improve my farm profitability' which alone contributed 55.1% of the variance (see Table 2).

Table 1. Perceived benefits of community engagement activities

Statement	Percent		
	Agree	Not sure	Disagree
a). I have started an income generating activity using knowledge acquired through the training	97.6	1.2	1.2
b). Crop production has improved	82.8	2.5	14.7
c). I am now getting more milk from my dairy cows	83.3	6.4	10.3
d). I am now getting more milk from my dairy goats	68.9	10.8	20.3
e). I now make more money from my poultry project	74.0	13.0	13.0
f). I save money through making my own animal feeds	80.3	0.0	19.7
g). Keeping farm records has helped me to improve my farm profitability	86.3	5.0	8.7
i). I have planted trees in my farm as a result of the training	78.2	2.6	19.2
j). I have improved the way I dispose household garbage since the training	89.0	2.4	8.6
k). Training helped me understand consequences of drug abuse	87.4	0.0	12.6
m). My family members visits to hospitals have reduced because I learned how to prevent common diseases	85.0	1.3	13.7
n). I have developed better family relations due to the training	82.5	1.2	16.3

Table 2: Principal Component analysis of perceived benefits

Component	Extraction	Sums of Squared	Loadings (Eigenvalues)
	Total	% of Variance	Cumulative %
1. Keeping farm records has helped me to improve my farm profitability	6.612	55.098	55.098
2. I save money through making my own animal feeds	1.634	13.617	68.715
3. I am now getting more milk from my dairy goats	.843	7.029	75.744
4. I now make more money from my poultry project than before the training	.770	6.413	82.157
5. I have improved the way I dispose household garbage since the training	.682	5.684	87.841

Farmers' perceptions regarding Egerton university community engagement activities

These results imply that teaching smallholder farmers how to keep farm records is quite beneficial to them. It enables them to track and therefore control farm expenses and farm productivity resulting to higher farm profits. Mungai *et al.* (2016) reported that over 95% of Egerton students attached to farms helped to organize farm operations and initiated record keeping. The second, third and fourth components are activities whose financial implication is realised within a short period of time. Farmers would therefore rate such activities higher than others that take long to be realised. Likewise, the results of implementing the fifth component are observed almost immediately and therefore highly regarded.

Although almost all (97.6%) of the farmers reported engaging in income generating activities as a result of engagements with Egerton University, this component was not extracted because it contributed a meagre 1.03% of the variance. These income generating activities ranged from processing agricultural products in their homes to sell to neighbours and school-going children as snacks to producing liquid soap in homes. To an outsider, these income generating activities may seem inconsequential, however, they are valuable sources of money necessary for covering household recurrent expenditure which is estimated at an average of KES 4,000 (approximately USD 40) per adult equivalent per month in Nakuru County (KNBS/SID, 2013).

Analysis of qualitative data revealed a variety of perceived benefits of the university community engagement activities. A sample of quotes from farmers is presented below:

(ID 83) asserted, *"It was an eye opener because I am now able to feed my family healthy i.e. Balanced diet"...* *"it reduced the number of idlers as now many of them are busy farming and making non-food products and selling them"*.

Another added (ID 52), *"apart from the above (referring to the benefits listed in Table 1) my family has reduced a lot of movements"*. This is in relation to family members being productively engaged and therefore are not moving around but busy working in the farms.

(ID 56) *"knowledge in avocado oil ... and have been selling and getting income"*. About benefits to the community he added, *"introducing new crops like yams and ways of planting bananas"*

(ID 82) *"It has helped me because what they taught us is real and even if I have not done much, I have been buying from my fellow farmers what they sell. Farmers have been making and selling what we have been taught"*.

(ID 49) *"on how to harvest rain water of which (it) helps my family"*.

(ID 75) *"my family have become food secure and (started) income generation. ... increased acreage on crop and pasture establishment..."*

(ID 21) *"... better health, income increase, better farming, saving, knowledge and skills"*

(ID 35) *"I have started an income generating activity (hotel at [name left out for confidentiality purposes]), dug garbage pit for household disposal, increased dairy goats and poultry, farm planning"*.

