LABOUR-MARKET NEEDS ASSESSMENT WITHIN THE KENYAN DAIRY SECTOR

FINAL REPORT

Written by PKF consulting in collaboration with:

NICHE/KEN/127

Wageningen UR, AERES Groep, Maastricht School of Management, SNV Netherlands Development Organisation, Egerton University (EGU) and Dairy Training Institute (DTI)

NICHE/KEN/124

Q-Point BV, HAS Den Bosch, Egerton University, DLV Plant BV, Bukura Agricultural College

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List of Abbreviations

AI	Artificial Insemination
ADC	Agricultural Development Corporation
ATC	Agricultural Training Centres
AU	African Union
BAC	Bukura Agricultural College
BOP	Bottom-of-the Pyramid
CBO	Community-Based Organization
DFID	Department for International Development (United Kingdom)
DTI	Dairy Training Institute
EAAPP	East African Agricultural Productivity Program
EADD	East Africa Dairy Development
EGU	Egerton University
FAO	Food and Agriculture Organization of United Nations
GoK	Government of Kenya
IFAD	International Fund for Agricultural Development
ILRI	International Livestock Research Institute
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KAGRC	Kenya Animal Genetics Research Centre
KARI	Kenya Agricultural Research Institute
NKCC	New Kenya Cooperative Creameries
KDB	Kenya Dairy Board
KMDP	Kenya Market-led Dairy Programme
KNDMP	Kenya National Dairy Master Plan
KSh	Kenya shilling
LNA	Labour-Market Needs Assessment
MOA	Ministry of Agriculture
MoLD	Ministry of Livestock Development
NICHE	Netherlands Initiative for Capacity Development in Higher Education
PKF	Pannell Kerr Forster
RDCoE	Regional Dairy Centre of Excellence
SCDP	Small-holder Dairy Commercialization Program
SNV	Netherlands Development Organization

EXECUTIVE SUMMARY

The Labour-market Needs Assessment was commissioned by SNV Netherlands Development Organization (SNV) to inform the implementation of the Kenya Market-led Dairy Programme (KMDP) and the Netherlands Initiative for Capacity Development in Higher Education (NICHE KEN 124/127) which focusses on skills development in the dairy value chain. The study was conducted between November 2012 and January 2013. The overall objective was to assess the demand and supply of skills and competences in the dairy sector and to give recommendations to the institutions to bridge the gaps identified.

A combination of various methods including qualitative and quantitative were applied to collect data from both primary and secondary sources. In enhance the understanding of the labour market, Focus Group Discussions (FGDs) were used for triangulation of information. Further, information or data was collected from both industry players along the dairy value chain and graduates from three key institutions that were part of the study. These institutions are Egerton University (EGU), Bukura Agricultural College (BAC) and Dairy Training Institute (DTI). Other institutions such as University of Nairobi, Baraton University and Jomo Kenyatta University of Science of Technology and Rift Valley Institute of Science of Technology, among others were also visited in the course of the study.

The industry players interviewed in the study included dairy farmers, input suppliers, processors, and regulatory bodies such as Kenya Dairy Board (KDB), dairy processors, research institutions and development partners.

The sampled institutions were classified according to the level of certification provided to graduates and the roles played by the graduates in these institutions. Universities which provide undergraduate and postgraduate programs are categorized as Macro level Institutions. These institutions provide highly specialized training that produce graduates for the supervisory and managerial roles. The Macro institutions are also the main suppliers of employees for research institutions and development organizations.

The Meso (middle) levels are the tertiary colleges which provide Diploma and Certificate courses. The graduates from these institutions are employed in supervisory positions at the production level of the dairy value chain, or as technicians in institutions in the upper level of the value chain.

The Micro (lowest) levels are grass-root institutions which provide demand-driven short courses mainly targeted at farmers. These include demonstration farms, private training farms and the government-owned Agricultural Training Centres (ATCs).

It was established that currently employers who employ graduates from the dairy training institutions include: the Government of Kenya, Dairy Co-operative Societies, Dairy Farms, Banks, Processors of Dairy Products, Veterinary service companies, Training Institutions and other organizations such as non-governmental organizations and Development Partners. The Government and the Dairy Processors each account for about 31% of the jobs provided for graduates from the sampled institutions.

The academic qualifications required for employees among the industry players were diverse from Certificate holders, Diploma holders, Undergraduates to Postgraduates. The Certificate and Diploma holders were preferred for most of the jobs among the profiled industry players. Postgraduate qualifications were popular with development and research agencies. The industry

players indicated that most new graduates exhibit functional deficiency at the workplace hence they had to go through in-house trainings to increase their competency.

In terms of earnings, the study established that of the graduates earned on average between Ksh. 16,000 - Ksh. 34,000, a figure considered to be quite low in Kenya.

In addressing the labour needs of the dairy industry, the findings show that the fundamental need across the sector is the employability skills of the graduates. The soft skills required play a major role as the industry diversifies. In terms of technical needs, the study found that the curricula for Kenyan institutions are very heavy on the theoretical aspects and tend to cover a lot of ground; what lacks is the practical training to complement the theoretical training. In the study, employers generally indicated that new graduates were performing below average on the non-technical skills such as communication, confidence to participate in team meetings and taking responsibility in the achievement of tasks. The ICT skills of new graduates were also considered to be average whereas this was an important qualification for employment with the dairy processors.

The labour needs of the sector varied depending on the level of the organisation on the value chain. The industry players interviewed had no particular preference for graduates from institutions. They tend to employ graduates and train them on the job, to equip them with the skills required by the employer. As a result, one of the recommendations made was the increased collaborations between the industry and the training institutions to ensure that the students are equipped with skills required by the industry.

In terms of supply and demand gap, the general conclusions from the study indicated that the curriculum of the institutions involved in dairy training was quite comprehensive and it covered the technical areas. What was notable was the lack of adequate facilities for practical training purposes in most of the institutions. The soft skills were also covered in the curriculum, but the examples used seemed somewhat removed from the local context. For instance, the students mentioned that for business examples, they were taught about Coca Cola company and other multinationals and could therefore not relate to the local context.

With regard to gender mainstreaming, the dairy industry still has a long way to go. Apart from the development agencies and the higher institutions of learning, the industry has neither a gender policy nor a policy on HIV and AIDS, or even one that is favourable to persons with disability. This is a worrying trend, especially in regard to gender, considering the important role that women play in the dairy sector.

The dairy training sector presents opportunities in employment, wealth generation and poverty reduction. A rapidly increasing population and high rates of urbanization are additional driving forces of the demand for fresh and processed milk products which in turn drive the need for training. The main challenges faced by the training sector is the piecemeal approach by the government and relevant stakeholders, on specific issues such as the under developed state of infrastructure and technology in these institutions, the lack of funding for curriculum development, and the general minimal government support.

The recommendations made at the end of the study encourage the close linkages and ties between the different levels of training institutions to ensure that the decisions made at the Macro Level have a direct impact on the Micro level, and that the transition between these levels is smooth. The recommendations also encourage partnerships with the industry especially farms and processors to provide opportunities for practical training.

The study has brought out clear understanding that there is need for renewed efforts and thinking within the dairy sector to bring the institutions to a level that is in tandem with the overall growth of the sector in terms of supply and demand of skills required in the industry. Structural adjustments on the way labour needs in the country are addressed are required right from the bottom of the pyramid to the policy formulation bodies. There is also need for strong linkages across the strata of the training institutions where collaboration across the Micro-Meso–Macro institutions is very strong and is able to address the actual needs of the country.

1. INTRODUCTION

1.1. Background of the Study

This Labour-market Needs Assessment was conducted between November 2012 and January 2013. The study was commissioned by Netherlands Development Organization (SNV) to support implementation of its complementary programmes around skills development in the dairy value chain. These programs are the Kenya Market-led Dairy Programme (KMDP) and the Netherlands Initiative for Capacity Development in Higher Education (NICHE KEN 124/127).

KMDP identifies skills development and training and extension infrastructure across the value chain, as one of the systemic issues for growth and competiveness of the sector. On the other hand, NICHE KEN 124/127 is aimed at strengthening the institutional capacity of Egerton University (EGU), Bukura Agricultural College (BAC) and Dairy Training Institute (DTI), and to help alleviate qualitative and quantitative shortages in skilled manpower in the dairy sector. In order to achieve the objectives of the two programmes, a sector-wide Labour market Needs Assessment (LNA) was commissioned to conduct inventories of the demand of the industry for qualified and skilled staff, as well as give an overview of the supply side and the structured curricula offered by the main institutions of learning or training.

The theoretical framework underlying the study was that the Kenyan dairy industry is a vibrant fast commercializing sector with a growing demand for qualified skilled staff to realize growth and competitiveness. The results of a pre-assessment study conducted at the inception phase of NICHE KEN 127 on the dairy labour market showed a mismatch between demand by the industry and supply from the major learning and training institutions. The study was planned and conducted in partnership with institutions that provide training for skills required by the dairy sector. In this regard, Egerton University (EGU), Bukura Agricultural College (BAC) and Dairy Training Institute (DTI) were involved in the study. The results of this study was therefore intended to assist these institutions transform themselves into knowledge centres offering highly needed academic and vocational training applied research and outreach programmes required by the industry.

1.2. Study Objective and Deliverables

The objective of the study was to assess the demand and supply of skills and competences for the dairy sector. The key deliverables were the following:

a) A description and analysis of the ability of DTI, BAC and EGU in providing graduates as required by the industry and recommendations for enhanced alignment and competitiveness of the institutions.
b) An inventory of the dairy labour market (industry players) and an in depth analysis of the labour market needs in the dairy industry.
c) Inventory of curricula and competences of other dairy training institutions in Kenya.
d) Detailed analysis of the gaps between demand and supply, including gaps in current curricula.
e) Recommendations on how to fill these gaps.
f) Recommendations on how to mainstream gender in the labour market demand and supply chains.

1.3. Methodology

The study started at the end of November 2012 and continued through to January 2013. To deliver on the assignment, a combination of methods including desk research, interviews with key stakeholders, questionnaires, Focus Group Discussions (FGDs) and online research was applied.

In preparation and mobilization stages for the study, the consultants held stakeholder consultative meetings with members of the Steering Committee supplemented with meetings with staff of SNV, and representatives from EGU, BAC and DTI where the overall objectives of the study were discussed and agreed. Responsibilities were assigned, with the PKF and SNV, Egerton, Bukura and DTI taking up the logistics aspect of identifying key stakeholders and planning meetings with. These consultative meetings helped to manage individual and institutional expectations of the study in terms of desired results, and to obtain relevant information to guide the study.

The statements in the questionnaires were graded using a Likert scale of 1-5 where (1: strongly disagree, 2: disagree, 3: neither agreed nor disagreed, 4: agreed, and 5: strongly agreed). The Likert scale is a standardized scale that employs questionnaires and is widely used to scale responses in survey research. The respondents gave their perception on the statements on the strength of how much they agreed or disagreed with the statements. The questionnaires used can be found in the annexes.

1.4. Data Collection Procedure

Both quantitative and qualitative data collection and analytical methods were employed in the study. Two sets of semi-structured questionnaires were designed to guide the data collection process. The questionnaire for the supply side (graduates) was administered telephonically and by email, was targeted at past graduates of Egerton University, Bukura Agricultural College and Dairy Training Institute. The sample size of 45 graduates from each institution represents 10% of the total number of students graduated between 2008 and 2012. The second questionnaire was designed for employers of graduates from the dairy training institutions. Questionnaire for the industry players was administered personally by the researchers. The consultants' appointments with the industry players were booked through a mix of telephone calls and emails.

Qualitative data collection took the form of focus group discussions (FGD) with current students of the institutions. The FGDs lasted between one and two hours. To triangulate the information from the primary sources, secondary data was also obtained through review of selected materials on the dairy sector.

Observation was used to supplement and also validate the information received from the sources outlined above. Further, observations were applied in assessment of the facilities used in training such as status of the farm, equipment, classrooms and laboratories among others.

1.5. Respondents

The study employed the use of both primary and secondary data which was collected from a range of sources. FGDs were carried out for triangulation. On the labour supply side, sources of primary data included current students in the three institutions that were involved in the study (EGU, BAC and DTI) and alumni of the institutions.

On the labour demand side, the study collected information from the main actors in the dairy sector that included regulators, input suppliers, processors, research and development organizations, farmers, non-governmental organizations (NGOs), and development partners.

The response rate of the graduates varied from institution to institution depending on the way the questionnaire was administered. The response rate was higher for institutions that used telephone interviews, compared to the institutions that opted to use emails.

A list of the industry players respondents interviewed in the study is provided as an annex to this report.

1.6. Data Analysis and Presentation

Quantitative data was analysed using descriptive statistics mainly percentages for ease of interpretation and comparison between constructs in the questionnaire. These are presented as charts and tables to enable easy interpretation of the findings. Qualitative data was further used in corroborating and explaining the quantitative data.

1.7. Limitations of the Study

The successful completion of the study was highly dependent on the views of the different players in the dairy sector. Key stakeholders such as the DTI Steering Committee members were keen on the study and availed themselves for discussions. However, the response from the industry was modest mainly because of the timing of the study.

The study was conducted towards the end of the year when organizations were caught up in end-year reporting. It was also a period when the country was in elections campaign mode and also very close to the Christmas holiday season. It was therefore a challenge to secure appointment with targeted respondents; mostly the senior people, due to the nature of their schedules within this period. As a result, some of the findings are heavily supplemented with the results and recommendations of similar or related studies on the sectors value chain actors.

It was noted that the time taken to administer the questionnaires extended beyond allocated time for each instruments. As a result, the consultants resorted to having a qualitative session where the interviews took the form of discussions on the subject. This meant that the sessions became more qualitative than quantitative. Nevertheless, this proved to be a much better option at time as the respondents tended to provide more information that may have been otherwise overlooked.

1.8. Reliability of Results

In spite of these challenges, the information gathered and analysed from the various respondent groups is considered adequate representation of the labour market needs and supply in the dairy sector. On the demand side, the responses from the industry players interviewed were quite similar and it is unlikely that further interviews could have yielded different results. On the supply side, assessment of curricula and responses from the students was considered adequate in identifying the type of skills provided by the training institutions.

2. KENYAN DAIRY SECTOR

2.1. Overview of the Dairy Sector

The dairy sub-sector in Kenya is considered the most developed dairy sector in sub-Sahara Africa. At the national level, the sector contributes 3.5% to the total GDP and 14% to the agricultural GDP. The current milk output is estimated at 4.2 billion litres worth over 100 billion Kenya shillings per annum out of which 60% comes from pure grade dairy cattle and their crosses while the remaining 40% is contributed by Zebu (11 million), camel (2.7 million) and goats (16 million)[1].

Kenya National Dairy Master Plan (KNDMP) estimates the national pure dairy herd at 3.5 million heads majority of which is in the hands of smallholder resource-poor farmers. Smallholder farmers collectively account for over 80% of the total milk production in the country. Of the total milk produced, about 60% is marketed through traders, cooperatives, hotels and kiosks. An estimated 84% of the milk produced is sold in raw form to consumers ranging from rural to urban dwellers[2].

2.2. Employment in the Dairy Sector

Different studies provide different estimates with regard to the number of people employed within the dairy sector. The survey carried out by the Ministry of Livestock Development (MoLD), the Kenya Agricultural Research Institute (KARI) and the International Livestock Research Institute (ILRI), Food and Agriculture Organization (FAO) and Small-holder Diary Project (SDP) in 2008, suggests that the dairy industry employs approximately 841,000 full-time jobs. At the farm level, for every 1,000 litres of milk produced daily, dairy activities generate an estimated 23 full-time jobs for the self-employed, 50 permanent full-time jobs for employees, and three full-time casual labour jobs, making a total of 77 direct farm jobs per 1,000 litres of daily milk production[3].

The Kenya National Dairy Master Plan 2010 estimates about 18 employment opportunities are created for every 1,000 litres of milk a day handled through this channel (KNDMP 2010). The dairy sub-sector is considered one of the sources of employment, with over one million households and businesses directly deriving livelihoods from it. Considering that of the nearly one million smallholder farmers, with an average family size of seven for whom dairy is the sole source of upkeep, it is likely that more than 8 million people directly depend on dairy related ventures.

Today, informal milk sector accounts for more than 70% of the 50,000 jobs in dairy marketing alone and further directly, supports over 350,000 others in the formal employment[4]. Milk plays a major role in food security and nutrition; with the per capita consumption in Kenya being 110 kg per person. This figure is considerably high by African standards whereby some countries such as Congo have recorded as low as 3 Kg per person. This is indicated by the potential growth of the dairy industry if appropriate infrastructure is put in place to increase the production capacity and generation of required human capital.

[1] Kenya National Dairy Master Plan (KNDMP), 2010.

[2] Kenya National Dairy Master Plan (KNDMP), 2010.

[3] Dairy Development for the Resource Poor (Staal, Pratt and Jabbar), 2008

[4] Kenya National Dairy Master Plan (KNDMP), 2010.

2.3. Challenges in the Dairy Sector

The main challenges that affect the Kenyan dairy sector's development can be summarised as follows;

a) The small size of dairy enterprises/operations lack professionalism and are unable to take advantage of economies of scale;
b) Smallholders lack essential skills and knowledge, for example on dairy production, clean milk handling, farm management and animal health care;
c) Overall failure among dairy farmers to adopt a collective approach in organize themselves into strong cooperatives, resulting in inadequate and inefficient dairy cooperatives, groups and marketing organizations;
d) The lack of influencing and decision making power for industry players on policy and legislation processes;
e) Lack of adequately trained and qualified staff at all levels of the dairy value chain;
f) Inefficient input supply and other service delivery to dairy farmers;
g) Poor-quality feeds on the market, and poor feeding regimes;
h) Fluctuations in milk supply, due to reliance on fluctuating seasonal forage availability because of high dependence on rain fed agriculture;
i) Relatively high consumption of (raw) liquid milk compared to value-added processed dairy products;
j) Lack of organization among the processors;
k) Lack of quality up-to-date information/data on dairy and the poor quality of available data.

In spite of these challenges, the country has made significant strides in creating enabling policy environment for investment and revitalized dairy public institutions such as the Kenya Animal Genetic Research Centre (KAGRC), Kenya Dairy Board (KDB) for regulatory purposes, Kenya study book, livestock recording centre, strong farmer organizations and private sector.

Kenya was selected as an ideal location for the Regional Dairy Centre of Excellence (RDCoE) under the World Bank funded program East Africa Agriculture Productivity Program (EAAPP). As a host for RDCoE, Kenya has the responsibility of assisting the other East African countries to improve their dairy industries through creation of robust regional research networks, technology dissemination, capacity building and information sharing mechanisms.

3. STUDY FINDINGS – EGU, BAC & DTI

The chapter focuses on the findings from the research carried out on the graduates of EGU, DTI and BAC. The outcome and analysis are based on the responses given to each of the questions asked; the results are supported with input from the discussions held with the Focus Groups. In the following sections, discussions will be focussed on the status and findings from each institution.

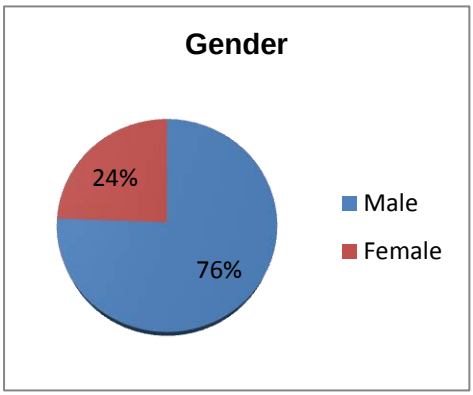
3.1. Egerton University Graduates

The university has been training students in the areas of agriculture and dairy management for several years. The following paragraphs outline several factors like employability, gender, age, graduate perception of the institution in terms of employability.

3.1.1. Personal Information

Gender, Age and Graduation

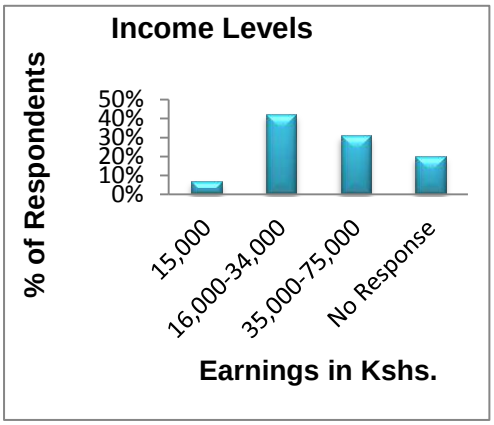
Figure 1: Gender



A sample of forty five alumni from EGU participated in the survey, composed of 76% male and 24% female. Majority (79%) of the graduates were aged between 20-30 years while 14% aged between 31 and 40 years. Seventy five percent (75%) of the respondents graduated between 2008 and 2009, 16% graduated in 2010, with the rest graduating in 2011. Fifty one percent of the graduates held a BSC in animal production while 49% held a diploma in animal health, but both courses have a component of dairy training. The study found that over 85% wanted to study at EGU, while the rest chose the institution based on its reputation. The response to this question gave the conclusion that the institution was very marketable and had a good reputation; hence the students were attracted to the institution and enrolled to the courses.

Income Levels

Figure 2: Income Levels

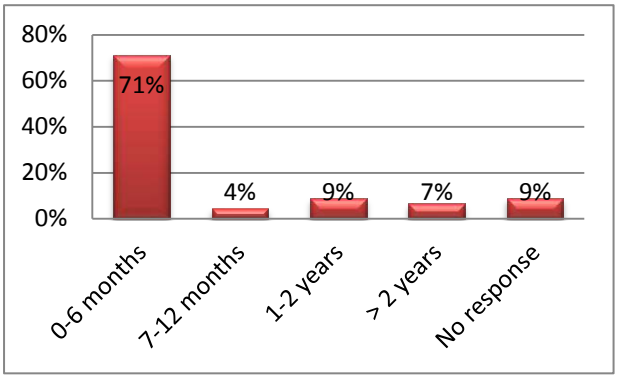


In terms of income, 42% of the graduates earn between Ksh..16,000 - Ksh..34,000 which is considered mid-level income category; 31% of the graduates earn over Ksh.. 35,000. This range is higher than what is offered to both BAC and DTI graduates, which could be attributed to the fact that EGU is a university and offers diploma and degree courses. Only 7% of the respondents earn Ksh.. 15,000 and below.

