

**Research Notes**

## **Influence of seedlings per hill on productivity and seed quality characteristics of safflower cv. K1**

P.BALAMURUGAN, P.SRIMATHI, P.R.RENGANAYAKI AND S.LAKSHMI

*Dept. of Seed Science and Technology, Tamil Nadu Agricultural University, Coimbatore.*

Generally in crop cultivation sowing is taken up with two to three seeds per hill and are thinned at later stage to one to two seedlings per hill. For seed production maintenance of one seedling per hill is highly recommended as minimum number of seedlings to enable the plant to grow profusely which ultimately increases the yield and quality characters of the resultant seed (Karivaratharaju, 1980). Moreover, studies on number of seedlings per hill will be appropriate as entering into field after cultivation will be much difficult in spiny types of safflower. Standardization of such management technique would be useful for increased seed yield with better seed quality characters. Hence, studies were made with spiny type safflower cv. K 1 released from TNAU, Coimbatore, Tamil Nadu, India.

Bulk seeds of safflower cv. K 1 was obtained from Regional Research Station, Kovilpatti, Tamil Nadu, were cleaned and graded. Then, the seeds were sown in the field @ 3 seeds per hill under Randomized Block Design. After 15 days of sowing the seedlings were thinned to retain one and two seedlings per hill. Thirteen replications were maintained with a plot size of 5x4 m (at a uniform spacing of 30x30 cm). The recommended package of practices was followed and the crop was harvested after attainment of harvestable maturity. The spiny heads were harvested plot wise and threshed by beating

the heads with pliable bamboo sticks and the seeds were extracted. Based on the plot yield, the seed yield per hectare was computed and reported in kilogram. The resultant seeds were also observed for the seed and seedling quality characters *viz.*, germination (ISTA, 1999), root length, shoot length and vigour index (Abdul Baki and Anderson, 1973) and oil content (AOAC, 1960). The data gathered were analyzed for understanding the level of significance (Panse and Sukhatme, 1967).

Significant variations were observed between the evaluated number of seedlings maintained per hill. But the seedlings maintained at the rate of one per hill recorded higher yield (759 kg/ha) which was 17.5 % higher than two seedlings per hill (648 kg/ha). Though the germination of seeds was not influenced, the other evaluated seed quality characters *viz.*, root, shoot length and vigour index values were more in seeds obtained from plots maintained with one seedling / hill. But, the oil content of the seeds was influenced due to number of seedling maintained per hill.

The better performance in the plots maintained with one seedling per hill might be due to the lesser competition with uniform spacing which might have given chances for better proliferation that would have increased the photosynthetic area and enhanced the flow of nutrients from source to sink. This might

**Table 1. Influence of number of seeds / hill on yield and quality.**

Treatments	Yield kg/ha	Germination (%)	Root length (cm)	Shoot length (cm)	Vigour Index	Oil content (%)
One seed / hill	759	84	14.6	15.4	1226	30.2
Two seeds / hill	648	82	14.4	14.8	1213	30.0
CD (0.05)	45.2	NS	0.1	0.2	10.2	NS

have enhanced the productivity and the improvement in seed vigour characters with heavier accumulation of nutrients in each of the seed as Ashby (1936) revealed that the vigour of seeds is expressed based on the initial capital of the seed. The results of oil content, seed yield and quality characteristics indicated for both commercial and seed production the safflower crop could be raised by maintaining single seedling per hill.

### References

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