

Activity # 1- Assessing Horticultural Crop Suitability for the Queensland Murray Darling Basin Study Area

Specific Biophysical Crop Information – Melons

(1 August 2014 to 30 June 2016)

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Melons

Based on the biophysical requirements and limiting factors, **melons are a potential crop** for the Balonne-Border Rivers Region of the QMDB.

Melons are a **popular summer crop** in Australia. There is a vast range of types of melons other than just watermelons, these include cantaloupes (rock melons), honeydew melons, green-flesh musk melons and galia melons. The two main cultivar types are cantaloupes (rock melons) and honeydew melon.

Watermelons

Latin name: *Citrullus lanatus*

Most watermelons are cylindrical or round, with mottled or striped green skin, and a pink to red centre, though other varieties such as Champagne watermelons have golden flesh. Many watermelons have dark brown seeds, though in recent years **seedless watermelons have become preferred by consumers**. Seedless melons may contain small white soft edible seeds.

Watermelons are available all year round, peaking in summer, from December to May.

In Australia watermelons can be grown anywhere but need a long warm to hot growing season. Winter crops are grown in the north, and summer crops are grown in Southern States. They take up to 4 months from seed to harvest. Watermelons do not ripen after harvest, so they are ripe when you buy them.

Rockmelons

Latin name: *Cucumis melo*

Rockmelons are usually rounded or slightly elongated with firm, netted or scaly, cream or buff rind. Some varieties have grooves or sutures running the length of the melon, and all have moist, sweet, orange to peach-coloured flesh, and a distinct tropical fragrance. Most commercial rockmelons grown in Australia are a fully netted melon with no sutures and orange flesh.

They are available all year round, **production peaking in summer** (November to March).

Rockmelons do not ripen after they are removed from the vine.

Honeydew Melons

Latin Name: *Cucumis melo*

Honeydews are usually round to slightly oval (about 15-20cm diameter) with a smooth, white or gold skin. The flesh colour ranges from pale green to green, and is moist, firm and sweet. Honeydew types are available all year round with peak production occurring in summer (December, January and February).

The flesh of white skinned honeydew types are often sweeter, and have a higher level of natural sugars. Like other melon types; Honeydew melons do not ripen after harvesting

Crop Matrix:-

	Annual Crop	Melons		
		Honeydew	Rockmelon	Watermelon
Currently Grown (Y/N)	Qld	Y	Y	Y
	QMDB	Y	Y	Y
	NSW	Y	Y	Y
	Vic	Y	Y	Y
Frost Sensitivity (N or Deg C)	Seedling	Y	Y	Y
	Growth	Y	Y	Y
	Reproductive	Y	Y	Y
Low Temp Sensitivity (Y/N or Deg C)	Seedling	Y	Y	Y
	Growth	Y	Y	Y
	Reproductive	Y	Y	Y
High Temp Sensitivity	Seedling	N	N	N
	Growth	N	N	N
	Reproductive	Y (flowers)	Y (flowers)	Y (flowers)
Rainfall Sensitivity	Y/N	Y	Y	Y
	Growth Phase	Flowering & Harvest	Flowering & Harvest	Flowering & Harvest
Special Soil Requirements	Y/N	N	N	N
	Requirement			
Chilling Req.	Y/N	N	N	N
	Amount (hrs)			
Water Quality	Sensitivity (dS/m)	1.4 (2.4)	1.4 (2.4)	1.4 (2.4)
First Planting Date	(Month)	Sept	Sept	Sept
Last Planting Date	(Month)	Feb	Feb	Feb
Consecutive Plantings	(Y/N)	1-2	1-2	1-2
First Harvest	(Month)	Dec	Dec	Dec
Last Harvest	Month)	April	April	April
Length of harvest	(weeks)	1-4	1-4	1-4
QMDB	Y/N	Y	Y	Y

Mid-summer heat may restrict plantings to spring and autumn - potential for split season

Biophysical Requirements and Limiting Factors (climate)

Melons need a warm growing season with day temperatures above 20°C, low rainfall during harvest, and protection from wind.

Temperature

The optimum temperature for growth is around 30°C, while cool night temperatures slow growth and reduce fruit size.

Rainfall

Melons should be grown in a well-drained soil and are often grown on beds to improve drainage. The crop is most susceptible to excessive rainfall when fruit is mature and ready for harvest.

Soils

Soil must be well drained or able to be hilled to provide drainage. A soil with a crumbly surface allows the underside of melons to dry out faster, reducing fruit rot. Many growers of honey dew and rockmelons grow on plastic mulch covered beds, plastic ground mulch controls weeds, may increase soil temperature, conserves moisture, and protects fruit from ground rots.

Irrigation

Trickle irrigation is the **best and most common method** of irrigation used in melons, but furrow and overhead irrigation are sometimes used. The amount of water required varies from two to four megalitres per hectare. Remember if irrigating from farm dams, you need storage capacity for greater volumes to allow for evaporation and other losses of water. Vines need moderate amounts of irrigation in the early growth phase while establishing and spreading.

