

# Livestock entrepreneurship as an emerging self-employment option for university graduates in Ethiopia: Overview of concerns and potentials for growth

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## Abstract

Livestock provide high quality food, cash income and employment. Recently, university graduates have been engaging in self employment on livestock enterprises. Enterprises should have access to adequate levels of information about market, technology, research etc. However, issues underlying livestock entrepreneurship is not fully addressed in light of a complex set of challenges such as lack of institutional arrangement can be a barrier to realize the potential of self-employment on this industry. Therefore, this paper compiles and synthesizes existing/emerging knowledge on/major aspects of / livestock enterprises and support services including practical skills and information needs among self-employed graduates. Implications for further investigation and interventions and informing institutional policies development on livestock enterprises as a growing employment option are also highlighted. Finally, it is concluded that apart from embedding entrepreneurship education in every department; support services including livestock-related technical skills and science-based information; and policy/strategies that engage the potential roles of all stakeholders (academic institutions, Micro and small enterprises agency, urban agriculture and Ministry of Agriculture offices and other relevant governmental and Non-governmental organizations and private sectors) need to be in place to make use of Livestock entrepreneurship as a viable career option in the emerging interest of graduates and meet the growing demand of livestock products/commodity.

**Keywords:** Ethiopia, Livestock entrepreneurship/ enterprises, self-employment; university graduates

## 1. Introduction

Livestock provide high quality food, cash income and employment. Livestock ownership also significantly impacts on farm productivity through provision of draft power and manure for fertilizer in crop production. Livestock ownership helps sustain farming and economic stability. It is a major form of investment and a source of livelihood for many farmers at times of drought, flood and other form of natural calamities. Livestock is also important in the social and cultural lives of millions of small-scale farmers as a symbol of wealth and for use in many ceremonies (Sansoucy et al., 1995). Ethiopia is no exception, livestock have the above functions.

Livestock is an important and integral component of the Ethiopian agricultural system and plays a significant and sometimes decisive role in the provision of food, power and income generation both at the household and at national levels (Alemu and Zinash, 2001). Ethiopia is the major livestock country in Africa and enjoys considerable livestock resources both in terms of number and diversity. The livestock population in Ethiopia is estimated at 53.38 million cattle, 25.50 million sheep, 22.78 million goats, 6.21 million donkeys, 2.08 million horses, 1.10 million camels, 0.39 million mules and 49.28 million poultry (CSA, 2011). The livestock subsector contributes some 45 percent of agricultural GDP, 15-18 percent of national GDP, and 5- 17percent of total exports (IGAD,2010).

Livestock production constitutes a major asset for the micro-economy of Ethiopian small-holding farmers. Currently most of the production is handled by poor farmers with limited resources that are not likely to benefit directly from advanced technologies beyond the level of the extension services. Productivity is very low, mainly due to poor nutrition of the forage material and to infectious diseases. The demand for livestock products in Africa is expanding at a very fast rate. Africa will play a central role in both the demand and production of beef products in the next decade. In order to meet the demand the industry will have to shift to larger producers of livestock Eli Khayat (2004).

A vital and continuing challenge over the next several decades will be to provide a food supply that is nutritious, safe, convenient, attractive, and economical which is also satisfying to the consumer. Moreover, there has been challenge to provide adequate nutrition to an ever-expanding world population. Many countries have tremendous natural resources for expanded food production but lack technical knowledge and adequate capital to develop these resources. An education should provide opportunities for people to earn a living, continue learning, and live a full, productive life even beyond the typical retirement years (Field and Taylor, 2009).

