



Your Levy at Work

Tactics for Dry Times

Lardner: Wednesday 25th November at Rob and Jenni Marshall's
Inverloch: Monday 30th November at Warren and Kerrie Redmond's
Nambrok: Friday 11th December at Mike and Sarah O'Brien's
Yarram: Held Tuesday 17th November at Lachlan and Vicki McLeod's
Copies of these notes available at www.gippsdairy.com.au or
contact John Gallienne 0407 863 493

These *Tactics for Dry Times* days have been supported by Dairy Australia through GippsDairy, as well as the voluntary contribution of local farmers.

The farmer's role in these days goes above and beyond, and they have kindly opened their farms, their bank of knowledge and their situations for the benefit of all in the dairy industry. We sincerely thank them for the contributions in time, knowledge and for offering to be host farms or case study farms.

The unprecedented dry conditions experienced in south and west Gippsland commenced in mid-2014, with reduced rainfall and generally an absence of any run-off in many parts. This has put farm stock water levels at dire levels, with some farmers around particularly coastal Gippsland having to move and pump water for the second year in a row. The dry conditions came to a head in September and October 2015, with many areas recording nothing more than 10mm of rain for a six-week period, limiting the ability to harvest much pasture as silage, and grazing pasture availability dwindling by late October at the time of normally 'peak growth rates'. Dryland farms around Yarram, Tarraville and Hedley produced little if any silage at all, following on from a tough 2014 year.

It is times like these when the dairy farming community pulls together and draws on each other's experience, knowledge, good will and resilience. There is a wealth of knowledge and resources that exist in printed form, amongst the service sector of the industry, and most importantly in people's heads. Many have been through times like these before, even though recent tough seasons didn't have the combined water and feed deficit problems. But there are some positives. Milk price is not too bad in historic terms, grain and fodder are available, although fodder reserves are likely to run low and will get dearer, and cash reserves for many are intact at this point following two reasonable years.

The case studies of the farmers who have contributed to the day are in the notes. Please be aware that these are *their* plans and situations at the time of preparing for the day, and that these may not be perfect, may not be 'technically' or 'nutritionally' the best option, but it is what they plan to run with at this point. The plans may change as well, depending on how the season pans out.

We have deliberately chosen not to extend the plans beyond about April. This doesn't mean that the problem will be solved by then, or that there will be 100% grass in the diet by then (although that would be great!), but rather that it is hard to write a plan out with any degree of accuracy some six months in advance when so much will, or may have changed. If things are still tough, the industry will be putting more information and days like these together to help on specific issues such as drying off, feeding over the dry period, recovering damaged pastures etc.

Once again, thanks to the host farmers, as well as the case study farmers, who have all gone over and above their duty to help other farmers and the industry in general. Your contributions are greatly appreciated.

Matt Harms, ONFARM Consulting



A look at feed value and price comparisons in November 2015

Feed Type	Price \$/t as Fed	\$/tDM	Av Energy Value MJ ME/kg DM	Protein %	NDF %	c/MJ ME	Feed Value
Wheat	\$335	\$372	13	11	12	2.86	√√√
Wheat 6kg plus 18c additive	\$365	\$405	13	11	12	3.11	√√√
Grain mix	\$390	\$433	12.5	14	14	3.46	√√√
Barley	\$325	\$361	12	10	15	3.0	√√√
High quality pellets	\$390	\$433	12.8	14	15	3.38	√√√
12/12 pellets	\$360	\$400	12	12	18	3.33	√√√
Lucerne hay or vetch hay	\$360	\$411	10	20	41	4.1	√√
Cereal hay (eg wheaten)	\$260	\$289	10	9	52	2.89	√
Canola hay	\$260	\$289	9.8	16	41	2.95	√√
Own-made good silage (\$70/tDM grass)	\$52/bale	\$208	10	16	50	2.08	√√
Almond Hulls	\$180	\$200	10	5	35	2.0	√
Urea 10:1 response 90% eaten	\$580	\$140	12	20	45	1.17	√√√

- Energy drives production, so generally purchase on energy levels.
- Responses to protein are generally seen when protein is limiting, eg summer.
- These are 'general' market prices and are not necessarily what you should or will be paying, so don't use it as a way of screwing down your feed supplier!

Facts Not Opinions!