3.1.2. Employability

The question on employability assessed the uptake of EGU graduates in the labour market, the skills and competences, their current roles and supervisory tasks. This question also tackled the graduates' perception on their readiness for the market, or self-employment and the type of self-employment that they would consider.

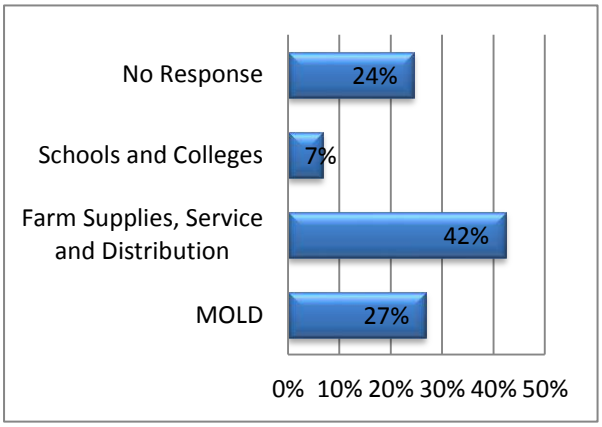
Figure 3: Transition between graduation and employment



Seventy (70%) percent of the respondents found employment within the first six months of graduation, 5% between 7-12 months, and only 7% took more than two years to find employment. A discussion with the institution's lecturers gave the impression that students were at times recruited from the institution even before they graduated.

The conclusions to be drawn from the seventy five (75%) percent rate of employability within the first year which denotes that there is demand for graduates in the agricultural sector in particular the dairy sector compared to the country's average where the norm is considered to be at least more than a year before finding employment.

Figure 4: Current place of employment



When asked where they worked, 42% of the graduates worked in the farm input supplies, agricultural service sector such as extension services and advisory and distribution centres. 26% are employed within government in particular the Ministry of Livestock Development (MoLD) and only 7% enter schools and colleges possibly as lecturers. Twenty six (26) percent of the graduates gave no response.

The overall observation is that most of the graduates are absorbed within the private sector. The implication of the finding denotes the importance of the private sector in providing employment to the graduates, and the need to focus on the curriculum to adapt it to the needs of the sector.

Figure 5: Professional tasks undertaken

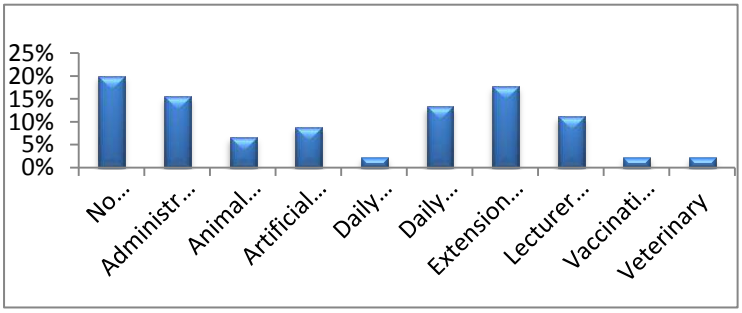
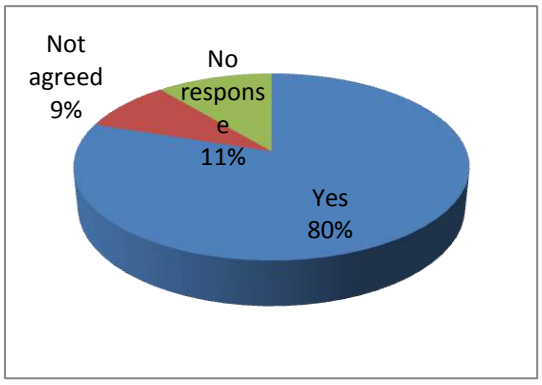


Figure 5 illustrates the type of tasks carried out by the graduates. The graduates carried out a combination of technical skills such as extension services at 18%, A.I. at 9%, and entrepreneurial skills such as sales & marketing, accounting 13% and administration skills at 16%.

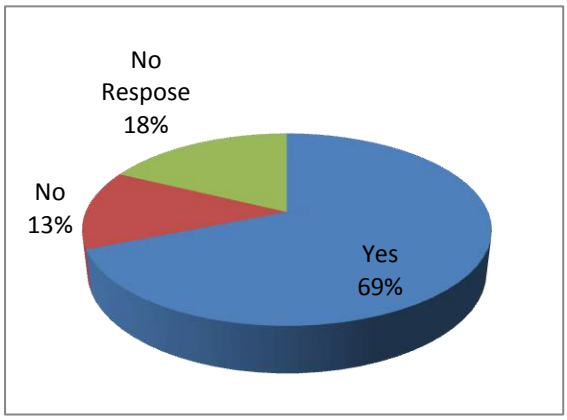
On the question on whether or not they had supervisory skills, 70% of them were in supervisory roles that required management skills, and 30% were not.

Figure 6: Possession of adequate skills for the workplace



In order to test whether the training was adequate enough for their workplaces; the graduates were interviewed on their perceptions on the adequacy of their training; 80% felt that the training was adequate, 9% did not agree and 11% gave no response.

Figure 7: Possession of skills advance in career

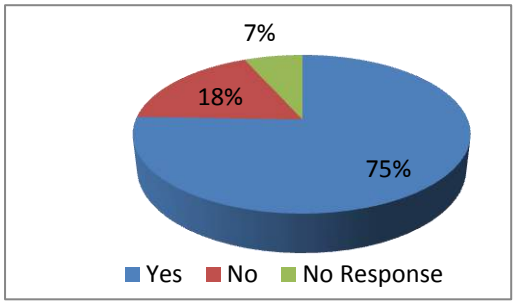


The graduates were questioned to find out their perception on whether they thought that they had necessary skills to advance in their careers from the training that they had undergone while in university, 69% of them said yes, while 13% of them said no. The conclusions to be drawn from the lack of responses could be because of various reasons including; the lack of understanding of the question, they could also be unsure if their skills are relevant enough to move up in their careers amongst other reasons.

The responses above denote that the students were confident enough with the technical training, but were not as confident about having the necessary skills to move up their career. 70% of the graduates had supervisory roles where they supervised 20 or less employees. Only 7% supervised more than 20 staff.

The interview went further to ask what type of courses they would like included in the curriculum. The responses varied right from artificial insemination courses to entrepreneurship skills, sales and marketing, pharmacology, amongst others. The courses requested for varied very significantly.

Figure 8: Self-employment

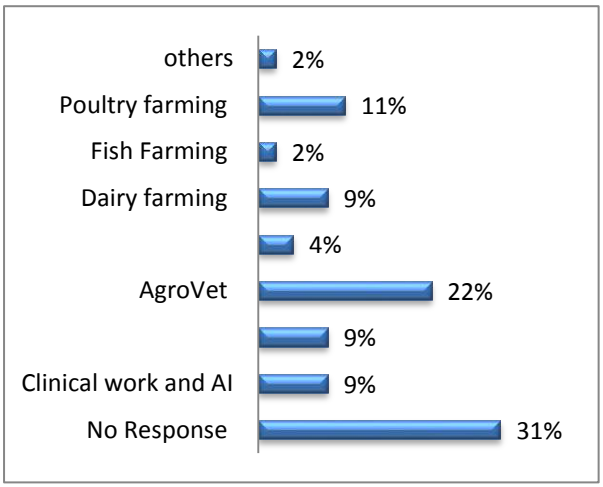


On the question of whether they would consider self-employment, 75% of the respondents indicated that they would be interested in entering self-employment, 18% were not interested, and 7% gave no response.

Of the 18% who responded with a firm no, gave the following reasons for their hesitation:

- ✓ Lack of confidence in entrepreneurship
- ✓ Lack of adequate capital
- ✓ Lack of exposure, market knowledge, management
- ✓ The comfort and stability of being employed
- ✓ Lack of sufficient business courses
- ✓ Self-employment is quite challenging
- ✓ Lack of practical training

Figure 9: Areas considered for self-employment



The graduates were probed further to give a list of the areas that they would consider to go into for self-employment; figure 9 represents the areas considered.

Of interest to observe from the studies is that many graduates (31%) gave no response as to what type of self-employment they would like to go into in spite of the fact that they considered self-employment. There seems to be an increase in awareness of the benefits of entrepreneurship, but there is a lack of confidence to go into self-employment by the graduates. The lack of confidence can be because most of the graduates cannot afford to go into self-employment because of limited capital.

Nine (9%) percent of the graduates showed an interest in dairy farming alongside agricultural extension, clinical work and AI; 11% wanted to go into poultry and 22 % were interested in starting an Agro-vet. It would seem that the interest in dairy farming is not as strong as the interest in the other agricultural activities. This apparent low interest in dairy farming needs to be nurtured.

3.1.3. Perception on Employability

The questionnaires administered were meant to test the graduates perception on their own employability based on the following issues:

- ✓ On finding employment;
- ✓ On technical skills and competences;
- ✓ On social values and professional behaviour;
- ✓ Entrepreneurial skills and competences; and
- ✓ Further training.

The factors identified within the perception analysis are described in the following paragraphs.

Finding Employment

The perception of the students on whether they had challenges finding employment gave a response of (43%) of the total respondents who felt that they had challenges finding employment while 45% found no challenge. In relation to an earlier question where they were asked how long it took to be employed, 75% of the graduates were employed within the first year after graduation. This shows that graduates did not experience much trouble in finding employment upon

graduation. This is a good trend, due to the fact that students will feel assured of getting placement in the market once they graduate.

On the perception on whether employers responded well to their applications, twenty nine (29%) felt that the employers did not respond well to their applications, seventy one (71%) thought that employers responded well to their applications.

On the issue of gender, the graduates were interviewed on their perception on the whether there was equal treatment of employees both female and male employees. There was a balanced response from both sides where 47% of the respondents disagreed with the statement and the other 47% agreeing with the statement. A detailed analysis of the gender question is tackled under gender where we analyse cross tabulated data to make informed conclusions.

Technical Skills & Competences

The perception of graduates from EGU on their level of technical skills & competences is high; 80% are able to apply the skills learnt during training on their job; 75% are able to apply the skills and competencies learnt during their training; 93.3% are confident enough to take up tasks and responsibilities outside their scope of work and 95.6% are able to respond to complex scenario's and come up with solutions.

On the issue of attachment/internship, 82% felt that the internship supported them in applying their skills in their current jobs; in spite of 69% feeling that the length of the internship was too short, and 29% neither agreeing nor disagreeing. 51% felt that the equipment used at EGU was outdated.

A focus group discussion was held with the current students at EGU, where the students were asked to respond to various issues including the length of the attachment. There was total agreement that the length of the attachment was too short. There was also a major problem with where the students were attached. Most of the students expressed dissatisfaction with the places where they were sent for attachment as most of them ended up at the Ministry for attachment where they carried out small tasks. The graduates intimated that they preferred to be attached at institutions like KARI, ILRI, the processors, laboratories and other industry players who represented the bulk of where the graduates are most likely to end up.

Social Values and Professional Behaviour

In terms of social values and professional behaviour, the graduates were asked questions on their relationships with fellow workmates which touched on their ability to communicate, their understanding of the social context, the use of local and national language and their interactions within the teams. The study found that on average 92.8% perceived themselves as having the social skills and professional behaviour expected in the workplace.

The table below summarises the responses on social values and professional behaviour:

Table 1: Social values and professional behavior

Statement	Agree%	Disagree%	No response and Neutral%
a. I respect fellow workmates and uphold high standards of integrity	88.9	2.2	8.9
b. I work and plan in a team but am also responsible for individual achievement and targets	91.1	2.2	6.7
c. I have good understanding of the social context and am able to interact well with all people.	97.8	2.2	0
d. I have ability to communicate effectively in official/ national and local language	93.4	6.6	0

Entrepreneurial Skills and Competences

Several questions were asked to test the graduates' perception on their entrepreneurial skills and competencies. The graduates were asked the extent to which they participated in in-house training, 44% of the graduates said yes, 38% of the alumni gave no response to the question, and 18% disagreed. The high percentage of respondents who took part in in-house training is a mere reflection of the industry norm for companies to train new staff as part of their induction process. Most industry players prefer to take their new staff through in-house training so as to ease the process of enjoining them into the work programs.

The table below gives a summary of the responses:

Table 2: Entrepreneurial skills and competences

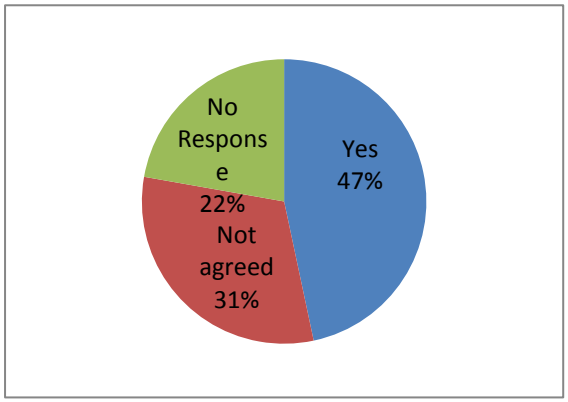
Statement	Agree%	Disagree%	No response and Neutral%
a. To what extend do you participate in an in-house training at your workplace?	44.4	17.7	37.9
b. To what extend are you involved in problem solving, analysis and synthesis	60	13.3	26.7
c. I can confidently translate what I learnt into practice.	93.3	0	6.7
d. I am creative and I have come up with new ideas of to build my work.	80	6.7	13.3
e. I am able to carry out financial analysis and management of projects.	71.1	8.9	20.0
f. I am proactive and easily take up initiatives to complete tasks.	95.6	0	4.4
g. I have understanding of the dairy value chain including all actors, constraints and opportunities along the chain.	82.2	6.7	11.1

When asked their perception towards involvement in problem solving, analysis and synthesis, 60% responded to the affirmative on the question, 13% were definitely not involved, while 27% did not respond to the question or remained neutral.

Ninety three (93%) percent of the graduates felt they could translate what they have learnt into practice. Eighty (80%) percent felt that they were creative and have come up with new ideas at work; Seventy one (71%) percent had the capability to carry out financial analysis and manage projects; 9% did not think that they had the capability whereas 20% remained neutral to the question denoting perhaps a lack of understanding of the question or the lack of confidence in their ability to be creative. Ninety six (96%) percent perceived themselves as being proactive and could easily take up the initiative to complete tasks. Eighty two (82%) percent said that they understood the dairy value chain including all actors, constraints and opportunities along the chain.

3.1.4. Further Training

Figure 10: Participation in further training



The question on whether the graduates received further training at the employers was to test employers' needs or what perhaps the employers perceived as a gap in the training that the graduates had received. Forty seven (47%) of the graduates participated at in-house training at the workplace; 31% did not participate at all, while 22% did not respond to the question.

From the above, it can be concluded that even though the graduates have received extensive training from the University, there is need to upgrade, improve and sharpen their skills, which employers do through in-house training as depicted by the 47% response of those who have undergone in-house training.

When asked whether they had intentions to improve their level of skills and competences, Ninety eight percent (98%) of the graduates said that they had plans to do so. They however did not indicate where they would like to go to advance their skills nor the amount of money that they were willing to part with.

The alumni gave a list of the following training courses that they received whilst at the employers. Table 3 gives detailed analysis of the suggested courses

Table 3: Suggested courses

Other skills	Technical courses
▪ Business management courses ▪ Community development and counselling skills ▪ Customer service training ▪ Supervisory training ▪ Financial management ▪ Leadership and people management skills ▪ Gender training ▪ Sales management	▪ AI courses ▪ ISO certification training ▪ Project cycle management ▪ Niche training (Dairy and horticulture) ▪ Dairy breed inspection ▪ Safe use and disposal of Agro-vet chemicals ▪ Tick control and surveying ▪ Farmers training ▪ First aid

3.1.5. Perception of Egerton University

Preliminary findings from Labour needs Assessment carried out by SNV in 2011 indicated that EGU staff is well aware of the need to improve the skills and competences of students on all levels. The students possess the theoretical knowledge of technical skills but were lacking the practical skills because of the lack of adequate training facilities.

In order to respond to the identified challenges, it is suggested that the university should strengthen its partnerships with industry players who would provide the facilities for practical training including taking on students for internships and attachments. It is also suggested that the university strengthens its collaborations with institutions on Research and Development, innovations, and product development in collaboration with the private sector.

As for social values and professional behaviour, EGU students are trained to work in teams and on complex issues. Recently, EGU developed a case study for to 'solve' to improve their knowledge on the sector and their decision making/problem solving skills. In terms of entrepreneurial skills and competences; EGU students are computer literate and have strong academic skills, including analytical thinking and concept development skills.

EGU currently offers extension and advisory services to the neighbouring community; the institution could take this as an opportunity for final year students to practice their training skills.

Another comment from the staff is that there is not enough synchronization of courses taught in the faculty of agriculture; every department has autonomy and students for livestock related courses do not have forums to share knowledge and practise.

3.1.6. Overall Conclusions

Egerton offers a wide array of dairy related courses on diploma, Bsc, Msc and Phd level. Egerton University graduates are perceived by the industry to have very good theoretical knowledge of technical skills. They are well received by the industry and respected in equal measure. They are also perceived as lacking in experience and practical skills. This is largely due to the fact that the institution does not have adequate training facilities to offer practical training.

A majority of the graduates is interested in self-employment (75%), mainly in field of agricultural services such as agro-vet shops and private AI clinics. Despite the interest in self-employment, the graduates would want to have more training on entrepreneurial -, sales & marketing – and business skills.

The employability of EGU students is high, and the majority is absorbed by the private sector. In terms of salary payment, EGU graduates earn most compared to DTI and BAC graduates.

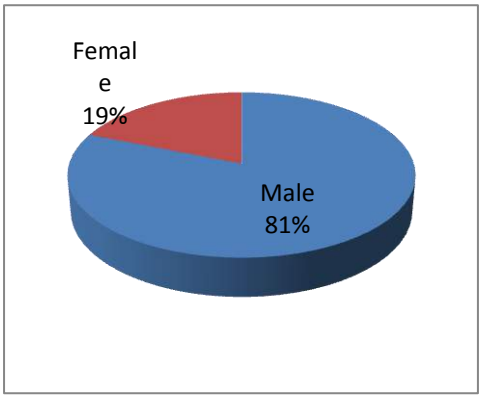
As for the internships/attachment a lot can be improved. The attachment period is too short, the tasks and responsibilities are small, and the place of attachment is not the preferred place by the majority of the students. Internship or attachment positions in the private industry would match the place of employment after graduation and it would equip the students with more relevant skills and knowledge.

3.2. Bukura Agricultural College

The following paragraphs outline several factors regarding BAC on issues like employability, gender, age, graduate perception of the institution in terms of employability and skills and competences.

3.2.1. Personal Information

Figure 11: Gender of respondents

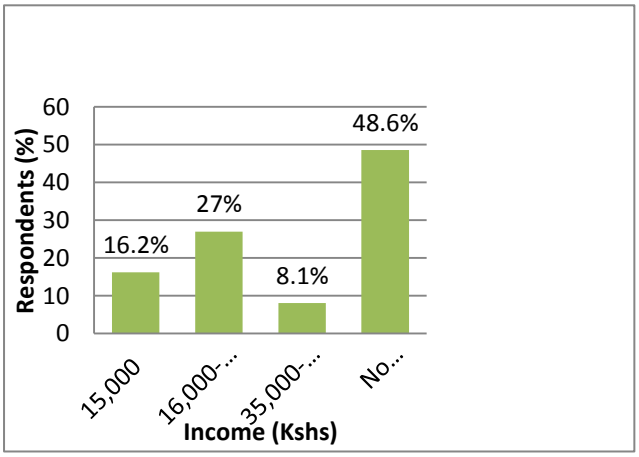


A total of 37 graduates from BAC were sampled in the survey where sixty two (62%) percent of these graduates finished in the year 2012, 19% in 2011 and 11% in 2010.

Eighty one (81%) percent of the respondents were males and 19% females.

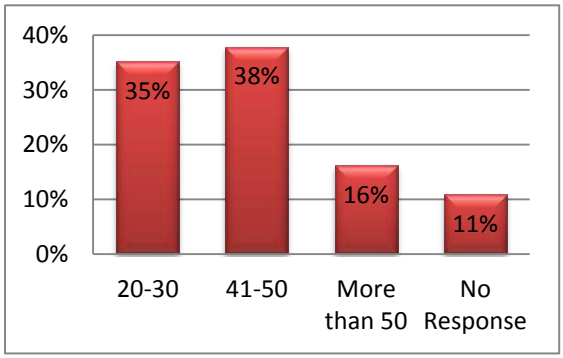
Income

Figure 12: Income levels of respondent



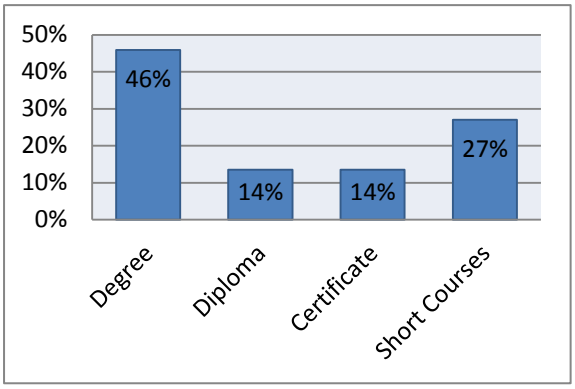
When asked how much income they earned, about half of the respondents (48.6%) did not respond to the question while 27% earned between Ksh.16,000 and Ksh. 34,000. 16% earned less than Ksh. 15,000 and only 8% earned more than Ksh. 35,000. It seems like BAC graduates in the dairy industry fall in the lower income level bracket.

