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A SENIOR SEMINAR PAPER ON “REVIEW OF AGRICULTURAL INPUT
SUPPLY AND ITS EFFECT ON SMALLHOLDER FARMER IN ETHIOPIA

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LIST OF ABBREVIATION

CSA	Central Statistical Authority
DA	Development Agent
FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
Ha	hectare
MOA	Ministry Of Agriculture
NGO	Non-Governmental Organization

ABSTRACTS

Agriculture is a principal economic activity mainly for those developing countries. However, developed countries whose agriculture's relative share to gross domestic product small, still supports this sector through subsidies, reviewing effective farm land ownership rights, providing inputs to their small holder farmers and facilitating agricultural markets. There exist institutional and economic constraints such as poor credit supply, market imperfection, excessive farm land fragmentation, etc. and as a result agriculture remains less productive and most of the time at the subsistence level. This review is intended to review the effect of agricultural input supply on small holder farming to examine the trends and forms of farming practiced by the farmers, to assess input supply and its link with forms of farming.

Keywords: - Agriculture, small holder farming, agricultural technologies

1. INTRODUCTION

1.1 Background

Agriculture is a principal economic activity mainly for developing countries. In Ethiopia, around 94.4 % of all farming is practiced by small holder rural peasant household farmers (CSA, 2007). Such small holder farmers primarily produce for their subsistence and the size of their production unit is small (Abrar, 2004). Small scale rural household farmers are also exposed to shortage of food and other basic needs. In addition to this , given the growing land pressure and limit purchasing power of those small holder rural household farmers, a credit on farm inputs, like fertilizer and improved seeds, for the benefit of the resource poor farmers is critical to ensure the food security (Kriffen, 1999).

But, when credits and resources are insufficient at all, small holder farmers may choose either to farm their land using less efficient method of production, or may decide to rent-out their land to share-croppers, or even may sell it for cash in partial or in total and finally will receive lower income from their land. This trade off occurs most frequently in Women-headed households where resource constraints are greatest (agriculture and economic development). Abrar (2004) also supports this argument, where he found that male-headed farmers have more access to farm inputs and capital better than female-headed farmers. Indeed, some argues that land farming in the form of share-cropping is efficient, while some others stood against argument and said it is inefficient and is not a rational decision for the Leaser (land owners who leases the land he possesses) and finally results in lower return to him. This is because the cultivator must repay part of the output to the leaser (land owner) and hence employ less labor and other farm inputs on rented-in land (Marshal, 2003; Johnson, 1999). In arguing for essentiality of credits, Bereket

(2002) said that though it is likely to cultivate extra farm land for share cropping or other forms by farmers who have access to more factors (oxen ,labor ,fertilizer, improved seed ,etc.), other who faced this factor constraints decided to lease ,or even sold their farm land to others.

1.2. Statement of the problem

The full benefit of small household agriculture development can't be realized unless government support systems are created that provide the necessary incentives, economic opportunities, and access to needed credits and farm input to enable small scale cultivator expand (raise) their production and productivity (Kriffen,2004).

Numerous experts have suggested that modern economic reality and the new way of doing business in agriculture implies deteriorating prospects for small holder farmers. Small holder farmers will thus face a new range of conditions and challenges have emerged, that go beyond the paradigm of the peasant farm, which dominated the Green revolution. These hurdles include globalization, technological advances, institutional changes and environmental concerns (Hazel *et. al*, 2006).According to yezihalwmtesfa (2015) policy the problem of the use of improved agricultural inputs by small household farmers are:-

- ❖ Weak agricultural policy development
- ❖ lack of capacity and educated man power
- ❖ Non clear cut policy was formulated to benefit the rural poor
- ❖ Transportation problem
- ❖ Poor performance of language
- ❖ Limited access of technology
- ❖ Time constraint
- ❖ In sufficiency of available data related to farm input

1.3. Objective

1.3.1. General objective

- ❖ To review the agricultural input supply and its effect on small holder farming

1.3.2. Specific objectives

- ❖ To review the farm input supply constraints in Ethiopia.
- ❖ To review the effect of input supply on small holder farmers in Ethiopia.

2. LITERATUR REVIEW

2.1. Theoretical Review

2.1.1. Definition of Small holder Farming

Small holder farming can be defined in line with agriculture. Accordingly, agriculture, in internet and different texts can be defined as:

“The science or art of cultivating the soil harvesting crops and raising livestock” (GirmaTaye, 2000).