	Full Year 15/16 Traditional (no step ups)	Full Year 15/16 max FMI	Milk Price December Traditional	Milk Price January Traditional	Milk Price March Traditional
Milk price \$/kgMS	\$5.34	\$5.64	\$4.94	\$5.25	\$5.46
Milk price c/l	39.8	42	36.8	39.1	40.7
Grain mix/pellet price	\$390	\$390	\$390	\$390?	\$390?
kgMS to pay for 1kg	0.074kg	0.07kg	0.08kg	0.07kg	0.07kg
Litres to pay for 1kg	1	1.08	1.06	1	0.96
Milk price to grain price ratio	1:1	1.08	0.94	1	1.04

Some further facts to note:

1. In late lactation, more energy is partitioned to body condition and less to milk production.
2. It takes more energy to put body condition on a cow when she is dry than when she is still milking. To gain 1kg in late lactation takes 44MJ but 55MJ as a dry cow.
3. The additional weight in one extra condition score is 44kg (Friesian) and 38kg for a smaller cross-bred.
4. Diets for milking cows require a minimum 33% NDF (fibre) and considerable chew factor (functional fibre). So on a diet of 18kgDM total if there is no or very little grass, one third of the diet needs to be high fibre feeds such as hay and silage with no more than two thirds of the diet as 'high energy' feed such as grain and turnips.

Some rules of thumb:

- One standard silage bale is 500kg wet weight and most are 50% dry matter, so a standard silage bale is 250kgDM. One bale will provide 50 cows with 5kgDM (but remember wastage). A standard round bale of hay is 290kgDM.
- Wastage can easily be 10%, so 5kgDM = 4.5kg eaten
- To work out the weight of bales on a truck of hay, divide the tonnage delivered by the number of bales.
- Hay is typically 85-90% dry matter, so allow for this in calculations.

And one 'opinion':

It costs around \$2.70/cow/day to feed a dry cow on 100% purchased dry cow fodder this year, for no return- so a loss of \$2.70/cow/day. Even a low return on milkers may be better than a large loss on a dry cow!

Ratios and Indicators in This 15/16 Season

	2014/15 prices		Opening Traditional 2015/2016	Opening max FMI
	Traditional	maxFMI		
Milk Price				
\$/kg Milk Solids	\$5.72	\$6.02	\$5.34	\$5.64
cents/litre	42.6	44.9	39.8c	42.0c
Supplement Prices \$/tonne				
Grain	\$330		\$330	\$330
Hay	\$300		\$350	\$350
Kg solids to pay for 1tonne concentrate	57.7	54.8	62	58.8
Milk Price (cents/L) to Grain Price (cents/kg) Ratio	1.29	1.36	1.21	1.27

THE CHANGING VALUE OF MILK WITHIN A YEAR

Consider the value of a standard litre (4.15% BF/3.3% Pr) with in a year (supplied to major processors) with 100,000 litres sent every month. 8c/kgMS productivity.

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Full year
Trad.	42.4	38.2	36.8	36.8	36.8	36.8	39.1	40.3	40.7	42.4	43.3	44.1	39.8
max FMI	46.9	40.4	36.8	36.8	36.8	36.8	39.1	42.5	45.2	46.9	47.7	48.6	42.0

Note: All of the above figures assume no share deductions. Deduct for shares depending on your situation, and 4.4 c/kg MS deducted as industry levies

Case Study 1: The Host Farmers

Rob and Jenni Marshall, Lardner

2015 was good until winter, then lower rainfall didn't provide the foundation for spring. It has made it difficult to produce enough fodder reserve, to envisage requirements needed, where to get alternatives to silage, and at what cost.

There was also an outbreak of Thierlerium in the herd just prior to calving and later post calving. Target milk production wasn't reached, cow deaths occurred and animals had to be culled.

Cow numbers: Now 328 from 360 cows. Herd is small framed Friesians and Jersey cross.

Milking area: 121 ha (Home farm and adjacent lease block)

Stocking rate: 2.7 cows/ha

Start of calving: 26 July

Silage on hand as at 1st November: 15.9tDM (106 bales) 40% carried over from last year, plus 300t wet weight (105tDM) in pit (about half usual volume). 100 rolls dry cow hay on hand.

Fodder crop: 8ha brassica/herb blend planted 20 Oct which started germinating after first rain on 4 Nov; 13 ha chicory planted 10th Nov, first rain 20th Nov and so no germination yet.

Purchased fodder: Locked in 300t barley contract for delivery from Nov onward. Expecting to cut 150-200 rolls standing pasture hay on a block, and will purchase additional fodder when required.