Figure 13: Age of respondents



Thirty eight percent (38%) of the respondents were aged between 41-50 years compared to those in the 20-30 years age-group (35%). Respondents aged more than 50 years constituted 16 % of the respondents. Many of the students had been sent by the MoLD to upgrade their skills in line with the new policy at the ministry where all extension workers had to have a diploma and above.

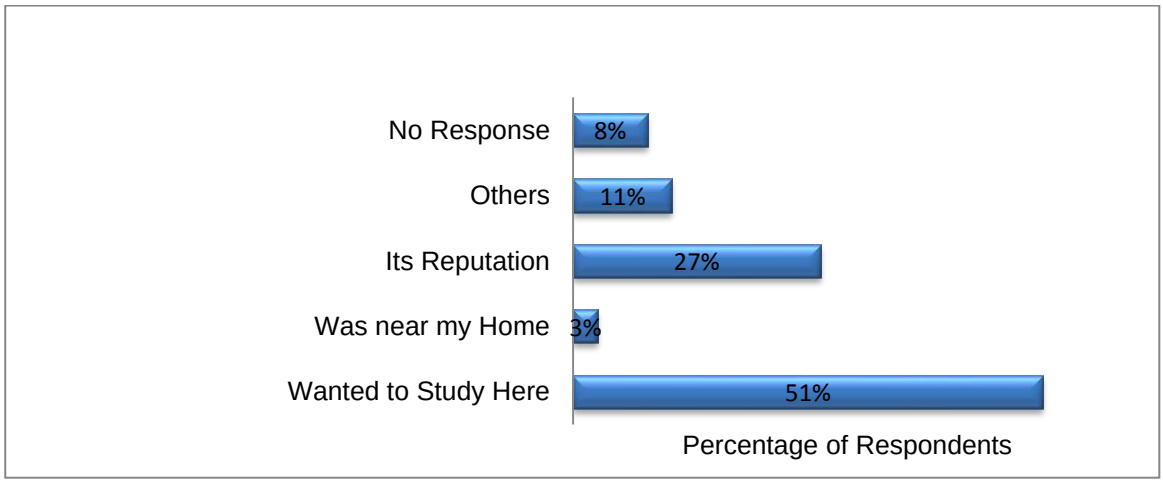
Figure 14: Type of courses taken



Forty six (46%) percent of the respondents from BAC are degree holders. 27% pursued short courses that lasted for a duration of 1 to 4 weeks depending on the course. 14% percent were diploma and certificate holders

When the respondents were asked what influenced their decision to study at BAC, the responses as shown in figure below indicated that for 51%, it was their institution of choice (wanted to study here), 3% chose it because it was nearer to their home while 27% were influenced by its reputation.

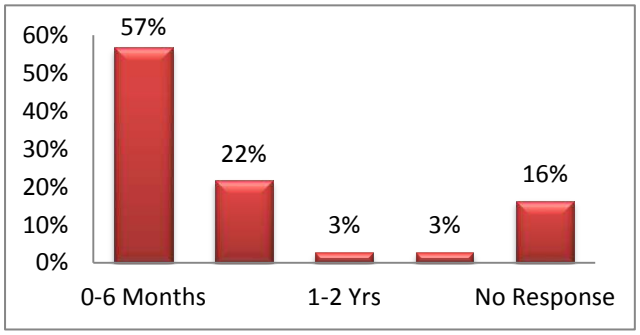
Figure 15: Reasons for choosing to study at BAC



Working with the alumni could be one way of enhancing its reputation since most learning institutions are often valued by the quality of graduates that they produce, their course curriculum and preparedness for the market.

3.2.2. Employability

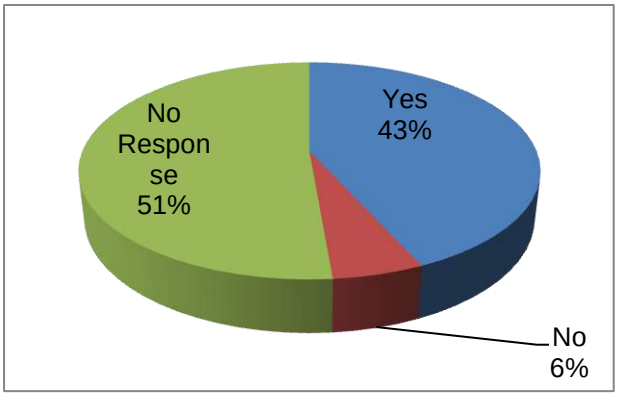
Figure 16: Transition between graduation and employment



As the figure shows, the transition time to getting employment indicates that over 79% got employment within the first year. Considering that most of the students who went to BAC had been sent by the ministry to upgrade their skills, this rate of employment is to be expected. Of the new graduates, the 79% is quite remarkable.

Twenty seven (27) percent of BAC respondents had supervisory roles and 22% did not. 51% did not give a response. Of the ones that had supervisory roles, only 3% supervised more than ten people. Given the fact that most of the students at BAC were older, the fact that only 27% had supervisory roles is notable and more so, the number of graduates who supervised more than ten people.

Figure 17: Adequacy of skills for career advancement

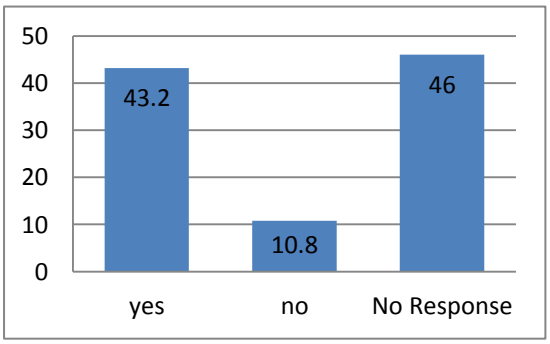


When asked whether the skills that are acquired are adequate in order to move ahead in their careers 43% of the respondents felt confident whilst 6% felt that the skills were inadequate for career expansion. On the same breadth, the graduates interviewed on whether they felt that their training was adequate for the workplace, 51% had no response, while 43% answered yes and 6% answered no.

The graduates were also asked to give suggestions on what they would want included in the curriculum; they gave very varied responses including some that were not really relevant for the dairy sector such as Meat inspection: Here below are the following responses:

- ✓ Animal diseases
- ✓ Animal health
- ✓ Artificial insemination
- ✓ Entomology
- ✓ Meat inspection
- ✓ Pharmacology

Figure 18: Self-employment



When asked whether they would consider being self-employed forty three (43%) percent of the respondents confirmed that they would; Eleven (11%) percent would not consider it. The 46% of respondents who did not give a response to this question are probably not sure if they have the right skills in order to be self-employed.

Among those who responded, the proportion of those who were willing to venture into self-employment was four times more than that of those who would not. Further investigation can be done on this to determine the reasons as to why there was no response given about this.

Fifty seven (57) percent did not feel confident enough to venture into self-employment. One of the major reasons cited by the graduates as contributors to the lack of confidence was the lack of finance

3.2.3. Perception on Employability

Fifty one (51%) percent of the respondents' perception is that they had no challenges in finding employment after graduation. This is probably because most of the respondents were employed by the ministry soon after graduation and taken to BAC to enhance their training. The table below summarises the responses from graduates on their perception on finding employment.

Table 4: Employability

	Statement	Agree (%)	Disagree (%)	No response and Neutral (%)
a.	I have had no challenges in finding employment after graduation	51.3	24.3	24.4
b.	I think that employers respond well positively to my application	51.3	18.9	29.7
c.	All male and female applications are treated equally by employers	56.7	21.6	13.6

The responses given with regard to employability indicate that BAC graduates are relatively well absorbed into the market. However, it is interesting to note that 19% of the graduates' perception is that employers do not respond positively to their application, and another 30% did not respond to that answer. Also of interest is the perception that only 57% of the graduates think that the employers do not discriminate against sex, while 22% of the graduates think that employers discriminate against.

Technical Skills & Competences

When asked to rate their perceptions on application of their skills and competencies in the market, close to 80% of the respondents agreed that their ability to handle job-related issues was directly related to their exposure while training at BAC. More than 80% of the respondents were able to exercise their problem-solving skills, handle complex tasks as well as utilise their technical ability in their assignments. Close to 90% of the respondents were able to complete practical tasks in their internships. However, most respondents felt that the machinery used for the practical lessons were obsolete.

On the question on the length of the internship/attachment, 38% of the BAC graduates felt that the lengths of the attachments were adequate, while 43% felt that the length of the internships was too short. Bukura's attachment period consist of a total sixteen weeks, which is twice the length in other institutions where internship is only for eight weeks.

From the results shown, BAC's capacity to train graduates with the ability to deliver is above average and its reliability to keep their graduates relevant is commendable. However, the institution needs to invest in adequate and up-to-date machinery for their practical lessons boost the level of competence of their graduates as far as technical skills are concerned.

The table below shows the respondents' perceptions towards the skills and technical competencies learnt at BAC.

Table 5: Technical skills and competencies

Statement	Agree%	Disagree%	No response and neutral %
a) I am able to apply the technical skills & competences learned during training in my current job	78.3	8.9	13.5
b) I use the practical skills and competences learned during my training, in my current job	78.3	0.1	21.6
c) I am able to respond to complex situations / scenarios and come up with solutions	81.1	5.4	13.5
d) I am confident and flexible to take up tasks and responsibilities outside my scope	83.7	2.7	13.5
e) I am able and confident to apply and transfer new technologies in my tasks	86.5	2.7	10.8
f) The attachment / internship I did supported me in applying my skills practically	89.2	5.4	5.4
g) Rate the length of your attachment / internship 1 is too short, and 5 is too long	37.8	18.9	43.2
h) We used up-to date equipment in the practical sessions	45.9	29.7	24.3

Social Values and Professional Behaviour

In terms of social values and professional behaviour, BAC graduates were asked questions on their relationships with fellow workmates which touched on their ability to communicate, their understanding of the social context, the use of local and national language and their interactions within the teams. The study found that on average 79% perceived themselves as having the social skills and professional behaviour expected in the workplace.

The table below summarises the responses on social values and professional behaviour:

Table 6: Social values and professional behavior

Statement	Agree (%)	Disagree (%)	No response and Neutral (%)
a. I respect fellow workmates and uphold high standards of integrity	78.3	5.4	16.2
b. I work and plan in a team but am also responsible for individual achievement and targets	64.8	10.8	24.3
c. I have good understanding of the social context and am able to interact well with all people.	86.4		13.5
d. I have ability to communicate effectively in official/ national and local language	86.4		13.5

Entrepreneurial Skills and Competences

Several questions were administered to test the graduates' perception on their entrepreneurial skills and competencies. Fifty nine (59%) percent participated in in-house training; thirty (30%) percent of the alumni did not respond to the question while 11% did not participate at all.

In terms of involvement in problem solving, analysis and synthesis, 54% of the respondents indicated that they were involved in problem solving analysis and synthesis, while 13.5 % were definitely not involved, and 32% did not respond to the question or remained neutral.

Seventy three (73%) percent of the graduates could translate what they have learnt into practice. 70% felt that they were creative and have come up with new ideas at work; 73% had the capability to carry out financial analysis and manage projects; while 14% were neutral to the question. 68% perceived themselves as being proactive and could easily take up the initiative to complete tasks. 76% said that they understood the dairy value chain including all actors, constraints and opportunities along the chain.

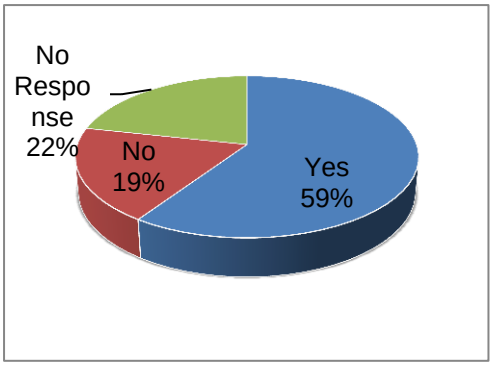
The table below summarises the responses from the graduates on their perception of entrepreneurship skills.

Table 7: Entrepreneurship skills

Statement	Agree	Disagree	No response and neutral
a. To what extend do you participate in an in-house training at your workplace?	59.4	10.8	29.7
b. To what extend are you involved in problem solving, analysis and synthesis	54.0	13.5	32.4
c. I can confidently translate what I learnt into practice.	72.9	5.4	21.6
d. I am creative and I have come up with new ideas of to build my work.	70.2	8.1	21.6
e. I am able to carry out financial analysis and management of projects.	72.9	13.5	13.5
f. I am proactive and easily take up initiatives to complete tasks.	67.5	5.4	27
g. I have understanding of the dairy value chain including all actors, constraints and opportunities along the chain.	75.6	8.1	16.2

3.2.4. In-house Training

Figure 19: Participation in In-house training



The question on participation in in-house training at the workplace was to identify the number of graduates that required re – training because their skills did not match the employer's demands. 59% of the graduates participated at in-house training at the workplace; 19% did not participate at all, while 22% did not respond to the question.

The high percentage of the graduates participating in in-house training could indicate a gap between the skills available and the skills required, it could also indicate that graduates are not being employed in their original field of training.

Fifty one (51%) percent of the graduates indicated that they had plans to improve their level of skills and competences. Forty nine (49%) percent gave no response to the question. There were however no definite responses to the question. The ones who would like to advance their skills did

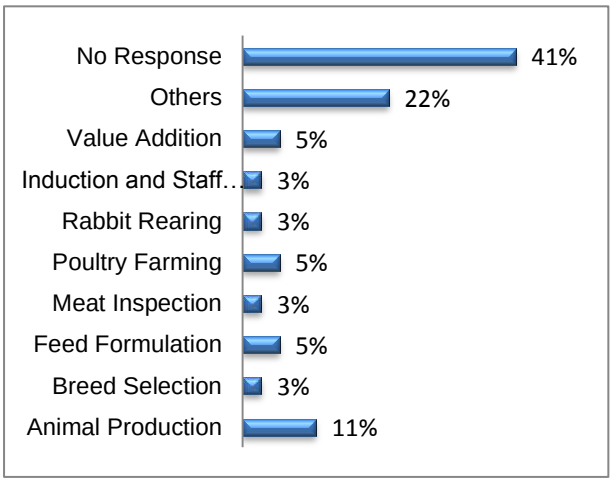
not indicate where they would like to go to advance their skills nor the amount of money that they were willing to part with.

The alumni gave a list of the following in-house trainings that they received at the workplace.

Table 8: Training courses received at employers

Technical courses	Other skills
▪ Animal production ▪ Breed selection ▪ Feed formulation ▪ Poultry farming ▪ Rabbit rearing ▪ Value addition	▪ Staff training courses ▪ others

Figure 20: Type of further training undertaken



Most of the skills provided by the employers were technical skills in various agricultural areas. The list is shown in figure 20.

3.2.5. Overall Conclusions

Overall, the conclusions regarding the BAC graduates denotes that the students perceive to possess the theoretical knowledge of technical skills but were generally lacking the practical skills because of the lack of adequate training facilities as is the case with most Kenyan agricultural institutions.

The institution has a good reputation in terms of providing the diploma in animal health and production in the country. It also seems to be the choice of institution for Ministry employees who when interviewed during a focus group discussion, chose to study at BAC and not at any other institution.

The findings regarding leadership positions is striking, few graduates, only 27% have supervisory tasks at the workplace, despite the relatively older age of the respondents. The recommendations to be drawn from this is that the institution needs to emphasise on the leadership skills as well as improve on the tinstitution's curriculum to cover aspects of management, leadership and delegation within the dairy industry. The high number of graduates participating in in-house trainings leaps

out, but the reasons behind this are unclear but are worth finding out. Lastly, compared to graduates of EGU and DTI few graduates are interested in self-employement and lack confidence.

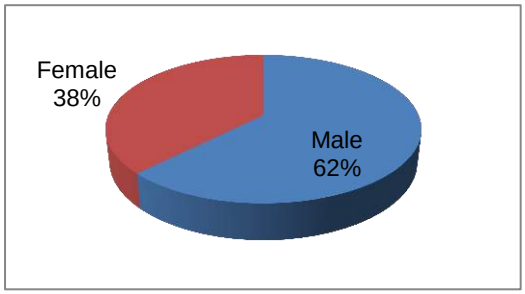
A lot of the responses from BAC were neutral or no response at all. This high number of “no responses” in the questionnaires raised a lot of concern as the study could not give firm conclusions on certain questions. The reason for the no response could be interpreted in very many ways including; that the interviewees did not understand the question, that they were uncomfortable with the questions, it could also mean that the questionnaires were not administered well.

3.3. Dairy Training Institute

DTI is a college training students in the areas of dairy science and technology and dairy management. The following paragraphs outline several factors like employability, gender, age, graduate perception of the institution in terms of employability and skills and competence.

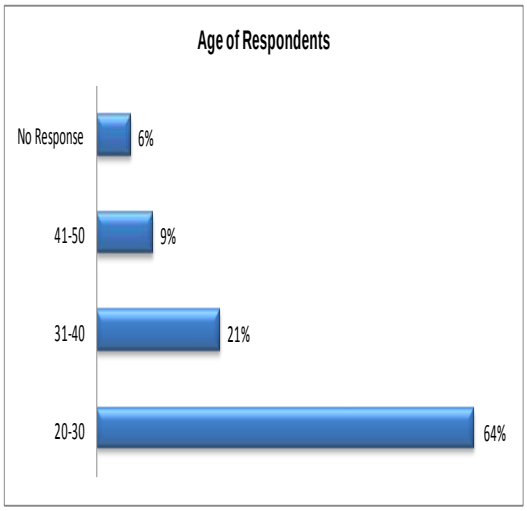
3.3.1. Personal Information

Figure 21: Gender of respondents



Of the thirty five (35) DTI alumni that were surveyed 62% are male and 38% are female respondents. When compared to BAC and EGU, DTI recorded the highest female participation rate in the research.

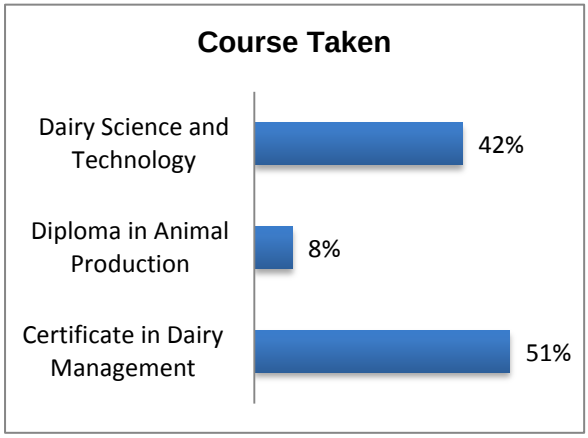
Figure 22: Age of respondents



Majority (64%) of the graduates were aged between 20-30 years while 22% were aged between 31 and 40 years. Unlike BAC, DTI has a younger age group of students joining the training. This implies that DTI has probably been able to market itself among the youth or the fee structure may be within the reach of many students in the market.

The impact of this is that more youthful and vibrant manpower is anticipated in the industry. The institution is however less popular with the mid-aged population. The respondents in the 31-40: age groups are normally at the middle or peak of their career. There is therefore need to formulate ways to cater for the academic needs of mid-career personnel so as to raise their enrolment at DTI, through short-courses or non-residential courses.

Figure 23: Courses taken

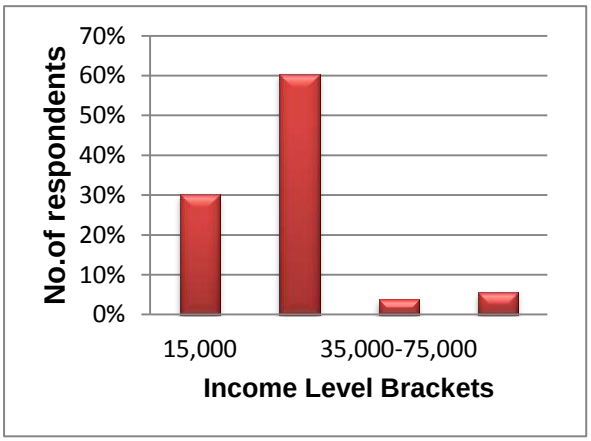


About 96% of the alumni had graduated between 2008 and 2012, with the highest number (32%) having completed their studies in the year 2010.
Forty two percent (42%) of the students trained in Dairy Science and Technology. Fifty one percent (51%) of the students obtained a Certificate in Dairy Management. Eight percent (8%) studied the Diploma in Animal Production; this course used to be offered in DTI on behalf of EGU. The diploma course was subsequently withdrawn due to logistical constraints and the lack of enough

numbers to justify classes at DTI.

Income

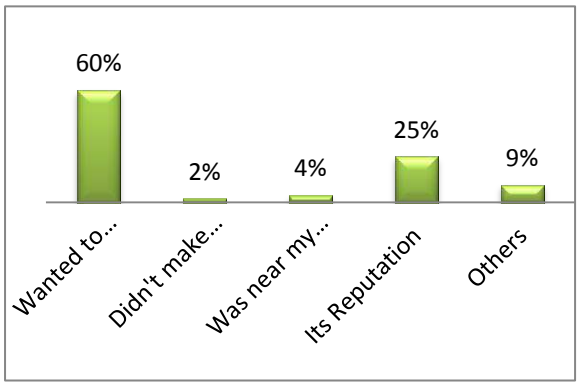
Figure 24: Income levels



Majority (60%) of the graduates earned between Ksh.. 16,000 to Ksh.. 34,000. Another 30% of the graduates earned below Ksh..16, 000 while only 4% earned above Ksh.. 35,000.

The graduates from DTI seem to attract low salaries, with a majority (90%) earning below Ksh 35,000 per month. It would seem that the industry attaches a low salary figure to graduates from DTI by virtue of them having earned certificates. The introduction of diploma courses could improve the salary figures.