Agricultural science is one of the fields of study that has been given in Ethiopian academic institutes. It is a broad multidisciplinary field that encompasses the parts of exact, natural, economic and social sciences that are used in the practice and understanding of agriculture (the set of activities that transform the environment for the production of animals and plants for human use). Agricultural education and training (AET) is conventionally

viewed in terms of its role in building human and scientific capital, it also has a vital role to play in building the capacity of organizations and individuals to transmit and adapt new applications of existing information, new products and processes, and new organizational cultures and behaviors. The same paper emphasized the importance of improving AET systems by strengthening the innovative capabilities of AET organizations and professionals; changing organizational cultures, behaviors, and incentives; and building innovation networks and linkages (Spielman et al., 2008).

It is essential that science be affirmed as the primary vehicle of change. The sciences of US Agriculture, the Asian Green Revolution, and the few nuggets of change in Africa are evidence that science-based development offers not only a way out of hunger and poverty, but also leads to prosperity. Life altering changes will continue to require scientific innovations that raise productivity and income. Recent advances made in the biological sciences offer exciting opportunities for addressing some of the most intractable agricultural problems prevalent in the tropics (Gebisa, 2011). Among others, through livestock sciences, we better understand the biology and care of domesticated livestock species for the production of human food (meat, milk, eggs, etc.) (Campbell et al., 2003). The advent of new knowledge on molecular biotechnology like Estrus synchronization, Embryo transfer (ET), Sperm sexing, tools in genetic characterization, cloning/genetic engineering, etc. revolutionized/advanced livestock science.

Value chain is another important concept in the livestock sector. The livestock value chain includes the full range of activities required to bring a product (meat, milk, eggs, leather, honey, live animal, etc.) to final consumers. Traditionally, processing comes into picture when there is surplus production and/or there is demand for value added products. But in this approach, service providers, input suppliers and other actors in production, processing and marketing channels are identified/considered right from the beginning. The mapping exercise enables better identification of major gaps along the livestock commodity production, and the marketing chain. In other words, value chain studies should firstly describe the processes through which livestock and other inputs pass during the production process together with the resulting variety of products at the end of the chain (FAO, 2012). Linking up the farm to market can be a source of significant job creation and income generation.

Few years back, Ethiopia had only one general university, another agricultural university and few colleges with less than six thousand student enrollment capacity a year. Relentless efforts have been made to improve the number, capacity and distribution of higher learning institutions related to agriculture. Based on lessons learned and its national development vision, the government launched a new five-year plan for 2010/11-2014/15 called the 'Growth and transformation Plan' (GTP). The new plan aims to continue rapid broad-based development in a sustainable manner, achieve the MGDs and make Ethiopia a middle-income country by the 2010-2023 time-frames. Among others, the plan includes more than doubling the number of students enrolled in undergraduate programs in government (MOFED, 2010). Furthermore, as it would be expected from the steady growth of the Ethiopia's economy over the last two decades and robust growth of technical industries, the outlook for well trained graduates in agriculture and natural resources continues to hold strong.

Career options for university graduates have been to be employed in governmental or NGO or private organizations. Recently, graduates including non-Animal science students are also inclining towards self employment on livestock enterprises as a complementary solution. However, issues underlying Livestock entrepreneurship/ enterprises are not fully addressed in the context of a complex set of challenges such as lack of institutional arrangement (scattered efforts and gaps in awareness/information sharing across institutions) can be a barrier to promote and realize the potential of self-employment by graduates.

In this regard, a collation of information (knowledge and experiences) pertaining to livestock enterprises remains limited. In addition, there have been little or no efforts exerted to study the agriculture entrepreneurship/agri-business in general and livestock in particular that have been exercised by university graduate students as a self-employment option.

Enterprises should have access to adequate levels of information about market, technology, research etc. that have to be taken into account while introducing and developing livestock entrepreneurship. Therefore, based on extensive/thorough search of current/most recent literature, secondary data sources, and good practices elsewhere; this paper compiles and synthesizes knowledge on livestock enterprises, technical skills and information needs among self-employed graduates. This preliminary review article addresses/ analyzes the answers to questions that follow: how livestock entrepreneurship is understood and what implications for success of self-employment in the livestock industry? What institutional platforms can support more sustainable livestock entrepreneurship? Is knowledge in the field of livestock sciences and entrepreneurship education needed for self employment in livestock industry? Are there potentials to produce and process quality livestock products for markets? Implications for further investigation and interventions; and informing institutional policies development on sustainable livestock industry as a growing employment/ job creation option are also highlighted.

