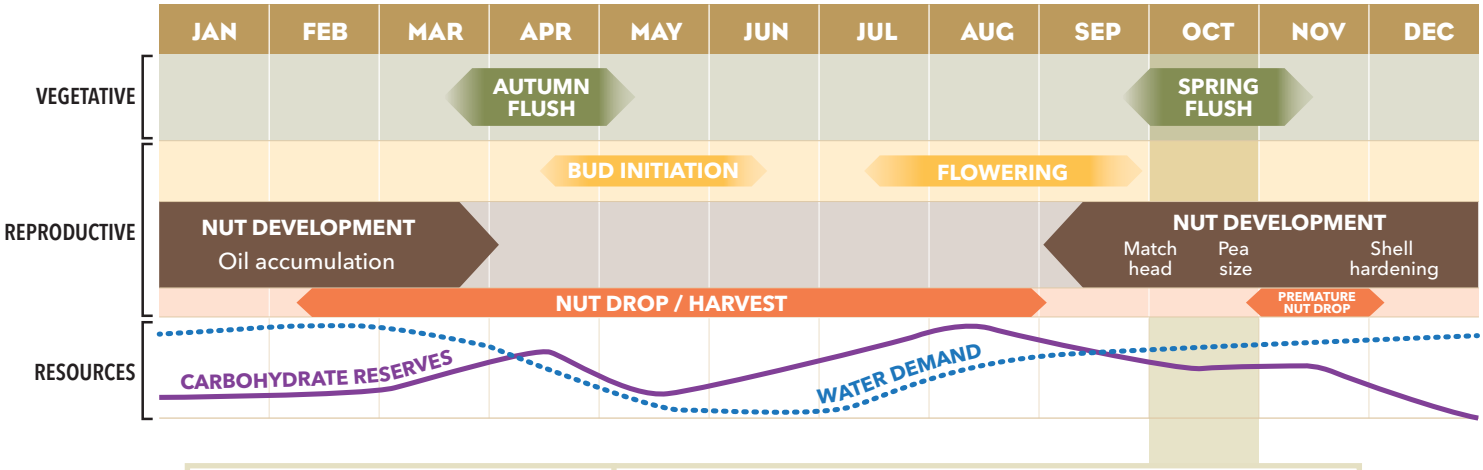
Phenological Cycle



Flowering is finishing and nut set is underway

Match-head size nuts quickly fill out to pea size during the month

Trees will likely flush (if they haven't already) after recent rain and warmer temperatures

Pest and disease

Husk spot. If your orchard has a history of **husk spot** and/or has **susceptible cultivars**, you need to be ready to apply fungicide as nutlets reach **match-head** size. Your pest consultant will guide timing, but key factors are:

- **Sticktight** abundance. These are the **main** source of spores
- Spores are spread by **rain splash** so fungicide before rain is critical
- **Rainy and/or windy** weather spreads spores from susceptible cultivars to other trees, especially in overgrown canopies
- The critical period to prevent infection starts from **match head** through **pea size** and **premature nut drop**
- Leaving control until nutlets are **larger** significantly increases the risk of nut loss
- Fungicides for **husk spot** are preventative with **limited curative** activity on infected nutlets
- **Rotate fungicide groups** to avoid resistance
- Ensure **coverage is thorough**.

Unlike insects, which are mobile and have multiple chances to interact with applied chemicals, control for diseases like **husk spot** is only effective in the places covered by fungicide.

Download the UQ Husk Spot fact sheet and Husk Spot Fungicide Resistance fact sheet

Husk spot susceptible cultivars:

Own Venture, A4, A16, A38, A268 H2, 781, 816, 842, 849 and P

Macadamia seed weevil (MSW). The female weevil lays an egg between the **husk and developing nut.** She chews the nut attachment and it drops, or in some cases remains in the tree.

Indoxacarb, which can be tank mixed with fungicide if correct procedures are followed, is very effective when applied at match-head size onwards. **MSW egg laying is stopped** for up to 13 weeks.

There are other new options for **MSW** control, chat to your consultant. Take note that the permit for acephate for **MSW** control has been removed.