Figure 25: Reasons for choosing to study at DTI

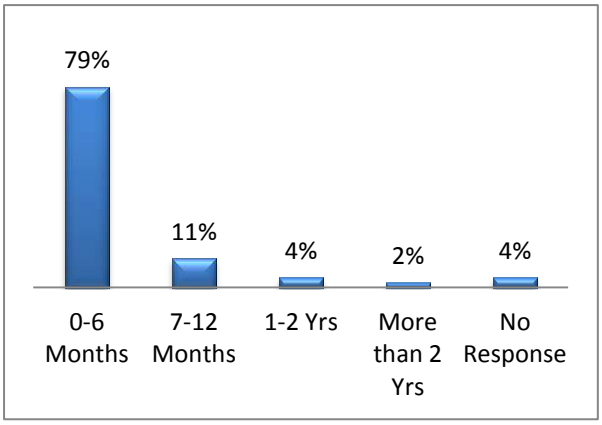


About 60 percent of the graduates indicated that their decision to study at DTI was because they really wanted to study there, while another 25% indicated that their decision was influenced by DTI's reputation. Fewer response rates were recorded from home to the institution (4%) and failure to make it to their Institution of choice (2%).

DTI stands a greater chance of increasing its student numbers since it has a great reputation. Introduction of diploma courses would greatly increase the student enrolment; though DTI lacks the capacity to absorb a higher number of students since it is unable to take in any more than 220 students currently.

3.3.2. Employability

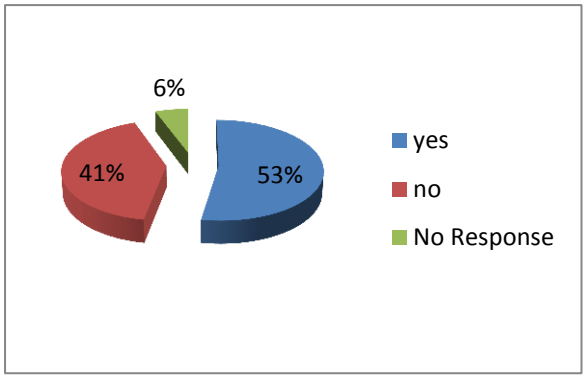
Figure 26: Transition between graduation and employment



The graduates were asked to state the amount of time that elapsed between their graduation and first time employment. 79% of the graduates got their first employment within the first 0-6 months while 11% of them took between 7 and 12 months.

It was also noted that DTI students are interviewed for jobs even before they graduate, and in some cases employers' book (in advance) up to 90% of the graduating class. Of a graduating class, only 2% are placed after 2 years while the rest secure jobs within 2 years after graduation.

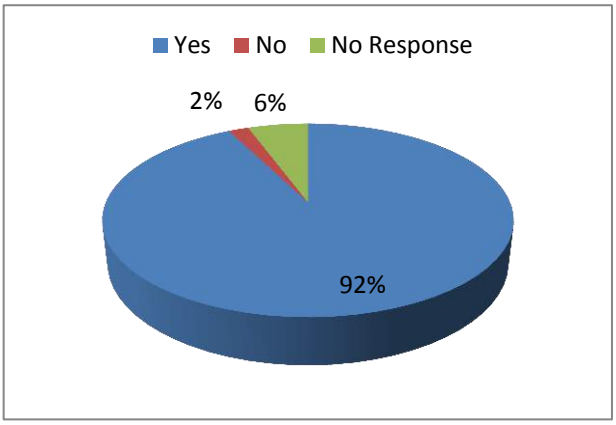
Figure 27: Respondents with supervisory roles



When asked whether they supervise staff, more than half (53%) of the respondents had supervisory roles. 41% did not supervise staff.

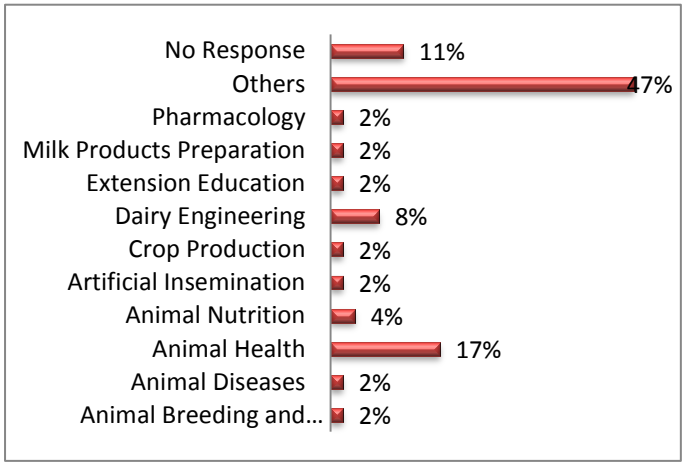
The high number of DTI graduates with supervisory roles is remarkable considering the fact that management and leadership are not part of the current curriculum. On the basis of these results, management skills should be taken up by DTI to be part of the curriculum.

Figure 28: Respondents with career advancement skills



When the respondents were asked whether they felt that their skills were adequate for career progression, 92% of them said they were. When compared to BAC, this is a much higher rate of confidence in their skills of the respondents.

Figure 29: Courses recommended by the respondents

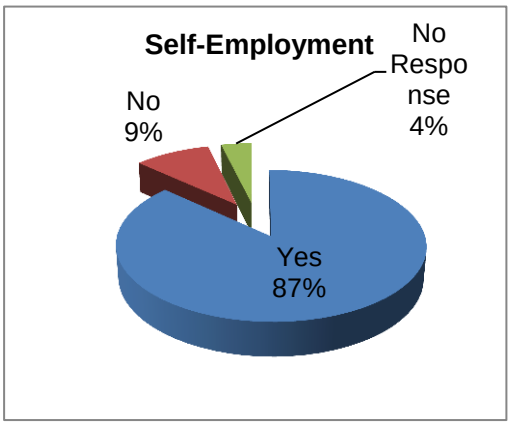


The graduates provided the following list of courses that should be emphasized on.

- ✓ Animal breeding and reproduction
- ✓ Animal diseases
- ✓ Animal nutrition
- ✓ Artificial insemination
- ✓ Crop production
- ✓ Dairy engineering
- ✓ Extension education
- ✓ Milk products preparation
- ✓ Pharmacology
- ✓ Others

On the issue of self-employment, 87% of the respondents said they would consider self-employment. This is in line with the aim of DTI to train entrepreneurial students.

Figure 30: Self-employment



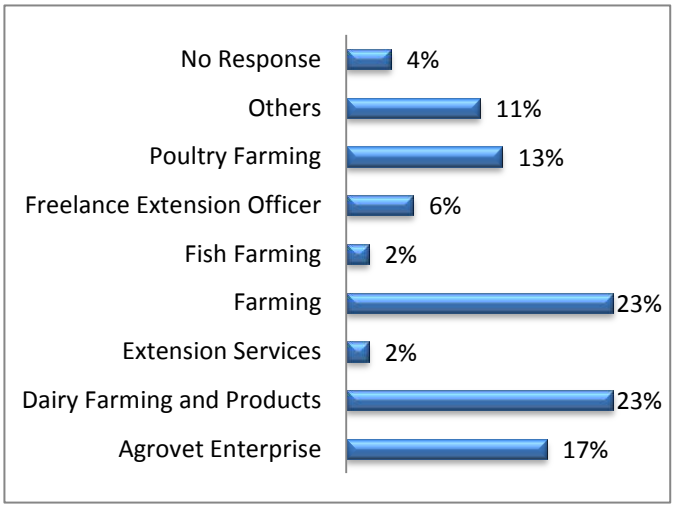
The reasons given by graduates for preferring to enter into self-employment *vis á vis* being employed was the relation between the amount of tasks and responsibilities at the workplace and the salary received. The salaries are perceived as being too low.

Many graduates face constraints in accessing finance, forcing them to seek employment in order to save up for business start-up.

Figure 31: Type of self-employment considered

The respondents were asked to specify what kind of self-employment they would consider, 23% considered dairy farming, 23% were interested in general farming, 17% were interested in starting and Agro-vet, 13% wanted to venture into poultry farming, 4% considered extension services and 2% wanted to go into fish farming .

It is interesting to note that not as many graduates from DTI automatically wanted to go into dairy farming. The study shows that DTI has produced potential job creators in various areas of agriculture.



Technical Skills and Competences

Over ninety (90%) percent of the respondents felt that they were able to apply the technical skills and competencies learnt during their training in their current job and also to move up in their career as well as take up new tasks and apply new technologies.

Only 66% of the respondents said that they used up to date equipment for practicals. With the high demand for graduates who possess hands-on skills, it is important for DTI to invest in up-to-date machinery to help the students familiarize themselves with the industry equipment before graduation thus enabling them ease into the job market, having acquired both abstract and practical skills.

The table below shows the respondents' perception on its ability to apply technical skills and competencies:

Table 9: Technical skills and competences

Statement	Agree (%)	Disagree (%)	No response and neutral (%)
a. I am able to apply the technical skills & competences learned during training in my current job	90.5	5.7	3.8
b. I use the practical skills and competences learned during my training, in my current job	86.8	1.9	11.4
c. I am able to respond to complex situations / scenarios and come up with solutions	81.1	9.4	9.5
d. I am confident and flexible to take up tasks and responsibilities outside my scope	88.7	1.9	9.5
e. I am able and confident to apply and transfer new technologies in my tasks	92.4	1.9	5.7
f. The attachment / internship I did supported me in applying my skills practically	83.0	7.6	9.5
g. Rate the length of your attachment / internship 1 is too short, and 5 is too long	28.3	64.2	7.6
h. We used up-to date equipment in the practical sessions	66.0	24.5	9.5

Social Values and Professional Behavior

Majority of the respondents indicated that they upheld social values and professional behaviour. This indicates that the aspect of communication skills and office etiquette is well tackled while the DTI students are still at the institution.

Table 10: Social values and professional behavior

Statement	Agree (%)	Disagree (%)	No response and neutral (%)
a. I respect fellow workmates and uphold high standards of integrity	83	9.5	7.6
b. I work and plan in a team but am also responsible for individual achievement and targets	94.5	1.9	3.8
c. I have good understanding of the social context and am able to interact well with all people.	94.3	1.9	3.8
d. I have ability to communicate effectively in official/ national and local language	92.5		7.6

Entrepreneurial Skills and Competences

Seventy two percent (72%) of the respondents interviewed participated in in-house training at their workplace; 13% disagreed, while 15% gave no response. Eighty one percent (81%) of the respondents said that they were involved in problem solving and synthesis, 3.8% disagreed whilst 15% did not respond. Ninety four (94%) percent felt confident that they could translate what they had learnt into practice; 87% thought that they were creative and had come up with ideas; 85%

could carry out financial analysis and management of projects; 83% perceived themselves as being proactive and could easily take up tasks; and 94% were confident that they had the understanding of the dairy value chain including all actors constraints and opportunities along the chain.

Table 11: Entrepreneurial skills and competences

Statement	Agree	Disagree	No response and neutral
a. To what extend do you participate in an in-house training at your workplace?	71.7	13.2	15.1
b. To what extend are you involved in problem solving, analysis and synthesis	81.2	3.8	15.1
c. I can confidently translate what I learnt into practice.	94.4	1.9	3.8
d. I am creative and I have come up with new ideas of to build my work.	86.8	1.9	11.4
e. I am able to carry out financial analysis and management of projects.	85.0	11.3	3.8
f. I am proactive and easily take up initiatives to complete tasks.	83.1	5.7	11.3
g. I have understanding of the dairy value chain including all actors, constraints and opportunities along the chain.	94.3	1.9	3.8

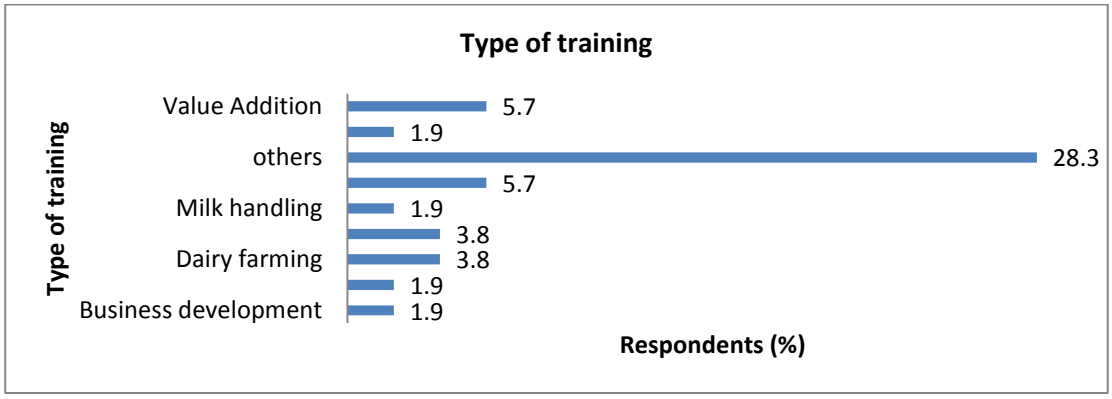
3.3.3. Further Training

In terms of further training, 68% were allowed by the employers to pursue further training; 28% were not allowed and 4 % gave no response. Only about 4% of the respondents were trained in dairy farming. Overall, only 26% took up agricultural related-training. Overall, only 26% took up agricultural related-training.

The findings imply that the labour market may not be motivational enough to drive the DTI graduates towards attaining additional training in a dairy related area. There are several reasons that may contribute to this including; the high capital involved in dairy farming, failure to secure employment in the desired area of expertise or adherence to the employer's requirements to take up training in other areas other than dairy. Another issue is that there is no credit-transfer for the graduates; graduates are not motivated to advance to higher qualifications due to the fact that diploma courses seem to be a replica of the certificate course.

The figure below summarises the types if training undertaken at the employers.

Figure 32: Type of training



3.3.4. Conclusions

Currently, the institute offers a wide array of short – and long courses: one and two year pre-service certificate courses in Dairy Management and Dairy Science & Technology and tailor made short courses (conducted through residential and outreach programmes).

Indeed an observation study at Naivasha Dairy Training Institute discovered that the Institute lacked modern equipment to train their students. The dairy processing plant at the institute is an old model installed in 1977 and 60% of it was not functional at the time of the study. An interview with DTI and the MoLD officials indicated that the processing plant should be replaced, as repair costs will be very prohibitive.

The farm at DTI is also far from being a model farm where demonstrations could take place. It lacks modern equipment such as the milking machine which should be used in training students in practical applications. This explains the high percentage of the graduates who receive in house training. Discussions with the industry indicated the fact that they had to train the graduates upon employment to fill the gaps left out by the lack of practical skills.

While the school has adequate lecture rooms which can allow for expansion of the student population, accommodation facilities is a limiting factor. The current accommodation capacity is about 220 students. In addition, the laboratory can serve only about 11 students at a time. This requires splitting of a single class into several groups which puts strain on the few lecturers available.

DTI is currently in the process of commercialisation whereby the institution intends to revamp its facilities, and address its challenges in order to transform the institution into world class dairy training centre of excellence.

3.4. Combined Results

3.4.1. Overall Demographic Characteristics of the Graduates

The study sampled 117 graduates of whom 98.7% had graduated between 2008 and 2012. Majority (54%) of the graduates had undergone various trainings in the area of dairy.

3.4.2. Employment in the Dairy Industry

The average earnings for the graduates employed in the dairy industry are about Ksh. 27,600. About half (49%) of the respondents were earning between Ksh.16, 000 and Khs. 34,000 while 20% were earning Ksh. 35,000 and above. This indicates that majority of the graduates are absorbed in lower end jobs since most of them are paid near minimum wages. Analysis per institution indicated that majority (84%) of graduates from EGU earned above Ksh. 35,000, while majority of graduates from DTI and BAC earned lesser incomes. This shows a positive correlation between level of education and income level for the graduates in the dairy sector.

From the graduates' perspective, technical ability was the most common criteria by which they landed their jobs. Overall, eighty (80) percent of the graduates indicated that they obtained their jobs based on technical skills, followed by experience at 5% and Entrepreneurial skills at 3%. It was not clear what other criteria was used to employ them, but this accounted for 10% of the reasons they were hired.

There was a general feeling by the graduates that the trainings they had undertaken were relevant to the industry. For instance, 85% indicated that the skills and competencies learnt at the training institutions are adequate for their current workplace. Further, 79% were confident that they had the necessary skills to move up in their career. Table 6 below shows how the graduates responded when asked whether they had particular skills. The favourable responses show the percentage of respondents who affirmed that they had those abilities while Non-favourable responses indicate otherwise.

In general, more than 80% of graduates indicated that they understood the dairy value chain; are able to apply technical skills and competencies in their current jobs; able to respond to complex situation and scenarios and come up with solutions; and translate what they learnt into practice. At least 94% indicated that they were able to communicate effectively in local and official languages, while77% felt able to carry out financial analysis and management of projects.

While the graduates feel that they have work-readiness skills, the employers view seeks to differ. The responses from the industry players pointed out the inadequacy of practical skills among the graduates. They indicated that most of the graduates had good mastery of theory in dairy but that they were limited in their ability to put this knowledge into good practical use. This is backed by the number of graduates who participated in in-house training.

The dairy farms in particular were concerned that the graduates were limited in practical skills. The farms provide a few-months attachment opportunities to students from various training institutions, both middle level and universities. The farm owners reported that while the students are well equipped with theoretical knowledge in various aspects of dairy farming, they lacked practical skills.

3.4.3. Choice of Training Institution

On the factors that influenced the graduates' choice of the training institution attended, about 72% indicated that they really wanted to study in those institutions. Another 22% indicated that their choice was made because of the institution's reputation. Only 1% indicated that they did not make it to the institution of choice and a similar percentage considered the institutions that were nearer to their homes.

The study also reveals potential demand for further trainings in the Dairy Sector. More than half (57%) of the respondents indicated that their employers allowed them to participate in further trainings including short courses. However, 27% indicated the contrary where employers do not allow further training.

4. LABOUR NEEDS

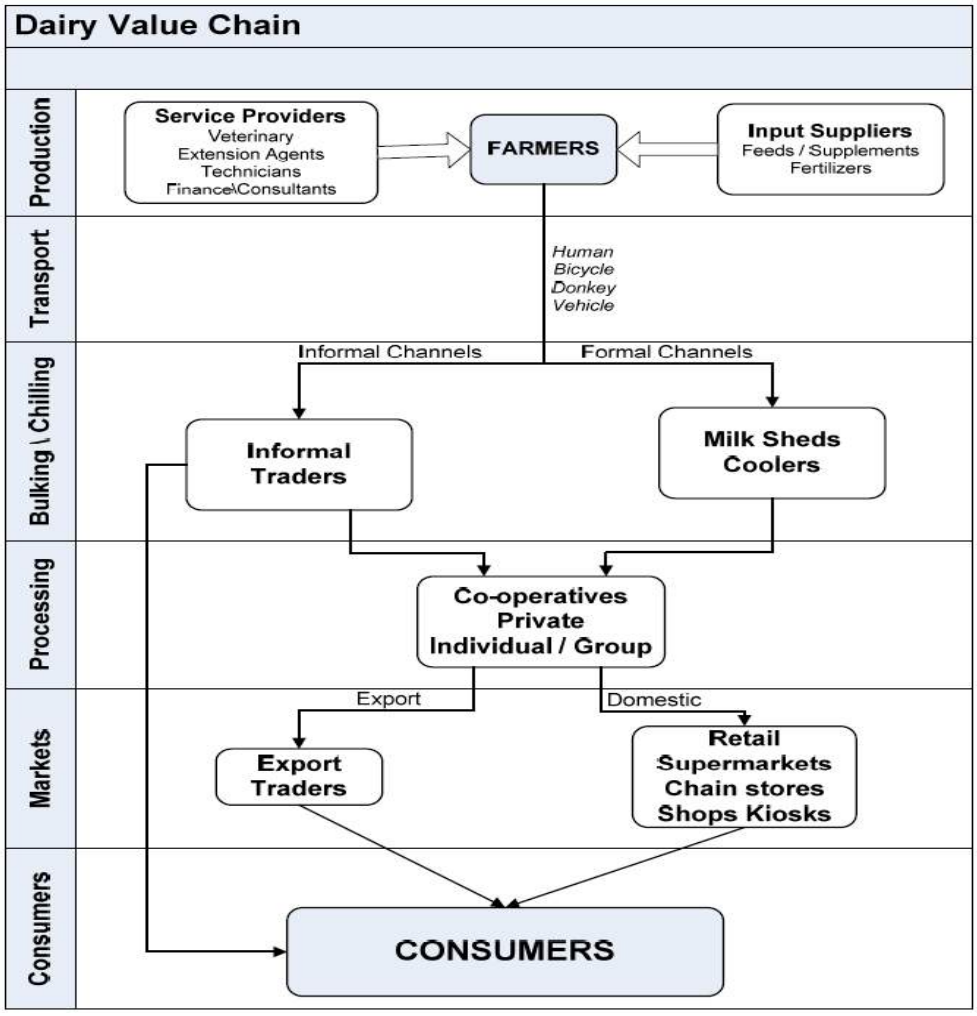
4.1. Overview

The information on labour market needs was obtained from interviews with various actors along the dairy value chain. These included input suppliers and service providers, dairy farmers and cooperative societies, processors, facilitating organizations in the dairy sector such as research institutions and development partners.

The questionnaires were administered to some of the industry players, with a majority of the interviews taking the form of in depth discussions. This proved to be a better method as the interviewees gave further insight into the study and ventured into other areas that may not have been covered by simply administering the questionnaires. In some instances, the interviews took the form of focus group discussions; for example, the interviews with EAAPP, and the farmers at DTI brought in by IFAD for short courses.

