

# Common Bean Improvement Status (*Phaseolus vulgaris* L.) in Ethiopia

Demelash BB\*

South Agricultural Research Institute, Areka Research Centre, Ethiopia

\*Corresponding author: Demelash BB, South Agricultural Research Institute, Areka Research Centre, Ethiopia, Tel: +251465520503; E-mail: demelashbassa2000@gmail.com

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## Abstract

Common bean (*Phaseolus vulgaris* L;  $2n=22$ ) is the most important food legume rich in protein, minerals, and vitamins where its protein content is cheap and easily affordable for the farmers of the country. The crop plays great role in maintaining the fertility of the soil through fixing atmospheric nitrogen and thus keeping diversity and stability of the agricultural system. Due to its importance, the total area allocated for common bean crop production and the yield obtained in Ethiopia is 357,299.89 ha and 540,238.94 tons respectively. The productivity of white and red common bean is 1.41 ton/ha and 1.59 ton/ha respectively in 2016 planting season. Since 1970s common bean improvement has been started in Ethiopia and since then more than 50 common bean varieties for different traits and for different agro ecologies were released through conventional breeding in Ethiopia. Currently, in common bean breeding; gene pyramiding against common bean diseases like ALS (Angular Leaf Spot), CBB (Common Bean Blight) and anthracnose and diversity assessment for diseases like CBB and ALS has been started using MAS (Marker Assisted Selection) in Southern Agricultural Research Institute at Hawassa. Therefore the aim of this article is to review common bean improvement status and to indicate some improvement gaps in Ethiopia.

**Keywords:** Protein; Fertility; Stability; Production; Productivity; Conventional breeding; Gene pyramiding

## Introduction

Common bean (*Phaseolus vulgaris* L;  $2n=22$ ) is the world's most important food legume which is used for direct human consumption. The common bean production is greater than 12 million tons annually in the world with its production value of US million \$5717 [1,2]. Since it is high in nutrient content and commercial potential, common bean holds great promise for fighting hunger; increasing income and improving soil fertility in Sub-Saharan Africa. The crop occupies more than 35 million hectares in sub-Saharan, but production is concentrated in the densely populated areas of East Africa, the lakes region and the highlands of southern Africa. It is the second most important crop next to cowpea in eastern, central, and southern Africa [3,4]. These regions are the primary bean growing regions in Africa, with a combined production of almost 1 million metric tons [5].

It is one of the major food and cash crops in Ethiopia and other tropical, agricultural regions.

*Phaseolus* contains some 50 wild-growing species distributed only in the Americas. The Asian *Phaseolus* have been re-classified as *Vigna*

was set [35]. Since then more than 50 common bean varieties have been released for some specific traits and for different altitude ranges (Figure 1). The national strategy to develop improved bean varieties has evolved over time. In the past, evaluation of promising improved

EMP-376	Anger	2005	2.3	1.7	ALS
-	Tibe	2004	2.2	1.8	Anth, CBB, Rust
Dicta-105	Nasir	2003	3.0	2.3-2.7	Anth, CBB, Rust
ISC-15541	Gobe Rasha-1	1999	2.1	1.8	ALS
Pan -182	Awash Melka	1999	3	2.7	Anth, CBB, Rust
GLPX 92	Ayewew	1997	2.0-3.5	1.5-2.8	CBB, Rust
G-2816	Gofta	1997	2.4-4.0	1.5-3.0	CBB, Rust
Roba-1	Roba-1	1997	2	1.6	Anth, CBB, Rust

population was imported. The narrow genetic base of cultivars is

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