

## Abstract

Non-uniform fruit quality within export consignments of plums compromises retailer and consumer satisfaction and thus, profitable marketing. Variability of maturity and quality at harvest and following storage and ripening period is thought to be strongly influenced by canopy light conditions during fruit development, in conjunction with once-off harvesting practices. During 2000/01 and 2001/02, the plum cultivars *Prunus salicina* Lindell 'Laetitia' and 'Songold' were subjected to different levels of shading by bagging entire scaffold branches with shade netting. Resulting light treatments gave 100 (control, no bags), 70, 45 and 25% photosynthetic photon flux density (PPFD). Fruit quality was assessed at harvest (once-off) following simulated commercial dual temperature storage (10 days at  $-0.5$  °C followed by 8 days at 7.5 °C) and following 5–7 days of ripening at 15 °C. Shaded ( $\leq 70\%$  PPFD) 'Laetitia' plums were less mature at harvest than exposed fruit and were smaller and firmer with a greener ground colour, lower soluble solids concentration (SSC) and poorer red colour. During postharvest cold storage, ripening processes proceeded more rapidly in shaded fruit relative to non-shaded fruit. This resulted in shelf quality not much inferior to fruit grown under high light conditions, since differences in firmness and SSC were reduced. However, under preharvest light levels less than 70% skin ground and red colour of ripe fruit remained poorer. Shaded 'Songold' plums were slightly greener and had lower SSC at harvest, but treatment differences became non-significant after storage and ripening. Postharvest internal disorders were virtually absent in both cultivars during both seasons. Based on our findings, we propose that plum tree canopies should be managed in such a way as to ensure light exposure of at least 70% in all bearing positions, which should result in more uniform maturity and postharvest quality of plums. Strip-picking is discouraged, since this will result in mixed quality on the shelf, particularly with regard to colour.