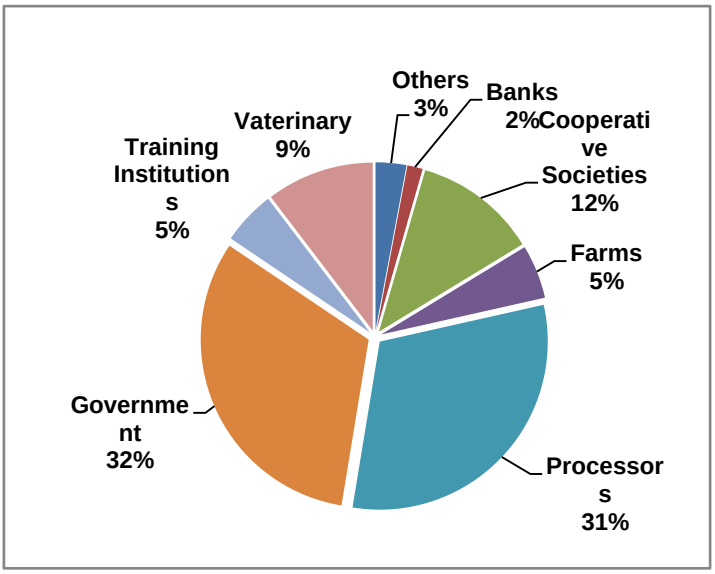
The information on the jobs profiles and professional tasks is derived from the following report: "Mission report of a workshop on competency based learning for Egerton University, Nakuru and DTI, Naivasha", Nakuru October 2012, door het NUFFIC Niche Ken 127 consortium for the Dairy Train Programme.

Figure 33: Dairy value chain



4.2. Employment of Graduates in the Dairy Sector

Figure 34: Employers of graduates



The study established that institutions that provide employment in the Kenyan dairy sector include the Government of Kenya, Cooperative Societies, Dairy Farms, Banks, Processors of Dairy Products, Veterinary service companies, Training Institutions and other organizations such as non-governmental organizations and development partners.

Based on analysis of current employers for graduates of EU, BAC and DTI, the results show that the Government of Kenya and the Dairy Processers provided more than half of total employment for graduates in the sector, with each contributing about 31% of the jobs.

The study also showed that cooperative societies are emerging as an important catalyst in job creation. The cooperatives employed about 12% of the total number of graduates while individual farms contributed 5% to the jobs, as did the training institutions. Most of the graduates employed in the training institutions are hired as lecturers or trainers in dairy courses.

It was further established that the Government of Kenya provides employment for the graduates through its arms responsible for the dairy industry such as the Ministry of Livestock Development (MoLD), Ministry of Agriculture (MoA) and the Kenya Dairy Board (KDB). The MoLD alone accounted for 86% of the jobs provided by Government to the graduates in Dairy while overall it employed about 27% of the graduates sampled.

Several industry players were asked what level of qualification was requisite for the various job roles within their companies. Some of the responses are given below:

Table 12: Job profiles

Job Opening	Qualification
Workers and Cheese makers	A&B well developed interpersonal skills, hygiene, integer and willingness to commit and learn
Processors	Certificate
Extension	Certificate
Casual	Case dependent
Breeding Services	PHD
Socio-economics	PHD
Feeds	PHD
Plant production	Degree, BSC Engineering
Sales,	Certificate/Diploma in Animal health, sales and marketing,
Business development	Degree

Quality Assurances	BSc in Animal Health, BVM, BSc. Applied Sciences, Medical labs
Production officers	BSc in veterinary Medicine, Animal health, applied sciences, biological lab
Administration and legal	Law
System Administration	BSC
Farm manager	Degree
Accountant	Degree/Accounting professional qualification
Animal Health technicians	Certificate/diploma holders from Animal health training institutions
M&E expert	BSC
HR officer	Degree/Diploma
IT specialist	Degree/Diploma

On the issue of whether they had any preference for graduates from the institutions, the industry players gave several answers depending on the the level at which they were on the value chain. Forty five (45%) percent of the respondents did not have any particular preference. They would normally hire the graduates and then train them to carry out the work.

Of the twenty seven (27%) percent who preffered candidates from a particular institution, the institutions preffered represented the areas in which the institutions were renowned for. For instance; the processors such as new KCC, preffered the graduates from DTI because of the specialised training in milk processing. The institutions such as KARI, ILRI, Heifer international tended to prefer candidates from the universities in particular Egerton university, Nairobi university and Moi university.

The farmers preffered candidates from the AHITIs, Bukura, and DTI. The preferred choice is based on the nature of the work at farm level.

On the question of their expectations from newly recruited graduates, the employers gave divers answers to the question on induction. Some indicated that recruits should immediately be able to perform their duties while others would provide a 2-4 week induction, or subjected the recruits to an in-house training. What is required for newly employed recruits is that they should have contextual knowledge of all geographical areas in the country in terms of keeping animals. Preferred was that graduates focus more on the arid areas, and the animals present in these areas such a dairy goats, and camels.

The industry was asked what they thought should be included in the curriculum. The response revolved mainly around the non - technical subjects such as Agribusiness, Business research, Franchise management, Staff management, Financial management, Entrepreneurship, Record keeping, M&E, Communications, Product development, and Impact Assessment. The technical subjects mentioned revolved around food science and dairy science. These are subjects that are already taught in many of the institutions, but it seems that its impact amongst the graduates is not felt by the employers.

In terms of the type of in-house training given to the graduates, the employers listed the following as the courses offered:

- ✓ HIV awareness
- ✓ Safety training
- ✓ Gender training
- ✓ Team building
- ✓ Annual refresher training on quality assurance and extension
- ✓ Financial management
- ✓ Production and operational training
- ✓ Practical training, new and innovative skills
- ✓ Handling of the herds
- ✓ ISO certification
- ✓ Good marketing
- ✓ Specialised cheese -making;
- ✓ Sales and marketing

The companies interviewed mainly utilised other institutions to provide training to their staff. Institutions used are:

- ✓ ICPAK Institute of Certified Public Accountants
- ✓ LSK Law Society of Kenya
- ✓ HRM Human Resource Management
- ✓ KIM Kenya Institute of Management
- ✓ KISM Kenya Institute of Supplies Management
- ✓ DTI Dairy Training Institute

4.3. Labour Needs of Dairy Farms

4.3.1. Skills Required in Dairy Farming

The study established that dairy farming is a labour intensive enterprise with specialized routine activities that workers and unit managers should be acquainted with such as milking and milking techniques, feeding of animals, foot trimming, identifying diseases, amongst others. Small, medium and large scale commercial farms visited (Mawingu farm in Nyeri, Baraka Farm in Eldoret, Sarah Boit and Willy Kirwa in Eldoret, and Ndykak farm in Nakuru town,) revealed that there was general lack of practically trained staff that was able to start working immediately on the farms without further training.

4.3.2. Perception on Skills & Competences of Newly Employed Graduates

Based on the discussions held with the owners and managers of medium – and large scale dairy farms the overall impression of the technical skills & competences is that graduates have strong theoretical knowledge but the practical application of this knowledge is lacking. This can be explained by the relative short term attachment and the medial tasks students get during their attachment; the little time spent on practical's during the course; the outdated training facilities at the institutions; amongst others.

The dairy farmers further indicate that there should be training available (short-courses) in simplified language, with little theory and a lot of practice, that can be understood by lower educated dairy practitioners. Willy Kirwa conducts training and exposure visits for farmers and even University lecturers on his farm. He charges Ksh. 300/= per head per day.

Willy's experiences and the consultant's interactions with a group of farmers at DTI reveal that farmers would like to be trained in locations around their homes and that the courses should be short enough to last from one day to a maximum of one week. The farmers also preferred to undergo the trainings during school holidays when their school-going children are at home to stand in for them. There was also a desire that the trainings be undertaken in model farms for demonstration of practical skills that the farmers can apply immediately in their farms.

Apart from the 'how' of dairy farming, the dairy farmers interviewed also indicated that there is need to enhance teaching of courses in management of dairy business including administration, book keeping and basic business mathematics.

The farmers interviewed indicated that graduates from the dairy training institutions generally lacked important hands-on skills such as:

- ✓ Animal nutrition and feeding
- ✓ Feed formulation, storage and management
- ✓ Hoof care
- ✓ Calf management
- ✓ Milking and milk handling
- ✓ Personal hygiene and animal hygiene such as cleaning and proper disposal of farm waste
- ✓ Animal treatment and disease control
- ✓ Machine operation such as milking machine and other farm equipment
- ✓ Artificial insemination
- ✓ Breed selection
- ✓ Administration and record keeping

4.3.3. Level of Qualification of Employees in Dairy Farms

The dairy farms mainly employ Certificate and Diploma level students as their farm managers while the rest of the employees who perform hands-on duties in the farm are locally sourced and trained on the job. However, the major weaknesses for most of these graduates are their deficiency in practical skills. The farms also mostly depend on casual labour for seasonal workloads.

There are a number of jobs at the farm level, the main jobs identified are farm manager, assistant farm manager and unit manager nationally and internationally (mainly ESA). Furthermore the farms visited also have a training and demonstration function in the community being model farms.

Jobs: Farm Manager, Assistant Farm Manager, Unit manager

Link to training Institutions:
DTI, BAC,EGU

Professional Tasks

- Supervises routine operations, herd health management, fodder production, management and conservation to ensure continued feed supply
- Planning and procurement of dairy farm inputs
- Establish and maintain market for farm produce and farm products to optimise income
- Keep records and reports to the farm manager or owner (finance, supply, health, etc.) for tracking and improvement of production
- Planning, setting production targets, and buying materials needed for the farm, such as animal feed and maintaining health and safety across the farm.
- Ensuring the firm is operating within the legal guidelines stipulated by the Kenya law
- Continuously monitoring the quality, performance of the produce and also monitoring the health and welfare of the animals
- Managing the firms budget, cash flow and communicating with suppliers
- Monitoring and documenting all yields.
- Marketing and selling produce, negotiating with buyers such as supermarket chains, food processors or local supply chains
- Arranging the maintenance and repair of farm buildings, machinery and equipment
- Oversee and coordinate inspection and ensure reports are given on day today basis to the Director.
- Maintaining knowledge of pests and diseases and understand how they spread and how to treat as well as control them.
- Hire, train or supervise farm workers or contract for services to ensure an efficient day to day activities or operations and also solve workers grievances.
- Managing the smooth operation of breeding, gestation and finishing units which includes feed and co-ordination of animal flows.

Milker / milking assistant

Link to institutions: DTI, ATCs, RVIST- Artisanal level.

Professional tasks:

- Prepare milking equipment and bulk tank for milking.
- Bring in cows for milking or help other employees bring in cows if needed or requested.
- Wear gloves when milking to help prevent spread of mastitis-causing organisms.

- Follow recommended pre-milking preparation of cattle before milking.
- Milk all cows in an orderly, proper and consistent manner.
- Be certain to look at treatment records so that milk from treated cows is not put into the bulk tank.
- Note cows that may have mastitis or other problems and inform the manager for possible treatment.
- Clean the milking parlor, holding area and bulk tank room.
- Operate all milking equipment as recommended by the manager and factory specifications.
- After milking, be sure all machinery and sanitation procedures are followed.
- Clip udders, freeze brand and perform other procedures that promote accurate identification and animal well-being.

Other tasks include:

- Care of springer's and cows at calving
- Feeding and care of calves
- Feeding, cleaning and care of milking herd
- Maintenance of free-stalls
- Heat detection, A.I.
- Record keeping
- Cleaning and maintenance of office building
- Maintenance of grounds, pasture, fences

Feeder / feed assistant

Link to Institutions: DTI, BAC, RVIST

Professional Tasks:

- Check all animals on a timely basis to be certain they are receiving adequate feed.
- Be certain clean water is available at all times.
- Feed cows and calves in a timely manner as outlined or directed by manager.
- Be certain lots and barns are cleaned daily or as directed by the manager.
- Routinely check freshening area and assist in birthing process as needed.
- Check all lots at least five times per day (dry cow, heifer and calf areas) to be certain cattle are not under stress due to weather conditions.
- Maintain all equipment as prescribed by manufacturer's suggestions. Be certain all machinery is in working order. Notify manager immediately if any malfunctions occur.
- Take any necessary feed or forage samples for nutrient testing as required by manager.
- Be certain all pastures and fencing are maintained. Repair these items when needed.
- Maintain all equipment and tools in an orderly manner so they are readily available to use by any employee if needed.
- Treat sick animals and administer appropriate prescription drugs only when told by the manager.
- Perform routine vaccinations under supervision of the manager.
- Assist in any special projects or routine maintenance of farmstead in coordination with the manager.

Other Responsibilities:

- Daily maintenance of free stalls
- Heat detection, A.I.
- Record keeping
- Maintenance of grounds

4.3.4. Labour-market Need Trends

In line with the growth and commercialization of the sector, there is increasing demand for professional farm managers and specialised personnel to handle manual tasks such as milking, feeding, handling special machinery etc. One of the main constraints for growth in the sector is the lack of quality feed and fodder that result in milk-fluctuations. Training at the artisanal level is lacking.

There are no specialised “milkers” and feeders in the country. The farm hands are usually called on to carry out those jobs without proper training. They tend to learn on the job. “Because of the poor pay associated with those jobs, and the casual nature, they tend to stay only for short periods and move along as soon as labour is required elsewhere, and the pay is a little better”. Sarah Boit – farm owner.

4.3.5. Sourcing of Employees

The commonly used method of obtaining skilled employees was through referral from friends or relatives. The primary motivation for farmers’ dependence on such recommendations was the concern on a potential employee’s character and ability to perform. Farmers mostly employ skilled workers for supervisory roles and with the intention that they would then train the lower cadre staff. The dairy farmers also indicated that they usually received students from the dairy training institutions seeking attachment in their farms. After working with these students on attachment, the farmers would sometimes employ the students who impressed them.

For the unskilled, lower cadre jobs on the farm, the dairy farmers employed youth hailing within the vicinity of the farm. There were indications that youth usually approach the dairy farms seeking short-term casual jobs. Dairy farmers are keen on having more reliable and competent employees even at the lowest level e.g. milking/milk handling, animal feeding and management and all the tasks that need to be performed at farm level. Most of the farmers interviewed indicated that these basic skills were not available among the labour supply in the farming areas.

4.3.6. Gender

Dairy farms operate in informal settings thus they do not have policies on gender or HIV/AIDs. Most of work in the dairy farms is manual requiring persons that are fit enough. Therefore the nature of the jobs in the dairy farms is not welcoming for persons with disabilities and in many cases, women.

4.4. Input Suppliers

The labour needs for the Input and service providers include ; agro-vet and other shops, breeding service providers, suppliers of breeding stock, dairy recording and stud book service providers, veterinary service providers, and extension and advisory service providers. Training across the whole spectrum of input suppliers is currently available but under different training courses across various institutions. There is no specialized training that covers the input suppliers for the dairy sector specifically, but nevertheless the issues surrounding dairy are captured.

The table below shows the job roles for the input suppliers:

Job: Private and Government Extension officers (A.I., Feed/fodder, training, etc.)
Link to training institutions: UON,EGU,JKUAT,BAC
Professional Tasks: • Assist and deliver suitable, useful and available extension technologies to farmers regarding crops or livestock production • Study and record both production and post-production constraints and potentials in the region and plan need-based activities using this information • Monitor all the extension activities implemented in the region constantly and provide regular feedback to the supervisor • Ensure active peoples' participation while developing the regional-based plans and activities considering different needs and outcomes • Participate regularly in meetings and share innovative ideas or experience related to better farming practices • Identify the needy farmers for training, study tour etc. and assist at training of farmers • Carry out any other official work assigned by the supervisor

Job: Feed Manufacturers/ Animal Nutritionist
Link to Training Institutions: UON,EGU,JKUAT,BAC, MKU, Chuka University College, RVIST

Professional roles:

- Evaluating the chemical and nutritional value of feeds, feed supplements, grass and forage for animals.
- Formulating diets and rations to maximize growth, reproduction, health and/or performance;
- Assessing the relative nutritional and economic value of feeding systems;
- Researching the effectiveness of dietary regimes;
- Conducting animal-based studies and laboratory trials;
- Supporting agricultural consultants in their work;
- Liaising with producers and clients to understand their targets and objectives, and the specific needs of the market;
- Monitoring feed formulations to meet quality performance and animal health standards;
- Providing advice on nutrition to farmers, other animal owners, veterinarians and government bodies;
- Rationalizing animal feed manufacturing techniques;
- Expanding existing ranges of animal food products and developing new ones;
- Supporting commercial teams in producing and launching new products;
- Carrying out sales and marketing strategies following the launch of a new product;
- Balancing a growing consumer interest in quality with the need to develop competitive agricultural systems;
- Maintaining expertise in nutritional trends and keeping up to date with regulatory changes;
- Using computer software to formulate diets, conduct research and generate reports;
- Investigating nutritional disorders and the safe storage of feeds, often in conjunction with veterinary surgeons.

Job: Veterinary officers (Public and Private)

Link to training institutions:
University of Nairobi

Professional Tasks

- Deliver care to animals and livestock in general.
- Conduct clinical research relating to animal health problems.
- Vaccinate animals and pets against diseases, rabies and distemper.
- Medicate animals or pets suffering from infections, illnesses or diseases.
- Dress wounds, set fractures and perform surgery when needed.
- Educate owners about animal feeding, breeding and behavior.
- Initiate preventive care procedures to maintain good health of the animals.
- Document and maintain records relating to diseases and treatment procedures.
- Check animals for transmissible diseases and advise owners on the treatment of these animals.
- Inspect and examine slaughtering houses and processing plants and check live animals and carcasses for disease.
- Ensure compliance of the laws in regulating sanitation and food purity

4.4.1. Skills Requirement by Input Suppliers

The study established that input suppliers required various technical skills depending on the sector that they were dealing with. For instance, the skills required for dealing with poultry farmers were

different from the technical skills required for dealing with the dairy farmers. In general, the input suppliers' skills requirement revolved along the non-technical areas of entrepreneurship training, extension work, and other soft skills such as communication skills amongst others.

4.4.2. Level of Qualification of Employees

The input suppliers across the range mainly employ a range of qualified practitioners depending on the level required. The veterinary suppliers employ graduates of veterinary medicine; Agro-vets will normally use the diploma and certificate level graduates. These graduates are mainly required for Agro-vet management, extension and artificial insemination work.

4.4.3. Sourcing of Employees

The commonly used method of obtaining skilled employees was through internal advertisements, advertisements in the newspapers and through referral from friends or relatives.

4.4.4. Gender Mainstreaming

Policies on issues such as gender, HIV and AIDS, disability etc.were adopted depending on the size and level of the input supplier. A majority of them did not have formal policies put in place. They however did not usually discriminate on the basis of gender.

4.5. Transporters

Transportation of milk is an important operation in the dairy industry. In Kenya, the bulk of the milk is produced in the rural areas and it has to be transported as raw milk from the place of its production to the urban dairies via the collection centres for processing and ultimate consumption.

Due to adverse climatic condition and excessive cost of refrigeration, transportation of milk must be regularly done twice a day (morning and evening). The transport system should therefore, be most efficient and economical. Currently the transport sector is not very well developed to the extent of having specialized transporters of milk. The milk is transported by the farmers to the chilling plants using all manner of transportation modes including: donkeys, motorcycles, on foot, on pick up tracks etc.

4.5.1. Level of Qualification of Employees for Transportation of Milk

The responses on the transportation of milk were received from the processors interviewed because they transported their milk themselves from the chilling plants to the dairies using their own chilled trucks. They also transported the processed milk to the customers using their own transport or subcontracted trucks from the various transporters.

The skills required therefore in the transportation of the milk are:

- ✓ Vehicle Maintenance and operation
- ✓ Milk handling techniques during transportation
- ✓ Good driving skills to avoid spillage and loss

4.5.2. Sourcing of Employees

The transport industry usually sources its employees through referrals from friends and relatives, and in some occasions through advertisements using media such as posters placed in strategic places like malls etc. Very rarely do they use the newspapers.

4.5.3. Gender

The transport sector in the dairy sector relies heavily on the person who owns the mode of transport. In rural areas the mode of transport tends to be motorcycles, pickups, donkeys, carts or human carriers. More often than not, the owners of the mode of transport are men. It is therefore difficult to conclude on the issue of whether or not there is a gender policy in place, given the informal nature of the transport sector.

4.6. Bulking and Chilling Plants

Kenya's dairy processing industry has developed rapidly after the liberalization of the market in 1992. The task of procuring milk and getting it to the dairy processing plants is a complex problem involving ownership, pricing, collecting, grading, measuring, weighing, testing, bulking, transporting and chilling, packaging and heating.

Milk must be cooled as soon as possible after it is produced. A temperature of 4°C or less is recommended. It is very necessary, because as long as this temperature is maintained, bacterial action in the milk is retarded if not prevented. The bulk of the skills requirement besides production lies at the chilling plants/bulking centres.

4.6.1. Level of Qualification of Employees for Chilling Plants

Collection and bulking enterprises are organizations with a big number of core functions and often with different business units such as SACCOs, Agro-vets, etc. At this level in the value chain we have identified the main jobs: milk grader/quality control and CBE management.

Good technical skills are definitely required at this stage of the value chain as this is the place where the milk is checked for quality. The soft skills also play a pivotal role in the success or failure of a chilling plant/ bulking centre. Because it is at these chilling plants that farmer interaction is very prominent. The chilling plants play an important role in the marketing of the milk, training of the farmer and outreach providing extension and outreach programs, providing loans, amongst others.

It is therefore imperative to mention that the skills required at the chilling plants range across the whole value chain as these are the melting pots of the whole value chain.

Jobs: Milk grader, Quality control and assurance officer (at the CBE/Processor and in the field)
Link to training Institutions: **DTI, BAC, EGU**
Professional Tasks • Testing of milk & milk products to ensure quality of milk products • Communication & advise to milk suppliers to retain clients and improved quality of milk • Supervision of transport staff to ensure clean milk handling • Keeping records for tracking milk supply and payment of farmers • Sampling, analysing and testing of raw milk in the field; ensuring that it complies with the highest quality standards as designed by the company. • Preparation and standardization of laboratory chemicals and reagents for use in the milk grading process. • Ensuring hygiene in the process of milk grading, collection and transportation.
Jobs: Collection and Bulking Enterprise Management

Link to training institutions: Cooperative College, DTI, BAC, JKUAT,EGU
Professional Tasks • Strategy development and business planning of the CBE • Supervision of all staff on the ground • Sales and marketing of the produce • Extension

4.6.2. Sourcing of Employees

Sourcing of employees for the chilling plants in the past few years has taken a turn towards recruiting qualified candidates through the mainstream media, and other formal channels. Chilling plants interviewed including Ol kalau dairies, Kieni, Nyala, Kabiyet, and Tanykina had all sourced for their plant managers through formal channels. The reason given was the fact that the chilling plants are growing at a fast rate making it necessary for better management of the plants including specializing of functions such as HR, accounting, general management extension services, specialized microfinance personnel and marketing.

