

## Response of sunflower genotypes to moisture regimes and mulching in summer season

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### SUMMARY

An experiment to study the response of sunflower genotypes to moisture regimes and mulching in summer season was conducted at Department of Agronomy, Dr. PDKV, Akola during 1997 and 1998. PKV SH-27, a hybrid was superior than EC-68414 and AKSF-9. Irrigation scheduling at 0.75 IW/ CPE yielded significantly more than 0.50 IW/CPE. Mulching with wheat straw and sugarcane trash was not found beneficial in water economy.

Key words : Sunflower, Mulching, Moisture regimes, Genotypes.

Sunflower (*Helianthus annuus* L.) is an important oilseed crop next to soybean as to contain 46 to 52 per cent oil. Being photo insensitive, it can be grown in all the three seasons and being short duration, it can be best fitted in multiple cropping programmes. Performance of sunflower in Kharif season as a rainfed crop is uncertain because of erratic and untimely rainfall. Therefore, in the areas of irrigation availability, the area under sunflower is increasing, both in winter and summer season. Present investigation was conducted to identify water use efficient high yielding genotypes for summer season during 1997 and 1998 at Department of Agronomy, College of Agriculture, Dr. Punjabrao Deshmukh Krishi Vidyapeeth, Akola.

### MATERIALS AND METHODS

The experiment was arranged in split-plot design with three replications. Main plot treatments comprised of six combinations of three genotypes (EC-68414, ASKF-9 and PKVSH-27) and two irrigation schedules (irrigation at 0.5 and 0.75 IW/CPE). Wheat straw and sugarcane trash mulching with control (two hoeings) were allotted to sub-plots. The soil of the experiment site was clayey, neutral in reaction, low total N (0.042 %), low in available P (19.4 Kg ha<sup>-1</sup>) and rich in K (329 Kg ha<sup>-1</sup>). It had a bulk density of 1.23 mg/m<sup>3</sup>, field capacity and permanent wilting point of 32.24 and 15.93 per cent, respectively. After pre-sowing irrigation, 2 to 3 seeds were dibbled at 45 cm inter row and 30 cm intrarow distances on 8<sup>th</sup> December and 28<sup>th</sup> January during 1997-98, respectively. Light irrigation of 4 cm depth was given on next day of sowing to ensure complete germination. The crop was fertilized with recommended doze. and irrigated as per the

treatments. At every irrigation six cm water measured through 'V' notch was given. The crop was provided with 10 to 11 irrigations at 0.50 IW/CPE (120 CPE) and 13 to 14 irrigation at 0.75 IW/CPE (80 CPE). Mulching with wheat straw and sugarcane trash was done as per treatments 20 days after sowing. In case of control (no mulch), two hoeings were given to create dust mulch. The crop was harvested at maturity as per the duration of genotypes. During first year 26.7 mm rains were received in second week of January and scanty rains were received in second fortnight of March during second year.

### RESULTS AND DISCUSSION

#### Genotypes:

On an average sunflower hybrid PKVSH-27 yielded significantly highest than varieties EC-68414 and AKSF-9 (Table 1). Amongst later two EC 68414 recorded significantly more yield than AKSF-9. PKV SH-27 also proved superior than both the varieties in respect of diameter of disk, seed weight per disk, percentage filled seed resulting in to higher yield. EC- 68414 was found better than AKSF-9 in respect of all most all yield attributes although not significantly in some cases. Similar performance of these genotypes was observed in trials conducted under AICRP on sunflower (Anonymous, 1996). PKV SH-27 and AKSF-9, both being early consumed more or less equal quantity of water, which was less than soil moisture consumed by EC-68414.

#### Moisture regimes:

Irrigation scheduling at 0.75 IW/CPE yielded significantly more by 24 to 25 per cent, on an average than the irrigations at 0.50 IW/CPE (Table 1). This might

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