## 2. Literature review

### 2.1. Entrepreneurship

Putari (2006) defined entrepreneurship as a function which involves the exploitation of opportunities which exist within a market. Thus, from the definition we can see that various scholars, over the years, while defining the concept, entrepreneurship, laid emphases on a wide spectrum of activities such as self-employment of any sort; creation of organizations; innovation applied to a business context; the combination of resources; identification and exploitation of opportunities within the economic system or market; the bringing together of factors of production under uncertainty. And hence, any action that involves one or all of the above activities can be regarded as entrepreneurship.

Entrepreneurship has never been more important than it is today in this time of financial crisis. At the same time, society faces massive global challenges that extend well beyond the economy.

Innovation and entrepreneurship provide a way forward for solving the global challenges of the 21st century, building sustainable development, creating jobs, generating renewed economic growth and advancing human welfare (World Economic Forum, 2009). In this regard, Hagmann et al., (2010) indicated that building on the lessons learnt from South Africa and Ethiopia, in Malawi and Tanzania, a higher level 'innovation coalition' was formed to drive new approaches and provide space for a more entrepreneurial approach in the platforms. The platforms consisted in all cases of the actors required to deal with a certain innovation challenge. It is very clear who is in the platform for what reason and function, and who is required to support it. We call this more performance focused way of getting the right actors to do the right things 'managing inclusiveness'.

According to a study in Australia by Sardeshmukh et al., (2011), entrepreneurship as a career option is becoming increasingly desirable. Responding to this need, many colleges and universities around the world have significantly increased their offerings of entrepreneurship courses over the past 25 years (Fayolle and. Degeorge, 2006). The goal of many of these programs is to encourage their graduates to choose some form of entrepreneurship as a career option. Similarly, after the global financial crisis, encouraging university graduates' entrepreneurship to create more employment opportunities has become the key strategy to deal with employment problems for China's government. The same paper finds that, although the university students have some advantages, there are still several difficulties for university graduates' entrepreneurship. Effective countermeasures must be taken to strengthen the entrepreneurship capacity by enhancing entrepreneurship education, increasing entrepreneurship opportunities by improving the entrepreneurship environment and raising the entrepreneurship desire by perfecting financing system and then encouraging university graduates to start up businesses actively, so that more college students could become entrepreneurs (Hong, 2011). Further, a study in Malaysia pointed out that higher education can support greater self-employment and can contribute to entrepreneurship and employability in general (Anantha, 2010).

Given the small number of indigenous African small firms compared to firms from other parts of the world, education and training support for entrepreneurs and small-scale enterprises will help establish a good foundation for small business growth (Biggs and Shah, 2006). Students in universities and technical schools should be encouraged to become entrepreneurs because of their potential to explore nontraditional business models (Ekeledo and Bewayo, 2009).

Now the question is how livestock entrepreneurship is understood has large implications for success of self-employment in the livestock industry. Livestock-based enterprises are pathways out of poverty for many people in Africa, for whom animals are source of nourishing foods and regular incomes. With demands for milk, meat and eggs rising fast in many developing countries, the raising marketing of animals and animal products also allows many people to take advantage of the new growth opportunities in this sector. The projection of human population in Ethiopia shows an increasing trend with alarming rate which in turn increases the demand for food especially of animal origin (Hadera, 2002). In this regard, farm animals create significant numbers of jobs and small business opportunities. It will also create waged jobs in addition to family labor. For instance, the study by Land O'Lakes (2010) finds that the growth in the dairy sub-sector could create up to 73,000 new dairy related jobs by the year 2020.

