

**Verification and identification of the propagation techniques of native bee forage,  
'Mentesie' ( ) in Wag-himra zone Amhara region, Ethiopia**

Agazhe Tsegaye<sup>1\*</sup>, Alemu Tsegaye<sup>1</sup>, Ayalew Girmay<sup>1</sup>, Addisu Bihonegn<sup>2</sup> and Meresa Lemma<sup>1</sup>

<sup>1\*</sup>Sekota Dry Land Agricultural Research Center, Po. Box 62, Sekota, Ethiopia

<sup>2</sup>Andassa Livestock Research Center, P.o.box:27, Bahir Dar, Ethiopia

Corresponding author email: agazhetsegaye@gmail.com

**ABSTRACT**

*Becium grandiflorum* is one of the major honey plants and sources of pollen and nectar for honeybees in the eastern part of the Amhara region, especially in the Wag-himra zone. Nowadays the plant has been found to depletion and extinction from its natural ecology due to human interference, as they are using it for different cultural household tools like as a source of fire wood. This study was conducted at the Jinqaba apiary site of Sekota Dryland Agricultural Research center between 2017 and 2019. The study was designed to evaluate the different propagation techniques of *Becium grandiflorum* and maximize the best method. The propagation techniques were direct sowing, seedling, cutting using a pot, plant splitting, ground, and air layering. Each of the treatments was replicated three times in a randomized complete block design. The planting materials were planted with a distance 1.5m\*1.5m\*2m between plants, rows, and blocks respectively. All the young plants or seedlings derived from the different propagation techniques were planted in pits of 20cm in diameter and 20cm in depth. The propagation techniques were evaluated for plant height (H), Canopy cover (CC), number of branches, total number of flowers per plant (FN) and Survival rate (SR). The study revealed that *B.grandiflorum* could be propagated in six successful techniques (direct sowing, seedling, cutting using a pot, plant splitting, ground, and air layering) tested in this experiment. The results found that *B.grandiflorum* plant height ranges from 77.6cm (cuttings) to 118.3cm (seedlings) and plants propagated through cutting had the highest number of branches (21), while air layering has produced the smallest number of branches (10.3) per plant. There was a significant difference ( $p>0.01$  and  $p<0.001$ ) among the evaluated propagation techniques in canopy cover, height, number of flowers, and branches per plant. Moreover propagation of *B.grandiflorum* using seedlings with pot was the best technique in producing the maximum (4427.8) number of flowers per plant, while sowing is the least (1415.9) technique in number of flowers per plant. Therefore, due to relatively the highest result in flower number and respective correlated parameters, propagation of the plant using seedling is the best technique among the techniques tested for mass multiplication of the plant in the study area. Hence demonstration and promotion of seedlings of *B.grandiflorum* could be also done for wider introduction of the technology to the beekeepers.

