STANDARDIZATION OF PLANTING TIME OF TURNIP CV. PURPLE TOP WHITE GLOBE ROOT CROP FOR SEED PRODUCTION

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ABSTRACT

The healthy seed of turnip cv. Purple Top White Globe was sown on seven planting times at weekly intervals from III week of July to I week of September viz. P1: Jul 20, P2: Jul 27, P3: Aug 04, P4: Aug 11, P5: Aug 18, P6: Aug 25 and P7: Sep 03 during two consecutive years 2008 and 2009 in a randomized Block Design with three replications every year at a spacing of 30x10 cm having plot size of 2.00x1.20 m with a population of 80 plants per plot. The roots from the plots of all the planting times were uprooted by the mid of November when the sub zero temperature ceases the growth of the crop and then after selection roots were stored in trenches for overwintering till melting of snow in March-April for further planting of seed crop. The observations were recorded on a) normal roots (%) viz. i) true to type roots (%) and ii) off-type roots (%); b) abnormal roots (%) viz. i) oversized/ cracked roots (%) and ii) undersized roots (%). Significant differences were observed for all the traits studied during both the years. The turnip crop sown in the second week of August produced significantly higher percentage of mature normal roots (69.28%) by the mid of November. The every advance or delay in sowing resulted in continuous increase in percentage of abnormal roots viz. oversized/ cracked roots and undersized roots. The reduction in percentage of mature normal roots was more drastic due to delay in sowing than advance sowing.

Key words : Turnip, Purple Top White Globe, Planting time, Root crop, Seed production.

INTRODUCTION

Turnip (Brassica rapa) is an important root vegetable grown extensively during winter in plains and throughout the year in hills. There are two types of turnip, first is Asiatic and second is European type. The latter thrives best in temperate climate and biennial in nature. These require chilling temperature for seed production, hence grown only in the temperate regions. In one season roots are produced which then require an exposure to cold treatment of 0-4°C for 3-4 months or more for entering into reproductive phase. The dry temperate zone of North-western Himalaya is congenial for seed production of turnip. Root to seed method is generally followed where roots after selection are stored in trenches for overwintering and seed so produced is of high quality. Due to slow rise in temperature from March to August and prevalence of dry conditions at the time of seed maturity and ripening, the seed produced in this region is of high quality and excellent vigour. However, there is wide range of sowing time for turnip seed, which may affect the maturity of roots by the mid of November when the sub-zero temperature of night ceases the
growth of the crop and the roots of the late planted crop remain undersized whereas, in case of the early planted crop the roots become oversized and cracked which are rendered unfit for storage in the trenches for seed production during the next season. Therefore, the present studies were carried out during two consecutive years 2008 and 2009 at Vegetable Research Station, Kalpa, District Kinnaur with the objective to know the most suitable planting time for obtaining maximum mature and normal roots for storage by mid November for further planting of seed production crop.

MATERIAL AND METHODS
The present investigations were carried out on turnip cv. Purple Top White Globe during two consecutive years 2008 and 2009 at Vegetable Research Station, Kalpa, District Kinnaur (HP). The healthy seed was sown on seven planting times from III week of July to I week of September viz. P1: Jul 20, P2: Jul 27, P3: Aug 04, P4: Aug 11, P5: Aug 18, P6: Aug 25 and P7: Sep 03 in a randomized block design with three replications every year at a spacing of 30x10 cm having plot size of 2.00x1.20 m with a population of 80 plants per plot. The recommended doses of FYM (100 q/ha), N (50 Kg/ha), P₂O₅ (40 Kg/ha) and K₂O (40 Kg/ha) were applied and all agronomic practices were adopted timely as per package of practices for raising a normal and healthy root crop for seed production. The roots from the plots of all the planting times were uprooted by the mid of November when the sub zero temperature ceases the growth of the crop and observations were recorded on a) normal roots (%) viz. i) true to type roots (%) and ii) off-type roots (%); b) abnormal roots (%) viz. i) oversized/ cracked roots (%) and ii) undersized roots (%).

RESULTS AND DISCUSSION
Data on normal i.e. true to type, off-type roots and abnormal i.e. oversized/ cracked, undersized roots under different planting times were statistically analyzed and the mean values for two years along with the pooled means are presented in Table 1. Significant differences were observed for all the traits studied during both the years.

The turnip crop sown on Aug 11 produced significantly higher percentage of mature normal roots (69.28%) including true to type (33.37%) and off-type (35.91%) roots with minimum abnormal roots (30.73%) including oversized/ cracked (13.64%) and undersized (17.09%) roots by the mid of November. The every advance or delay in sowing resulted in continuous decrease in percentage of normal roots including true to type and off-type roots and obviously, with continuous increase in percentage of abnormal roots. The reduction in percentage of mature normal roots was more drastic due to delay in sowing than advance sowing. The increase in percentage of abnormal roots was mainly due to oversized/ cracked roots to the tune of 31.87 per cent in case of early planting on July 20, whereas, due to undersized roots to the tune of 61.32 per cent in case of late planting on September 03. The percentage of oversized/ cracked roots and undersized roots was moderate in case of planting time adjacent to August 11. The early planted crop had warmer and longer growing period, so it matured before November and the temperature at that time not reduced to the level favourable for trench storage of turnip roots so the crop was to be retained in the field which resulted in increased percentage of oversized/ cracked roots whereas, the late planted crop had cooler and shorter growing period to attain full maturity by mid of November and resulted in increased percentage of undersized roots and thus decreasing the percentage of normal mature roots. However, the proportion of true to type and off type roots depends upon the quality of source seed used for raising the crop.

Guldan, et al (1998) in a field trial at Alcade, New Mexico, observed that when turnip crop sown on August 3-4 and August 16-18, the early sowing generally produced higher yields than late sowing. Parlak and Sevimay (2005) also observed the significant effect of sowing time on turnip after sowing on July 01
and July 15 and obtained higher leaf and root yields from July 01 sown crop. Greater plant growth in early planting was also recorded by Singh, et al (1990).

REFERENCES

