The Asian Journal of Horticulture, June 2007, Vol. 2 (1) : 189-192

Seasonal variations in leaf nutrient composition of apricot cv. New castle

SANJEEV SHARMA, VISHAL S. RANA AND A.S. REHALIA

See end of article for authors' affiliations

Correspondence to :
Sanjeev Sharma
Department of Pomology,
Dr. Y.S. Parmar University of Horticulture and Forestry,
NAUNI-SOLAN (H.P.) INDIA

Accepted : *February, 2007*

ABSTRACT

Seasonal variations in leaf nutrient composition of apricot cv. New Castle were studied at 15 days interval, starting from mid April to mid September. The present investigation revealed that the variations in leaf nutrient contents occurred throughout the active growing period. Leaf N and K contents increased early in the growing season to reach their highest value on June, 1 and thereafter, decreased significantly with the advancement of leaf age. Leaf P and Zn contents exhibited a decreasing trend throughout the growing period. Whereas, Ca, Mg, Fe and Mn contents followed a reverse trend and increased steadily throughout the growing season. Leaf Cu content increased in the beginning of the sampling period, reached a highest value on July, 15 and declined toward the close of sampling dates. A common nutrient stability period was observed between June, 15 to July, 1 for N, P, K, Ca, Mg, Cu and Zn and between July, 15 to August, 15 for Fe and Mn. These nutrient stability periods can be used to sample leaves for diagnostic purpose.

Key words: Apricot, Seasonal variations, Nutrient.

Apricot (*Prunus armeniaca* L.), belongs to the family Rosaceae and occupies third position in order of importance, area, production and productivity among stone fruits. It holds exceptional promise for cultivation in the mid and high Himalayan regions. Supplying the nutrient need to tree crops is critical to achieve consist production and high quality fruit (Smith, 2003) and apricot is not an exception to it. The nutritional status of the apricot tree is an important factor contributing to quality of the fruit. It is important that the fertilizers should be used efficiently to ensure high crop yield and sustain the available soil nutrient status at maintenance level.

Leaf nutrient analysis has been found to be an efficient method for recommending need based fertilizers/ manural schedules for fruit crops (Bould, 1963). Moreover, nutrient status of the tissue is not static and exhibits periodical changes due to season in conjunction with other factors (Aerts, 1996). Efficient resorption of nutrients from leaves may contribute to the productivity of deciduous tree crops (Kim and Wetzstein, 2005). Thus, Seasonal variation in nutrient element composition must be considered while standardizing leaf sampling techniques. Therefore, present investigations were undertaken to elucidate the seasonal variations in leaf nutrient contents of apricot and to assess the levels of different nutrient elements in the apricot leaves during different phenological stages.

MATERIALS AND METHODS

The present investigation was carried out in the experimental orchard of Department of Pomology, Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan during 2002 and 2003. Ten healthy trees of apricot of uniform size and vigour were selected. The mid-shoot leaves of current season's growth were collected on 1st and 15th of each month, starting from April,15 to September,15. Each sample comprised of 50 leaves. The samples were washed, dried and processed according to the procedure described by Chapman (1964). Total nitrogen was determined by Microkjeldhal distillation method (A.O.A.C., 1980), phosphorus was determined by Vanado-molybdate phosphoric acid yellow colour method (Jackson, 1973) and potassium was estimated by using flame photometer (Piper, 1966). Calcium, magnesium, iron, copper, manganese and zinc were determined by using Z-6100 polarized Zeemen atomic absorption spectrophotometer. The results of macronutrients and micronutrients were expressed as percentage and ppm on dry matter basis, respectively.

RESULTS AND DISCUSSION

Seasonal changes in the macronutrient contents of apricot leaves

A perusal of the data presented in Table 1 revealed that the levels of leaf major nutrient elements namely N, P, K, Ca and Mg exhibited more or less regular changes depending on leaf age and type of mineral elements. Nitrogen and Potassium content of leaves increased steadily in the beginning of the sampling season, reached a highest value on June, 1 and then declined towards the