**Key words** Bee flora, flower number, honeybees, propagation technique, natural ecology, *becium grandiflorum*

**INTRODUCTION**

*Becium grandiflorum*

*B.grandiflorum*

H

H

H

*et al*

*et al*

H

*et al*

*B.grandiflorum*

H

*B.grandiflorum*

*B.grandiflorum*

*B. grandiflorum*

*B.grandiflorum*

## **MATERIALS AND METHODS**

### **Description of the study area**

*et al*

*et al*

### **Seeds and mother plant collection**

*B.grandiflorum*

### **Planting materials preparation**



H



**Experimental design**

**Data collection**

## Data analysis

LSD

## RESULTS AND DISCUSSIONS

*B. grandiflorum*

H

)  
*B.grandiflorum*

Plant Height, Number of Branches, Canopy Cover, and Number of Flower

<0.001

*B.grandiflorum*  
H

*p*<0.01

H

*p*<0.01

*p*<0.001

*p*<0.001

H

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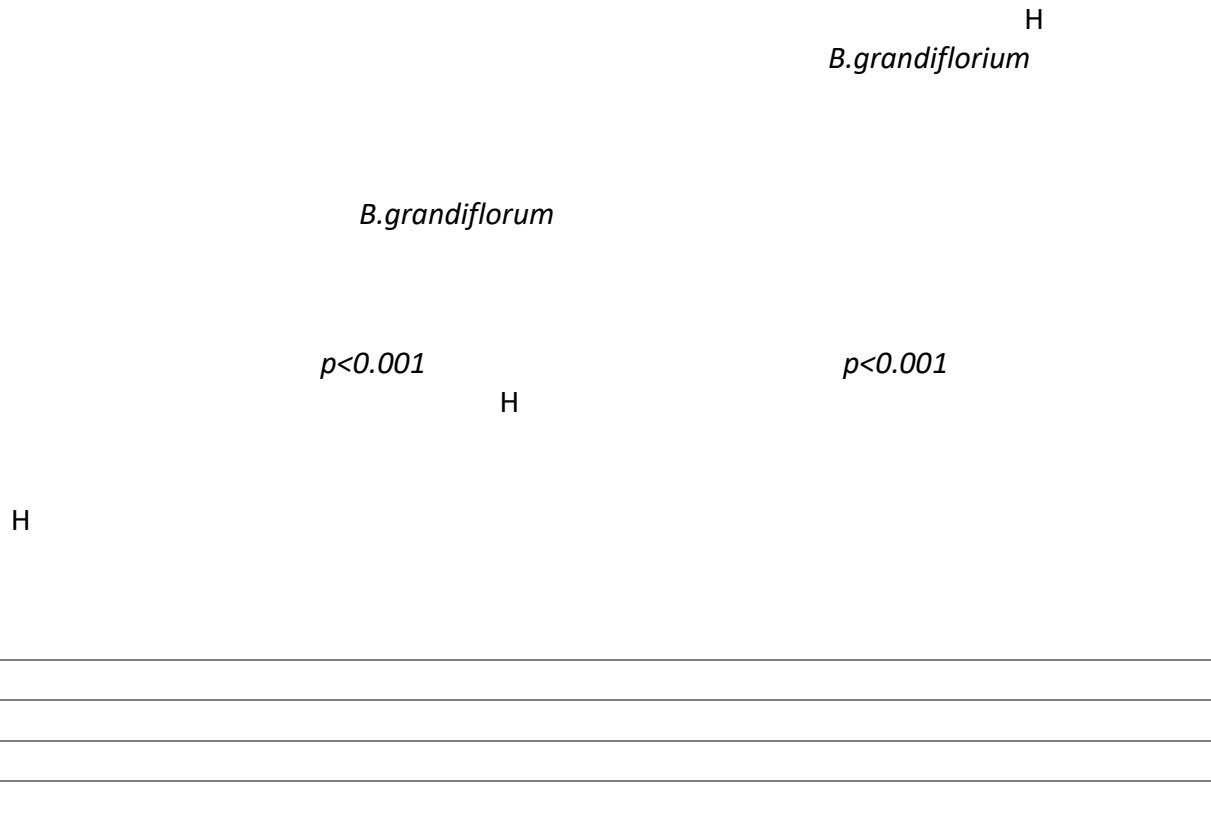
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H	
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Note: \*\*\* and \*\* = significant levels at  $p < 0.001$ , and  $p < 0.01$  respectively, mean values followed by the same letters are not significantly different. DS= direct sowing, SP= seedling, S= splitting, AL= air layering and GL= ground layering and CRD = root collar diameter.

### Correlation analysis



Note: \*\*\*, \*\* and \* = significant at  $P < 0.001$ ,  $p < 0.1$  and  $p < 0.5$  respectively. FN=mean



*Research for Rural Development*

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*Honeybee production practices in Sekota district, northern Ethiopia. This article is licensed under a Creative Commons license, Attribution 4 . 0 International ( CC BY 4 . 0 ) Beekeeping is a sustainable form of agriculture, which is beneficial to the e 2*