Feeding strategy:

Milkers: Stock will be fed as well as possible to keep production up. This will depend on cost and availability of different feed types and profitability. However not opposed to letting the herd lose condition (a maximum drop to 4-4.25 condition score). They will keep a close watch on the heifers because they will be the first to shed weight and hardest to put it on again later.

Currently feeding 4.5 kgDM barley at \$320/tonne (brewing barley), plus causmag and additive, as well as some 'cut and carry' pasture silage every 3-4 days depending on paddock rotation. 32 non-viable cows have been culled and up to another 15 will go.

Young stock: 18 R1 heifers are away on agistment. 66 R1 heifers at home on 1.25kg calf pellets/day plus green pick pasture in 26 day rotation, and these will get hay later. 27 R2 heifers on pasture at agistment plus 42 R2s at an out block in grazing rotation and will get silage or hay as required.

Key points:

- Feed milkers to the best that can be provided;
- Be prepared to let body condition drop, but in a controlled way;
- Won't neglect young stock;
- Ensure effluent is used and not wasted;
- Cull the non-viable cows;
- Adjust and adapt to changing conditions quickly – monitor daily;
- Smile.

Case Study 2: Maintaining milk production under a sharefarm arrangement

Dean and Rebecca Fincham-Turner

Dean and Rebecca are in a sharefarming arrangement with Noel and Anne Campbell. They receive 34% of milk income, own no stock in the arrangement, and pay for 34% of feed costs and shed costs. They know the importance of maintaining production, as all their income is derived from milk, and whilst they don't have a direct investment in the herd, they know what it takes (and costs) to keep the system running.

Cow numbers: 470 (was 485)

Milking area: 185 ha

Stocking rate: 2.55 cows/ha

Start of calving: 1/3 April-May and 2/3 August-Oct

Silage on hand as at 1st November: 280 large round bale silage, 300tDM pit silage, 42t carried over Lucerne/ryegrass hay carried over; 180 pasture hay from last season as well. Young stock have 400 rolls silage made on the turnout and a further 150 rolls hay to be made on turnout.

Fodder crop: 12ha sown to sorghum that will be irrigated with effluent.

Purchased fodder: five loads of Lucerne and a further 80t wheaten hay will be purchased to secure fodder supplies.

Young stock: 200 R1s and 160 R2s.

Feeding strategy:

The feed plan for the Campbell-Turner herd will commence in earnest in late November when this current round of pasture has been eaten. The plan commenced long ago, at the end of winter when pasture production was driven hard to generate a surplus, given the signs that were emerging. Production will be maintained by feeding quality silage and Lucerne, whilst feeding moderate levels of grain. Turnips have been a centre-piece of the feeding plan in most years, but given the spring, this year they have opted for irrigated sorghum, which will be either directly grazed or silaged.

With large numbers of young stock on hand, ensuring adequate fodder for them has been necessary. Silage and hay has been produced on the turnout, and any shortfall will be made up with PKE, as it offers more flexibility than grain and fits in well with their system.

The herd can be split into high and lower producers, or by calving date, due to the two sheds that exist on the farm, and so feed inputs can be used more efficiently and be better matched to production. With the autumn calvers needing to be dried off in February, there lies the opportunity to form a high production/higher input group and a lower production/lower input group. Autumn dry cows can then be fed left-over hay on the milking area. The winter dries may go on agistment to reduce pressure on feed stocks.

Key points:

- Ensuring a plan was in place early was of major importance
- Herd can be split into two based on production or calving date
- Young stock have been well looked after, with silage, hay and PKE if required
- Keep the herd producing as long as there is a margin, because the Turners only make money from milk production
- Make sure owners and sharefarmers are on the same feeding page.

Case Study 3: Maintaining high, but profitable milk production

Sean and Jenifer Allen, Drouin South, former Focus Farmers

Cow numbers: 170 currently (normally 200-230), calved down 230 this year. Cow numbers have been dropped in anticipation of dry season.

Milking area: 65 ha

Stocking rate: 2.6 cows/ha

Start of calving: 15 July

Silage on hand as at 1st November: 581 round bales weighed previously at 700kg wet weight, and have been working on 300kg DM/bale = 174 t DM or 647 kgDM/cow. 10% of milking area cut for silage- remainder came from turnouts.

Fodder crop: 4 ha chicory sown last year, was over-sown in the autumn with bi-annual ryegrass, and is still growing well. 10 ha of rundown pasture on the red soil area was sown to chicory 6 weeks ago. After 3 weeks with no rain and predictions of dry season an irrigator was purchased. They borrowed some pipes and started irrigating one ha/day. Just finished the first irrigation.