(ID 31) *"Good interaction with family members"*

(ID 29) *"Better health"*

(ID 73) *"We have built a new stone house"*

(ID 72) *"Decision making on farm activities is done between the two of (us)"* meaning that the couple now consultatively makes decisions together unlike before the engagement activities.

Rating of subjects covered in terms of usefulness. Respondents were asked to indicate the topics they perceived as ‘most’ and ‘least’ useful to them. Results presented in Fig. 4 indicate that above half of the respondents cited good agricultural practices as the most useful topic followed by silage making. None of the respondents perceived soil testing, environmental conservation and drug and substance abuse as most useful. On the other hand, the least useful topic was family dynamics selected by over a quarter of the respondents. This was followed by value addition and improved seeds each cited by 12.3% of the respondents as least useful.

Further investigations revealed that proportions of those perceiving a topic as most important surpassed proportions of those perceiving the same topic as least important in only four of the listed thirteen topics. The four were: good agricultural practices, silage making, poultry keeping and dairy farming. All the four topics are directly related to the livelihoods of the

people: crop and livestock production. Adults are selective and will learn what provides personal relevance or meets their real-world needs (Cercone, 2008). It can therefore be argued that new knowledge or skill that finds immediate application or that provides solutions to immediate problems would be perceived as important compared to others whose application may not be immediate.

Similarly, any new knowledge that relates to the lives of the people and whose results are observable or leads to income generation or savings is perceived as most useful and would tend to be highly adopted compared to that perceived as less useful. This may explain why topics embedded in the livelihoods of the people were perceived as most important compared to others. Furthermore, experiences in such subjects as relate to their livelihoods can and are discussed openly among farmers without any measure of vulnerability during needs assessment and consequently incorporated into

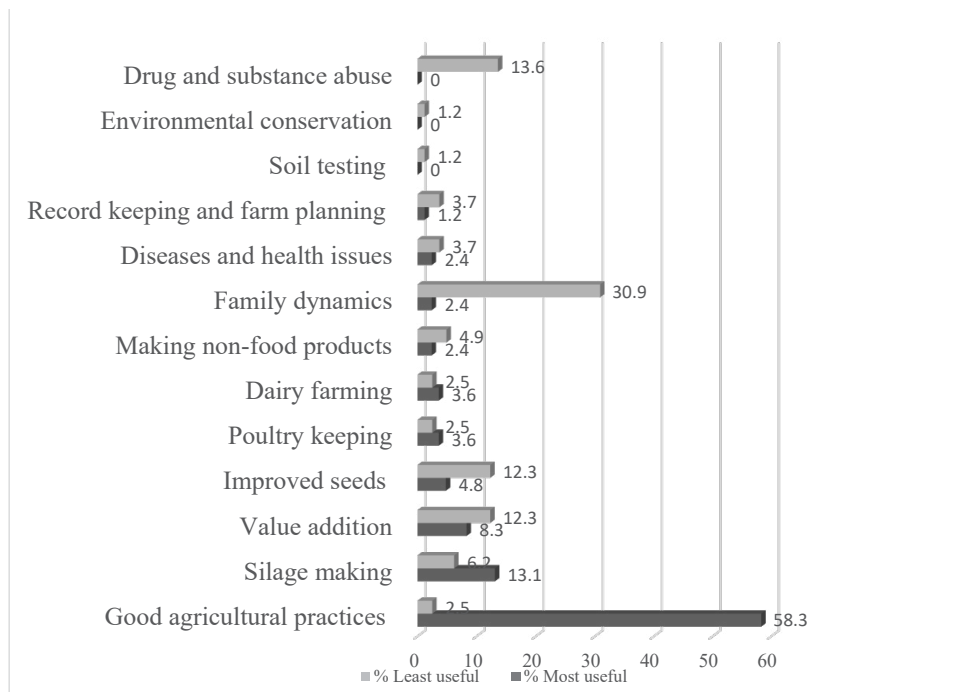


Figure 4. Rating of the usefulness of topics

community engagement activities.

