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PP-536 [Pollination and Bee Flora]

Honey bee Pollination beyond of the products

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Abstract

Pollination are the most important factors that increase biodiversity and contributes to one-third of global crop production, but comprehensive and detailed benefits are still unknown. Hence, pollination is underestimated by international policies, which is particularly alarming in times of agricultural intensification and diminishing pollination services. In this study, the effect of pollination by *Apis mellifera meda* and *Bumbus terrestris* on two almond cultivars was investigated. In this study, length, width, thickness and weight of fruit, percentage of fruit formation, percentage of empty and shriveled almonds, percentage of fat and vitamin E content were investigated. In this study, the fauna of pollinating insects in the orchard was also identified and also, the effect of pollination by *A. mellifera meda* and *B. terrestris* on the nutritional. The results showed that the highest fruiting percentage was related to bumble bee with 89.44, which was significantly greater than other treatments. No significant difference was observed between honey bee treatments (56.12) and positive control (59.82). Negative control treatment (9.62) was significantly lower than other treatments.

Materials and methods

This project was carried out in a research orchard containing two almond varieties in Iran. 3 cages containing 6 almond trees were placed in the orchard before flowering to evaluate the effect of *Apis mellifera meda* and *Bumbus terrestris* pollination. In this study, length, width, thickness and weight of fruit, percentage of fruit formation, percentage of empty and shriveled almonds, percentage of fat and vitamin E content were investigated.

Fig 1. Treatments containing *A. mellifera meda* and *B. terrestris* and positive and negative controls

Results

According to the results the highest fruiting percentage was related to bumble bee with 89.44, which was significantly greater than other treatments. No significant difference was observed between honey bee treatments (56.12) and positive control (59.82). Negative control treatment (9.62) was significantly lower than other treatments. According to the results the highest average length, width and weight of fruit was related to honey bee treatment, which was not significantly different from positive control treatment, but was significantly greater than bumble and negative control treatments. The percentage of empty and wrinkled almonds in negative control was significantly lower than other treatments.

Fig 2. The effect of *A. mellifera meda* and *B. terrestris* on almond yield

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Pollinators Protectors Association

National Union of Iranian Beekeepers

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Pollination are the most important factors that increase biodiversity and contributes to one-third of global crop production, but comprehensive and detailed benefits are still unknown. Hence, pollination is underestimated by international policies, which is particularly alarming in times of agricultural intensification and diminishing pollination services. This project was carried out in a research orchard containing two almond varieties in Iran. 3 cages containing 6 almond trees were placed in the orchard before flowering to evaluate the effect of Apis mellifera meda and Bumbus terrestris pollination. In this study, length, width, thickness and weight of fruit, percentage of fruit formation, percentage of empty and shriveled almonds, percentage of fat and vitamin E content were investigated. In this study, the fauna of pollinating insects in the orchard was also identified and also, the effect of pollination by A. mellifera meda and B. terrestris on the nutritional balance of almond plants was investigated using the DOP method in 10 orchards. The results showed that the highest fruiting percentage was related to bumble bee with 89.44, which was significantly greater than other treatments. No significant difference was observed between honey bee treatments (56.12) and positive control (59.82). Negative control treatment (9.62) was significantly lower than other treatments. According to the results the highest average length, width and weight of fruit was related to honey bee treatment, which was not significantly different from positive control treatment, but was significantly greater than bumble and negative control treatments. The percentage of empty and wrinkled almonds in negative control was significantly lower than other treatments. The results showed that pollination significantly improved the DOP indices in almond plants. Based on the results, a deficiency of boron, phosphorus and zinc was observed in the negative control trees, but all elements were in balance in the other treatment trees. According to the results, pollination by maintaining the balance of plant nutrition, improves productivity rate, fruit yield and quality and also absorption and transfer of nutrients from the soil that is improve soil condition and it can be an approach to deal with climate change.