ABSTRACT

The investigations on the present topic were conducted in the Faculty of Agriculture and Forestry, Guru Nanak Dev University, Amritsar during the cropping seasons 2007-08 and 2008-09. The plant material comprised of eight years old eighty healthy and uniform trees of ber cultivar Umran and the study was planned in two sets of experiments in order to study the effect of PGRs and nutrients on fruit drop and quality in order to increase the yield, to improve the fruit size, quality and market acceptability. In experiment I, seven growth regulator treatments used were NAA 10, 20 and 30 ppm, GA\textsubscript{3} 10, 20 and 30 ppm and control (water spray), applied in 3\textsuperscript{rd} week of November at active growth phase with four replications each. In experiment II, thirteen chemical nutrient treatments (including control) viz. NAA 10, 20 and 30 ppm, KNO\textsubscript{3} 1, 2 and 3 per cent, KCl 1, 2 and 3 per cent, ZnSO\textsubscript{4} 0.3, 0.4 and 0.5 per cent and control with four replications each were applied during 1\textsuperscript{st} week of February at fruit development stage to study their effect on fruit quality. In experiment I, both the growth regulators (NAA and GA\textsubscript{3}) showed their effectiveness with regard to fruit setting, retention and physico-chemical characters of Umran ber. It was observed that NAA 30 ppm application resulted in maximum fruit set, minimum fruit drop, maximum fruit length, breadth, weight, volume, minimum specific gravity, maximum TSS and highest fruit yield amongst all the treatments. The benefit: cost ratio obtained in the trees sprayed with NAA 30 ppm was maximum (3.21: 1 during 2007-08 and 3.26: 1 during 2008-09) as compared to control which yielded benefit: cost ratio of 2.41: 1 and 2.43: 1 during first and second cropping periods of study, respectively. The titratable acidity, total sugars, ascorbic acid and palatability rating showed maximum improvement with GA\textsubscript{3} 50 ppm application. Hence the application of NAA 30 ppm proved to be the most beneficial and is recommended for improving the fruit set, yield and physico-chemical characteristics of Umran ber fruits. In experiment II, fruit length, breadth, volume and fruit yield per tree showed maximum improvement with NAA 30 ppm. The benefit: cost ratio was maximum (3.22: 1 during 2007-08 and 3.31: 1 during 2008-09) again with NAA 30 ppm application while fruit weight and ascorbic acid was
calculated to be the highest with KNO₃ 1 per cent. The palatability rating, TSS, acidity and total sugars showed maximum improvement with KCl 3 per cent.