

## Nutrient removal studies in mango (*Mangifera indica* L).

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### ABSTRACT

In a study on nutrient removal by inflorescence and fruits at different stages in mango revealed that the quantities of nutrients removed by intact fruits varied from stage to stage. Inflorescence and intact fruits had largest quantities of K followed by N and least P content. Further the nutrient demand was highest at 15 – 30 days after set which coincided with the highest fruit growth rate.

**Key words :** Nutrient removal, Inflorescence, Fruits, Mango.

Plants remove large quantities of nutrients from soil for their growth and production. The amounts of nutrients absorbed depend upon their relative importance and need of individual elements, stage of the crop, age of the crop and production. Estimation of nutrients removed by plants will be useful in formulating manorial schedules and replenish the depleted nutrients for uptake. Nutrient removal at different stages of the crop gives an idea regarding the time of application, so that the nutrient would be applied at appropriate time instead of a blanket application.

### MATERIALS AND METHODS

An experiment was laid out at farmer's field in Chandragiri Mandal of Chittoor District, Andhra Pradesh during the fruiting season January to May 2003. For estimating the nutrient removal by inflorescences and fruits, the samples were collected as completely developed inflorescences (10 samples each from 5 trees) and fruits at different stages of development at 15 days interval from pea stage to maturity (10 samples each from 5 trees) from three varieties viz. Baneshan, Neelum and Bangalora were collected. Samples were washed in sequence with 0.2 per cent teepol, N/10 HCl, distilled water and finally in double distilled water. Then the samples were dried in hot air oven at  $80 \pm 5^\circ\text{C}$  for 72 hours till a constant weight was arrived. The dried samples were powdered and used for analysis to find the quantity of nutrients i.e. N, P, K, Ca and Mg present in the samples. The modified Micro-Kjeldohl method was used for nitrogen determination. The

phosphorous content was determined by Vanadomolybdo phosphoric acid yellow colour method. The colour intensity was measured at 470 nm spectronic 20. The potassium content was determined by using flame photometer. Calcium and Magnesium contents were estimated by titrating the diacid extract with 0.01 N EDTA.

### RESULTS AND DISCUSSION

The critical perusal of data indicated that the contents of K in inflorescences is highest among the nutrients studied followed by N and Least in case of P. The inflorescences had largest quantities of K (1.575, 1.375 and 1.675 g/100g respectively In Baneshan, Neelum and Bangalora) and lowest quantities of P (0.193, 0.162 and 0.181 g/100g, respectively in Baneshan, Neelum and Bangalora, respectively). Pathak and Panday (1977) also observed higher contents of K in inflorescences (Table 1).

**Table 1 : Nutrient removal in the inflorescences of mango cultivars Baneshan, Neelum and Bangalora (g/100g)**

Variety	Nitrogen	Phosphorous	Potassium	Calcium	Magnesium
Baneshan	0.916	0.193	1.575	0.280	0.200
Neelum	0.340	0.162	1.375	0.326	0.270
Bangalora	0.380	0.181	1.675	0.201	0.193

Baneshan fruits at pea stage had highest content of N (0.988 g/100g), with subsequent decline in the content as the growth of the fruit progressed and reached the lowest level of N (0.607 g/100g) after 90 days of fruit set (Table 2). With regard to P, the content increased from 0.2 g at pea stage to 0.225g at marble stage and there after it declined to 45 days after set and again showed a