



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**Effects of Different Nitrogen Doses and Row Spacing Applications on Yield and Quality of *Oenothera biennis* L. Grown in Irrigated Lowland and Unirrigated Dryland Conditions**

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**Abstract:** Common evening primrose (*Oenothera biennis* L., Onagraceae) is a biennial herbaceous forb. It is commercially cultivated in over 15 countries for its seed oil, which contains the essential fatty acids, linoleic and gamma-linolenic acid. The present study was carried out to determine the effects of different nitrogen doses (0, 60, 120 and 180 kg ha<sup>-1</sup>) and row spacing applications (20, 40 and 60 cm) on yield and quality of *Oenothera biennis* L. grown in irrigated lowland and unirrigated dryland in the Gukurova conditions region in 2000 and 2001. The field trials were arranged in split-split-plot design with 3 replicates. Some plant and technological traits of evening primrose such as plant height, the number of branches, the number of capsules in the main branch, biological and seed yields, seed crude oil content, seed oil linoleic and gamma-linolenic acid contents were studied. The biological and seed yields of *Oenothera biennis* L. varied with different growing areas, and the highest values were obtained under irrigated lowland conditions in both experimental years. For the highest yield and quality, the optimum applications were 120 kg ha<sup>-1</sup> nitrogen and 40 cm row spacing. The seed yields changed between 750 and 7617 kg ha<sup>-1</sup> according to different agricultural techniques. Because of the higher temperature during the vegetation period in the Gukurova region, the content of g-linolenic acid of the seed oil was lower than the normal ranges reported, and varied between 3.04% and 5.98%. Furthermore, the higher doses of nitrogen fertilization affected the g-linolenic acid content negatively.

**Key Words:** *Oenothera biennis* L., evening primrose, nitrogen, row spacing, seed yield, gamma-linolenic acid

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