Purchased fodder: The feed budget shows a need for 190t. Purchased 40t wheaten hay costing \$245/t delivered in shed (ME 9.7, Protein 11.0%, NDF 52.7, and DM 81.1%). Have just sent 100t of the same product back because it arrived badly water damaged. Arranging replacement cereal hay now.

Feeding strategy:

Milkers: As pasture starts to run out, other feeds will be added to the diet.

Currently feeding 5kgDM/day wheat (\$320/t) and this will increase to a maximum 6kgDM. Also have been feeding canola and maize at 1-1.2kg/cow during joining. Just introduced canola and pea pollard (approx \$380/t). Feeding 1-1.2kgDM/day and this will increase to maximum of 3kgDM as pasture declines.

Pasture intake is expected to be down to 3-4kgDM/day in mid-December. The grazing rotation of 25-26 days will be held at that.

Silage (\$180/tDM) has been budgeted at 4.5kgDM/cow/day. Cereal hay of 3kgDM/day will also be added to the diet as required.

Young stock: 70 R2s on leased land 7 Km away grazing pasture and will get silage/hay as required. 112 R1 calves are on a lease block 9 Km away. Currently on pasture plus pellets. As pasture decreases, diet will change to 2kg/head blend of wheat/pea pollard/canola plus 1.5 kg silage/day and 1kg cereal hay/day. 40 day grazing rotation will continue.

Key points:

- Always try to make a profit – not just pay bills and survive;
- ***‘we are not doing all this hard work for fun’- Jenifer;***
- Feed to minimise production drop as economically as possible;
- Do a good job rearing replacement stock- includes weighing calves twice in next 5 months;
- Continue to monitor labour costs – currently 600 hours casual labour per year;
- Keep doing those *‘back of the envelope calculations’* to monitor progress.

Case Study 4: Milk production will fall – margin will hold

Bruce and Fiona Manintveld, current Focus Farmers at Mirboo North

Cow numbers: 292. (Predominantly Jersey herd)

Milking area: 115 ha (148 ha total)

Stocking rate: 2.5 cows/ha

Start of calving: 12 July

Silage on hand as at 1st November: Harvested 50t DM which is 40% of usual harvest. Plus 40tDM carried over from last year. Total = 0.3tDM/cow

Fodder crop: 3 ha dryland chicory sown 20/9/15; it has an average cover of 1600-1700 kgDM/ha and is at the 7-8 leaf stage. Currently considering grazing this now, putting the paddock into the rotation rather than strip grazing. (Spring rainfall to 18 November 55 mm).

Purchased fodder: None planned (yet)

Feeding strategy:

Milkers: Start working this out from the back end. Aiming to have enough silage on hand when the autumn rains arrive to feed the herd for a month eg feeding 5-6 kg grain plus 5-6 kg silage to grow a feed wedge is most important.

Farm needs to grow at 15kgDM/ha/day to provide the cows with 6kg pasture, ie 115 ha milking area X 15 kgDM/ha/day for 290 cows provides 6kg DM/day. Cows will also get 6kg/day grain (currently barley) for the duration of lactation.

It is expected that 12kgDM will produce 10-12 lt/day with a 5.5%F and 4%P during Jan-Feb with the milk worth 50c/l. If pasture growth rate is 10kgDM/ha/day the cows will get 4kgDM/day.

Shortfall will come from body condition (currently CS 4.5). One CS will effectively provide 25t feed and 'remaining' silage 48t. Silage can provide 3kg for 56 days. Cow condition can provide 1kg for 88 days. A combination of these two 'feeds' will be used as needed when growth is less than 15kgDM/ha/day. The need to buy any feed will be monitored and acted upon if needed.

Total feed cost/cow/day is \$2.66. Grain is \$1.80, urea is \$0.86. Income/cow/day will be between \$5-6/cow/day.

Grazing rotation will be maintained at 28-30 days. This should allow plants to grow if there is a shower or storm, but not long enough to get burnt off or too much 'rust' on plants.

Young stock: 60 R2s plus 72 R1s all on the farm and should be OK. Feeding calves 1kg/day PKE/wheat/chocolate blend costing \$360/t plus adlib home grown hay. Older heifers can have the same blend plus hay at a set rate depending on pasture availability.