Entrepreneurial effectiveness is likely to be achieved as the student moves toward completion of their undergraduate studies and prepares for the transition into work, self-employment, further study, or other options (The Quality Assurance Agency for Higher Education, 2012). Research suggest that participation in specific entrepreneurship education programs derive in perceptions of competence for business start-up (Moriano et al., 2006; Soutaris et al., 2007; Vázquez et al., 2009a), favorable attitudes towards self-employment (Hegarty, 2006; Vázquez et al., 2009a), and related entrepreneurship preferences and intentions (Moriano et al., 2006; Vázquez et al., 2009a). Moreover, Douglas et al. (2002) found that the intention to be an entrepreneur is stronger for those with more positive attitudes to risk and independence. Previous studies maintain that entrepreneurs are cultivated during their lifetime, and that social and cultural environment, personal experience,

and education are very important to building entrepreneurship (Sang et al., 2005).

Nodede-Amadi (2012) has also indicated that in order to start, operate and grow a profitable small business, there are certain key intrinsic and extrinsic components such as attributes, behaviors, attitudes, and practices that must be fully developed, implemented, and managed by a small business owner. These include: doing what you enjoy; taking what you do seriously; planning everything; managing money wisely; asking for the sale; remembering it's all about the customer, becoming a shameless self-promoter (without being obnoxious); projecting a positive business image; getting to know you're your customers ; leveling the playing field with technology; building a top-notch business team; becoming known as an expert; creating a competitive advantage; investing in yourself; being accessible; being knowledgeable; building a rock-solid reputation; selling benefits; getting involved; grabbing attention; mastering the art of negotiations; designing your workspace for success; getting and staying organized; taking time off; limiting the number of hats you wear; and following-up constantly.

### **2.2. Self-employment in Ethiopia**

Agricultural Self-employment includes persons working on their own farms or doing any other income-generating activities. Self-employment contributes to the creation of national wealth and job opportunities (Danielle, 2005).

According to CSA (2012), 51.5 percent of the total urban population of the country aged ten years and above are employed. The employment to population ratio shows an increasing trend from the survey periods May 2009 to March 2012 (20.6%). The labor force is predominantly self employed, which are 38.7 % by percentage distribution of employed population (no change the last four years) against government employees, unpaid family workers, private organization employee, NGO'S Employee, Domestic Employee, Employer, Members of Cooperative and others. Furthermore, the study by International Labour Organization, (2003) about attitudes of Ethiopian women Entrepreneurs towards Self-Employment, 85% of the operators said they are proud of being self-employed.

What institutional platforms can support more sustainable livestock entrepreneurship? There are efforts to encourage SME's by various institutes including the state-run Micro and Small Enterprises Development Agency. UNDP programme document under Enterprise development and employment component indicated that employment and self-employment opportunities enhanced for youth, women and vulnerable groups, through investments and targeted economic interventions, for the promotion of pro-poor economic growth and sustainable livelihoods, in 4 big regions (Oromia, Amhara, SNNPR and Tigray). Among others, Urban Agriculture and agro- processing enterprises are focused on generic horticulture (spices) and livestock production (dairy, sheep, poultry and cattle fattening) (Tegegne et al., 2011). Moreover, the experience of non-farm activity may be of help in developing entrepreneurship skills for self-employment. For instance, the pilot scheme on self-employment of Technical and Vocational Education and Training (TVET) graduates provides the various TVET schools with post-training support services to graduates for self-employment. In light of this, the Ethio-German TVET Programme and the Ministry of Education in collaboration with the GTZ-MSE Development Programme initiate a pilot scheme envisaged to stimulate self-employment of TVET graduates. The partners of the pilot scheme to support the self-employment of TVET graduates involved public, private and other development projects/programmes as well as individuals (GTZ,2005).