Once **flowering** and early **fruit set** has begun demand for water is high and the crop needs more **frequent irrigation**. Reducing water applications about a week before crop maturity will improve the sugar content of the fruit

Rockmelons and honeydews have a medium tolerance to salty water. Yields will be reduced as water conductivity (salt level) increases above 1500 microsiemens per centimetre (mS/cm).

The amount of water used to grow a crop will vary depending on the time of year and soil type. However, the following figures are a useful guide; overhead sprinkler system: 4-5 ML/ha, furrow/flood: 4-5 ML/ha, drip: 3 ML/ha

Planting

Field planting is carried out by direct seed sowing in the field or use of containerised seedlings. Hybrid commercial seed is expensive and many growers now use transplants. Watermelon row spacing's vary from 1.5 to 3.0 m and plant spacing's from 0.75 to 1.5 m. Rockmelon and honeydew types are usually planted with a row spacing of 1.5 – 2.5 m between rows and 0.5 M between plants

Seedless water melons need a standard (seeded) variety in close proximity to provide pollen for fertilisation to occur. There is no consumer demand for seeded melons which need to be about 25% of the planted area to ensure effective pollination of the seedless line. This is an **important fact when budgeting** to grow a watermelon crop.

Pollination

Bees are essential for pollinating melon crops. In small areas close to blocks of native trees introducing bee hives may not be necessary, but check that bees are present and the crop is being pollinated. If the crop is not being pollinated you must introduce bee hives to get a good yield.

A general rule of thumb is you need at least two hives per hectare when around 10% of the crop has flowers and hives should be left in the crop for at least three weeks

Crop Lifecycle

The time from planting to harvest varies from 10 to 16 weeks after field planting, depending on variety, time of year, district, and whether melons are planted as seeds or transplants.

Harvest extends over two to four weeks, depending on temperature at the time and the amount of irrigation applied. Warm weather and dry conditions will concentrate harvest.

Yields

Seedless watermelon average yield will range between 100 to 150 tonnes per hectare with individual marketable fruit weight greater or equal to 4 Kg

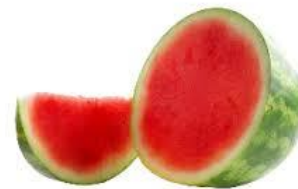
An average yield of good marketable rockmelons is about 1800 trays per hectare but the usual range would be 1000 to 2500 trays, though higher yields have been recorded. Rockmelons are usually sold in trays which weigh 12 to 18.5 kg.



Rockmelon



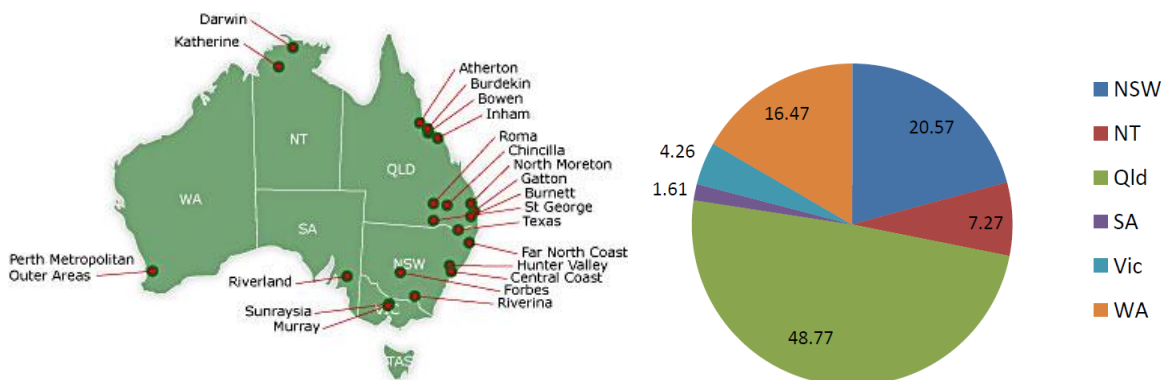
Honeydew



Seedless Watermelon

Comparison Region(s)

Queensland, Western Australia and New South Wales are major producers of melons with the Northern Territory, Victoria and South Australia producing lower but still significant volumes (ABS 2008).



Melon production by state as a percentage of national total (ABS 2008)

Queensland Production Regions

District	Planting Time	Harvest Time
Bowen – Burdekin	February - April	Mid – March to mid -October
Rockhampton - Emerald	June to July	Late Sept to October
Bundaberg	Mid- July - September	Late October to mid - November
Gayandah - Munduberra	August – September	November - December
Chinchilla - St George	September – January	December – April

Crop in the QMDB Region.

Based on the biophysical requirements and limiting factors, Melon is a potential crop for the Balonne-Border Rivers Region of the QMDB.

Quality is the most important factor in successful watermelon rockmelon and honeydew production. Good land preparation, correct variety selection, attention to detail during crop growth, careful harvesting, accurate grading and proactive marketing are all essential elements in a successful crop.

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Disclaimer: The candidate crop information presented in this QMDB study area report (Activity 1) are based on the analysis of the published biophysical needs of the crops (e.g. temperature, frost sensitivity, chill requirement, water quality, etc.) and current climate records for the QMDB study area. The candidate crops are deemed suited to the study area where the biophysical needs are met either year round or for portion of the year and will allow crop production.
