

DATE PALM PLANTATION..... SITE SELECTION

GROUND PREPARATION

The site which is available for planting date palms has between 20-60cm of good sandy agricultural soil of around 8-8.5pH on top of a heavy layer of white powdery calcrete clay with poor drainage and highly alkaline 9.1-9.5pH.

This layer is interspersed with small round pebbles. Experience has taught us that the root systems of plants generally, hit this calcrete layer and spread out rather than penetrating it. We decided that the best approach would be to pre-drill a hole into this layer and backfill with good soil and fertilizer to ensure speedy growth and solid anchorage.

Method: Using a bobcat we drilled holes 600mm in diameter and 2.75 metres deep. The first 50cm or so of good sandy soil was set aside and the poorer calcrete soil heaped for removal.

Using a grader blade behind a tractor we dragged surrounding sandy soil into the hole. Before completing the backfill operation we primed the hole at a depth of 1 metre with 25kg of slow release organic fertilizer, rich in phosphorous and minerals. Hole spacings are 9 metres x 9 metres



Once the holes were backfilled, they were irrigated and allowed to settle for a few weeks. After they finished sinking, they were topped up and declared ready for planting.

Our first tissue culture date palm was planted at Gurra Downs in October 2004. We planted 5 different varieties and plant size ranged from medium-small to very small. Initially we were thinking the very small plants would grow better in the ground than being grown out longer in the greenhouse. This proved to be incorrect.

We planted palms in weedmat to reduce competition from weeds and reduce labour inputs.



We then installed guards using two methods: old netting covered with shade cloth, and wooden stakes surrounded with windbreak fabric.



Above: Netting guards about the diameter of a 200 litre (44 gallon) drum, made up and covered in shade-cloth. These are good guards but time consuming to make. They are also re-usable but unsightly and awkward to store when not in use.

Our preferred method was to use 4 wooden stakes 1.5" x 1.5" thick and staple windbreak fabric to them. These are quick and easy to construct, stakes are re-usable and stack for storage when not in use.

The shade-cloth fabric was folded over at the top and wired closed. The purpose of the guard was to provide protection from the extremes of summer and reduce the effects of winter frosts. Guards were removed when the palms had outgrown them about 12-20 months later. The palms were considered hardy enough at this stage to withstand extremes without the comfort of a guard.



PERFORMANCE REPORT

This last year has been a difficult one for our young plantings. The drought throughout the Murray Darling Basin continued, resulting in the first ever water restrictions being applied. South Australian irrigators were restricted to a 60% water budget. Ideally we would have liked to apply more water to the young palms than we did, but as you can see by the photos above, the palms still managed satisfactory growth.

The 'big dry' also escalated the occurrence and severity of frost during our last winter. Where in a normal winter we may experience two or three frost events of -1 or -2 degrees Celsius, last winter we had multiple frosts with a record low of -8 Degrees C on more than one occasion. Damage occurred to about 10% of plants where the tip of the emerging spears, were burned. This shortened the length of these leaves as they emerged and although they have been replaced with new leaves over the warmer months, it did set a few palms back. The frost however did not kill any of our palms at Gurra Downs.



Above: Frost -5.5 degrees CelsiusJune 2007

Although the frost can seem a little extreme, we've read that some varieties require a chill factor for successful spring flowering. The other advantage with frost is that it reduces the presence of insect pressures.

The forecast for this coming season looks uncertain at best. The worst drought in recorded history continues. Governments have just announced a 4% only water allocation to begin our new irrigation season. Large scale loss of permanent plantings such as citrus, almonds, stonefruit and winegrapes are expected. We hope to be able to maintain our young date plantation and date palm nursery by re-directing irrigation water away from our vineyard. That would be the worst case scenario. We pray that drought breaking rains will arrive soon. The new varieties we have ready for field planting include Zahidi, Nemeishi, Khalas and Khadrawy along with more Medjool and Barhee. These will continue to be held in the nursery until water restrictions are eased.

WEED CONTROL

Being organic, we have designed mechanical methods to deal with competing weed problems. Our system includes a feral-proof perimeter fence to exclude wild dogs, foxes and cats. This allows us to run poultry which help convert weeds and insect pests into fertilizer.

Cape Barren geese (which are an Australian native goose) are very well suited to our environment. On hot days when you find our White Chinese geese and Muscovy ducks under a shady tree near the water trough, you will see the Cape Barren geese still out in the heat of the day happily working the weeds.



Over the last 7 years the geese population has almost completely eliminated Innocent weed, Love grass, Couch grass and Milk thistle whilst they have considerably reduced Wild Lettuce, Wire weed and Fat Hen weed.

The geese do a fantastic job on the weeds and greatly reduce our inputs, however they don't eat every weed type and they can fall behind after mass germination following solid rainfall events.

When required, we run through with an under-vine weeder (sometimes called a vine knife or dodger). This is a hydraulic ram-driven large tyne or knife which extends and retracts, controlled by a foot pedal from a tractor. It allows weeds to be worked around the palm with minimal ground/root disturbance.



Another method we are adopting is the use of mulch to suppress weeds. We are very happy with the results of a 12 month trial using grapemarc. This is a by-product of the distilling process and is mostly grape seeds and stems. After it is well composted, we apply in a thick layer around the palm. This suppresses weeds, helps retain moisture and reduces evaporation. This black mulch absorbs heat through the day and releases it at night which adds a little insurance against potential major frost events.

Left: Note there is no frost on the northern side of the grapemarc which had been in the full sun during the previous day. On the southern side where the palm provided shade there is a little frost – but considerably less than on the surrounding ground.

The marc is 4.2 pH which helps buffer our 8.5 pH soils. It contains good levels of potassium, as well a small quantity of other organic forms of minerals and trace elements.

INTERCROPPING

Our date palms are planted 9 metres apart which provides ample space for intercropping. During the winter months we sow cereal (usually Triticale or Wheat) and this is used for geese feed and/or turning back into the ground as a green manure.



Between some rows we have intercropped with pomegranates. This provides a fast growing wind break and an additional income source. We picked and sold a light crop this season from our 3 year old pomegranate bushes. We also had success with a Jerusalem Artichoke intercrop trial this year which we intend to build on for next year. We have also just planted a few prickly pear plants to see how they go.

There is a wide range of food producing crops which can be integrated into the date palm plantation. We are focusing our selection on salt tolerant species however we encourage experimentation and would be very interested in learning of the experiences of others.

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