

COMPARATIVE ECONOMICS OF SELECTED COMPETITIVE CROPS UNDER THREE DIFFERENT DATES OF SOWING

L. Arunachalam¹ & V. Subramaniam²

Field experiments conducted to find out the comparative economics of selected competitive crops under three different dates of sowing during the *kharif* season of 1977-78 and 1978-79 and summer season of 1979-80 showed that sunflower when sown on September 25 was significantly superior to the other crops during the *kharif* season. The interaction between the crops and the dates of sowing was also significant. During the summer season of 1979-80 *bajra* was found to be better irrespective of the sowing dates followed by jowar and sunflower. But the treatment effect was not found to be significant during the summer season.

Considerable variation in production potential of crop species exists owing to different genetic make up. The expression of such genetic potential is subjected to prevailing growth environment. Amongst the various management practices, sowing time is a factor which modifies the growth environment by way of regulating the availability of natural endowments like light, temperature and moisture. Several workers have reported significant influence of planting dates on limiting production of many crops like sorghum (Singh *et. al*, 1976) and soybean (Deshmukh *et. al*, 1977). Results on the comparative economics of selected competitive crops for Tamil Nadu region is very meagre.

MATERIAL AND METHODS

In order to find out the suitability and comparative economics of the competitive selected crops under three different dates of sowing, field

experiments were conducted during the *kharif* seasons of 1977-78 and 1978-79 and summer season of 1979-80 at the Tamil Nadu Agricultural University farm Coimbatore. The crops tested were sunflower (EC 101495), sorghum (Co 21), *bajra* (Co 6), and maize (Ganga 5) and the three dates of sowing were September 25, October 10 and October 25 for the *kharif* season and February 25, March 10 and March 25 for the summer season. Thus there were twelve treatment combinations replicated three times. The design adopted was randomised block design, Normal fertilizer levels recommended to the crops were applied as basal dressing. Inter-cultural operations were given at the appropriate periods.

RESULTS AND DISCUSSION

The mean yield as well as monetary returns obtained in the various treatments are presented in the Table.

¹ & ² Associate Professors of Agronomy, Tamil Nadu Agricultural University, Coimbatore-641 003.

Table : Mean yield kg/ha and monetary returns Rs./ha

Treatments	1977-78		1978-79		Treatments	1979-80	
	Yield kg/ha	Value Rs/ha	Yield kg/ha	Value Rs/ha		Yield kg/ha	Value Rs/ha
Sunflower Sept. 25	1359	1462	976	1290	Sunflower Feb. 25	660	1320
Sunflower Oct. 10	1232	1209	1194	1834	Sunflower Mar. 10	650	1300
.. Oct. 25	1075	894	406	135	.. Mar. 25	520	1040
Sorghum Sept. 25	1772	568	—	—	Sorghum Feb. 25	1365	2687
.. Oct. 10	1753	542	—	—	.. Mar. 10	425	1020
.. Oct. 25	1736	524	250	970	.. Mar. 25	400	960
Pearlmillet Sept. 25	1404	463	798	532	Pearlmillet Feb. 25	1585	1188
.. Oct. 10	1419	513	997	352	.. Mar. 10	1653	1240
.. Oct. 25	1410	469	248	971	.. Mar. 25	1966	1475
Maize Sept. 25	1961	575	2578	1103	Maize Feb. 25	775	733
.. Oct. 10	1889	503	1382	933	.. Mar. 10	1253	940
.. Oct. 25	1809	428	550	721	.. Mar. 25	510	312

	Significant	Significant
S. E. Crops (value)	52.54	49.93
C. D.	154.09	146.52
	1977-78	1978-79
	Kharif	Kharif
S. E. (Dates)	46.50	43.24
C. D.	133.45	126.82
Interaction Not significant	:	S. E. 86.49
		C. D. 253.64

The yield obtained in the treatments was converted into their respective economic values based on the prevailing market rates. The economic

value thus arrived at was subjected to the statistical analysis. During the *kharif* season of 1977-78 sunflower recorded significantly higher monetary