Conversely, experiences touching on family dynamics are not openly discussed. Therefore, actual and immediate needs of farmers in these matters may never be known to those delivering content because it is unlikely that they would be captured during theme generation and needs assessment. Besides, knowledge and experiences accumulated throughout life intertwined with deep held values and belief systems (Cercone, 2008) complicates the learning environment for such topics.

Bearing in mind that adult learning is often problem centred and that adults are interested in knowledge that finds direct application in their lives (Cercone, 2008), it is most likely that a topic discussed 'abstractly' will not be perceived as important. That does not mean that such topics are not important in the lives of the people. Despite the low rating of family dynamics, 82.5% of the respondents indicated that they have developed better family relations as a result of the university community engagements (see Table 1 item 'n').

Satisfaction level with Egerton University community engagement activities.

Respondents were asked to indicate their level of satisfaction on the items listed in Table 3. High levels of satisfaction were reported in all items except for follow up by Egerton University. Community members complained of lack of follow up from the university which negatively impacts on sustainability of projects and adoption of technologies.

Follow-up was identified as the major weakness of Egerton University community engagements. Farmers expressed dissatisfaction with the manner in which the university abruptly ended its activities within the communities and suggested an incorporation of a follow-up plan to ensure sustainability of projects and better adoption of technologies. Another weakness was communication between the university and the community. There were no defined channels of communication and farmers did not know which office to contact in case of need in the field.

Table 3. Satisfaction level of community members

		Percent			
		Very Satisfied	Somewhat Satisfied	Dissatisfied	Extremely Dissatisfied
i	Timeliness of the activity	71.4	27.4	1.2	0.0
ii	Time taken during sessions	63.1	36.9	0.0	0.0
iii	Appropriateness of information to your needs	36.6	59.8	3.7	0.0
iv	Understanding of what is taught (Content comprehension)	82.1	15.5	1.2	0.0
v	Methods of delivery used	72.6	26.2	0.0	1.2
vi	Amount of information given	58.0	38.3	2.5	1.2
vii	Knowledgeability of presenter	69.0	29.8	1.2	0.0
viii	Preparedness of the presenter	82.1	14.2	2.4	1.2
ix	Resources used to facilitate training/learning	83.1	12.0	4.8	0.0
x	Follow up by Egerton University	3.7	8.6	16.0	71.6

CONCLUSION

The call for universities to align their teaching and research with societal needs and aspiration can no longer be disregarded. A good avenue of accomplishing this is the strengthening of community engagement activities of universities. Though one of the three key mandates of universities, community engagement, has for the major part been ignored or given very little attention compared to teaching and research, community engagement provides a good opportunity for universities to recognise, decipher and address societal needs for which their products are targeted. At the same time, communities benefit from these interactions through utilising university unique resources to address their needs and aspirations and in so doing, contribute in generation of knowledge. Even where community engagement has been implemented to considerable degree, the tendency of universities to overlook the perceptions of community members on these engagements is apparent, yet incorporation of such information would lead to more beneficial future interactions. Egerton Universities has been engaging with communities for many years with a number of academic programmes having institutionalised community engagement activities for which students must earn a grade before graduating. However, the perceptions of beneficiaries of these activities have not been documented and therefore incorporated in the planning of these activities. This paper contributes in this direction through identifying and documenting the perceptions of farmers on Egerton University community engagement activities with the hope of drawing lessons that could improve the impact of these activities. The high regard with which farmers held community engagement activities is a pointer to the impact these have on their households. Activities with an almost immediate impact or easily observable results were highly rated compared to those whose benefits were less visible. The selectiveness with

which adults approach learning demands for close consultations between universities and communities in all stages of community engagement process for impactful interactions. Additionally, delivery methods that transform abstractness of information into its applicability and usability are more desirable.

Further, community engagement should be approached from a perspective of developing a relationship between the university and the community and should not be viewed as a one-off event. This would ensure the development of reliable communication channels to ensure continuous exchange of information between the university and the community. Tracking the adoption process of innovations and the adaptations that beneficiaries apply on them during implementation may inform future university community engagements and enhance their impact.

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STATEMENT OF NO-CONFLICT OF INTEREST

The authors declare that there is no conflict of interest in this paper.

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