

PRODUCTION POTENTIAL OF SUNFLOWER AND OTHER WINTER CROPS UNDER LIMITED IRRIGATIONS

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Sunflower (*Helianthus annuus* L.) is a relatively new oilseed crop for India. Owing to its short duration (90-100 days), few pest problems and lack of photosensitivity, it is gaining importance in cropping systems of southern India. This crop is mostly cultivated under rainfed conditions under moisture stress in medium to deep black soils during monsoon (kharif) and winter (rabi) seasons. A study was initiated during the winter season of the year 1984-85 to find out the production potential and relative economics of sunflower crop in comparison with all other traditional crops grown in this area under only three irrigations. This experiment was carried out for three consecutive winter seasons using two planting times (October first week and October last week), standard crop varieties and recommended agronomic practices for each crop. Data on seed yield, cost of cultivation, gross returns, net returns and benefit: cost ratio were collected and the results are presented in table 1.

TABLE 1: Relative economics of winter crops grown under minimal irrigations for three years and under two dates of planting.

S.No.	CROP	VARIETY	Seed yields kg/ha	Gross returns Rs/ha	Net returns Rs/ha	Benefit: cost ratio
1.	Sunflower	Morden	1224	6196	2766	1.72
		NSFH-9	1631	7942	4528	2.29
		(hybrid)				
		Mean	1427	7069	3647	2.00
2.	Safflower	Bhima	1321	5752	2642	1.94
		NRS-209	1648	7256	4146	2.42
		Mean	1484	6503	3394	2.18
3.	Sorghum	CSH-8R	3588	7633	3682	1.84
		NH-021	3652	5962	2597	1.77
		Mean	3620	6797	3139	1.80
4.	Gram	N-31	1930	7922	5025	2.71
5.	Wheat	HD-1593	2758	6280	2327	1.59
		HD-2189	2716	6188	2234	1.57
		Mean	2737	6234	2280	1.58

The results of this trial reveal that the yield and aggregate returns varied markedly depending upon the crop and the cultivar. The gram variety N-31 recorded the highest net monetary returns (Rs. 5025/ha) followed by sunflower hybrid NSFH-9 (Rs. 4528/ha) and safflower variety NRS-209 (Rs. 4146/ha). The highest benefit:cost ratio was obtained from gram (2.71) followed by safflower cultivar NRS-209 (2.42) and sunflower hybrid (2.29). Out of the five crops studied, wheat and sorghum were found to give the lowest net returns (wheat Rs. 2280/ha and sorghum Rs. 3139/ha). The lowest benefit:cost ratios were registered from wheat cultivars (1.58), sunflower cultivar Morden (1.72) and sorghum hybrids (1.80). The data clearly prove that the most remunerative crops were gram, safflower and sunflower. Their cultivation under limited irrigations gave at least one and half fold increase in net returns over the traditionally grown wheat and sorghum crops. Under severe drought conditions, as experienced in the last three years, the availability of irrigation water is also becoming a major constraint. Under such conditions farmers can adopt minimal irrigation strategy for crops like sunflower, safflower and gram to get more profit from available water. This can also increase cropped area under irrigation. Crops like wheat require nearly 6-7 irrigations to get the highest seed yields, which are also not found economical in Deccan plateau of India. Hence shifting of some low yielding area of wheat to crops like sunflower, safflower and gram is highly profitable change.