

EFFECT OF ADDING PROLINE ON NITROGEN AVAILABILITY OF GROWING LEGUMINOUS CROPS UNDER DATE PALM *PHOENIX DACTYLIFERA L.*

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Article history:	Abstract:
Received: 7 th May 2024 Accepted: 4 th June 2024	The study was conducted in a farmer's orchard in the Al-Yuba/Al-Jazeera area in the north of Basrah Governorate during the 2022-2023 agricultural season. To determine the effect of proline acid and its role in reducing the negative effect of sodium chloride on the vegetative stage of alfalfa plant and its impact on the readiness of nitrogen when growing alfalfa around palm trees, using Four treatments (0, alfalfa, p1, p2). where 12 date palm trees, Al-Sayer variety, were selected as homogeneous as possible in terms of vegetative growth, height, size, and age. The results of the study showed the significant effect of the study treatments on most of studied traits of Al Sayer fruits. As the P2 treatment excelled in the weight of the fruit and seed as well as in the length, diameter, and size of the seed, as the following averages were recorded as 6.950 g, 6.233 g, 3.627 cm, 1.653 cm, and 5. 260 cm ³ , respectively. The P2 treatment also excelled in maturity percentage, shoot weight, and total yield, reaching 68.330%, 6.810 kg, and 40.847 kg, respectively. Adding proline to alfalfa crop around palm trees at a concentration of 30 ppm played a major role in increasing the yield.
Keywords: Date Palm; Al-Sayer class; Alfalfa; Proline; yield.	

INTRODUCTION

Date palm, *dactylifera L.* Phoenix is of great economic importance in the world, because this blessed tree offers fruits rich in nutrients and high economic value, which contributes significantly to national income (Ibrahim 2008). Iraq is considered one of the most important date-producing countries in the world (Hassan 2005), but its productivity is suffering from a decline due to the neglect of palm orchards and the lack of fertilization programs, which are among the main factors in the success of palm cultivation. Studies have proven the importance of adding fertilizers to palm trees to provide them with the necessary nutrients. The most important of these elements are nitrogen, phosphorus, and potassium, which are among the main nutrients for date palms. These elements are usually obtained through fertilizers (Shahraki et al., 2012). The technology of biological fixation of atmospheric nitrogen, which is carried out by leguminous crops such as jelly beans, chickpeas, chickpeas, and other leguminous crops. Is of great importance, as these crops are characterized by their symbiotic nature with root nodule bacteria, as they provide a cheap food source for plants as an alternative to mineral fertilizers and contribute to reducing pollution. Soil and water. The lack of knowledge among farmers about the side effects of using mineral fertilizers, in addition to the high cost of fertilizers, constitutes a major challenge. Legume crops play an important role in overcoming these challenges, as they encourage protein synthesis as a result of their high protein content, provide nitrogen for subsequent crops in the same soil, and improve soil properties (Mahmoud et al., 2010; Latefa 2012; Bandana and Peter, 2014).

Agricultural lands suffer from many challenges, the most important of which are water shortages and salinity. Salinity is one of the main factors that negatively affect the growth of plants, as it reduces their absorption of water and essential nutrients while causing the accumulation of toxic ions such as sodium and chloride in their cells (Mu'nis, 2005). This problem has greatly worsened with the increase in agricultural area and population growth. Which makes managing water resources efficiently necessary to achieve optimal exploitation of them (Yassin, 1992). Many environmental factors also affect the determination of productivity, starting from seeds and plant growth, up to the various stages of growth, due to the accumulation of dissolved salts in the soil to a degree exceeding their natural levels.