Download theAMS Seed Weevil fact sheet

Photo: Dallas Nock

Spotting bug. Early in the season look for damage on **nutlets** as they reach **pea size** (they will fall from trees within days of being stung). Signs include **sunken, brown to black spots** and **lesions** on developing nuts. Your pest consultant will assess fallen nutlets and dissect nuts in trees as a **monitoring tool**. Several control options are available, but **timing control with flights** into the orchard is critical.

Banana fruit caterpillar (BFC). In northern regions, monitor for **BFC** in **leaf litter**. At around match-head size, **caterpillars** (active at night) will start to climb trees in search of food. Control is best targeted at this **leaf litter** where they harbour in the day by blowing it out and mulching or spraying it. When spraying leaf litter, ensure leaves are turned over to expose **caterpillars**.

Thrips. Although a minor pest, thrips can severely impact the new lush. Talk to your pest consultant about developing a **threshold** for control.

NOTE: As a rule of thumb, start the season with **less disruptive, 'softer' chemistry** and, if required, use more disruptive 'harder' chemistry later in the season.

Crop inputs

Nutritional demand

If you are unsure of how trees are progressing nutritionally, spring is a good time to **sample leaves** after flowering and before they flush.

Sample **mature leaves** on previous flush (6 to 7 months old), from the **second or third whorl** of the shoot tip. Avoid shoots that have started to flush.

Although many growers sample leaves in autumn with soil sampling, **Australian leaf tissue standards** were developed based on sampling during **spring**.

Guidelines on the right are indicative and vary based on factors such as **cultivar**.

Current demand for **potassium** is high from developing **nutlets.** Apply most of your annual **potassium** in the three months after flowering. **Calcium** is also in demand for cell growth so ensure adequate **soil calcium** in this period.

A method to guide **nutrient management** is to determine removed nutrients by **crop load**. The table to the right was developed based on Hawaiian cultivars. We know that many A and other newly bred cultivars have greater nutrient requirements and hence removal, particularly with **higher kernel recoveries**.

Leaf nutrient concentration	Australian standards
N (%)	1.4-1.7
P (%)	0.08-0.11
K (%)	0.4-0.8
S (%)	0.15-0.21
Ca (%)	0.6-0.9
Mg (%)	0.08-0.12
Zn (mg/kg)	6-15
Mn (mg/kg)	250-1850
Fe (mg/kg)	30-100
Cu (mg/kg)	5-10
B (mg/kg)	40-80

Source: Huett and Vimpany (2007)

Chicken or beef?

Different **manures** used as **organic supplements** have vastly different nutrient profiles. Dependant on age, there is generally more **available nitrogen and phosphorous** in chicken litter than beef feedlot manure, but the nitrogen can be in unstable forms and easily lost to the environment.

Beef feedlot manure generally has more stable nitrogen sources but may contain high levels of iron and salt. Continuous **chicken manure** applications can lead to excess phosphorous which can tie up other nutrients in the soil.

When purchasing any manures always ask for a nutritional analysis.

October/November are the last months you can apply **animal manures** and **uncomposted material**. These have a four-month (120 day) **withholding period** before harvest.

Guide to nutrients removed by the tree during husk, shell and kernel development

	N	S	P	K	Ca	Mg	Cu	Zn	B
	Kilograms per tonne						Grams per tonne		
Husk	4.03	0.65	0.37	7.33	0.22	0.25	2	3	3
Shell	1.93	0.24	0.06	0.72	0.12	0.12	8	4	2
Kernel	4.54	0.49	0.80	1.10	0.12	0.37	2	6	2
TOTAL	**10.5**	**1.38**	**1.23**	**9.15**	**0.46**	**0.74**	**12**	**13**	**7**

Source: Vimpany and Bryen (1997)

