

Influence of Fruit Load on Seed Yield and Quality in Bell Pepper (*Capsicum annuum* L.)

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The beneficial aspects of regulating number of fruits/plant thereby altering source - sink relation are well documented in few vegetable crops. In bell pepper such techniques can be adopted with greater feasibility. Fruit thinning and high soil nutrient levels can increase bell pepper seed yield and quality [1]. Large variation in seed yield of capsicum was reported owing to poor seed filling and reduced fruit size. The purpose of this study was to investigate the effect of manipulated fruit load/plant on seed yield and quality on bell pepper. The study was carried out during 2001-02 *rabi* season at Indian Institute of Horticultural Research, Bangalore, with bell pepper cultivar Arka Gaurav. Six-week-old seedlings raised in poretrays were transplanted in a randomized block design with four replications. Inter and intra row spacing of 50 cm was followed in a gross plot size of 3m x 2m. At flowering, first formed two buds in all the plants were pinched off in order to allow luxuriant vegetative growth. Thereafter, in the later formed flowers, only the specified number of buds were allowed for anthesis and fruit development (Table 1) and remaining were pinched off as and when they formed. No pinching of flowers was done in control. Ten plants were randomly selected in each plot to record average fruit weight, seed weight/fruit, number of seeds/fruit, seed to fruit ratio and test weight. Seed yield/ha in each treatment was assessed on the basis of net plot yield. Seed germination was tested as per the ISTA

rules [2]. Further, seedling vigour index was computed as germination (%) x Seedling length (cm) and the data were analyzed statistically.

The fruit load had a significant effect on seed yield and quality attributes in bell pepper cv. Arka Gaurav. The data (Table 1) indicated that the size of fruit expressed in terms of fruit weight was maximum (97.98 g) in plants with two fruits. The highest number of seeds/fruit (258.6) was found in plants having two fruits and the number decreased with the increased number of fruits/plant as well as reduction in weight of individual fruit. The lowest number of seeds was observed in control with all fruits (14 fruits) intact. Similar trend was observed for seed weight/fruit and test weight with maximum seed weight/fruit (1.47 g) and test weight (0.571 g) in treatment with two fruits/plant. This indicates the presence of more number of heavier and bolder seeds in plants with regulated fruit load compared to control.

The seed yield on the other hand was significantly higher in treatment with eight fruits/plant (F_4) than the control. This could be attributed to maximum availability of photosynthates produced by source (leaves) in relation to sink (fruits). However, reduced seed yield in treatments with minimum number of fruits/plant was noticed. This may be due to imbalance in source to sink ratio. Higher seed yield in bell pepper was recorded in plants left with six and eight fruits by Suta and

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Table 1. Seed yield parameters as influenced by fruit load/plant in bell pepper cv. Arka Gaurav

Treatments	Fruit wt(g)	Seedwt/ fruit (g)	No. of seeds/ fruit	Seed to fruit ratio	Seed yield/ plot(g)	Seed yield/ ha(kg)	Test weight (g)	Germination *(%)	Seedling vigour index
2 fruits	97.98	1.472	258.6	0.0553	23.18	77.27	0.5710	87(69.05)	1326
4 fruits	68.58	0.967	171.9	0.0524	32.65	108.89	0.5643	86(68.15)	1273
6 fruits	54.93	0.802	146.4	0.0493	41.89	139.66	0.5422	88(69.76)	1253
8 fruits	44.83	0.770	135.4	0.0489	50.53	168.45	0.5374	85(67.40)	1199
Control									1100
(All fruits)	37.23	0.590	117.1	0.0473	45.75	152.66	0.5200	78(62.30)	
Mean	60.71	0.920	165.8	0.0500	38.80	129.40	0.5546	85(67.33)	1230
SEm±	3.40	0.0365	8.11	0.0031	0.91	3.06	0.0158	1.69	45
CD (P=0.05)	10.50	0.11	17.68	NS	1.99	6.68	0.0488	5.22	139

*Values in parentheses are angular transformed ones; NS: Non significant

Tanasesu [3] and Verma *et al.* [4]. Germination was maximum (88%) in plants with six fruits/plant (F_3) which was significantly superior over control but on par with other treatments with manipulated fruit loads. Seedling vigour index was significantly lower in control than other treatments. This could be mainly due to the presence of heavier and much bolder seeds with large quantity of accumulated food reserves. These findings are in conformity with the observations of Sanchez *et al.* [5].

Thus, in crops like bell pepper thinning of flowers or fruits at early stage of development to retain a reasonable number of fruits is necessary. In the present study with cv. Arka Gaurav retention of eight fruits/plant was found optimum for higher yields of better quality seeds.

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