Utilization of some alternative agricultural applications to improve seed yield of sunflower under rainfed condition of Turkey

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Abstract

Turkey has different ecological conditions to allow growing various crop plants. However, oilseed production in our country has been inadequate. Currently, approximately 70% of our crude oil needs has been met by imports as oil seeds and crude oil. Of the oil seed crops, sunflower which can be grown in both rainfed and irrigated region of our country with high quality oil is one of the most important oil seed crops. Increasing of sunflower production can be managed to increase in sowing area, or/and seed yield per unit. Average seed yield of sunflower in Turkey was 1900 kg ha⁻¹, while the Central Anatolia region had the lowest seed yield with 1420 kg ha⁻¹. This is why sunflower in the region cultivated under rainfed conditions with conventional farming techniques. This project has been conducted to investigate the possibilities of alternative agricultural applications such as seed treatment (control, KNO₃ and hydropriming), plant arrangement (70x30, 60x35 and 50x42 cm) and row direction (North-South, West-East, NW-SE and NE-SW) to improve seed yield of sunflower under Central Anatolia conditions of Turkey. The experiment has been carried out in 2010 and 2011. The results revealed that only one factor investigated was not effective to increase seed yield of sunflower while the combination of three factors led to enhancement approximately 10% increases in seed yield. Oil content was not significantly influenced by seed treatment and plant arrangement. It was concluded that the investigated factors should be potential for high seed yield of sunflower.

Key words: Helianthus annuus L., priming, sowing direction, plant arrangement, yield

sa2012_a0509