

Effect of spraying a nutritional, hormonal mixture to reduce the phenomenon of flowering fall in broad bean varieties (*Vicia faba* L.)

Authors:

**Ali RK. Al-Hasany¹,
Faisal M. Al-Tahir² and
Yahia K. Chllab³**

Institution:

Agriculture college,
Al-Muthanna University.

Corresponding author:

Ali RK. Al-Hasany

ABSTRACT:

A field experiment was carried out during the agricultural season 2016/2017 in Al-Rumaitha region, 25 km north of Al-Muthanna province, in order to study the effect of spraying a nutritional hormonal mixture to reduce the phenomenon of flowering fall in the yield of broad bean varieties. The experiment was arranged in a split plot design, where the main plot treatments included three varieties (Luz De Otono, Aquadlegi and Aquadolus), whereas the mixture spraying treatments (M_0 , M_1 and M_2) were placed in sub plot by using a randomized complete block design with three replications. The results showed that adding the highest concentration of the mixture (M_2) in the spraying solution resulted to an increase in the plant height, the branches number, the leaf area and leaf area index compared to the non-spraying. The highest concentration of the mixture (M_2) resulted also increased in the effective fertilization rate (53%), number of pods per plant (21%) and the total seed yield (15%) compared to non-spraying. There were no significant differences between the spraying treatments and the non-spraying of the mixture in number of seeds per pod and the weight of 100 seeds. The results showed that the differences between the varieties were significant in most of the studied traits. Aquadolus variety were superior in all the studied growth traits compared to the other two varieties, while Luz De Otono variety gave the highest percentage of fertilization and number of pods per plant, while the superiority of the Acidosis variety in number of seeds per pods trait. The interaction between spraying with a hormonal and nutritive mixture showed significant effect on most studied traits, the combination of the highest concentration of the mixture and aquadolus variety ($V_3 \times M_2$) gave the best seed yield of 5735 Kg. ha⁻¹, while the combination of the highest concentration of the mixture and Luz De Otono variety ($M_2 \times V_1$) gave the best effective fertilization rate (19.80%).

Keywords:

Nutritional hormonal, Broad bean, Nutrient solution, varieties.