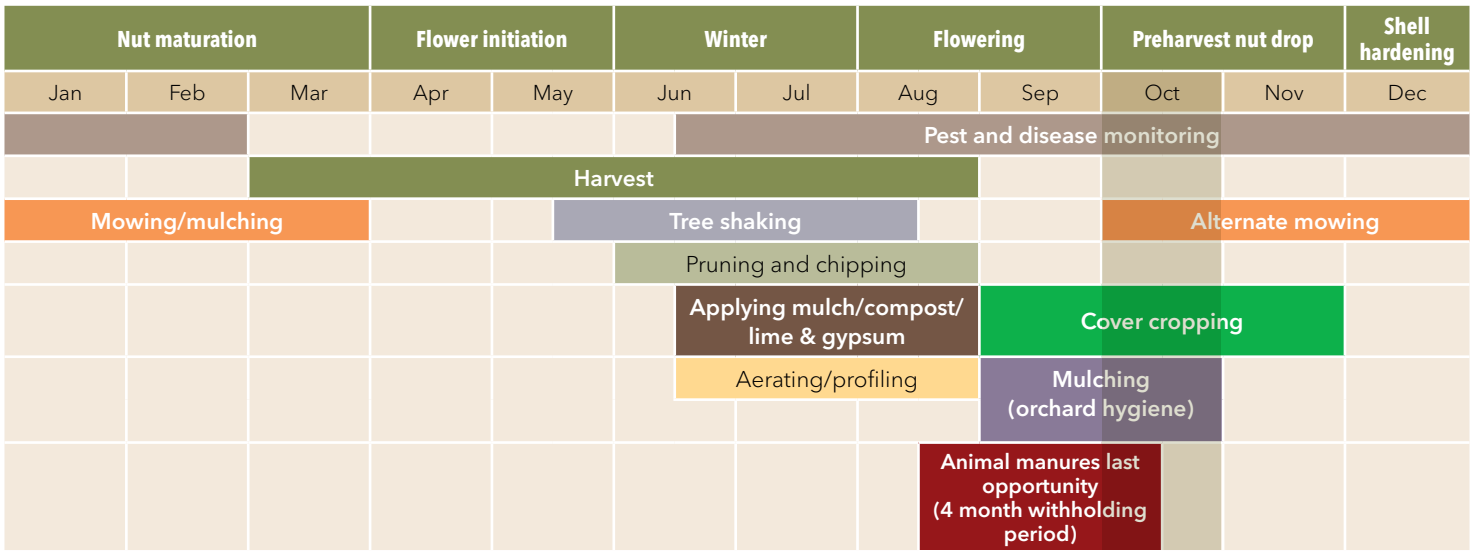
Mechanical

Keep up **sprayer** and **spray tractor maintenance** as breakdowns during this period are costly. If you haven't **calibrated** your sprayer, get a professional in ASAP.

Ensure you have the correct **nozzles** for the **droplet size** specified on chemical labels. Many renewed permits and labels have stricter conditions on **spray volumes**. This will apply to any spraying on your property, including contractors, for which you are legally responsible.

Have you got a weather station or some other **weather monitoring** in place?

Management Cycle



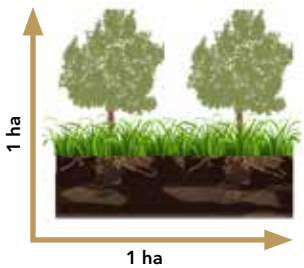
Management

The fore casted wet period ahead is an opportunity to seed areas of your farm that need **ground cover**.

- Are there areas of **bare ground or limited cover**, e.g., drains, traffic areas and water flow lines?
- Check **dam spillways** are **sound** and grassed over.

The **inter row** is an **underutilised resource** that can grow out or actively cropped to provide organic matter, prevent erosion, as a beneficial insect habitat or improve soil productivity.

Let grass grow longer before cutting it. This can significantly reduce the amount of soil and organic matter lost from the orchard **and** grow **costly** biomass.



Are you actively farming the whole hectare?

Are you maximising the inter row and other 'non-tree' orchard areas?

Reduced mowing strategies include:

- **Mowing alternate rows.** This leaves alternate rows to grow out and flower. This may be an opportunity to seed a different cover crop with beneficial characteristics within the current cover
- **Cover cropping.** Seed grasses and broadleaf (legume and non-legume) species into the inter row for a range of ecosystem benefits including orchard access and stability, soil productivity, moisture retention, beneficial habitat and resilience to weather extremes.