Key points:

- Have the feed on hand or ability (cash) set aside to feed the cows at the 'break';
- Urea will continue across the farm unless growth rate falls below 5kgDM/ha/day;
- Need 6lt/cow/day to cover costs. 2.4lt/day for debt servicing, 3.6 lt for running costs;
- Be prepared to utilize cow condition;
- Cull empty cows and any that won't be there next year as soon as identified;
- Be prepared to let production drop;
- Grass plus urea is cheapest feed even when growth rates are extremely low;
- Need to monitor progress and change the plan if required.

Case Study 5: Feeding the herd and the young stock

Mark and Lisa Wilms, Willowgrove

The Wilms' farm on lighter sandy loam soils at Willowgrove. They have two farming operations, and both farms have experienced strong growth conditions through winter and early spring due to the milder and drier conditions, but late spring growth has been poor.

Home farm:

Cow numbers: 360

Milking area: 120ha

Stocking rate: 3.0 cows/ha

Start of calving: spring

Silage on hand as at 1st November: 80tDM harvested with similar amounts remaining on hand from 2014; 50tDM on the turnout block, to be used for young stock and dry cows;

Fodder crop: 8ha chicory planted in 2014 that is still producing well, and a 10ha chicory crop sown this spring is struggling.

Purchased fodder: 50t vetch purchased and about 9t vetch left over from last year; 25t cereal hay ordered;

Young stock: 64 R2s on agistment, with the provider moving and feeding stock as required; 53 R2s on agistment but may need to be supplemented; 45 R2s on own turnout block and will be supplemented as required; 160 R1s will run on the home farm and 40ha turnout block. These are receiving 1.5kg pellets and this will increase as required.

Coolabah Farms:

Cow numbers: 259

Milking area: 115ha

Stocking rate: 2.3 cows/ha

Start of calving: spring

Silage on hand as at 1st November: 260 silage rolls and around 100tDM carried over and 200 rolls hay carried over.

Fodder crop: 10ha chicory planted in 2014 that is still producing well, and a 20ha chicory crop sown this spring is slow to establish but starting to show signs of promise.

The Wilms' drive pasture growth, as it is the main-stay of their operations. Nitrogen is still being used, and will be until there is a full rotation without any rainfall.

The summer plan will be the same for both farms. They are feeding around 4kg per cow per day of grain and this will increase to a maximum of 6kg/cow/day as feed gets tighter. Silage feeding will commence when production is at 50% of peak, and this is a little tighter than normal, when feeding commences at 60% of peak production. With the amount of silage on hand being limited, feeding levels will be about 4kgDM/cow/day. The silage and vetch on hand will give about 120 days or more of feeding. More fodder may be purchased if absolutely required, but will be avoided as much as possible. The Wilms' will trade some cow condition if necessary, as this has been a strategy adopted before and they feel it has worked for them.

Key points:

- Cow condition will be lowered if required to help 'get through';
- Shortage of fodder will mean silage feeding will commence when production is 50% of peak production;
- Grain will only increase to 6kg/cow/day maximum, and silage stocks mean feeding levels will be at around 4kgDM/cow/day;
- A large number of young stock will be fed if required, even those on agistment.

What About The Young Stock?



It is often said that the replacement heifers are your superannuation...well the returns from superannuation fluctuate, and when there isn't spare funds to put into super, it is an easy investment to ignore.

Well simply...DON'T!

Provided with these notes are some really good facts, figures, tables and guides such as the DA Heifers on Target guide. There is a good online tool to calculate the feed requirements of heifers, given the target growth rates, and this can be found at www.dairyaustralia.com.au/HeiferDietCalculator

To keep things simple, below is a table with typical Friesian heifer weights for typical Gippsland calving dates, being May-born and August-born (mid-way period for autumn and spring calvers) and the age and expected weights they should be in Jan/Feb, and their minimum feed requirements given typical summer paddock feed (i.e. little to no pasture!). Any green pick or summer crop is a bonus!