return than sorghum, pearl millet and maize. Among the three dates of sowing, early sowing, September 25, recorded higher yield in all the crops in general. Sunflower recorded the highest mean monetary return of Rs. 1462/ha when sown on September 25 and it declined to Rs. 894/ha when sown on October 25. The interaction between the crops and dates of sowing was not found to be significant. The lowest monetary return was recorded in pearl millet even though the yield obtained in October 10 sowing was higher than the September 25 sowing. But delayed sowing upto October 25 resulted in the low yield and ultimately in the monetary returns of all the crops tested. The magnitude of reduction in the delayed sowing of sunflower was higher as compared to the delayed sowings of other crops viz. sorghum, pearl millet and maize. The reduction in the monetary returns were from Rs 1462/ha to Rs 894/ha in sunflower whereas in sorghum, pearl millet and maize were from Rs 568 to Rs 542/ha, Rs 524 to Rs 513/ha and Rs 575 to 469/ha respectively. The highest mean seed yield of 1886 kg/ha was recorded in maize which was closely followed by sorghum and pearl millet giving the mean seed yield of 1753 and 1412 kg/ha respectively. The lowest mean seed yield of 1222 kg/ha was obtained in sunflower. Because of the economic value of sunflower was higher than the other crops, the money returns obtained through sunflower was greater than the rest of

the crops. In the *khari* season of 1978-79 also the same trend was noticed. Among the crops tried sunflower recorded significantly higher monetary return (Rs 996/ha) than the other crops. The low monetary returns obtained in the crops viz. sorghum, pearl millet and maize were due to the low yield on account of delayed sowings besides the low economic market value.

With regard to the date of sowing, it was found that early sowing i.e. September 25 sown crop recorded higher monetary returns than the other two sowings. Sunflower alone performed better during this period when the sowing was shifted to October 10. The interaction between the crops and dates of sowing was significant. Sunflower sown on October 10 out-yielded all other crops in achieving the higher monetary returns (Rs 1834/ha) followed by sunflower sown on September 25 and maize sown on September 25 which recorded Rs 1290 and Rs 1103/ha respectively. During this year due to the continuous rainfall pollination of sorghum crop was hampered and as such there was no seed setting in the first two dates of sowings. This gives an idea that sunflower crop could be selected based on the performance under the environmental conditions as the same has given better monetary returns even when the sowing was shifted to October 10 during which period other crops viz. sorghum, pearl millet and maize completely failed. This

clearly indicated that sowing of sunflower could be done even upto October 10 as the monetary return as well as the yield were found to be higher than the early planting. But the results of the summer season of 1979-80 was found to be different. The crops differed in their productive potential with dates of planting during summer of 1979-80. Highest monetary return was recorded in sorghum crop (Rs 2687/ha) sown on February 25, which was followed by sunflower (Rs 1320/ha) on the same date of sowing. But the economic return of pearl millet was found to be increasing even though the sowing was delayed upto March 25 which recorded the monetary return of Rs 1475/ha. Pearl millet was found to record the highest yield in all the three dates of sowing. On an average 1734 kg/ha of seed yield was obtained in bajra irrespective of the dates of sowing whereas the corresponding mean yield of 846, 730 and 610 kg/ha were recorded by maize, jowar and sunflower. So it was clearly indicated that pearl millet was found to be the most suitable crop for the summer season as the same recorded the highest mean seed yield as well as monetary returns. The highest mean yield recorded by pearl millet in all the three dates of sowing could be attributed to the better utilization of the environmental conditions for its maximum crop growth. Rao *et al.*, (1978) while comparing the productivity of various *kharif* crops under dryland conditions of Bawal (Haryana) also found that pearl-

millet as the highest yielding crop. The results of the summer season of 1979-80 was also in the same line that pearl millet as the best suited.

It was thus concluded that based on the economic monetary returns over the different seasons sunflower was found to be the suitable crop for the *kharif* season. The economic return was not much affected even though the sowing was postponed to the middle of October in the case of sunflower crop during the *kharif* season. But the performance of the crops varied during summer season. Though the differences in the economic monetary returns was not significant due to various treatments, bajra was found to have better growth environment in all the three dates of sowing during the summer season.

The financial assistance rendered during the course of the investigation by the Indian Council of Agricultural Research, New Delhi, was gratefully acknowledged.

REFERENCES

- DESHMUKH, S. C., M. C. SAXENA and R. K. PANDEY, 1977. Yield, yield attributes and grain quality of Clark-63 Soybean as influenced by date of planting, row spacing and plant population. *Indian J. Agron.* 22 : 27-34.
- RAO, P., V. KUMAR and M. K. MOOLANI, 1978. Comparison of *kharif* crops under dryland conditions at Bawal (Haryana) *Indian J. Agron.* 23 : 177-184.
- SINGH, A., I.P.S. AHLAWAT and C. S. SARAF, 1976. Response of blackgram to sowing dates and row spacing. *Indian J. Agron.* 21 : 139-144.