



## Opportunities of mung beans production and development under, Pawe District, North-West Ethiopia: A review

**Zeru Yimer Kebede**

Pawe Agricultural Research Center (PARC): P.O. Box: 25, Pawe, Ethiopia

Contact number: +251914330900

E-mail: [zeruyimer2000@gmail.com](mailto:zeruyimer2000@gmail.com)

ORCID ID: <https://orcid.org/0000-0002-3418-4149>

### Abstract

**Background and objectives:** The production and productivity of mung beans in Ethiopia is hindered by multiple challenges; among these were biotic, abiotic and socioeconomic factors. Thus, this review paper highlighted and discussed those factors that impose mung beans not to give reasonable grain yield and acceptable quality thereby to identify and discuss the main challenges of mung beans under the study area, and to document the information generated from the paper for future improvement of mung beans.

**Material and Methods:** A number of peer reviewed papers were critically viewed and reanalyzed based on the current situation of legumes production. Based on the investigation and observations made the author distinguished and prioritized the major threats of mung beans production for the study area.

**Results:** Via different sources, information generated. The author also identified and prioritized the agents that limit the production of mung beans under the area and means of managing the challenges separately or by integration them.

**Conclusion:** Therefore, the author recommend and suggest that to increase and / or improve the production and development of mung beans under the study area, the use and application of full production package with the direct involvement of different stakeholders is the better and preferred way.

**Keywords:** Mung beans, Packages, Technology, Factors, Production, Productivity, Grain

### Introduction

Agriculture is the backbone of Ethiopia's economy and the livelihoods of majority of the populations <sup>[1]</sup>. It is also major sector of employing huge amounts of laborers.

Furthermore, it is also source of earning foreign currency. According to Ethiopian Monitor Daily News report, the country has earned 4.12 billion USD from the export trade in the 2021/22 Ethiopian fiscal year. Agriculture commodities have continued to dominate Ethiopia's export

trade, data from the ministry trade shows. The sector has contributed 72 percent to the total export revenue secured.

Mung bean (*Vigna radiata* L.) is one of the commodities under lowland pulses. It is source of proteins, minerals, and other essential ingredients that are directly important for humans and livestock. It is consumed in different forms like soup, boiled and mixed with other cereals, consumed with vegetables, its grain as well as its stalk is preferred by livestock and used as source of feed<sup>[1]</sup>. In general legumes plants are important source of protein; among this sweet lupine is among the legumes plant which is protein and mineral source<sup>[5]</sup>. Due to the improvement of market trends its price per kilo gram is increased, so acts as source of income for small scale growers.

Mung bean, a warm season legume crop, is grown mainly for its edible seeds<sup>[2]</sup>. In Ethiopia, farmers in some moisture stress areas of Southern Ethiopia, Amhara, Tigray and in some parts of Oromia have been producing mung bean to supplement their protein needs and also to harvest reasonable yield during cropping seasons of insufficient rainfall<sup>[2]</sup>. Mungbean is a widely grown cash crop in the low land areas of North Shewa<sup>[8]</sup>. Started from former times, the crop is cultivated in some parts of Benishangul Gumuz National Regional State particularly Metekel and Kamashi zones, because these areas are potential for the production of mung beans<sup>[1]</sup>.

In Ethiopia, mung bean covers about 41,633.20 ha of land and produces 514,227.41 quintals in main cropping season per annum with average productivity of 1.235 ton per hectare<sup>[3]</sup>. Currently the production of mung bean in Ethiopia is challenged by multiple threats; among these were biotic, abiotic and socioeconomic factors (such as limitation of demonstration and pre-scale up of improved technologies)<sup>[4]</sup>. Another research output reported by<sup>[8]</sup> indicated, productivity of mung bean was very low due to lack of improved seed and high pest and disease infestation problem.

However, there are also possibilities of producing reasonable yield from mung beans grain by applying different methods of production. Therefore, the aim of this review paper is to reveal and discuss the possible scenarios or opportunities of producing mung beans under the study area in sustainable ways.

## **Discussion**

### **Participation of farmers and other stakeholders**

After a decade of years, the direct involvement of small scale farmers and other stakeholders was clearly observed. Due to this, the adoption and diffusion of improved agricultural technologies and information was easily transferred. Performing such type of breakthrough on agricultural sector can enhance the national overall economy of the country. According to<sup>[7]</sup> report the involvement of farmers helps in identifying more number of preferred varieties by farmer in shorter time than the conventional system. Similar research report is suggested by<sup>[8]</sup>. Conducive agro-ecology for the cultivation of crops

The current study area is favorable for the growth, development and cultivation of lowland pulse commodities including mung beans<sup>[6]</sup>. Following this, the area coverage and production of these crops is increased from season to season.

### **Establishment of agricultural research centers**

The main duties of government owned agricultural research centers is improving the genetic make-up of crop germplasms (through by, introduction, selection, hybridization, or adaptation), technology and information promotion, and multiplication of technologies. Thus, the study area can directly benefit from the research output of the two federal research centers located around the study area.

### **Close follow up of agricultural experts**

Agricultural experts from different organization or office has played great role in helping the small

scale farmers by performing close follow up, that is, advising, giving trainings, supplying improved seeds and soil amending fertilizers, searching and contacting where to sell agricultural produce, and others. This review article summary is similar with another study findings reported by <sup>[9]</sup>.

### Inauguration of the nearby agro-processors

Currently a number of agro-processing factories have been constructed and some of them started producing different items. This helps, growers including farmers to sell and supply their agricultural produce with reasonable price regardless of the quality of the product. A research report suggested by <sup>[11]</sup> revealed that a business network is a critical internal resource for small-scale agro-processing enterprises to participate in the formal economy, while existing policies, such as Agri-BEE, focus on transformation.

### Direct involvement of youth groups for agricultural works

Majority of the population of Ethiopia is youth group. The nature of agricultural sector under the context of Ethiopia is labor intensive; thus the engagement of youth groups at agricultural practices has played great role. Findings revealed youths studying agricultural education are aware of their roles through their participation in schools; which extends to their communities, thereby influencing sustainable food supply and availability<sup>[10]</sup>.

### Natural resources

The study area is endowed with plenty of natural resources, such as virgin land (majority of the area), natural rainfall, year round flowing water bodies (mainly rivers), favorable weather conditions; the farmland is suitable for irrigation practice. Similar result or information is reported by <sup>[6]</sup>.

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unit area and Pawe Agricultural Research Center who facilitates the work with meaningful efforts.

**Conclusion:** This review paper targeted the opportunities and challenges of producing mung beans in a sustainable way. Even though, the different impacts of factors challenges leads to decrease the production of mung beans, the current study area North-West Ethiopia is favorable for the production of legume crops including mung beans. Thus; the main threats for the production of lowland pulse crops under the study area specifically pawe district screened, documented and to be forwarded for further evaluations. Opportunities of the study area could be indicators for improving mung beans and thereby to complete self -food security even improve the daily lives of the society.

### Significance statement

This review paper highlights the challenges that directly or indirectly limit the production and productivity of mung beans in different ways, the possibility of intercropping or rotation of mung beans for the study area and similar ecologies of the country. This study will help researchers to explore more important information about mung beans to increase the productivity of mung beans and improve the quality in general. Furthermore, small scale farmers, teachers and students, policy makers, business workers, agro-processors, investors and other stakeholders can be beneficiary by using and applying the information and/or technology generated by this particular review paper and other related findings.

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