“The science or art of purposeful lend of crop and livestock to men, and in varying the degrees, the preparation of those product for man’s use and their disposal” (GirmaTaye, 2002).

On the ground of the above definition of the agriculture, ‘small holder farming` can also be defined as: “A family based nature of production, with the irrevocable commitment to family labor force i.e. the family head has to find employment to all family members, which is not also a business and the size of production unit is small whether measured in terms of the volume of resources employed or output produced (Thoneret *al*, 2000). As a production unit, this small holder farming is characterized by the

smallness of size and high degree of production orienting for self-sufficiency.

Unlike manufacturing industry, small holder farming is more or less dominated by nature. Natural resources endowments play a conspicuously predominant role in its development. Even though land and labor are the major factors (inputs) used in production (kriffen, 2005), problems aroused by natural factors (evaporation, leaching of the soil, erosion of the soil etc.) necessitate finance which helps to acquire inputs for cultivation the land (Dejene, 2003). Small scale peasant households produce mainly for their family; they are not profit maximizes as firms. Due to this, they are usually exposed to risks like crop failure, animal epidemic-plowing and other animals. To overcome these challenges, in fact, they developed many arrangements like reciprocity and different types of social networks like Idir in Ethiopia (Dejene, 2005).

2.1.2 Empirical evidence

Small scale rural household farmers are also exposed to shortage of food and other basic needs. In addition to this, given the growing land pressure and limiting purchasing power of those small scale rural household farmers, a credit on farm inputs, like fertilizer and improved seeds, for the benefit of the resource poor farmers is critical to ensure that food security (Taye,2000).But, when credits and resources are insufficient at all, small scale farmers may choose either to farm their land using less efficient method of production, or may decide to rent-out their land to share-croppers, or even may sell it for cash in partial or in total and finally will receive lower income from their land.

2.2. Effects of input supply on small scale farmers

Input supply on small scale farmers essentially produce sustainable products (Yibelxal, 2000), because input supply increase the amount of return for smallholder farmers. Input supply are available to improving

and engage on crop production when sufficient amount of input supply are timely delivered to those farmers (Tegengn, 2000). The effect of input supply like improved seed, fertilizer, pesticides –chemical, improved farm to serve as ensure enhanced production and productivity (Duker, 2003).

Effective agricultural productivity can be gain through directly agricultural subsidies and also extension to farmers program that provided credit, improved seed and extension to farmers .However, as the government program expanded they often become financially unstable and were forced to with draw support to agricultural , then the effect is farmers often discontinued /stop using input supply technologies , because credit and other input were not sufficiently developed (Rahmeto,2007).Even if input supply are mandatory to progress productivity and profit Marge of small scale farmers , in Ethiopia small scale farmers are not used properly and effectively in remote area (Marris, 2006).Several sources , indicate that input supply usually shortage and delivery is often untimely , then they raise the negative effect on well-being of small scale farmers and others.

2.3. Major farm input problems of farmers

2.3.1. Input problems

Farmers have limited access to farm inputs in many ways. The input problems reviewed in this senior seminar are fertilizer, improved seed and chemicals. These input problems are decisive and influence farmers decision to, or not to cultivate their land. When farmers are actually with insufficient farm inputs or with no inputs at all, they usually decide to rent out their own lands.

The related problems to this all input problems are shortage of supply, credit constraint , increase in price of that inputs, post phone in time of supply (not supplied on time) etc. throughout the consecutive cropping years. From this we can conclude that the fertilizer problem is the serious problems to the farmers of the small scale farming.

2.4. Agricultural Services and Service Systems

In effect, agricultural extension services are what tie improved seed, chemical fertilizers, credit, labor and oxen together for the Ethiopian smallholder. Extension services were first introduced by the Imperial Ethiopian collage of agricultural and Mechanical Arts (also known as Alemaya University and recently renamed Haramaya University) in the style of a U.S. land grant University. The extension system jumped on the bandwagon and transformed itself into a training and visit (T&V) style system that was favored by the international donor community at the time (Abate, 2008).

In systems theory, reality is seen as a complex pattern of various relationships between different elements. A system which can be defined as a simplified reproduction of a part of reality is composed of elements with attributes, i.e. their perceived characteristics, and describes the specific relationships between them and their boundaries. What is regarded as a system (i.e., which elements and relationships are selected to form a system) depends on the perspective and the specific objectives (e.g. small-holder farmer obtaining access to agricultural inputs, private research institutions advising commercial farmers, government institutions privatizing extension services, development organization designed to improve the agricultural services in a specific region). The systems, or holistic, approach is useful when seeking to analyze and understand better the complexity of service systems (Doppler and Calatrava, 2003).

