

MAKING THE SPRING FEED PLAN WORK

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Introduction

The spring is a critical time of year on farms and the physical changes that take place are immense. Unfortunately this coincides with a very busy time of the year for the farmer and farm staff. The increased workload during this period results in people not finding the time to manage the feed situation and the flow on effect of this is that farms lose efficiency of feed usage which, in turn, will have a significant “negative impact” on profitability. An investment of a little time creating and managing a spring feed plan will give a better bottom line and may also **save** you time in the long run.

Why is a well-managed spring plan important?

In one sentence I can answer this. A planned spring with monitoring of that plan will financially reward you significantly more when compared to a poorly managed spring. I doubt there are many who disagree with that statement.

The average farm in New Zealand produces 63% of its total production from June 1 to December 31. This effectively means well over half of the annual production is up for grabs in spring/early summer. With a well managed spring feed plan you will optimise the supplement allocation through this period but it will also set you up for the early summer production. It is this late spring/early summer period that really distinguishes the good season from the average. The optimisation of supplement happens as a result of making the best use of pasture through this period. You end up with efficient use of feed reserves, both pasture and supplement, and by definition you will get more milk from the same total feed (or the same milk from less feed). It is very hard to put a financial measure on the benefits of targeting this period. But a group in the Manawatu who targeted pre Christmas production via a spring feed plan had on average a 7% increase in production. Similar results were experienced in the Waikato. For a 200,000 kg MS farm in Canterbury this would equate to \$35,280 in increased production, based on a \$4.00 payout.

As the drive for increasing days in milk continues, then calving dates are beginning to retreat into the middle of winter. This slow shift is putting an increased pressure on spring feed reserves and as a result the level of supplementation through this period is increasing. The natural tendency, in a situation where there are large amounts of feed reserves, is to feed a large proportion of pasture early in the calving period with the knowledge that if the grass does not grow the gap can be filled with silage. This is inefficient and will result in a significant increase in the supplements fed. Why? In the early part of calving demand is less, maybe some cows are

still off farm, there is a large proportion of dries requiring less feed and a small proportion of milkers requiring an increased level of feeding. Compare this to later on, when all cows are home, the majority of the herd are milkers requiring more feed per cow than earlier in the season and a small proportion of dries. The total feed required to feed the cows in the second situation is around twice that of the first situation. Logically it makes sense to introduce supplement into the system early and ration the pasture being fed; this will help prevent cover dropping rapidly. More cover will be present later in calving which will minimise the supplement required. The financial cost of saving supplement is also hard to measure, as every farm situation will be different. But the fundamental issue is that feed in the stack has a cost. Leaving feed in the stack while maintaining (or increasing) production is a significant cost saving. Feeding of that supplement unnecessarily can be avoided with a well-managed feed plan.

What is a spring feed plan?

As the name suggests the spring feed plan is a tool to help manage the control of the pasture and supplements (feed) available in the spring period. It is based on three key principles, they are:

1. As grass growth increases rotation speeds up
2. When grass is growing faster than the cows can eat it you want to be on your fastest rotation
3. A proportional distribution of pasture eaten throughout the calving period.

There is nothing exceptionally enlightening in these three statements, but all spring feed plans must incorporate them in order to be successful. The ultimate aim is to maximise the amount of pasture harvested and optimise the amount of supplements that need to be fed. The principles of a spring feed plan achieve this:

1. As the grass grows more pasture can be fed to cows; giving the cows more area does this. Most likely this will reduce the amount of supplement required and will minimise wastage of pasture
2. When grass is growing faster than your cows can eat, then pasture cover will increase and conserving silage is the next step. Being on your fastest round at this point (and not feeding supplements) will consume the maximum amount of pasture

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3. Strict control of area grazed, especially in the early part of calving, will limit the grass fed through this period and defer this feed until later in the calving period.

How do I do a spring feed plan?

A spring feed plan as I see it is a three-step process:

1. Control the allocation of feed. This is best done through the control of area grazed
2. Monitor that plan
3. Adjust that plan based on the information provided from monitoring.

Before you attempt this process it is essential you have a feed budget that covers from before calving to the point of peak grass growth. The feed budget must have two key things: firstly a regular update of predicted cover (Figure 1), and secondly you, as the farmer, **must be happy with the shape of the “average pasture cover” graph**. Feedplan is a feed budgeting programme available from the Dexcel website that allows you to complete this process yourself.