Like any matchmaking process, you need to find the **correct species** mixture for the correct orchard areas, considering the characteristics of the species and goal for that orchard area.

Think about what you're trying to achieve with the planting and this will dictate species. Importantly, you don't want to diminish the base of **perennial grasses**, so don't over sow and out compete these fundamentals.

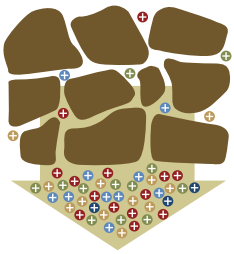
Download the AMS Ground Cover fact sheet

The month ahead

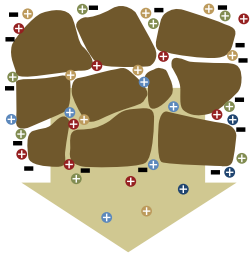
In the two months ahead, monitor and manage major pests such as **spotting bug** and **nut borer**. Warming seasons and the wet conditions are ideal for these pests, speeding up life cycles and resulting in more generations present in a season.

Every **weather forecast** says it's going to be wet in eastern Australia over the next few months. How will this impact orchard operations, test drainage and crop protection in each of the orchard blocks?

Wet weather increases the chance of **nutrient leaching**, worse with lower CEC, sandier soils. Are you are **monitoring** for leaching? It will likely be legal requirement in Qld with other states to follow.



Low CEC, sandier soils leach nutrients easily



High CEC, more clay soils hold onto nutrients

AusMac2022

7-9 November Royal Pines Resort, Gold Coast QLD

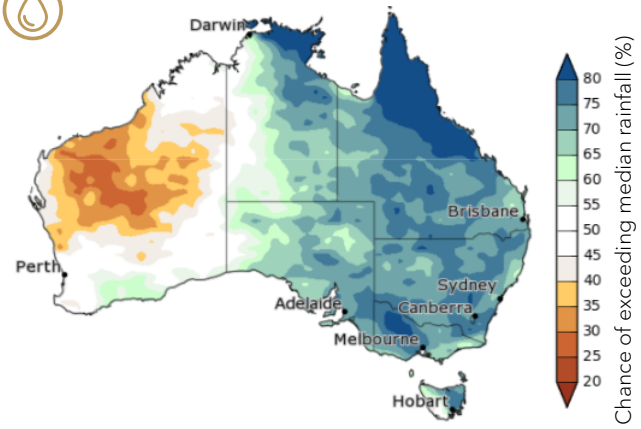
Have you got your tickets for AusMac2022 yet?

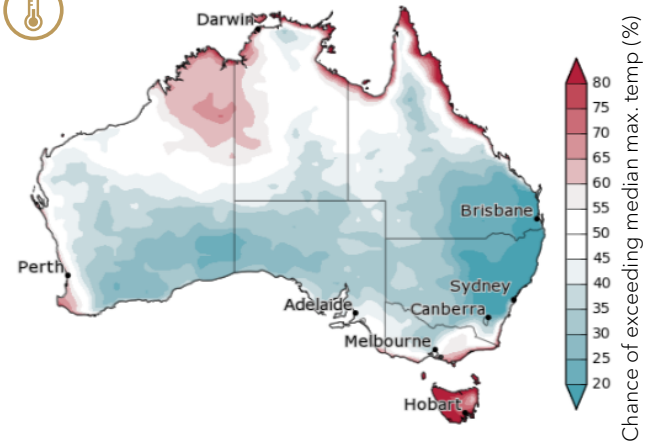
The trade and machinery expo is the largest collection of macadamia products, farm equipment and technology solutions in Australia.

There are new ticket options and early bird registrations have been extended until 14 October 2022.

Register or take a look at the events page here

BOM Rainfall and temperature outlooks for November 2022





Further Information

For more information, please contact the AMS Industry Development Manager and/or your processor's grower liaison officer. Also, go to the Industry Resources page on the AMS website, login, and search for fact sheets, research reports, Bulletin articles, case studies and more by keyword, category and/or author.

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