The launching of Entrepreneurship Development Center targeting mainly the large number of graduates from tertiary institutions is a positive experience and an opportunity to promote entrepreneurial process. It is opening by Urban Development and Construction in collaboration with UNDP to build the capacity of 200,000 entrepreneurs through offering entrepreneurial development skill training, business advisory service, connecting them to sources of innovation, access to finance, and job opportunity for tens of thousands of small and medium-scale enterprises and the creation of thousands of new jobs/self-employment and the stimulation of economic growth (The Ethiopian Herald, 2013).

Graduates are already becoming entrepreneurs. For instance, out of 89 sampled graduate entrepreneurs in Tigray region (Ethiopia), 12%, 15%, 39%, 11%, 16% and 6.7% are engaged in Abattoir operations, Poultry farming, fattening, vaccinations(dogs), Apiaries and dairy farming respectively.

### **2.3. Urban Agriculture (UA) as a self-employment option**

It is estimated that, by 2030, urban populations will be at least twice that of rural populations. The growth of urbanisation causes serious losses in the availability of productive agricultural land. However, hundreds of millions of urban dwellers rely on urban agriculture for part of their food consumption or income as they sell high-value crops or non-food crops or raise livestock for sale (Redwood 2009). A range of studies in urban centres in East Africa during the 1990s showed 17–36% of the population growing crops and/or keeping livestock (Lee-Smith 2010). Studies in Ethiopia by Lee (1997) in Addis Ababa; Messay (2010) in Adma and Dereje et al. (2007) in Mekele also showed the great contribution of UA to food security, job creation and environmental greening. Even though urban agriculture is a viable activity to complement food

supplies from rural areas to towns and is a means of income for many urban poor, its contribution has been underestimated (Mougeut 2000). Urban and peri-urban agriculture has a significant role in food and nutrition security in most low-income nations, although in many cities it is more difficult for the urban poor to get access to the land needed for agriculture (Lee-Smith 2010). In this regard, as some of the graduating class students may be from Urban and Periurban areas, there is a need to restrict the loss of agricultural land to urban expansion and more intensive production for land that remains in agriculture. In short, societies that are better able to manage their resources now will be better able to capture this food and agro related market growth and promote its development in the future (Marcos and Scare, 2013).

#### **2.4. Livestock input supply and service provision**

Is knowledge in the field of livestock sciences and entrepreneurship education needed for self employment in livestock industry? The delivery of services in animal health and production is considered a main factor for successful livestock development. Producing for the market requires development of a knowledge based and responsive institutional support services (extension, research, input supply, rural finance and marketing). The major inputs for livestock development include animal genetic resources, feeds and forages, veterinary drugs, vaccines, machinery equipment and utensils as well as knowledge (Azage et al., 2010). In this regard, the initiative of Ethiopian Meat and Dairy Technology Institute (EMDTI) and Land O'Lakes-Ethiopia Dairy Development Project (EDDP) to publish and distribute Dairy business directory is very interesting. It includes private suppliers (drug, feed, dairy cattle, equipment, processing machinery, forage seeds) and service giving organizations.

Moti et al. (2013) described using a “hub” approach to coordinate inputs and services for the growing dairy industry in Ethiopia. This paper point out that the development of coordinated input supply and service delivery by different business entities or under a single business entity may not emerge at once, but through a gradual evolution. This depends on the level of demand for the inputs and services as determined by the degree of demand for milk and milk products, and the economies of scale input suppliers and service providers could attain from the expansion of demands for these inputs and services. Moreover, at the early stage of a hub development, collective actions and integration of services and marketing within a business organization could be the main strategy to attain efficiency. But, once the demand for inputs and services has grown, competition among different entities will lead to more efficient input supply and service delivery. In general, where there is an increasing demand for inputs and services, there is a faster development of input supply and service provision by private actors and collective actions in a more competitive way. Role of the public sector could change gradually from provision of inputs and services to coordination, capacity building, quality control, and regulation.

