

Research Notes

## Effect of fruit size on seed quality characteristics of pumpkin (*Cucurbita moschata*)

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Seed size is one of the characters associated with seed quality. The influence of seed size on seedling vigour and crop performance has been established in different crops like soybean, maize, gram and ashgourd. Variability in fruit size and shape is seen in pumpkin, even under good management. A significant correlation was reported between the fruit weight and number of good seeds in cucumber (Seaton, 1938). Large sized fruits selected at the field level ensured recovery of large size seeds, which produce healthy, vigorous seedlings that was reported in ashgourd (Mini *et al.*, 2000). Such information is lacking in pumpkin. The present studies were undertaken to trace out the influence of fruit grading on seed quality in pumpkin cv. CO2

Pumpkin cv. CO 2 fruits were graded as small, medium, large and extra large based on weight as detailed below.

1. Small - 0.5 to 1 kg
2. Medium - 1.05 to 1.5 kg
3. Large - 1.55 to 2.0 kg
4. Extra large - >2.0 kg

Totally hundred fruits in each grade were utilized for the study in five replications (20 fruits / replication). The individual fruit weight (kg) and girth (cm) were recorded. The seeds were dried and mean values were presented. After the seed extraction the total seed number

and seed weight for the individual fruit were also recorded. Based on the fruit and seed weight the fruit to seed recovery was worked as detailed below.

$$\text{Fruit to seed recovery (\%)} = \frac{\text{Seed weight}}{\text{Fruit weight}} \times 100$$

The seeds were processed with BSS 4 wire mesh sieve and the following seed quality parameters were recorded *viz.*, germination percent, root and shoot length, drymatter production and vigour index.

Fruit girth and seed yield per fruit increased significantly with increase in fruit weight. Seed weight was higher (67.18g) in large sized fruits compared to extra large (58.62 g), medium (50.37 g) and small (35.73 g) fruits (Table 1). Similar results were obtained in rape seed, where large *Brassica campestris* pods produced higher seed yield (Singh and Rao, 1996). Seed recovery percentage showed significant difference among different fruit groups. Seeds from large fruits recorded the highest seed recovery (4.72) per cent which was on par with medium sized fruits (4.02) and the lowest (2.62) was recorded from extra large fruits. Seeds from fruits of different groups recorded no significant difference in 100 seed weight, germination per cent and other seedling characters. Seeds from fruits of different size showed a gradual increase

Table 1. Mean performance of seed and seedlings characteristics of pumpkin cv. CO2

Fruit grade	Fruit weight (kg)	Fruit girth (cm)	No. of seeds/ fruit	Seed weight (g)	Seed recovery (%)	100 seed weight (g)	Germi- nation (%)	Root length (cm)	Shoot length (cm)	Drymatter production/ 10 seedlings (g)	Vigour index
Small	0.87	25.51	247.80	35.73	3.95	9.94	87.0	6.7	19.3	0.74	2262
Medium	1.07	40.79	263.90	50.37	4.02	11.02	94.0	8.3	22.9	0.80	2933
Large	1.72	55.17	281.96	67.18	4.72	12.23	98.0	9.4	23.8	0.96	3254
Extra large	2.24	62.32	216.00	48.62	2.62	11.26	94.0	8.6	21.5	0.91	2829
CD (P=0.05%)	0.096	3.460	4.892	12.633	0.718	N.S	N.S	N.S	N.S	N.S	29.02

in vigour index with increase in fruit size. Reports on positive influence of large fruits on seed content, seed size and vigour had been made in bitterground (Vanagamudi and Palaniswamy, 1989) and tomato (Palaniswamy and Karivaratharaju, 1990). Good healthy seed and seedling vigour ensure a good crop stand. Seed weight is directly related to seed size, suggesting higher reserves in larger or heavier seeds. So such seeds should be selected for good crop establishment and seed yield. Large sized fruits should be selected at the field level to ensure production of bolder seeds, thereby producing healthy vigorous seedlings.

### References

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