4.6.3. Gender Mainstreaming

Chilling plants do not have gender policies in place. Nevertheless, the impression at the chilling plants was that there was no discrimination of either gender. As a result of the recent interest in the chilling plants by various development partners including organizations such as DANIDA, NESTLE, SNV, EADD, EAAPP amongst others, there seem to be a lot of thinking around active inclusion of women participation in these chilling plants.

The study observed that the majority of the milk graders and quality controllers at the collection points visited are women. The reason for this trend was not tested; but comments from some of the employers gave the impression that this had to do with the perception that women carried their duties with integrity and that they tended to be accurate in handling money.

4.7. Processors

Dairy processors add value to milk by processing and marketing their own milk products, such as cheeses, yogurt, butter, ice cream and packaged milk. Some of the processors interviewed included Browns Cheese, New Kenya Cooperative Creameries (KCC) and Githunguri Dairy.

4.7.1. Job Profiles in Dairy Processing Companies

The job profiles indicate that the processors employ a range of skills from technical core business of processing to administrative support services such as accounting and sales. The study also found that the level and profile of jobs in a company is also dependent on the level of establishment. More developed processing companies had higher level jobs that also require higher qualifications.

Table below shows the profile of jobs available at the dairy processing companies, the qualifications required and the gender that is currently doing the job.

Table 13: Job profiles

Job Profile	Qualifications required	Gender currently doing the job
Production supervisors	Bachelor degree	Both
Administration and legal	Bachelor of law	Both
Systems Administrators	Bachelor degree	Both
Engineering technicians	Bachelor degree	Male
Accountants	Diploma/Bachelor degree	Both
Processors/value addition	Certificate	Both
Quality assurance/control	Diploma/Certificate	Women
Extension officers	Certificate	Both
Sales and marketing	Certificate	Male
Cheese makers	Certificate	Male
Casuals	Case dependent	Both

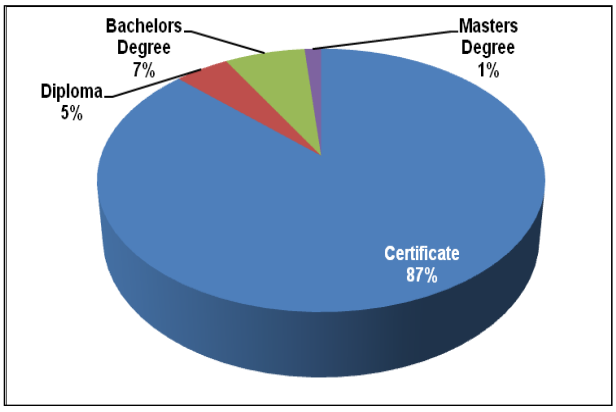
A detailed analysis of the job descriptions is provided below:

Job: Quality assurance officer (BSc DT&M)
Link to training institutions: DTI, BAC, EGU, UON
Professional Tasks: • Testing raw and processed milk to ensure production of high quality and non-contaminated milk • Supervises sterilisation of milk testing equipments • Supervises cleaning of the processing plant/unit for maintenance of hygienic standards • Supervises handling and storage of processed milk to prevent contamination • Proper record keeping of received, processed and dispatched milk to provide information in supplies, processing and distribution of milk • To carry out appraisal and training of staff and farmers to ensure regulated standards are maintained and inform on new technologies
Job: Factory Manager
Link to Training Institutions: EGU, DTI, BAC,JKUAT
Professional roles: • Direct and control all factory staff to ensure that they are properly motivated, trained and developed, and carry out their responsibilities to the required standards • Organise all production operations to ensure that output and quality targets are achieved. • Develop all necessary policies and procedures to ensure that plant and equipment is effectively maintained to ensure maximum production efficiency. • Develop and monitor all necessary procedures to ensure continued efficient operation and supply of services.
Job: Production and Product Development
Link to training institutions: EGU, JKUAT, UON
• Participates in overall product strategy, research and development requirements, development, and coordination for new and emerging products.

- Coordinates product development, estimates of potential profits, and release to production.
- Manages day-to-day progress of product.
- Provides expertise and training to other departments in support of product development.
- Conducts marketing analysis to develop product definitions.
- Collaborates with a wide variety of functional areas such as sales, marketing and operations to develop and provide product definitions responsive to customer needs and market opportunities.
- Develops and maintains a prioritized list of customer and market requirements for product.
- Coordinates and develops marketing, sales and financial plans for product line.
- Provides financial and marketing justification for product selection and definition.
- Prepares product development objectives and schedules for all phases of product development and introduction to market.
- Conducts market research and identifies and tracks market trends in finance and dairy industry.
- Produces competitive analysis materials comparing product with its key competitors.
- Identifies partnering opportunities for complementary third-party products to broaden company's product line.
- Establishes dealer networks and creates and manages alliances with sales channels.
- Participates in key sales situations for the product.

4.7.2. Skills Required by the Processors

Figure 35: Skills required by processors



Processors in the dairy sector mainly employed graduates from the Certificate up to the Master Degree level as shown in figure below. About 87% of the graduates employed at the Dairy processing companies were certificate holders, another 5% were Diploma holders, 7% had degrees and 1% had Master Degree. The Processing companies did not employ any PhD graduates.

The processors will generally require the technical skills from the universities with their preference being a graduate with a Bachelor of Science in Dairy Technology or Food Science from the universities to be a general manager of the processing plant.

The quality control manager is usually expected to be a graduate with a Diploma in Dairy technology. Other skills required by the processors are soft skills such as sales and marketing skills, accountancy skills, extension skills, depending on the strength and size of the organization.

The processors indicated that the skills that were important to them when considering candidates to employ included:

- ✓ Communication skills – very important
- ✓ Work ethics – very important
- ✓ Technical knowledge/skills – very important
- ✓ Reporting writing – important

- ✓ People management skills – important
- ✓ Training skills – very important
- ✓ ICT skills – important
- ✓ Leadership skills – important

4.7.3. Perception on Competency of Current Graduates

On a scale of 1-5, the processors perception on the technical skills and abilities of the graduates was 3, meaning average. Among the technical areas where the graduates were performing below average, according to the processors, was their ability to respond to complex situations and the confidence and flexibility of taking up new tasks without guidance.

The processors generally indicated that new graduates were performing below average on the non-technical skills such as communication, confidence to participate in team meetings; and taking responsibility in the achievement of tasks. The ICT skills of new graduates were considered to be average when this was an important qualification for employment with the dairy processors.

When the processors were asked if they intended or were working with training institutions for training their staff one of the dairy processors responded as follows: "*We are currently using DTI for the annual courses but we are not fully happy with the training. The content of the training is currently okay but they use a theoretical approach while several of our employees are functionally illiterate. There is need for a more practical training and manuals that can be understood by people who cannot read and write and/or understand English or Kiswahili*".

The processors also indicated that they would be interested in working with DTI in training needs assessment, training content development, providing internships and field attachments, and utilizing expertise of the institutions lectures.

Due to the deficiency in some of the technical and non-technical skills among the graduates, the processors conduct internal trainings for their staff on skills such as:

- ✓ HIV/AIDS
- ✓ Team building
- ✓ Safety
- ✓ Gender

For cheese making in particular, one of the processors, Browns, indicated that the whole process is conducted in-house. This shows a lack of skills in cheese making among the graduates from the dairy training institutions.

4.7.4. Sourcing of Employees

The Certificate holders for the dairy processors were mainly sourced from DTI and Polytechnics. Diploma graduates were obtained from Bukura Agricultural College and Egerton University. The Degree holders mainly came from Egerton University, JKUAT and University of Nairobi.

The processors sourced new employees through a number of methods which include:

- ✓ Direct sourcing from the training institutions
- ✓ Vacancy announcement in the newspapers
- ✓ Internal advertisements
- ✓ Employment of unskilled people and training them on the job

4.7.5. Gender Balance

Generally, the results show that the processors did not observe gender balance in employment of graduates. Only one in three processors has a documented gender policy. The gender ratio among employees was 78% males to 22% females. The industry processors indicate that the reason for higher male ratio was that most of the jobs involved heavy physical work which required masculine power. Very few women qualified for these jobs. Qualifications and demonstration of ability to do the job was the overriding factor in employment of graduates.

In addition, most technical workers are deployed in field services where they work at odd hours, even as early as 3am in the morning. Most women are unable to take up such offers and have to compete for the few institutional jobs such as laboratory services etc.

4.8. Informal Traders

More than 80 percent of milk produced and sold in Kenya comes from small scale players, typically farmers raising one or two dairy cows on small plots of land and milk hawkers plying their trade on bicycles and *boda-bodas* according to an article on small scale traders by ILRI 2012.

Kenya's informal milk producers and traders have been harassed for a long time rather than supported by officials because they were unregulated and were perceived to be a threat to public health. It is now emerging that this fast-growing dairy sector could help tens of thousands of people climb out of poverty and this will require supporting small-scale milk producers and traders in gradually entering the country's formal milk markets.

4.8.1. Skills Requirement of Employees for Informal Traders

The level of qualification for the informal traders was mainly basic education where the farmer/ trader have numerical skills to enable them to transact business, entrepreneurial skills and soft skills. The Kenya Dairy Board has been active in training and licensing this group of entrepreneurs. Some of the training needs identified for informal traders include:

- ✓ Milk handing
- ✓ Basic Hygiene
- ✓ Record keeping
- ✓ Optimizing returns
- ✓ Business planning
- ✓ Business management
- ✓ Financial management
- ✓ Business ethics
- ✓ Negotiation skills
- ✓ Legal issues in milk trade
- ✓ Corporate governance in groups, marketing associations/cooperative societies etc.

4.8.2. Procedure of Sourcing Employees

The informal market industry is usually run by the producers of the milk and the milk agents who purchase directly from the farmers and resell to the consumers. In cases where employees are required, its employees are through referrals from friends and relatives.

4.8.3. Gender Mainstreaming

The informal sector has no policies on gender. Because of the nature of ownership of the businesses where the owners are the managers, having a gender policy is challenging. It is important therefore to ensure that training provided to these traders stresses the need to take into account gender issues.

4.9. Development – and Research Partners

The development partners interviewed included, International Livestock Research Institutes (ILRI), East Africa Dairy Development (EADD), East African Agricultural productivity program (EAAPP), International Fund for Agricultural Development (IFAD), Food and Agriculture (FAO), AU (African Union) and United Nations Industrial Development Organization (UNIDO) and Heifer international.

Job: Program Officer
Link to training institutions: Macro level institutions such as EGU, UON that offer advanced degree certifications including MSC, and PhDs because of the nature of their work.
Professional Tasks: • Assist in the development and implementation of programs focussed on reproduction to promote the adoption of best practice and new technology to improve productivity and profitability of dairy cattle. • Contribute to the planning, delivery and evaluate extension and industry projects in collaboration with the dairy industry and in consultation with work area leaders within the dairy program. • Assist with investigating, preparation and accurate analyse of scientific data and reports to support decision making and recommendations for the dairy program. • Contribute to the development and implementation of communication and publicity material for dairy industry communication and extension programs. • Undertake an industry placement to develop linkages with research, development, extension and education organisations. • Actively participate as a member of a multi-disciplinary team including other extension officers and researchers to implement business plans and strategies.
Job: Researcher
Link to training institutions: Program managers tend to be graduates of the macro level institutions such as EGU, and UON. The qualifications are mostly at Masters level.
Professional Tasks • Conducts research in selection, breeding, feeding, and management of dairy cattle: Studies feed requirements of dairy animals and nutritive value of feed materials. • Carries out experiments to determine effects of different kinds of feed and environmental conditions on quantity, quality, and nutritive value of milk produced. • Develops improved practices in care and management of dairy herds and use of improved buildings and equipment. • Studies physiology of reproduction and lactation, and carries out breeding programs to improve dairy breeds. • May be designated according to specialty as Dairy-Management Specialist; Dairy-Nutrition Specialist.

4.9.1. Skills Requirement among Development Agencies

The majority of the other development agencies interviewed such as EADD, EAAPP, Heifer International, were in consensus that the labour needs needed to be looked at from the value chain approach. The development agencies would normally require skills across the value chain since they needed to address the whole process in terms of poverty reduction strategies and food security in the country.

A summary of the skills requirement for the development agencies include:

- ✓ Marketing skills
- ✓ Production skills
- ✓ Feeding and when to feed,
- ✓ Milking techniques
- ✓ Milk handling and transportation
- ✓ Social Scientists
- ✓ Agribusiness Specialists.
- ✓ Biotechnologists
- ✓ Agricultural Economists
- ✓ Development Managers
- ✓ Monitoring and evaluation experts

4.9.2. Sourcing of Employees

The development agencies employed different ways of sourcing for employees including:

- ✓ Newspaper advertisements
- ✓ Recruitment agencies
- ✓ Intranet
- ✓ Network newsletters such as Kenya Vet Forum

4.9.3. Gender Mainstreaming

The institutions interviewed all had gender policies in place and indicated a score of 4 out of 5 on a scale of 1-5. A large number of employers agreed that they had a gender policy in place. The study found male female ratio of 60:40.

5. GENDER MAINSTREAMING IN THE DAIRY SECTOR

5.1. Introduction

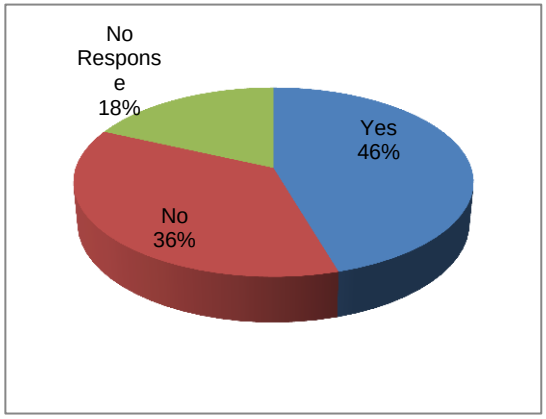
Gender mainstreaming is defined as the process through which an organization or a government ministry assumes a comprehensive gender perspective. This can be considered when gender roles and relations are included in policies, strategic views, equal payment and all procedures.

5.2. Situational Analysis

It is very clear that women play a predominant role in agriculture and in the enhancement of food security in the country. If development goals are to be achieved, women must be equal partners in the development process. At present women are not treated as equal partners and in turn they face a lot of constraints such as:

a) Limited or lack of equal access to agricultural training
b) Lack of access to good quality land and lack of secure land tenure rights. Inheritance a cultural and land tenure laws limit women's ownership of land.
c) Limited access to finance.
d) Neglect of women's needs by agricultural research and extension systems – few extension services are targeted at women, few extension officers are women and most extension services concentrate on commercial crops rather than the subsistence crops, which are of primary concern to women. Research also tends to neglect crops that are grown by women.
e) Lack of access to agricultural inputs.
f) Lack of access to rural organizations – women are often excluded from cooperatives or community organizations when membership is based on head of house hold status or land ownership.
g) Lack of access to services such as transport and market.
h) Increased pressure on women's time and labour in unpaid household and community domestic production and in market oriented agricultural production.

Figure 36: Presence of a gender policy



Many institutions in Kenya lack a gender policy in place, or in instances where there is a policy, it is not usually implemented. The labour needs assessment study found that the industry lagged behind in observing gender equality and fairness in treatment of both gender. This is indicated by 43% of graduates who were opposed to the statement that 'All male and female employees are treated equally by employers.' On the other hand, 48% are of the view that gender balance was observed by the employers, but a lower percentage (12%) strongly agreed compared with the 14% who strongly disagreed.

Table 14: Employer policies

Statement	Responses in %		
	Agree	Disagree	No Response
Our Company is gender sensitive	81.8	9.1	9.1
Our company takes affirmative action to have a gender balance among the staff	45.5	45.5	9.1
Our company building allows disabled people to work there	54.6	36.4	9.1
Our company has a HIV/AIDS policy	36.4	45.5	18.2

In terms of job roles, the study found that there is almost an equitable distribution of job roles in the sector. The females and males seemed to carry out similar kind of roles across the value chain. Interviews with the farmers elicited the same sentiments. For instance, Mrs Sarah Boit cited herself as an example of a successful woman in the sector. The following is a sample of job roles from the interviews that were carried out.

Table 15: Sample of job roles from the respondents

Job Profiles	No. of Males	No. of Females	Both
Programme Officer		☑	☑
Finance Officer			☑
Veterinaries			☑
Animal health	☑	☑	
Certificates in franchise	☑	☑	
Human Resource		☑	
Animal production	☑		☑
Marketing		☑	
Stock handler			☑
Engineering technician			☑
Sales and marketing	☑		☑
Quality Assurance		☑	
Research			☑

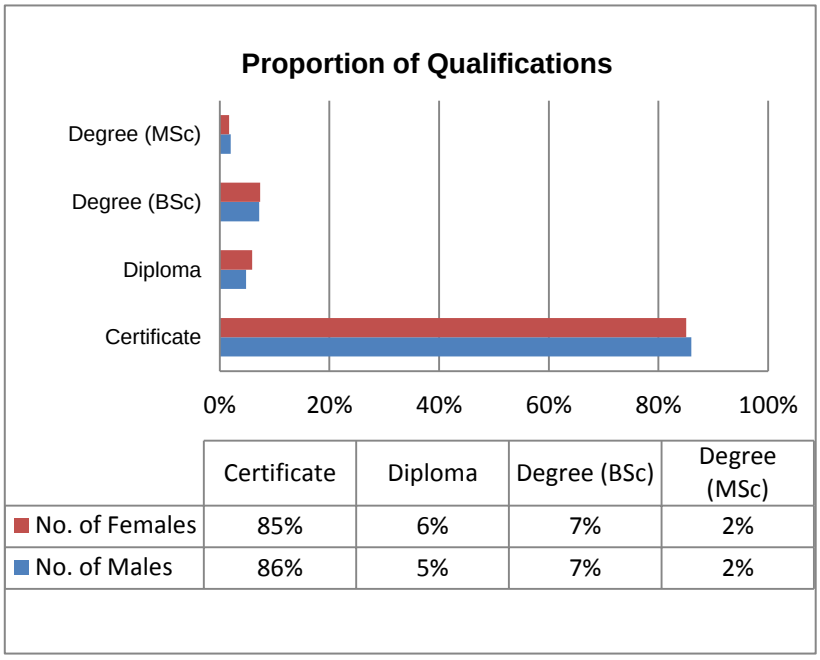
A look at the qualifications between males and females proved that the qualifications across the sector in terms of gender was balanced. The difference between the females and males qualified across all the qualifications showed no differences.

5.3. Gender Mainstreaming in Curricula Development

While looking at gender mainstreaming it is worthwhile to encompass four policy stages: rhetoric, planning, implementation and evaluation across training institutions. All the institutions have put in

place a gender policy that allows equal enrollment in compliance to the Kenyan Constitution (promulgated in 2010). It is therefore clear that the curricula are balanced as far as gender is concerned. Being a male dominated field the intake of the females in all institutions is considerably low with males taking up more than 70% of the student/graduate population sampled. There is need to analyze the rationale behind a female's decision to enroll for a course in the dairy industry and to further address issues that may be raised by females in regard to deficiencies in curriculum that affect them as a gender. Male lecturers also seem to take precedence and are most often than not preferred in comparison to their counterparts serving in similar capacity. *(Gender Issues in Dairy Training-SNV Netherlands)*

Figure 37: Level of qualifications



	Certificate	Diploma	Degree (BSc)	Degree (MSc)
No. of Females	85%	6%	7%	2%
No. of Males	86%	5%	7%	2%

5.4. Gender Analysis across the Macro, Meso and Micro Institutions

Gender mainstreaming requires the use of the Macro-Meso-Micro approach and linkages between the training structure in the country to analyse linkages between different parts of the economy and between policy actions and outcomes and to suggest ways to reduce gender-based constraints to desired policy aims.

5.4.1. Macro Level

- Provides gender disaggregated national statistics to identify the location and number of women in the sector.
- Integrate the unpaid "domestic economy" in macro and agricultural analysis to illustrate gender patterns of time use and the extent of time burdens on men, boys and girls.

5.4.2. Meso Level

- Addresses the gender based distortions in markets which can result in inefficient resource allocation.
- Addresses gender asymmetries and biases in institutions and organizations which can restrict access to resources and are inequitable and inefficient.

5.4.3. Micro Level

Takes account of gender differences in household preferences, time allocation and control over household resources, noting how they influence household production and investment decisions, food security and well-being within the household.

5.5. Conditions which Facilitate Gender Mainstreaming

In order for gender mainstreaming to take place, the conditions have to be right at all levels:

- The government has to be committed to change the orientation of its policies and to modify its procedures so that gender concerns, and the particular needs and constraints of women are explicitly incorporated into policy making and planning processes
- The government has to be willing and capable of mobilizing and allocating the resources necessary for the preparation and implementation of a gender strategy for agricultural training through the various phases of design, implementation, monitoring and evaluation revision
- The sector institutions at all levels have to be committed at central and decentralized levels including government departments, research institutes, producer organizations to cooperate and promote the sharing of information to support gender equity in agricultural training.
- A willingness on the part of governments and donor organizations to provide resources for training on gender analysis in macroeconomic and agricultural sector policies. A visible commitment to gender mainstreaming by centrally placed and well respected actors in the policy process.