Access to quality and affordable livestock services is constrained by many factors including limited service providers, physical distance, price, information and socio-cultural barriers. The changing role of the state opens up new business opportunities for the private sector, including farmers groups. A new vision for livestock service provision is needed so that the roles and responsibilities of state and non-state actors can be supported by progressive legislation and regulation. Fundamental to this is a clear definition of what constitutes a public and private good, so that state and non-state actors co-operate and do not compete. Some innovative business models including contract farming and micro-franchising are needed, which could be applied to unlock the value and income generating potential of livestock kept by poorer livestock producers (Peacock, 2010).

A study on producers' willingness to pay for dairy advisory services in Ethiopia by Anteneh et al. (2010) indicated that that 71.3 % of the producers would be willing to pay for dairy advisory service if their income from dairy increased. Moreover, 80.6% showed a preference to pay for the services through cooperative societies. This study also found that developing a functional and effective pluralistic service delivery system to support the commercialization of smallholder dairy production rest on three pillars: an effective demand for service delivery, an availability of competent multiple service providers, and an environment that facilitates the interaction between suppliers and consumers of advisory services.

Delivery of quality and affordable veterinary services is one of an effective means of enhancing livestock productivity. In response to the animal health service delivery gap, GO, NGOs and development organizations introduced different models of community based animal health service delivery system as an interim measure to save livestock keepers from eventual loss of their asset and vulnerability. The system supports provision of basic animal health care by community animal health workers (Berhanu, 2010).

Provision of credit/loans for the purchase of livestock, feed, and health services and insurance against the loss of valuable productive assets play an important role in encouraging new investments in the sector and also in

coping with difficult problems such as drought and disease. In Ethiopia, the sources of financing for livestock development generally include government owned banks, private banks, micro-finance organizations or NGOs. Microfinance institutions (Dedebit in Tigray; ACSI in Amhara; OCSI in Oromia; Omo Microfinance and Sidama Microfinance in the SNNPR) provide credit for livestock development. However, their interest rates vary and have upper limits on credit access which in most cases do not encourage larger investments in the livestock sector. The involvement of commercial banks (government owned bank) is limited and most often they provide credit in situations where the government provides incentives for special agricultural development activities or are supported with guarantee funds against loss of animals or low repayment conditions. These sources of financing, generally involving subsidized, low-interest credit, tend not to allow smallholders to borrow money unless they are organized in groups or through cooperative arrangements. Although investments in the livestock sector can be considered as high risk, some microfinance and NGO credit schemes have become successful through the application of appropriate approaches and methodologies. For example, according to FAO (1992), the Grameen Bank in Bangladesh extends its credits to about 40–50% of landless farmers to acquire and raise livestock. Similar practice in India, particularly focused on women livestock keepers, has also been successful (Azage et al., 2010).

### **2.5. Marketing livestock and livestock products**

We started from the hypothesis that Ethiopia has the potential to produce and process quality livestock products for the domestic and export markets. Marketing of livestock and livestock products is an important activity all over the country. Marketing of livestock and products such as milk, butter, egg, hide and skin is common. Supply is usually higher in urban areas due to market orientation and urbanization, which creates better demand for products. For instance, income from sale of dairy products in kiosks and house rent showed significantly higher in urban areas than peri-urban areas (Gebrekidan et al., 2012).

There are increasing number of dairy enterprises (Hawassa in Southern Ethiopia, and Adigrat and Mekele in Tigray regions (Tesfaye et al., 2010). According to a study on economic analysis of urban dairy farming by Wuletaw et al., (2008) showed that concentrates were the major input with the highest cost share of the total cost of production. Similarly, cost of concentrate accounts for the highest share of the total variable costs followed by dry fodder and labor. Regarding fixed cost, depreciation of cows accounts for the highest share of the total cost followed by interest on fixed capital and cow shed. The sources of annual return to dairy farm are from sell of milk, followed by appreciation of calves and heifers. Crossbred medium size (4-10 cows) farms are making more profit than small size (1-3 cows) crossbred cows owning farms. The same holds true in Mekele in that C:B results indicated crossbred farms were profitable (1.0:3.02) than local breed farms (Dayanandan, 2011).

