

Title Monopotassium phosphate for olive fruit abscission.
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Abstract

The effect of foliar-applied monopotassium phosphate [potassium dihydrogen phosphate] KH_2PO_4 (MKP), alone or in combination with an ethylene releaser, on olive fruit abscission was investigated in experiments with cultivars Arbequina and Picual in 2000 and 2001, respectively. In both experiments, 27 uniform, highly producing trees were used: 20 years old in the case of Arbequina and 25 years old for Picual, grown under irrigation in Cordoba, Spain. The treatments comprised a control (untreated), 3% aqueous MKP (3% MKP), and 3% MKP+0.05% ethephon (3% MKP+Et). The treatment was applied on 9 November 2000 for Arbequina and 29 November 2001 for Picual. The fruit retention force (FRF) for 50 fruits per tree was measured once or twice weekly with a dynamometer for 6 weeks. Leaf abscission was estimated by observation of leaves on the ground below the tree canopy following product application and at harvest. At 15 days after treatment (DAT), mechanical harvest consisting of a 6-s trunk vibration per tree was carried out for 6 trees per treatment. The fruits that remained on the tree were harvested manually, and efficiency of mechanical harvest was calculated as percentage of fruit weight (mechanically harvested fruit weight x 100/total harvested fruit weight). On the remaining three unharvested trees per treatment, FRF measurements were continued until 6 weeks after treatment application. Application of MKP at 3% reduced the fruit retention force in olive while improving mechanical harvest. The incorporation of ethephon at 0.05% caused greater FRF reduction and improved mechanical harvest efficiency without causing leaf drop. For the early harvest required for quality oil production, a foliar spray of MKP 15 days before mechanical harvest can reduce the high FRF of the immature fruits and facilitate fruit loosening.