

## Macadamia Sampling & Growth Stages

**Timing:** Begin sampling at or just before stage 6.1 (fruit development). A Second sample should be taken at nut hardening (7.5). Nutrition should be monitored throughout nut development by taking two to three samples at equal intervals apart. A Final sample should be taken at harvest.

**Sample volume:** 40 shoot tips.

**Sampling:** Collect 10 cm of new shoot tips from current season's growth at mid crown height (or shoulder height for large trees); sample from the same trees for subsequent sampling.

Primary stage	Secondary stage	Description	Comments
<b>5</b>		<b><i>Inflorescence emergence</i></b>	
	5.5		50% of flowers with petals forming hollow balls
	5.9		Most flowers with petals forming a hollow ball (popcorn).
<b>6</b>		<b><i>Flowering, concurrent with leaf and shoot development</i></b>	
	6.1		Beginning of flowering: 10% of flowers open.
	6.5		Full flowering: 50% of flowers open, first petals falling.
	6.7		Flowers fading: majority of petals fallen, ovary growing. First leaves unfolded, axis of developing shoot visible.
<b>7</b>		<b><i>Fruit development</i></b>	
	7.2		All petals fallen, end of flowering, First leaves fully expanded, shoots > 10cm long
	7.5	<b>Nut hardening</b>	Fruit about half final size. Fruit growth interrupted, stone becomes hard (cannot be easily cut).
	7.6		Fruit about 60% of final size.
	7.7		Fruit about 70% of final size.
	7.8		Fruit about 80% of final size.
<b>8</b>		<b><i>Maturing of fruit</i></b>	
	8.1		Fruit at full size, beginning of fruit coloring.
	8.5	<b>Harvest</b>	Coloring advanced.
	8.9		Fruit ripe for harvest.
<b>9</b>		<b><i>Beginning of dormancy</i></b>	
	9.1		Shoot growth completed: foliage still fully green.
	9.3		Beginning of leaf fall.
	9.9		All leaves fallen.

*Growth Stage numbering system is in accordance to the extended BBCH, a uniform coding of phenologically similar growth stages for all plant species*

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