In this connection Ehmke et al., ([www.ces.purdue.edu/new](http://www.ces.purdue.edu/new)) advises New Entrepreneurs by saying- marketing your business is about how you position it to satisfy your market's needs. There are four critical elements in marketing your products and business. They are the four P's of marketing-Product, Price, Place and Promotion. Once you have a good marketing mix—the right product at the right price, offered in the right place and promoted in the right way—you will need to continue to stay on top of market changes and adopt your marketing mix as necessary.

### **2.6. Career services in other countries**

As there is little career services provided for graduates in Ethiopian universities, experiences of other countries needs to be adapted. Career services delivery allows providing all students with equal opportunity to receive career information and guidance in accordance with level of individual need. Individual entering a livestock-related occupation require knowledge of Animal sciences- a minimum of two years of education to grow and discover the thrill of exploring the Biology of domestic animals. The right combination of skills, education, training, and experience can lead to exciting careers.

Graduates of the animal science program have pursued academic positions at universities or colleges, research positions at universities and government institutions, consultant positions, or careers in animal-related fields including veterinary medicine, the animal feed manufacturing industry, wildlife rehabilitation, and others. Entrepreneurship provides the widest opportunities to excel in career. According to Field and Taylor (2009), sample of animal sciences careers in US includes Livestock production operations (beef, dairy, swine, sheep, and poultry), Ranch positions, Meat grading and distribution, livestock and meat market reporting, feed manufacturing, sales and management in companies (feed, packing, health, pharmacy, equipment). Similarly, in the Netherlands, university Student Careers Centre suggests Entrepreneurship as one of the career option after graduation. In Canada too, universities inform students that some graduates work in family-owned enterprises or start their own small business, as consultants for government, private industry, or academia. Livestock related occupations include dairy farm manager, dairy herdsman, artificial insemination specialist, ranch handler, sales representative for livestock-related supplies; swine herd production assistant, and poultry producers (<http://www.canadian-universities.net>).

The review in UK by Jenny et al., (2005) also specified that Career-related interventions in higher education and

their impact on students' career-related decisions, career learning and progression towards the labour market have been well researched. This review has provided a sound evidence base on curricular and extra-curricular interventions assisting career decision-making, career learning and occupational progression for practitioners, researchers and policy-makers. These 'career narratives' would not only be invaluable in understanding career learning and development, crucially, they could also be adapted as a tool to help the career decision-making, learning and development of students and graduates, as well as forming the basis for multi-professional collaboration between careers practitioners and teaching staff.

### 3. Concluding remarks

In Ethiopia, recently, there has been emerging trend of self employment on livestock enterprises by university graduates. However, in order to fully address the livestock entrepreneurship and realize its potential as a self-employment option for graduates, support services including technical skills and science-based information, technologies and strategies that link the roles of all stakeholders need to be in place to make use of Livestock entrepreneurship as a viable career option in the emerging interest of graduates and meet the growing demand of livestock commodity.

Apart from embedding entrepreneurship education in every subject, universities need to open a career center and equip students with the skill of creating job opportunities for themselves and their community to promote the development of the private sector in the areas of their expertise. In this regard, agricultural universities need to provide strong, science-based information to prepare for a career in food production systems. Through courses, internships, research, and part-time student employment, students will gain practical experience and learn about livestock sciences. Today's food animal production systems, regardless of size or scale, are faced with many challenges to meet the demands of an ever growing human population. Today's consumers expect high-quality, safe, affordable and nutritious food. At the same time, the consumer demand for quality animal care standards and environmental compliance are constantly evolving and increasing. As the future generation of food animal industry professionals, students learn how to meet these challenges through a comprehensive, science-based education.