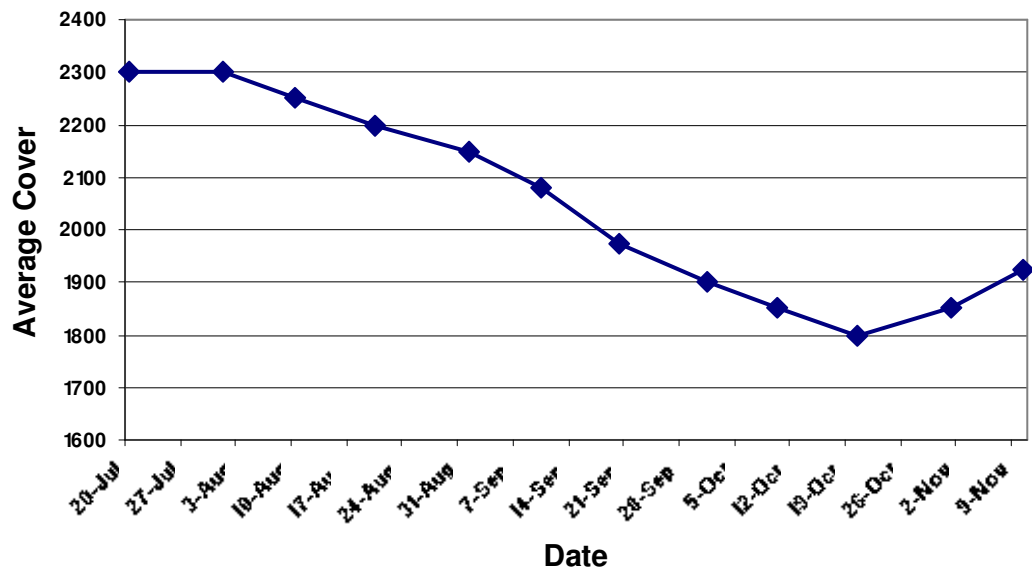


Figure 1: Graph of predicted average pasture cover

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Once this is completed the steps described can be followed.

Step 1: Allocating the area

There are numerous ways to allocate area and (by default) feed resources that you have available when you head into the spring. I will show you one that is commonly used called the spring rotation planner (SRP) shown in Figure 2 below.

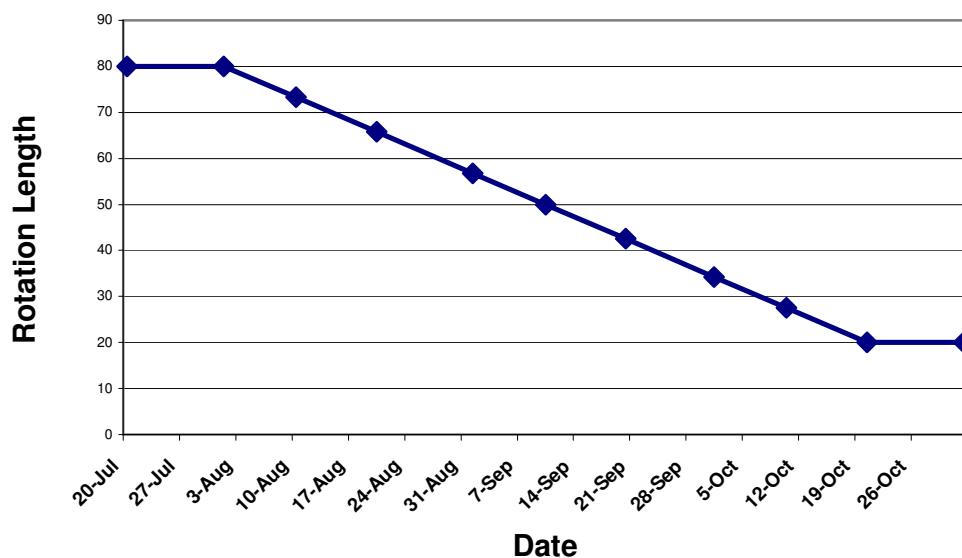


Figure 2: Example of a spring rotation planner

Constructing a spring rotation planner: A three step process:

1. The first point – mark your expected start of calving and your rotation length at that point (area of farm / area grazed per day)
2. The second point – mark the day your feed budget tells you growth exceeds demand and your fastest rotation (balance date)
3. Join the two points.

You now have your plan which is only an area planner and nothing more, so how does it work? Your plan gives you a date and a rotation length for that day. For example in the graph shown on the 10th of September you rotation length must be no shorter than a 50 day rotation,

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the next day this can be slightly faster e.g. 49 days based on the intercept of the date on the Y axis. What this means is that on any given day your spring rotation planner will give a rotation length to be on. This is our plan.

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Step 2: Monitoring our plan

If there is one thing I know about farming it's that no two days are the same and no two years are the same, this especially holds true in spring. So how can I draw a line on a piece of paper and expect this to be the best rotation control method this year or for any other? You cannot, that is why monitoring is so important. The primary point of monitoring is based around the predicted average pasture cover from your feed budget. Your budget predicts an average cover and the change throughout the spring. The monitoring that is required is a **measurement** of average pasture cover preferably with a plate meter (or eye measured calibrated against a plate meter). The key point with the monitoring is it needs to be a formal measurement otherwise we rely on instinct, which is much slower at identifying significant changes than a physical measurement.