5.6. Steps in the Process of Gender Mainstreaming

The steps that are necessary if gender is to be mainstreamed in agricultural policy are:

- Provide a baseline gender analysis of the labour market demand and supply chains
- Undertake an analysis of the gender based constraints to the achievement of sector's objectives
- Undertake institutional assessment and capacity building for gender equality in the dairy sector
- Conduct participatory planning and policy formulation.
- Improve the budgeting process to incorporate gender concerns.
- Improve monitoring and evaluation of gender components of the dairy training strategies.

6. INVENTORY OF TRAINING INSTITUTIONS

6.1. Dairy Training Institutions in Kenya

This section provides analysis of the current dairy training institutions and classifies them based on the level of trainings provided. The analysis of the curriculum is based on a sample of the major training institutions in each of the levels identified. Dairy training across the value chain is undertaken by various institutions concentrating on various tiers of the value chain.

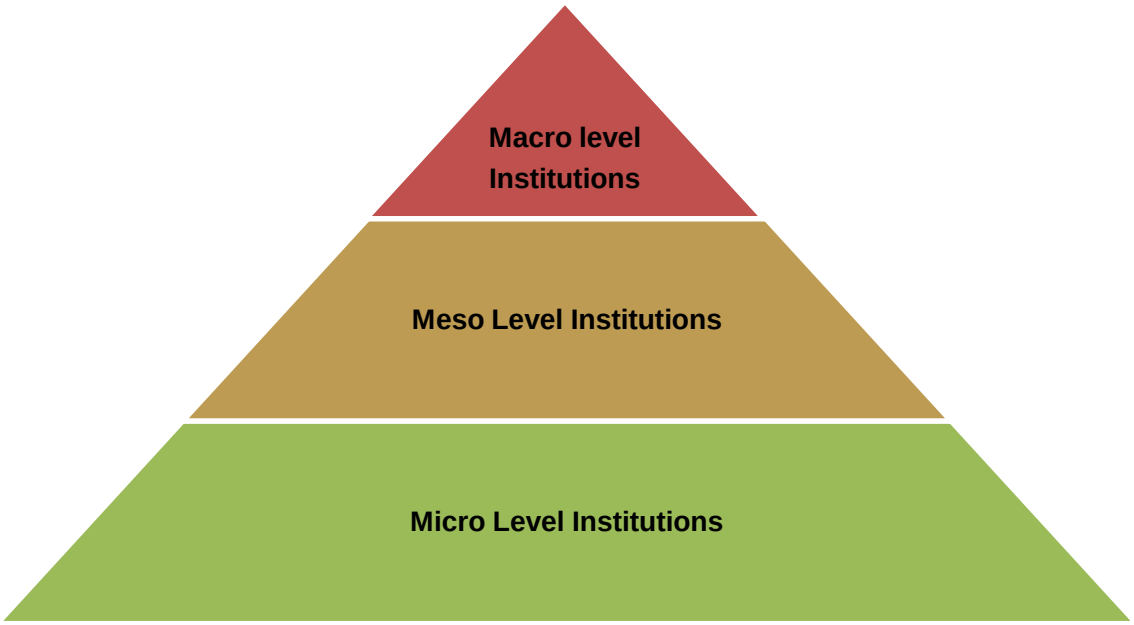
At the moment, dairy training is undertaken as a unit or as part of the general agriculture course in many institutions. Apart from the dairy training institute in Naivasha which specialises in dairy training courses; the other institutions just incorporate the subject as part of Agriculture.

Analysis of the trainings provided in the dairy sector reveal that there are different levels of educational programs provided by the training institutions. The institutions range from the village level training centres or polytechnics categorised as micro institutions, to middle level colleges categorised as Meso institutions to high level training institutions such as universities categorised as macro institutions.

The country is covered with Agricultural training institutions, found in all parts of the country. The focus in dairy training needs to be emphasised to ensure that these established institutions promote dairy training.

The figure below illustrates the relationships within the training institutions:

6.2. Classification of Training Institutions



Source: PKF Consulting

6.2.1. Macro Level Institutions

The macro institutions provide more specialized trainings that are more oriented at producing managers for the sector. The programmes provided by these institutions include Diploma, Degree and Postgraduate level. Macro institutions are universities and university colleges training personnel for the dairy sector such as:

- University of Nairobi (UoN),
- Egerton University (EGU),
- Jomo Kenyatta University of Agriculture and Technology (JKUAT)
- Baraton University
- Chuka University College
- Mt. Kenya University

6.2.2. Meso Level Institutions

These are intermediate (middle –level) institutions that provide trainings from Certificate to Diploma level. The output of Meso level colleges is technicians that provide hands-on labour for the sector. Meso level institutions include tertiary institutions such as:

- Bukura Agricultural College,
- Agricultural Development Corporation (ADC)
- Dairy Training Institute, Naivasha.
- Animal Health Training Institutes (AHITIs)
- Rift Valley Institute of Science and Technology (RVIST)
- Baraka Agricultural College Molo

6.2.3. Micro level Institutions

Micro institutions are grass root organizations that provide short practical oriented trainings to farmers. These trainings can last from a few hours to one day to a few weeks. The Micro level institutions in the country tend to cover the whole country; with the new constitutional dispensation, the ATCs are going to be increased to fourty seven (47) to cover all the counties. The categories of institutions at this level include:

- Individual demonstration or model farms
- Cooperative societies
- Agricultural Training Centres which are 27 in number in the country.

Name of institution	Location	Legal status	Courses	Curriculum development	Training core business	Target Group	Frequency of trainings	Facilities	Areas covered in Dairy value Chain (DVC)
MACRO LEVEL INSTITUTIONS									
Egerton University	Njoro	Public	Bsc. Animal Science Bsc. Animal Health Management Bsc. Dairy Technology & Management Dipl. Animal Science & Technology Dipl. Dairy Technology Dipl. Animal Health	Curriculum is reviewed every five years	Yes	Tertiary Education	Daily	Basic infrastructure for training available.	Input suppliers Processors Support services
Baraton University	Eldoret	Private	BSc. Agriculture BSc Agri- Business Bachelor of Technology in Agriculture (BT Agriculture) Minor in Agriculture	Curriculum in place; reviewed every 5 years; input from stakeholders in development; increased focus on entrepreneurship with extensive practical training.	Yes	Tertiary education	Daily	Very good and up to date training facilities available in the institution	Input suppliers Processors Support services

Name of institution	Location	Legal status	Courses	Curriculum development	Training core business	Target Group	Frequency of trainings	Facilities	Areas covered in Dairy value Chain (DVC)
JKUAT	Juja	Public	BSc. Animal Health, Production and Processing	Curriculum in place; reviewed every 5 years; input from stakeholders in development; increased focus on entrepreneurship but curriculum still too theoretical	Yes	Tertiary education	Daily	Good training facilities in food science department	Input suppliers Processing Support services
Nairobi University	Nairobi	Public	Bachelor of Science in Food Science and Technology Bachelor of Science in Food Nutrition and Dietetics Bachelor of Science in Veterinary Medicine Postgraduate Diploma in Food Safety and Quality	Curriculum in place; reviewed every 5 years; input from stakeholders in development; increased focus on entrepreneurship but curriculum still too theoretical	Yes	Tertiary education	Daily		Support services: Veterinary

Name of institution	Location	Legal status	Courses	Curriculum development	Training core business	Target Group	Frequency of trainings	Facilities	Areas covered in Dairy value Chain (DVC)
Mount Kenya University	Thika	Private	Bachelor of Science in Animal Health Management and Production Technology Diploma in Food Science and Processing Technology Diploma in Animal Health and Production Diploma in Dairy Technology and Management Diploma in Agriculture (General/Horticulture) Certificate in Food Science and Processing Technology	Under the school of pure and applied sciences the programmes in the curriculum equip one on the most up-to-date trends in scientific technology, changes and innovation in pure and applied sciences as well as relevant skills to apply in addressing and solving problems in the modern society.	Yes	Tertiary education	Daily	The training facilities are good	Input suppliers Processing Support services

Name of institution	Location	Legal status	Courses	Curriculum development	Training core business	Target Group	Frequency of trainings	Facilities	Areas covered in Dairy value Chain (DVC)
Chuka University College	Chuka	Public	Bachelor of Science (Animal Production Diploma in Animal Health and Production Certificate in Animal Health and Production	Curriculum in place; reviewed every 5 years; input from stakeholders in development; increased focus on entrepreneurship but curriculum still too theoretical	Yes	Tertiary education	Daily	The facilities are old basic and in need of rehabilitation	Input suppliers Processing Support services
Bukura Agricultural College	Kakamega	Public	Animal health production Animal production Dairy science and technology, Animal production and health management Diploma Animal production & health management. Diploma in Animal Production	Curriculum in place; reviewed every 5 years; input from stakeholders in development; increased focus on entrepreneurship but curriculum still too theoretical	Yes	Tertiary education	Daily	The facilities are good enough for training, but are in need of upgrade	Support services: Animal Health & AI and extension services

Name of institution	Location	Legal status	Courses	Curriculum development	Training core business	Target Group	Frequency of trainings	Facilities	Areas covered in Dairy value Chain (DVC)
RVIST	Njoro	Public	Diploma in Food and Beverage	Curriculum in place; reviewed every 5 years; input from stakeholders in development; increased focus on entrepreneurship but curriculum still too theoretical	Yes	Tertiary education	Daily	Has very good training facilities	Support services: Animal Health & AI and extension services
Chepkoilel University College	Eldoret	Public	Msc. Animal Nutrition Bsc. Animal Health & Production Bsc. Agriculture Bsc. Agricultural Education & Extension Dipl. Farm Management Dipl. Animal Health & Production Cert. Agriculture & Environment Cert. Animal Health & Production Cert. Motor Vehicle Mechanics	Curriculum in place; reviewed every 5 years; input from stakeholders in development; increased focus on entrepreneurship but curriculum still too theoretical	Yes	Tertiary education	Daily	Basic training facilities for agricultural training.	Support services: Animal Health & AI and extension services Farm level Operation & Maintenance of Agricultural Machinery

Name of institution	Location	Legal status	Courses	Curriculum development	Training core business	Target Group	Frequency of trainings	Facilities	Areas covered in Dairy value Chain (DVC)
Cooperative College	Nairobi	Semi-Autonomous Government Agency	Diploma in Cooperative Management	Curriculum in place; reviewed every 5 years; input from stakeholders in development; increased focus on entrepreneurship but curriculum still too theoretical	Yes	Tertiary Education Ministry of Coop.	Daily	Good training facilities to cater for their mandate	Community Based Education /Cooperative Level
MESO LEVEL INSTITUTIONS									
AHITI's	Naivasha, Ndomba, Kabete	Public (MoLD)	Certificate in Animal Health and Production Certificate in Animal Health and Range Management Certificate in Leather Technology Artificial Insemination short Course	Continuously appraises and reviews ongoing programmes.	Yes	Tertiary Education (MoLD)	Daily		Dairy Societies Processors Input Suppliers

Name of institution	Location	Legal status	Courses	Curriculum development	Training core business	Target Group	Frequency of trainings	Facilities	Areas covered in Dairy value Chain (DVC)
Dairy Training Institute	Naivasha	Public (MoLD)	Cert. Dairy Science & Technology Cert. Dairy Management	Continuously appraises and reviews ongoing programmes.	Yes	Tertiary education Dairy Farmers Processing Staff	Daily	Outdated training facilities, run-down accommodation	Farm Level Dairy Societies Processors Input Suppliers
Baraka Agricultural College	Molo	Private (Catholic Diocese Nakuru)	Certificate in sustainable agriculture and rural development (CSARD) Diploma in sustainable agriculture and rural development (DSARD)	Curriculum is in place and focuses on Agriculture, capacity development as well as community development.	Yes	Tertiary Education Farmers	Daily	Fairly good facilities	Farm Level Dairy Societies Processors Input Suppliers
MICRO LEVEL INSTITUTIONS									
Practical Dairy Training Centre (Baraka Farm)	Eldoret	Private	Demonstration and Training	Curriculum is developed and is reviewed in accordance to the farmers' needs.	Yes	Farmers	Short courses conducted as deemed necessary	Fairly good facilities	Farm level
Agricultural Training Centres	Country wide	Public	Demonstration and Training	Curriculum for 1-day and 1-week trainings is in place	Yes	Farmers	4 – 8 short residential short-courses, annual field days and short courses on demand	Basic facilities	Farm level

Name of institution	Location	Legal status	Courses	Curriculum development	Training core business	Target Group	Frequency of trainings	Facilities	Areas covered in Dairy value Chain (DVC)
Mawingu Farm	Nyeri	Private	Training centre being constructed for training and demonstration	Curriculum is being developed	No – private farm with training facilities in place	Farmers	The training will take the shape of dairy training courses from other universities	Very Good demonstration facilities for training	Farm level
Endakano Farm	Kiminini	Private	Demonstration and Training	Curriculum is being developed	No	Farmers	Short courses	Fairly good facilities	Farm level
Willy Kirwa	Eldoret	Private	Demonstration	No curriculum	No	Farmers	Short one day courses	Fairly good demonstration farm	Farm level
Sara Boit	Eldoret	Private	Demonstration	No curriculum	No	Farmers	Walk in for demonstration and consultations	Fairly mechanised farm with good facilities	Farm level
Kenya Dairy Board	Country wide	Public	Provide short courses to farmers	Curriculums developed depending on need	No – It is a regulatory body	Farmers/ Informal traders	Short courses tailored to the training needs	No facilities for training – usually uses existing facilities in the particular areas.	Market level Farm level

7. THE SUPPLY AND DEMAND GAP

The employers were asked to list the major weaknesses of the newly recruited staff in their organisations. The main shortcomings as listed by the employers show that newly recruited staff's short comings were mostly non-technical and included the following:

- ✓ Lack of Communication skills,
- ✓ Lack of self-confidence and self-expression
- ✓ They don't have any experience and the relevant skills.
- ✓ Lack of experience
- ✓ Newly recruited staff who are certificate holders require close guidance and supervision
- ✓ Poor leadership skills
- ✓ Lack of interest
- ✓ Lack of personal skills such as working in teams and work ethics
- ✓ Entrepreneurial and business skills
- ✓ Lack of technical knowledge
- ✓ Lack of practical skills

7.1. Skills and Competences

The difference between the skills needed on the job and those possessed by the applicants commonly referred to as the "skills gap" is of real concern to all the industry players that were interviewed during the study. While employers would prefer to hire people who are trained and ready to go to work, an average of 76.4 % of the industry players interviewed on their perception on skills and competences of newly employed graduates agreed that the students possessed the skills required, while the rest of the responses either disagreed or did not respond to the questions. The graduates interviewed also expressed concern that they were not confident enough to get straight to work without undergoing training.

Table 16: Perception on skills and competences of newly employed graduates

Statement	**Responses in %**		
	Agree	**Disagree**	**No Response**
Our company appreciates the technical skills & competences of newly employed graduates	81.8	9.1	9.1
Newly employed graduates are able to respond to complex situations / scenarios	72.8	18.2	9.1
Our company appreciates the confidence and flexibility of taking up new tasks/responsibilities of the newly employed graduates	81.9	9.1	9.1
Interns are a valuable addition to our company	81.9	nil	18.2
Newly employed graduates are able to use up-to date equipment/tools and apply them practically	63.6	18.2	18.2

7.2. Lack of Employability Skills

Employability can be defined as those basic skills necessary for getting, keeping and doing well on a job. These are the skills, attitudes and actions that enable workers to get along with their fellow workers and supervisors and to make sound, critical decisions

Most discussions concerning the industry's workforce turned to employability skills. Finding workers who have employability or job readiness skills that help fit into and remain in the work environment was sighted as a real problem. The industry players interviewed such as Jos Creemer of Baraka farm in Eldoret was most concerned about the employability skills of the graduates for the training institutions. In his experience 90% of the graduates lacked the employability skills to work in agricultural farms, let alone in the dairy sector.

Other industry players also agreed that employers need reliable, responsible workers who can solve problems and who have the social skills and attitudes to work together with other workers.

Responses from the study also found that the lack of creativity was a major concern as it was one of the skills that prominently featured amongst employers who were looking to create the empowered, high-performance workforce needed for competitiveness in the marketplace. Unlike occupational or technical skills, employability skills are generic in nature rather than job specific and cut across all industry types, business sizes and job levels.

They also experienced many graduates from training institutions who lacked the passion and motivation to work, as most of the students had landed into agriculture by not having made it for courses perceived as fashionable.

7.3. Lack of Practical Skills

An overwhelming majority of the industry players agreed that there was a general lack of practically trained staff that was able to start any job across the value chain without any training. Practical skills are required across the value chain from production to bulking and processing. At the production level, dairy farmers expressed the inadequacy of practical knowledge among the graduates.

The inadequacy of practical skills is evidenced by the institutions' lack of capacity to train on practical skills. The focus group discussions with the students from EGU and Bukura and an assessment at DTI also reveal that the facilities used for practical lessons were inadequate and outdated. Most of the training institutions in Kenya that were visited did not have model farms to train the students. The Infrastructure in most cases was very old and dilapidated, and the animals also looked quite emaciated.

An FGD carried out with farmers brought in by IFAD for a short course at DTI, brought out the issue of lack of practical training in the institutions. The farmers were taught a lot of theory, but had not practical experience at during their stay, yet they were expected to train other farmers in their localities on best practice.

Responses on the perception of the employers on the graduates' professional skills are summarised in the table below.

Professional Skills & Competences

Table 17: Professional skills and competences

Statement	Responses in %		
	Agree	Disagree	No Response
New graduates communicate effectively in the two official languages	72.8	18.2	9.1
Newly employed graduates have a good understanding of the local context and are able to interact in rural set ups	63.7	27.3	9.1
Newly employed graduates are confident to participate in team meetings and give input on processes and strategies	54.6	36.4	9.1
Newly employed graduates are able to interact professionally with clients/donors/etc.	54.6	36.4	9.1
Newly employed graduates have high standards of integrity	54.6	36.4	9.1
Newly employed graduates work well in teams	81.9	9.1	9.1
Newly employed graduates show responsibility in the achievement of tasks/targets	63.7	27.3	9.1

7.4. Limited Training on Value Addition

The curriculum in most dairy institutions did not delve deeper into the value addition training. The curriculum focused on the dairy science and management without looking at the emerging trends in the market in terms of future consumer demand , the emergence of new products in dairy such as the different type of cheeses, preservation of milk and conversion to powder etc.

7.5. Lack of Basic Training

Perhaps the largest gap in the training skills is the lack of basic training on very basic topics such as:

- ✓ How to milk a cow
- ✓ Personal hygiene
- ✓ Feeding the animal

7.6. Entrepreneurship Skills

The curriculums provided by the training institutions do not adequately provide students with entrepreneurship skills that can enable them go into self-employment. This is supported by the findings that over 90% of the graduates sampled were absorbed in salaried-employment. In addition the graduates indicates the desire to go into self-employment but were not able to do so.

A summary of the responses is summarised in the table below:

Table 18: Entrepreneurial skills and competencies

Statement	Responses in %		
	Agree	Disagree	No Response
Newly employed graduates are skilled in problem solving, analysis and synthesis	45.5	45.5	9.1
Skills to carry out financial analysis and management of projects are strong with newly employed graduates	36.4	45.5	18.2
Newly employed graduates are proactive and easily take up initiatives to complete tasks	54.6	36.4	9.1
Newly employed graduates have an understanding of the dairy value chain including all actors, constraints and opportunities along the chain	54.6	27.3	18.2
ICT skills from newly employed graduates are strong	72.8	18.2	9.1
The future for graduates lies in self-employment	72.8	18.2	9.1

The table below summarises the perception of the importance of the soft skills according to the industry players:

Table 19: Soft skills

Statement	Responses (%)			
	Slightly Important	Very Important	Extremely Important	No Response
Communication Skills	Nil	45.5	45.5	9.1
Work Ethics	Nil	45.5	45.5	9.1
Relevant Technical Skills	9.1	45.5	36.4	9.1
Relevant technical Knowledge	9.1	54.5	27.3	9.1
ICT Skills	54.6	9.1	27.3	9.1
Report Writing Skills	36.4	27.3	27.3	9.1
People Management Skills	9.1	54.5	27.3	9.1
Leadership Skills	9.1	54.5	27.3	9.1
Training Skills	18.2	36.4	36.4	9.1
Project management Skills	54.6	18.2	18.2	9.1
Entrepreneurial Skills	45.5	27.3	18.2	9.1
Marketing Skills	27.3	18.2	45.5	9.1
Analytical Skills	27.3	18.2	45.5	9.1
Gender Sensitivity Skills	36.4	27.3	27.3	9.1

Here below is a summary of the skills gap in the dairy industry

Table 20: Skills gap in the industry

Industry Need	Gap	Recommendations
Business training needs	▪ Communication skills ▪ Record keeping ▪ Entrepreneurship ▪ Business management skills e.g. budgeting, calculations	Produce a curriculum that will give a paradigm shift in the thinking of the farmer to treat dairy farming as a serious business.
Practical needs	▪ Lack of enough labs ▪ Shortage of practical tutors ▪ Outdated equipment for practical training ▪ Internship period too short	▪ Increase lab capacity ▪ Increase number of practical tutors ▪ Update equipment in practical training sessions ▪ Students should be attached to the private sector and NGOS for internship.
Technical skills	▪ Feed management/ silage making ▪ Value addition ▪ Monitoring and evaluation	▪ Incorporate feed management courses in the curriculum including additional hours on feed preparation and preservation ▪ Diversify and expand on the dairy products training to include other products such as ghee, blue cheeses etc. ▪ On a higher level, include monitoring and evaluation courses to ensure that
Life Skills	▪ Communication skills ▪ Entrepreneurship skills ▪ Employability skills	▪ Emphasis should be Incorporated in the curriculum and inculcated into the students as an important component of life

7.7. Future Skills Requirement

The liberalization of the milk based industry in Kenya has greatly attracted entrepreneurship in the dairy industry. There is a paradigm-shift in the industry towards self-employment and commercialization. The market requires more food; more varieties of food; the Bottom-of-the Pyramid (BOP) market is expanding and more and more private companies enter the market. Also the government is not employing (anymore) so there is no job guarantee for graduates.

