

7.2 Effects of different thinning periods on fruit development and quality formation: case studies

Case studies on thinning period show that timing strongly influences both fruit growth and harvest quality in loquat. A three-year study of chemical thinning with NAAm found that application at the end of bloom increased fruit diameter by 11% to 18%, improved grading, and advanced harvest, while total yield declined only slightly. Another chemical-thinning trial showed that treatment efficacy depended on both date and concentration, and that the most effective schedule for increasing average fruit size was 20 mg L⁻¹ naphthaleneacetic acid applied 10-15 days after anthesis. Together, these cases show that earlier crop-load regulation can improve fruit enlargement more effectively than delayed manual thinning.

Developmental case studies also show why thinning period matters biologically. In ‘Algerie’ loquat, fruit growth followed a sigmoid pattern in both thinned and unthinned trees, but thinning changed the slope of the growth curve, indicating faster fruit growth under reduced crop load (Cuevas et al., 2003). Initial fruitlet size was also highly predictive of final market class, because size differences present at hand thinning did not reverse later, which supports selective thinning based on early fruit size rather than random fruit removal. These findings suggest that the most effective thinning window is the early stage when fruit growth trajectories and competition among fruit are still being established (Figure 3).

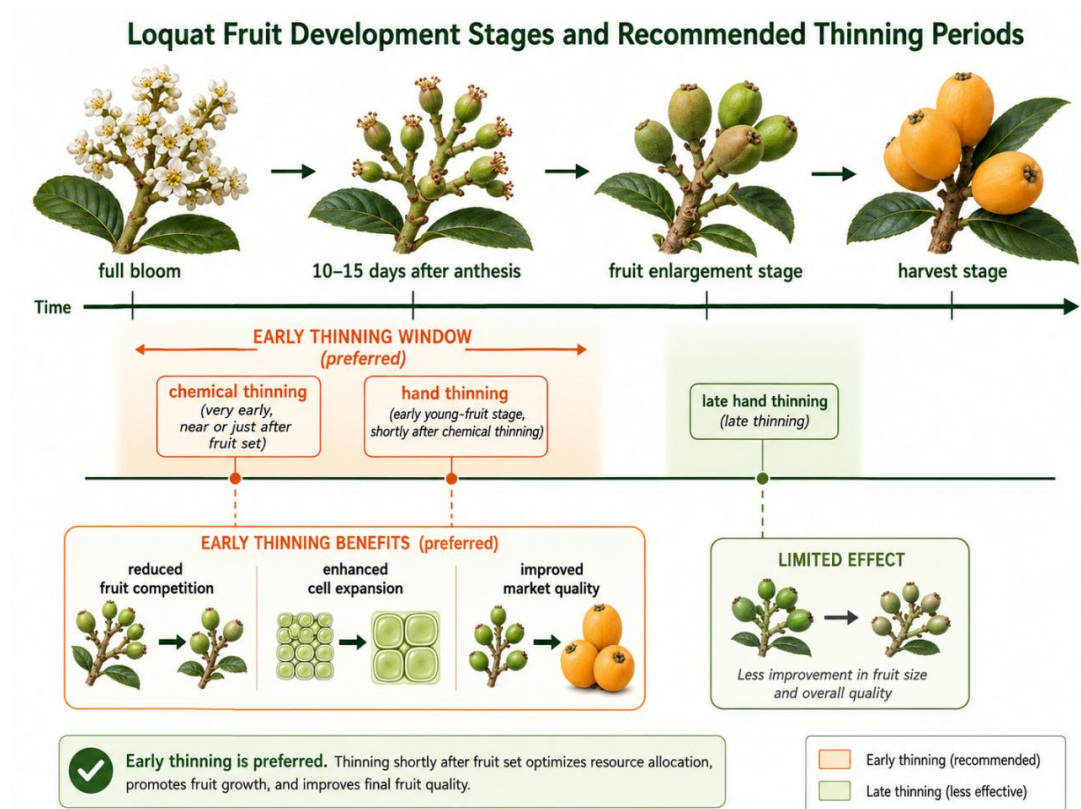


Figure 3 Optimal thinning windows during loquat fruit development and their effects on fruit growth and harvest quality

7.3 Improving loquat production efficiency through fruit thinning combined with modern management practices: case studies

Several case studies show that fruit thinning becomes more effective when combined with other orchard practices rather than used alone. In the Brazilian flower-bud thinning experiment, all clusters were bagged immediately after thinning, and the four-bud treatment produced the best overall fruit-quality response, illustrating a practical thinning-plus-bagging system for fresh-market production. Independent bagging work in Fujian was conducted in orchards that had already been systematically pruned, thinned, and fertilized, and aluminum-polyethylene bags increased fruit weight, length, and width while markedly reducing skin burn, rotting, and black spot (Zhi et al., 2021). This evidence suggests that thinning can be integrated with post-thinning fruit protection to raise the proportion of marketable fruit.