

# Potash Improves the Yield and Quality of July Elberta Peach

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*This study explains the effects of potassium (K) fertilizer on yield and quality of July Elberta peach. Potassium is known as the quality element. Important fruit characteristics that are significantly affected by K include size, shape, color, taste, shelf life and transportability. Peach is an important and highly nutritious fruit grown and consumed in India. Even though the importance of K in improving yield and fruit quality is known for several crops, little information is available in India for peaches.*

## Materials and Methods

Research was conducted during 1991 and 1992 at the University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh. Potash treatments were 300, 400, 500, 600, 700, 800 and 900 g  $K_2O$ /tree applied as muriate of potash (KCl). Basal rates of nitrogen (N) and phosphorus (P) were applied as urea at 500 g N/tree and single superphosphate (SSP) at 250 g  $P_2O_5$ /tree. Half the N and all of the P and K were applied three weeks before flowering in the second week of February. The remaining N was applied just after fruit set in March-April. Nitrogen was broadcast, and P and K were placed 15 cm deep in the drip line of each tree. At harvest, yield per tree and weights per fruit were recorded. Ten representative fruit were collected at random from the periphery of each tree and analyzed for quality indicators such as total soluble solids (TSS), titratable acidity, and fruit firmness.



*Potassium fertilization improved yield and quality of peaches in this study in India.*

## Results

In both years, application of 500, 600 and 700 g  $K_2O$ /tree progressively increased fruit yield over amounts obtained with 300 g  $K_2O$ /tree (Table 1). Fruit yield increased significantly as K application was raised from 300 to 700 g  $K_2O$ /tree. Highest yields over two years were 28.5 and 29.8 kg/tree with

600 and 700 g  $K_2O$ /tree, respectively. Potassium application beyond 700 g  $K_2O$ /tree depressed fruit yield in both years. Fruit yield and weight exhibited similar responses to fertilizer K.

Potassium application affected fruit quality by significantly increasing total soluble solids and fruit sweetness. Application of either 600 or 700 g  $K_2O$ /tree significantly increased TSS over amounts obtained with 300 g  $K_2O$ /tree. In both years, TSS was maximized at 11.7 and 11.3 percent, respectively, with 700 g  $K_2O$ /tree (data not shown). A two-year average of

titratable acidity determined a maximum fruit sweetness of 0.49 percent, also obtained with 700 g K<sub>2</sub>O/tree (data not shown). Differences in fruit firmness could not be detected amongst the various K application rates.

Current K recommendations for peach range from 500 to 600 g K<sub>2</sub>O/tree. On the basis of this research it can be concluded that peach orchards would benefit from minimum K<sub>2</sub>O rates of 600 g/tree. Fruit yields were highest at the 600 g K<sub>2</sub>O/tree application rate. There was also a significant improvement in titratable acidity (sweetness) in the second year with 700 g K<sub>2</sub>O/tree. Countrywide adoption of this science-based recommendation will lead to significant improvement in fruit production and quality, while helping India meet its large nutritional demands. **BCI**

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**Table 1.** Effect of K fertilizer on peach yield and weight.

Treatment g K <sub>2</sub> O/tree	Fruit yield, kg/tree			Fruit weight, g/fruit		
	Year 1	Year 2	Mean	Year 1	Year 2	Mean
300	25.6	20.9	23.3	86.8	87.6	87.2
400	26.9	22.5	24.7	89.6	90.7	90.2
500	27.6	23.2	25.4	93.2	93.9	93.6
600	29.9	27.0	28.5	96.0	97.5	96.8
700	31.2	28.3	29.8	99.0	102.4	100.7
800	26.0	23.2	24.6	90.0	91.2	90.6
900	25.6	22.7	24.2	88.8	88.2	88.5
C.D. (5%)	1.6	1.9	—	5.8	3.7	—

## Dr. Chen Fang Joins PPI/PPIC Staff as Deputy Director, Central China

Dr. Chen Fang has joined the staff of PPI/PPIC in the new position of Deputy Director, Central China. He will work from a newly established office associated with the Hubei Academy of Agricultural Sciences in Wuhan, effective April 1998.

Dr. Chen was born in Guangdong province, studied Soil Science and Fertilization in Guangxi Agricultural College, and received a B.Sc. degree in 1982. He completed his Ph.D. degree in Plant Nutrition and Fertilization from Huazhong Agricultural University in 1997.

Recently, Dr. Chen has been involved in the Management Department of Scientific and Technical Projects, Hubei Academy of Agricultural Sciences. From 1987 to 1996, he had responsibility for numerous cooperative research and demonstration projects on balanced fertilization. During this time, potassium (K) need and improved nutrient application techniques were identified for numerous crops.

In his new responsibility, Dr. Chen will direct programs in agronomic research and education related to market development for potash and phosphate. **BCI**