2.5. Seeds as Agricultural Resource Base

Seeds played a critical role in agricultural development since pre historic man domesticated the first crops 10000 years ago. The domestication of wild species into crop plants probably started with the collection, storage and utilization of seeds not only for food, but also for planting a major step in the evolution of settled agriculture. The domestication of plants was a gradual transformation from hunting and gathering to sedentary

agriculture rather than a sudden revolution. During this process conscious and unconscious selection occurred, leading to significant modification of many of our crop plants from their wild ancestors into highly adapted and diverse population of local land races (Zewde, 2004).

According to (as cited by Zewde, 2004), domestication of wild species into cultivated crops has probably altered natural adaptation very little in the centre of origin. The migration of human populations and/or diffusion of crops from the centers of crop domestication exposed crops to new biophysical environments. The landraces, by disseminating into different agro-ecosystems, have acquired new genes or gene combinations and frequencies to fit into their new environments. Thus, farmers' selection coupled with natural selection conditioned the adaptation of landraces to their agro-ecosystems. The history of seed trade is as old as agriculture itself. Farmers exchanged seed in various traditional forms such as gifts, barter, labor exchange or social obligations. However, information on when, where and how organized seed production and trade started, is limited. It is believed that the introduction of new crops and knowledge-based agriculture including scientific plant breeding, mechanization, intensification and commercialization at various stages of agricultural development might have played a key role (Zewde, 2004).

The informal seed system deals with small quantities of seed is semi-structured, operates at the individual farmer or community level and may depend on indigenous knowledge of plant and seed selection, sourcing, retaining and management, as well as local diffusion mechanisms. The informal sector is more flexible and adaptable to changing local conditions and less dependent on or less influenced by other external factors (Cromwell *et al*; 2007).

The distribution of improved seeds to farmers started with the launching of the Chilalo Agricultural Development Unit (CADU) in 2003. In 2004 the Ethiopian Seed Enterprise

(ESE) (Formerly known as Ethiopian Seed Corporation) was established as a government parasternal under the now defunct Ministry of State Farms, Coffee and Tea Development.

The primary objective of the enterprise was to produce and supply improved seeds to state farms and small farmers (Techane and Mulat, 2005).

2.6. Main Farm inputs required by Farmers in Ethiopia

2.6.1. Farm Land

In the agrarian economies of rural sector land is a major input of production, but the effect of farm size on efficiency is controversial (Hussein, 2008). Some says that having small acreage of farm land creates efficiency of production, while others opposed this justifying on the basis of economies of scale and scope associated with large size. In fact the distribution of farm land among families dependent on agriculture is important for two reasons. First, since land tends to be the scarcest factor of production in traditional agriculture, there is a close and direct correlation between farm sizes and family income. In other words the economic wellbeing of farm households depends to a large extent on the amount of land to which it has access.

Second, the concentration of land in the hands of few, which still exists as Latifundio of Latin America, and rich land lords in Asia, keeps land productivity in efficient (Morris 2007; Torado, 2006). Indeed; this in quality in the distribution of agricultural land may have adverse effect particularly on masses of land less and insufficient land holding peasants. First, the land they possess may not be sufficient and their option is to rent-in land from others (Bhardan, 2004), and thus, they may acquire loans which are to be obtained from legal financial institutions or rural lenders. Nevertheless, while there is lower problem of borrowing from legal financial institutions, rate of borrowing from rural lenders, on the

other, may be distorted in favor of the lender (Bharduri, 2005). In addition, returns of these poor farmers from their cultivation may be insufficient, as part of their yield is taken away by land owners (Bharduri, 2007).

2.6.2. Fertilizer

The use of fertilizer in Ethiopia (primarily DAP and Urea) can be reviewed in several ways in terms of total fertilizer imported, percentage of farmers using fertilizer and improved seed-fertilizer packages, percentage of cultivated land under fertilizer application, and household-level estimates of fertilizer application per hectare (Crawford et al. 2006). Because it increases the return from farming. However, the use of fertilizer is influenced by the ratio of its nutrient price to output price, information and access through extension, credit marketing service, etc (Taye, 2005).