It is important to encourage students to consider new venture creation and self-employment as valid graduate career options. Students' Unions, societies, start-up centers, and career services can be active in promoting self-employment as a viable career option (The Quality Assurance Agency for Higher Education, 2012).

Career services delivery allows providing all students with equal opportunity to receive career information and guidance in accordance with level of individual need. Individual entering a livestock-related occupation require knowledge of Animal sciences- a minimum of two years of education to grow and discover the thrill of exploring the Biology of domestic animals. The right combination of skills, education, training, and experience can lead to exciting careers.

Selecting an occupation involves three basic steps. First one must look at oneself. Second, one should obtain as much information as possible about the occupations in which one is interested. Third, one makes a decision based on the information from steps one and two.

The increasing interest/perceptions and attitudinal change on livestock enterprises as a job opportunity/entrepreneurial activity by graduates (even by non livestock science graduates) is an advantage. Nowadays animal agriculture education is not given in the primary and secondary schools. Therefore, especially graduates who are new about livestock production science need extensive information through trainings, leaflets, video show and books in Ethiopian context (local language) on dairy, poultry, fattening, apiculture, small ruminants. Livestock Value chain concept (value added technologies and process), innovative entrepreneurship skills training by local consultants and relevant institutions are also needed. Livestock value chains represent a large and growing employment sector. They include farm-level production, input, and service industries to farmers; transportation of livestock and their products; and processing and marketing (Jimmy et al.,2013). The efforts by AACCSA (2008) to forward constraints and opportunities to start and run livestock enterprises in Ethiopia should also be acknowledged. Also NABC (2010) assessed livestock for export market and disclosed that animal diseases, animal nutrition, traditional subsistence animal husbandry, and marketing of animals are the biggest concerns. It is also mentioned that there are new opportunities for the developments of new value chains-meat export and animal feed sector. The demand for dairy and poultry products in the local market is growing and good business opportunities exist in these sectors. This is also indicated by some economic/profitability analysis of livestock and livestock products in the country.

Micro and Small Enterprise (MSEs) make a significant contribution to the socio-economic life of the country by way of supporting people to earn money and make a contribution to family incomes, and by supplying basic goods and services for local consumption (ILO,2003).

Based on the above concluding remarks, the following recommendations were drawn:

- A large scale national study and beyond graduation survey particularly on self employment to gather data concerning the outcomes and experiences of recent higher education graduates need to be done in future studies. Collecting relevant information and data on business development best practices and

lessons learned from the livestock entrepreneurs, participants of the program and other interventions and dissemination to all concerned bodies in a timely manner, as part of the knowledge sharing and capacity development efforts; and also based on that further developing appropriate policy and strategies for future plans need to be in place. In this regard, a recent article on measuring entrepreneurship at the country level by Claude Marcotte (2013) is very important.

- Universities need to respond the new/emerging realities like delivering graduates with qualities demanded and showing the career paths of animal science program graduates and career development services including career counseling, career guidance, career advice, career management, career practice and career coaching (Furbish, 2012). In addition, it is also necessary to deliver ideas and options needed for students to make informed choices for departments when joining university in relation to the emerging self-employment;
- The need of advisory services (intensive short term training course) for non-livestock graduates in basic knowledge related to livestock sciences- production, reproduction, nutrition, breeding, health, processing, marketing and other sustainability concerns should also be considered. Livestock graduates are also expected to grasp in-depth applications of their field but also leaders in advancing its development as a promising career option.
- The entrepreneurship education being embedded in the curriculum is one of the opportunities to recognize and promote entrepreneurship in livestock. Therefore the role of entrepreneurship education is mainly to build an entrepreneurial culture among young people that, in turn, would improve their career choices towards entrepreneurship (Deakins et al., 2005).

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