Many large milk producers are increasingly turning to processing milk on the farm; there are also an increasing number of entrepreneurs who will depend on out-growers. These entrepreneurs require trained personnel with in-depth knowledge of milk processing.

There is therefore need to have courses designed to produce graduates qualified to work in milk processing industries in production and managerial capacities; to venture into

entrepreneurship in the food industry; to teach; and to pursue further education in food related disciplines such as:

- ✓ Food production and development
- ✓ Nutrition and milk fortification
- ✓ Specialized value addition training such as
  - Production of different varieties of cheeses, such as: Brie, Blue, Mozzarella, Cheddar, Gruyere, etc.
  - Different varieties of butter
  - Different varieties of milk
  - Handling and processing milk from other dairy animals apart from cows
- ✓ Specialized feed management
- ✓ Specialized agribusiness personnel
- ✓ Social scientists
- ✓ Biotechnologists
- ✓ Agricultural economists
- ✓ Development managers

8. RECOMMENDATIONS

8.1. Enhance Micro–Meso–Micro Linkages

The importance of Micro-Meso-Macro linkages in the dairy training programs cannot be overstated. Proper linkages between institutions in the three levels can be utilized in enhancing skills for the dairy sector across the entire value chain. At the production and milk bulking level, the grass root centres such as cooperatives, ATCs and demo farms can be utilized by higher level institutions as satellite centres in disseminating trainings that are specific to farmer needs.

8.2. Inclusion of the Micro Level and Bottom of the Pyramid in Decision Making

In the training sector, policy and institutional decision making tends to take place at the macro level, with the legislation being formulated and adopted at the ministry level or university senate level. Yet the legislation and interventions implemented many not be suitable for a micro institution or the population that it is supposed to serve. This isolation of the micro level institution in policy formulation has frequently led to an underestimation of the impact upon the people.

Enhance the Macro – Meso - Micro linkages in policy formulation, curriculum development and partnerships in training of dairy programs. There should be a connection between the lower level institutions that offer certificate courses with the middle level colleges, where the students can advance towards their diploma courses, and eventually with the universities for their degree courses. The progression from one level to the next should be easy, and very clear.

Training approaches initiated by the numerous organizations in the country should adopt a bottom up approach, and channelled through the existing Micro – Meso – Macro institutions, and adapt strategies which emphasis on community empowerment and capacity building.

8.3. Enhanced Partnerships

There should be institutional partnerships that allow students from one level institution to be able to progress to a higher level institution and course with certain credit transfers. This might call for central formulation, approval and accreditation of the programmes provided by the institutions.

The most common shortcoming of the institutions was the lack of proper training facilities by all the three institutions. We recommend that in order to enhance the practical training provided to the students, the institutions should partner with the local model farmers to provide facilities for practical training to the students.

The institutions should also make arrangements with the upcoming private dairy training institutions such as Mawingu dairy training institute in Nyeri, the practical training and development centre in Eldoret, to provide training on behalf the institution. This would ensure that the same curriculum is available in different parts of the country thereby reaching a lot more students

Promote collaboration and linkages between DTI and the existing agricultural training institutions as well as with existing model farms such as Mawingu dairy training centre, Sarah Boit's farm, Baraka farm, Willy Kirwa's farm, Ndykak farm and training institutions at all levels to build capacity and practical training.

On collaborations, of the industry players who were willing to make a commitment, 73% were willing to collaborate on teaching and learning experiences like providing internships and field attachments, 64% were willing to be involved in developing training content, 46% on giving guest lectures, 36% on training needs identification, funding for research, development amongst other activities and 18% on delegating research to the training institutions.

8.4. Curriculum Development

In terms of curriculum development, the Bottom of the pyramid (BOP) need to be included in the structuring of dairy training in order to get a clear understanding of the basic and fundamental training needs at farm level. Training institutions can also tailor their outreach programs in such a way that the impact is felt at all levels, most especially at the Bottom of the pyramid. There is also need to ensure that the graduates from the colleges as well as university graduates at BSC level are hands on and very practical oriented.

The curriculum should be enhanced to focus on the following:

- ✓ Practical training should be included in curriculum
- ✓ Strong focus on communication skills and confidence building
- ✓ Management training skills to all graduates
- ✓ Train the on real life issues, and to show them how to become entrepreneurs
- ✓ Entrepreneurship is important Let student set up their own projects more exposure to the field (field attachments)at industry prayer and NGO's

8.5. Promote Dairy Training

Promote dairy training by making the entry cut off points a little higher than the normal practice, to attract a higher calibre of students admitted for dairy training develop a sense of pride in the career, as opposed to the current situation where the students admitted for dairy management got low marks and could not gain entry to higher level institutions.

Promote dairy farming as a possible route to self-employment. The responses from the study tended to lean towards other areas such as starting an Agro-vet, or poultry farming and not necessarily dairy farming. Even the graduates from DTI did not lean towards dairy farming.

At the macro level, promote the consumption of dairy products, thereby creating excitement about dairy products and training of the same to anyone interested in dairy training.

8.6. Harmonise Dairy Training

Harmonise the training provided by the development agencies to avoid duplication of training, and minimise the chances of confusing the dairy farmers as each agency will normally tend to have its own curricula in dairy training.

Institutions such as DTI should shift their focus from training for the government to training for the industry. This shift will enable the institution to build its name and in turn attract more students to the institution.

Increase number of students as there is a high demand for certificate holders in the sector

9. ANNEX

I. List of respondents
II. The graduates questionnaire
III. The industry players questionnaire

List of Respondents: Supply Side

No.	Institution	Location	Contact	Designation
1.	Kenya Dairy Board	Nairobi	- Dr. Cherono	
2.	Ministry of Livestock Development	Nairobi	- Julius Kiptarus - Caroline Ngunjiri	- Director of Livestock production -
3.	International Fund for Agricultural Development IFAD	Nairobi	- Moses A. Kembe	- Program Coordinator
4.	Ministry of Agriculture	Nairobi	- Mr. John Mwaniki - Mr.Maheti - Fabian s Muya	- Deputy director of agriculture – Technical training division -
5.	Ministry of Higher Education	Nairobi	- Mr.Nanjakululu	- Ass.Director, Directorate of Technical Education
6.	Co-operative College of Kenya	Nairobi	- Dr. E. Gicheru	- Acting Principal
7.	Kenya Animal Genetics Research Centre	Nairobi	- Dr. Wamukuru	- CEO
8.	Jomo Kenyatta University of Agriculture and Technology (JKUAT)	Juja	- Prof. Kamau Ngamau - Dr. David Mburu	- Dean, Faculty of Agriculture - Chairman Land resources planning and management dept
9.	Egerton University	Njoro	- Professor Kahi - Professor Bebe - Mr. Wilson M. Karimi	- Dean faculty of Agriculture - Program Administrator, Value Chains Programme

10.	University of Nairobi	Nairobi	- Prof: Charles Gachuiri - Dr. Abuom	- - Farm Manager
11.	Cheborowa ATC	Eldoret	- Nicholas Keino	- Deputy Principal
12.	Bukura Agricultural College	Kakamega	Justus Mudogo Simiyu	- CEO/Principal
13.	Rift Valley Institute of Science and Technology	Nakuru	- Mr. Eddy Koimet - Mr. John Kimemia - Mr Paul Langat	- Chief Principal - Registrar - Dean of students
14.	Dairy Training Institute (DTI)	Naivasha	Mungai Gabriel	- Principal DTI/Deputy Director livestock production
15.	Nestle	Nairobi	Ian Donaldson	- Managing Director
16.	KARI Naivasha	Naivasha	Dr. Kariuki	- Director
17.	ILRI	Nairobi	Ben A. Lukuyu	- Feed Specialist
18.	KAGRC(Kenya Anima Genetic Resources Centre)	Nairobi	Dr. H.K. Wamukuru	- Managing Director
19.	New KCC	Nairobi	Mr. Matu Wamae Dr. Langat	- Chairman - Managing Director
20.	Githunguri Dairy	Githunguri	Samuel Muiruri	- Quality assurance & extension officer
21.	Matu Wamae	Mukurwe-ini	Matu Wamae	- Proprietor
22.	Willy Kirwa	Eldoret	Willy Kirwa	- Farmer
23.	Sarah Boit	Eldoret	Sarah Boit	- Farmer
24.	Baraka farmhouse	Eldoret	Jos creemers	- General Manager
25.	Heifer International	Nairobi	Alex Kirui	- Country Director
26.	EAAPP (East Africa Agricultural Productivity project)	Nairobi	Catherine Kinyanjui	- Training, Disseminatio n &

				Agribusiness Dev. Specialist
27.	African union	Nairobi	Andrew	-
28.	EADDP(East African Dairy Development Program)	Nairobi	Moses Nyabila	- Country Director
29.	East Africa grain council	Nakuru	Charles Boit	- Director
30.	Sigma Feeds	Kitengela	Mr. Bornface Kamau	- Human Resource Manager
31.	Unga Feeds	Industrial Area	B. Karimi	- Human Resource Manager
32.	Browns Cheese	Karen	Andy Stirling	- Managing director and factory manager
33.	Uchumi supermarket	Nairobi	Michael Kibe	- Group Human Resources Manager
34.	Sigma feeds	Kitengela	Viral Shah	- Managing Director
35.	Sidai		- Anthony Wainaina - Christie Peacock	- Managing director - Chairman
36.	Eldoret Dairy Farmers Association (EDFA)	Eldoret	- Mr. Nicholas Kositany	- Chairman
37.	FAO	Nairobi	- Mr Njuguna	-

The Graduates' Questionnaires

QUESTIONNAIRE DAIRY LABOUR MARKET NEEDS ASSESSMENT

DAIRY INDUSTRY PLAYERS

NICHE KEN 127, NICHE KEN 124 AND KENYA MARKET-LED DAIRY PROGRAM

Date: _____ Place: _____

Name Interviewer: _____

I. Personal Information Respondent

1) Name: _____
2) Male ( ) / Female ( ) Age:_____
3) Phone number: _____ E-mail address: _____
4) Current Position: _____

II. Profile Company/ Organization

1) Name Company/ Organization: _____
2) Type of organization (tick one)

- ☐ GoK
- ☐ NGO
- ☐ Private
- ☐ Other (please specify)_____

3) Core business of the Organization (tick one):

- ☐ Training
- ☐ Research
- ☐ Processing (e.g. Dairy products, Semen, etc)
- ☐ Policy/ regulatory
- ☐ Other: specify _____

4) Number of people employed	Males:	Females:
5) Composition of the board in numbers	Males:	Females:
6) Composition of the management in numbers	Males:	Females

7) Specify what job profiles are required in your company and indicate if these jobs are specifically done by men / women or both

Job Profile	*Men*	*Women*	*Both*
a.			
b.			
c.			
d.			

8) Does the company have a gender policy? YES ☐ NO ☐

III. Employees

1) Indicate the level of qualification of the employees (with a dairy related study) in your organization and the institution they attended

Qualification	***Institution of training***	***No. Males***	***No. Females***
a. Certificate			
b. Diploma			
c. Degree (Bsc)			
d. Degree (Msc)			

e. PHD			

2) What job openings are there currently in your company/organization? (indicate qualification require)

Job Opening	Qualifications Required
a. b. c. d.	

3) How does your organization/ company source new employees :

a. Directly from (dairy) training institutions and Universities ☐

b. Vacancy announcement in the newspaper ☐

c. Vacancy announcement in network ☐

d. We employ unskilled people and train them in-house ☐

e. Others: Please specify _____

For the following sections rate the extent to which you agree with the following statements on a scale of 1 – 5, whereby:

1**:** Strongly disagree**,**

2: Disagree

3: Neither Agree nor disagree

4: Agree

5: Strongly agree

IV. Gender

Statement	**Score**				
a. Our company is gender sensitive	**1**	**2**	**3**	**4**	**5**
b. Our company takes affirmative action to have a gender balance among the staff	**1**	**2**	**3**	**4**	**5**
c. Our company building allows disabled people to	**1**	**2**	**3**	**4**	**5**

	work there (wheelchairs/blindness/etc.)					
	d. Our company has a HIV/AIDS policy	1	2	3	4	5

V. Perception on skills and competences of newly employed graduates

A. Technical skills and abilities					
Statement	**Score**				
a) Our company appreciates the technical skills & competences of newly employed graduates	1	2	3	4	5
b) Newly employed graduates are able to respond to complex situations / scenarios	1	2	3	4	5
c) Our company appreciates the confidence and flexibility of taking up new tasks/responsibilities of the newly employed graduates	1	2	3	4	5
d) Interns are a valuable addition to our company	1	2	3	4	5
e) Newly employed graduates are able to use up-to date equipment/tools and apply them practically	1	2	3	4	5

B. Professional Skills & Competences					
a. Newly graduates communicate effectively in the two official languages	1	2	3	4	5
b. Newly employed graduates have a good understanding of the local context and are able to interact in rural set ups	1	2	3	4	5
c. Newly employed graduates are confident to participate in team meetings and give input on processes and strategies	1	2	3	4	5
d. Newly employed graduates are able to interact professionally with clients/donors/etc.	1	2	3	4	5
e. Newly employed graduates have high standards of integrity	1	2	3	4	5
f. Newly employed graduates work well in teams	1	2	3	4	5

g. Newly employed graduates show responsibility in the achievement of tasks/targets	1	1	2	3	4

C. Entrepreneurial Skills and Competences					
h. Newly employed graduates are skilled in problem solving, analysis and synthesis	1	2	3	4	5
i. Skills to carry out financial analysis and management of projects are strong with newly employed graduates	1	2	3	4	5
j. Newly employed graduates are proactive and easily take up initiatives to complete tasks.	1	2	3	4	5
k. Newly employed graduates have an understanding of the dairy value chain including all actors, constraints and opportunities along the chain.	1	2	3	4	5
l. ICT skills from newly employed graduates are strong	1	2	3	4	5
m. The future for graduates lies in self-employment	1	2	3	4	5

11. When recruiting staff to your organization, on a scale of 1-5, what competences (skills, knowledge and attitudes), do you consider important for the candidates to posses?
Please tick one

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Communication skills					
Work ethics					
Relevant technical skills					
Relevant technical knowledge					
ICT skills					
Report writing skills					
People management skills					

Leadership skills					
Training skills					
Project management skills					
Entrepreneurial skills					
Marketing skills					
Analytical skills					
Gender sensitivity skills					

12. What are the major weaknesses of the newly recruited staff (fresh from college) in your organisation? Please list as many as possible	
a) Certificate	
b) Diploma	
c) Bachelors Degree	
d) Masters Degree	
e) PhD	

13. What recommendations would you make towards the training institutions?

a. DTI Naivasha

b. Bukura Agricultural College

c. Egerton University

14. What type of expertise do you find difficult to recruit?
    a)

    b)

    c)

    d)

    Please explain:

15. Do you have a preference for graduates from a specific institution/college/university?

    ☐ Yes:

    ☐ No:

    Please give the reasons:

16. Graduates from which institution(s) are least preferred by your company/organization? Please explain.

17. What are you expectations from newly employed graduate (**tick all that apply)**

☐ a. They should immediately be able to perform their duties

☐ b. After 2 to 4 weeks induction they should be able to perform their duties

☐ c. After the in-house training they should be able to perform their duties

☐ d. Other: please specify .....

18. For which type of positions in your company/organization do you expect an increasing demand in the future (reference 5 years)?

19. What type of new knowledge, skills and competences do you foresee your organization/company sourcing for in the future? (Reference 5 years)?

20. What training courses do you think should be included in the curriculum that will be useful to your organization? Please list:

VII. Training of employees

21. What types of in-house training do you currently have in your company? Please list.

22. Does your company intend, or does your company work with (established) training institutions for training of the staff?	
23. What type of extension services model is in place?	
24. Would you be interested in working together with Naivasha Dairy Training Institute/ Bukura Agricultural College/ Egerton University? And if yes, what type of collaboration? (**choose all that apply**)	
a) Training needs identification	
b) Training content development	
c) Teaching/learning experiences (e.g. providing internships/ field attachments)	
d) Evaluation/assessment	
e) Funding e.g. for development, research etc	
f) Giving guest lectures	
g) Delegating research to the institutions – DTI, EGU, and BUC	
h) Utilising expertise of the institution's lecturers.	
i) Other	

- **Thank you for your participation in this Labour Needs Assessment -**

The Industry Players Questionnaire

QUESTIONNAIRE DAIRY LABOUR MARKET NEEDS ASSESSMENT

DAIRY INDUSTRY PLAYERS

NICHE KEN 127, NICHE KEN 124 AND KENYA MARKET-LED DAIRY PROGRAM

Date: _____ Place: _____

Name Interviewer: _____

I. Personal Information Respondent

Name: _____

Male ( )/ Female ( ) Age: _____ Phone number: _____

E-mail address: _____

Name Company/ Organization: _____

Type of organization: GoK ☐ NGO ☐ Research ☐ Private ☐ Other .....

Core business of the Organization: _____

Current Position: _____

II. Profile Company/ Organization

1. Number of people employed	Males:	Females:
2. Composition of the board in numbers	Males:	Females:
3. Composition of the management in numbers	Males:	Females

4. Specify what job profiles are required in your company and indicate if these jobs are specifically done by men / women or both			
Job Profile	*Men*	*Women*	*Both*
a.			
b.			
c.			
d.			
5. Our company has a gender policy?	YES	NO	

III. Employees

6. Indicate the level of qualification of the employees in your organization (with a dairy related study) and the institution they attended			
Qualification	*Institution of training*	*No. Males*	*No. Females*
f. Certificate			
g. Diploma			
h. Degree (Bsc)			
i. Degree (Msc)			

j. PHD			

7. What job openings are there currently in your company/organization? (indicate qualification required)

e.

f.

g.

h.

8. The organization/ company sources new employees from:

f. Directly from (dairy) training institutions and Universities ☐

g. Vacancy announcement in the newspaper ☐

h. Vacancy announcement in network ☐

i. We employ unskilled people and train them in-house ☐

j. Others: Please specify

For the following part rate the extent to which you agree with the following statements on a scale of 1 – 5, whereby:

1**: Strongly disagree,**

2: Disagree

3: Neither Agree nor disagree

4: Agree

5: Strongly agree

IV. Gender

Statement	Score				
e. Our company is gender sensitive	1	2	3	4	5
f. Our company takes affirmative action to have a gender balance among the staff	1	2	3	4	5
g. Our company has a high staff turnover	1	2	3	4	5
h. Our company building allows disabled people to work there (wheelchairs/blindness/etc.)	1	2	3	4	5
i. Our company has a HIV/AIDS policy	1	2	3	4	5

V. Perception on skills and competences of newly employed graduates

D. Technical skills and abilities					
Statement	**Score**				
n. Our company appreciates the technical skills & competences of newly employed graduates	1	2	3	4	5
o. Newly employed graduates are able to respond to complex situations / scenarios	1	2	3	4	5
p. Our company appreciates the confidence and flexibility of taking up new tasks/responsibilities of the newly employed graduates	1	2	3	4	5
q. Interns are a valuable addition to our company	1	2	3	4	5
r. Newly employed graduates are able to use up-to date equipment/tools and apply them practically	1	2	3	4	5
E. Professional Skills & Competences					

s. Newly graduates communicate effectively in the two official languages	1	2	3	4	5
t. Newly employed graduates have a good understanding of the local context and are able to interact in rural set ups	1	2	3	4	5
u. Newly employed graduates are confident to participate in team meetings and give input on processes and strategies	1	2	3	4	5
v. Newly employed graduates are able to interact professionally with clients/donors/etc.	1	2	3	4	5
w. Newly employed graduates have high standards of integrity	1	2	3	4	5
x. Newly employed graduates work well in teams	1	2	3	4	5
y. Newly employed graduates show responsibility in the achievement of tasks/targets	1	2	3	4	5
F. Entrepreneurial Skills and Competences					
z. Newly employed graduates are skilled in problem solving, analysis and synthesis	1	2	3	4	5
aa. Skills to carry out financial analysis and management of projects are strong with newly employed graduates	1	2	3	4	5
bb. Newly employed graduates are proactive and easily take up initiatives to complete tasks.	1	2	3	4	5
cc. Newly employed graduates have an understanding of the dairy value chain including all actors, constraints and opportunities along the chain.	1	2	3	4	5
dd. ICT skills from newly employed graduates are strong	1	2	3	4	5
ee. The future for graduates lies in self-employment	1	2	3	4	5
11. What skills/competences would you like to see in a graduate with the following qualification?					

Please describe.
a. Certificate
b. Diploma
c. Bsc Degree
d. Msc Degree
25. What recommendations would you make towards the training institutions?
d. DTI Naivasha
e. Bukura Agricultural College
f. Egerton University
26. What type of expertise do you find difficult to recruit? a) b)

c)

d)

Please explain:

27. Do you have a preference for graduates from a specific institution/college/university?

☐ Yes:

☐ No:

Please give the reasons:

28. Graduates from which institution(s) are least preferred by your company/organization? Please explain.

29. What are you expectations from newly employed graduate

☐ e. They should immediately be able to perform their duties

☐ f. After 2/4 weeks induction they should be able to perform their duties

☐

g. After the in-house training they should be able to perform their duties

h. Other: please specify .....

VI. Future Employment		
☐ For which type of positions in your company/organization do you expect an increasing demand in the future (reference 5 years)? ☐ ☐	31.	32.
33. What type of new knowledge, skills and competences do you foresee your organization/company sourcing for in the future? (Reference 5 years)?	34.	35.

VII. Training of employees

36. What types of in-house training do you currently have in your company? Please list.
37. Does your company intend, or does your company work with (established) training institutions for training of the staff?

38. For CBEs/ Processors: what type of extension services model is in place?
39. Would you be interested in working together with Naivasha Dairy Training Institute/ Bukura Agricultural College/ Egerton University? And if yes, what type of collaboration? (Options from BAC questionnaire)

- **Thank you for you participation in this Labour Needs Assessment -**