2.6.3. Improved Seeds

Even if improved seeds are believed to increase productivity in Ethiopia, small scale farmers rarely use improved seeds supplied to them by peasant's cooperatives and input supply branches of agricultural offices. For example, in year 2007 cropping period, farmers use only 2.7% of improved seeds on their land (FAO, 2005). This low demand for improved seeds is likely because of low information, on the one hand, risk and uncertainty issues, on the other hand, (Todaro, 2007), i.e. a farmer in Ethiopia usually chooses seeds which give average yield with minimum output variability than using seeds with high yield and high output variability. In the same year, 97.3% of small scale farmers use local seeds obtained from previous harvest either by farmers themselves following the traditional output-farm selection process whereby the farmer identifies next year's needs stock while it is maturing in the field and gives special protection,

or by buying from preferred seeds stock kept by other farmers in the same locality (FAO, 2008).

2.6.4. Labor and Oxen

In least developed countries` agriculture, labor is a major input as to land (Todaro, 2005). Labor utilized on farms may be either family labor or hired labor to which wage payment is made on daily, weekly, monthly or etc. basis according to the agreement between the labor and the employer (house hold farmers).

Households with large working labor will be in a position to manage the labor-intensive agricultural activity. Moreover, large working labor force in a family means the family may not need to hire more additional labor and the money saved due to the use of labor force could be used for purchasing other crop production inputs (Rahmeto, 2007).

2.6.5. Farm input constraint (Impacts) and the need for credit

Input constraints or unable to get inputs is a condition were the farmer is unable to obtain necessary input required for farming. Thus, as farming is hardly possible without necessary inputs, and a farmer may decide not to farm his/her land if faced such an input constraints. Farm input constraint is aggravated if there is credit constraint. A farm house hold to be credit constrained only when it would like to borrow is greater than lenders allow, or if its proffered demand exceeds the amount the lenders are willing to supply (Ducker and Rosenthal, 2007).

Credit markets in developing counties are in efficient due to market imperfections such as high ceilings imposed by the governments, monopoly power often exercised by informal lenders (Bell *et.al*, 2004). The source of farm input constraints are many, but in developing countries the structure of land ownership across farmers is unequal and this is probably an important determinant of the existing inequitable

distribution of rural income, and wealth (Zeller *et.al*, 2001). To negotiate such income inequality among such rural house hold farmers, the government should create a support system that provide the necessary incentives, access to needed credit and inputs so that small scale farmers could increase their output (Kriffen, 2004).

3. CONCLUSION AND RECOMMENDATION

3.1. Conclusion

It is essential to involve smallholder farmers in the design and implementation of input supply programs to ensure that their needs and preferences are taken into account. This will also help to build trust and ownership among smallholder farmers, which is critical for the sustainability of input supply program

Moreover, it is crucial to promote gender equity in the input supply system. Women farmers often face greater challenges accessing inputs and extension services compared to men. Therefore, efforts should be made to ensure that women farmers have equal access to inputs and extension services.

Finally, it is vital to monitor and evaluate the impact of input supply programs on smallholder farmers' livelihoods continually. This will help to identify areas that need improvement and ensure that the input supply system is delivering the intended benefits.

In conclusion, improving the input supply system is crucial for enhancing smallholder farmers' productivity and improving their livelihoods in Ethiopia. The government and development partners should focus on strengthening infrastructure, improving access to credit, enhancing extension services, reducing input costs, and strengthening quality control mechanisms. By doing so, they can support smallholder farmers in Ethiopia to achieve sustainable agricultural development and food security.

3.2. Recommendation

Supplied input problems, particularly pure seed, fertilizer, financial credit, land access, extension access, market access and others were a serious problem to the small scale farmers. Therefore government, NGOs and other bodies should tackle these problems in order to increase the agricultural productivity of farm house hold heads through:

- Improving the efficiency of credit system, timely and sufficient amount of delivering credit to farmers who engaged on crop production.
- Giving attention to women farmers group to empower them and participate in productive activities to minimize vulnerability and improve their livelihood status through delivering agricultural input credit as to minimize vulnerability and improve their livelihoods.
- Establishing efficient extension service is mandatory Giving attention to rural development and agricultural extension activities by local administration.
- As non-farm income was found to be the most important factor associated with owner cultivation ,motivations for farmers to engage in non-crop farm activities such as petty trade ,crafts and cottages like pottery ,weaving ,simple metal work should be facilitated by the concerned bodies so that they help in reducing farmers farm input constraints.

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