	Friesian Rising one year olds		Rising two year olds	
	Autumn born	Spring born	Autumn born	Spring born
Age months	9-10	6-7	21-22	18-19
Target weight January	210-235kg	150-175kg	500-520kg	380-400kg
Minimum MJ ME and protein % required for maintenance and 0.8kg/head/day growth	50MJ and 17%	44MJ and 17%	94MJ and 14%	80MJ and 14%
Diet to provide requirements option 1 (pellets and silage) <u>per 50 head</u>	2.6kg as fed 18% protein pellets and 2.5kgDM silage = 140kg pellets per day and 1 roll silage every second day	2kg as fed 18% pellets and 2kgDM silage = 100kg pellets and 1 roll silage every second day	3.8kg as fed 15% protein pellets and 5kg DM silage = 200kg pellets and 1 roll silage per day	3.1kg as fed 15% protein pellets and 4kgDM silage = 160kg pellets and 1 roll silage per day
Diet to provide requirements Option 2 (cereal grain and protein or cereal hay) <u>per 50 head</u>	1.6kg as fed wheat and canola (2/3 1/3 mix) and 3kgDM vetch. = 85kg grain and 1/3 bale vetch per day	1.5kg as fed wheat and canola mix and 2.5kgDM vetch hay = 80kg grain and 1/4-1/3 bale vetch per day	4.4kg wheat and canola and 4.5kgDM good cereal hay = 230kg grain and 1/2 bale cereal hay per day	3.3kg as fed wheat and canola mix and 4kg good cereal hay = 170kg grain and 1/2 bale cereal hay per day

Marshall: Dairy Farm Water Audit

A. Stock water

Table 1: Water requirements on farm

Stock class	Average daily water requirement (litres)		Number		Daily total (litres/day)
Milking cow	110 – 200	X	320	=	48,000 L/day
Replacement heifer	50	X	Not on milking area		
Calves	25	X			
Bulls	80	X			
Dry cow	80-100	X			
			A. TOTAL STOCK REQ		48,000 L/day

B. Dairy Shed Water

Table 2: Dairy shed water use

Process water is used in	Description	Daily volume (litres/day)
Yard cleaning (inside the shed)	30 mins x 1.25" hose @ 150L/min	4000 L/day
Yard cleaning (outside the shed)	Hydrants – measured from tank.	9,500 L/day
Milk cooling	Recycled water	
Activities in the pit (trigger hoses etc.)	N/A	
Fixed cluster and platform sprays	N/A	
Milking machine and bulk tank/vat cleaning	100 l/day vat and 1200L/day plant	1300 L/day
Other tasks (such as sprinklers on the yards for cooling cows)	N/A	
	B. TOTAL DAIRY USE	14,800 L/day

Other uses of water

C. Evaporation and other losses

Table 3: Dam evaporation

Dam Name	Average dam Length (m)		Average dam Width (m)		Daily evaporation (m) and depth factor		Conversion of m ³ to litres		Daily evaporative loss (litres)
Main Spring dam	15m	X	15m	X	0.005 x 0.67	X	1000	=	753 L/day
Other dam	25m	X	25m	X	0.005 x 0.67	X	1000	=	2094 L/day
C. TOTAL EVAPORATIVE LOSS									2847 L/day

D. Fire-fighting

Table 4: Fire-fighting requirement

Fire-fighting water strategy description	D. TOTAL FIRE-FIGHTING or irrigation allowance (litres needed in storage)
Fire strategy development in progress.	Minimum of 10,000L static storage.

E. Household

Table 5: Household water requirement

Number of household members		Daily allowance per person (litres/person/day)		E. TOTAL DAILY HOUSEHOLD WATER USE (LITRES/DAY)
2	X	155	=	310 L/day

F. Total farm water requirement

	F. Daily total water requirement (litres/day)
Add up the daily total for A+B+C =	62,800 L/day

How much water do I have?

G. Storage volume

Table 6: Storage volumes on-farm

Dam or Tank Name	Total Volume of storage (litres)	Approximate volume of water on hand in storage (litres)
Main Spring fed Dam	15m x 15m x 1m	147,000 L
Other dam	25m x 25m x 1m	480,000 L
Main header tank	10,000 gallons	45,000 L
Lease concrete tank	7,000 gallons	31,500 L
Other tank	3,000 gallons	13,500 L
G. Total volume of water (litres)*		717,000L
H. Water available on hand excluding fire-fighting contingency (G-D)		707,000 L

*ML = mega litre = 1,000,000 litres

How long will it last?

Daily farm water requirement is F. 62,000 litres/day and in storage is H. 707,000 litres so $H \div F$ (storage) \div (requirement) = 11 days of water available (where no rain falls). There is around 2-3 days of storage available in the main dam where the electric pump is that supplies the dairy and home farm, if this were to run out of water.

Considerations

- For groundwater or direct pumping from River – what is the back-up plan if this supply runs dry or there is a pump failure/ electricity outage?
- How reliable has this supply been in the past? How have things changed since then - such as has the herd size doubled increased/decreased?
- How are you monitoring your supplies to know if you'll need to implement plan B.