

yield and hence the seed and oil yields (Table 1). N up to 60 kg/ha significantly increased the seed yield, but 60 and 90 kg N/ha were at par. The increase in seed yield at 60 and 90 kg N/ha was 38.8 and 41.7% respectively compared with the control. The increase in oil yield was mainly owing to increased seed yield. The results confirm the findings of Chaudhary and Paturde (1981), Chaniara (1988) and Singh *et al.* (1988).

Phosphorus had no significant effect on growth, yield attributes (except 1,000-seed weight and seed/head) and yield, as also observed by Chaudhary and Paturde (1981) and Chaniara (1988). Increase in 1,000-seed weight and seeds/head was significant up to

60 kg P_2O_5 /ha but did not cause significant improvement in yield.

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Effect of irrigation scheduling on yield of safflower (*Carthamus tinctorius*)

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Water being extremely limited in most of safflower (*Carthamus tinctorius* L.)-growing areas, essentially demands high efficiency in its use that can be achieved by supplementing irrigation only at critical growth stages.

The field experiment with 'Bhima' safflower was conducted on clayey soil Navasari during the rainy season of 1991-92. Eight irrigation schedules (Table

1) comprising 1 unirrigated control to 3 irrigations at important physiological stages (grand growth stage, flowering stage and seed-formation stage) were tested in randomized block design with 3 replications.

The crop was sown on 22 November 1991 at 30 cm row spacing with a seed rate of 15 kg/ha and was fertilized with a basal application on 50, 25 and 0 kg N, P and K/ha respectively.

Table 1. Growth and yield of safflower as influenced by water supply

Treatment	No. of irrigation	Plant height (cm)	Branches/plant	Capsules/plant	Seed yield (q/ha)	Straw yield (q/ha)	Harvest index
T ₁ , GFS	3	114.8	8.3	22.6	16.49	54.34	23.5
T ₂ , FS	2	112.3	8.1	21.5	14.81	51.25	22.4
T ₃ , GS	2	113.5	7.9	21.1	14.14	44.59	24.0
T ₄ , GF	2	114.8	7.4	18.8	11.86	48.29	19.8
T ₅ , S	1	114.1	7.3	19.3	11.93	44.70	21.1
T ₆ , F	1	112.7	7.8	18.5	11.58	47.22	19.8
T ₇ , G	1	113.9	7.1	18.0	10.54	41.45	20.5
T ₈ , C	0	111.4	6.6	17.7	39.79	35.86	21.5
CD (P = 0.05)		NS	NS	NS	1.74	8.73	NS
CV%		6.86	22.67	16.20	7.84	10.85	10.48

C, Unirrigated control; G, grand-growth stage; F, flowering stage; and S, seed-formation stage

Irrigation treatments did not significantly influence plant height, number of branches/plant, number of capsules/plant (Table 1). However, data revealed that irrigation treatments improved all the growth and yield characters. The maximum value was obtained with treatment receiving 3 irrigations at grand growth, flowering and seed-formation stage (T₁).

Progressive increase in the grain yield was recorded with the increase in irrigation frequency. The increase in yield was 22, 51 and 68% with 1, 2 and 3 irrigation respectively over the control. One irrigation each at flowering and at seed-formation stage gave higher yield than 1 irrigation at grand-growth stage. Katole and Meena (1988) also reported similar results. Most of the treatments of 2 irrigations (T₁, T₃ and T₄) gave higher seed yield than 1 irrigation. The

highest yield (16.49 q/ha) was recorded with 3 irrigations (T₁), but it remained on a par with 2 irrigations at flowering and seed-formation stage (T₂). Yusuf *et al.* (1981) also reported similar results.

There was no significant difference between harvest index of different treatments. The maximum harvest index (24.0) was obtained with treatment of 2 irrigations at grand-growth stage and seed-formations stage (T₃).

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