Step 3: Adjusting the plan

Any feed plan is a living document. As already mentioned things can change rapidly on farms. Those changes need to be taken into account and an updated plan is the result. From our measurement of average cover we have an actual figure. From our feed budget we have a predicted figure. Comparing these two numbers will tell us if all is O.K. or if things have changed and an adjustment of our spring rotation plan is required.

Adjustment of the plan

As earlier mentioned no two days are the same and no two years are the same so there will be times when we predicted a cover and rotation and for one reason or another we end up off track. Table 1 looks at the management strategies to deal with these problems. The table works basically on the assumption that you want to get the farm's average cover back on track or if your cover is on track readjust your rotation line. For example my predicted cover and rotation were 2000 kgDM/ha and 40 days respectively; I am actually at 2000 kgDM/ha and on a 30-day rotation. Because I am happy with my cover being on target, being on a faster round is of little concern. The spring rotation planner line needs to be redrawn from 30 days to balance date. This will become the new rotation line to follow.

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Table 1: Management Strategies

Budget Rotation	Budget Cover	Actual Rotation	Actual Cover	Definite Actions	Potential Actions
40 Days	2000	30	1900	Fix Rotation until budget cover equals actual (no exceptions) Keep monitoring	Apply nitrogen Except drop in production or add supplement On/Off grazing to maintain residuals Reduce stocking rate
40 Days	2000	30	2000	Redraw S.R.P line Keep Monitoring	
40 Days	2000	40	1900	Fix rotation until budget cover equals actual (no exceptions) Redraw S.R.P line Keep Monitoring	Apply nitrogen Except drop in production or add supplement On/Off grazing to maintain residuals Reduce stocking rate
40 Days	2000	40	2000	Keep Monitoring	
40 Days	2000	40	2100	Keep Monitoring	Reduce/Stop nitrogen Reduce/Stop supplements Increase pasture intakes Increase stocking rate Revisit feed budget

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40 Days	2000	50	2100	Increase rotation to target Keep Monitoring	Reduce/Stop nitrogen Reduce/Stop supplements Increase pasture intakes Increase stocking rate Revisit feed budget
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Making it work

The spring rotation planner in theory has you changing your rotation length daily. Table 2 shows an example of what rotation and area grazed per day will do on a day to day basis. It is a little impractical as you can see. The important thing to note is, however, over this 5 day period there is a total of 6.37 ha (6.4 ha) to graze. Monitoring a '5 day' area is a very good way to check you are still in control of rotation and it's a much easier way to manage the area grazed.

Table 2: Example of changes in rotation on a daily basis

Date	Rotation	Area Grazed Per Day (ha)
1-Aug	80.00	1.25
2-Aug	79.25	1.26
3-Aug	78.50	1.27
4-Aug	77.75	1.29
5-Aug	77.00	1.30
		6.37

Allocation of area

The SRP gives me an area I can graze; how do I allocate that area? The easiest way to explain this is by the example presented in Table 3. I have a 300-cow farm and the area I have to allocate is 2 ha. The table below shows the cow numbers in each herd and the cow intakes I have allocated per cow. Multiplying these numbers together calculates total feed required for each herd and a total for your farm. Convert this to a percentage of the total each herd requires (1000 divided by 3884 x 100 = 25.75%). Multiply this percentage by the area allocated (2ha) to work out each herd's area.

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Table 3: Allocation of area based on percentages

	Number	Intakes (kg DM)	Total Feed Req. (kg DM)	%	Area (ha)	m ² /cow
Dries	100	10	1000	25.75%	0.51	51
Milkers	121	16	1936	49.85%	1.00	82
Springers	39	12	468	12.05%	0.24	62
Colostrums	40	12	480	12.36%	0.25	62
Total	300		3884		2	

This is relatively complex and will take some time to get used to. A simple way to remove some of the calculating required is to set some of the m²/cow for particular herds. Table 4 shows 100 dries receiving 30m²/cow, this results in 0.3 ha allocated (100 cows x 30m² divided by 10,000 = 0.3 ha). This then can be easily taken from the total area and the rest can be split between the other herds. The same can be done for other herds.

Table 4: Allocation of area using fixed area/cow followed by percentages

	Number	Intakes (kg DM)	Total Feed Req. (kg DM)	Fixed m ² / cow	Area (ha)	%	Area (ha)	
Dries	100	10		30	0.30			
Springers	39	12		50	0.20			
Milkers	121	16	1936			80.13%	1.20	
Colostrums	40	12	480			19.87%	0.30	
Total	300		2416		0.5		1.5	2.0

Once the total area has been allocated a few simple calculations will determine if supplement is required or not.

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1.2 ha x 1200 kg DM (available/ha) = 1400 kg DM supplied in pasture
121 milkers x 16 kg DM/cow = 1936 kg DM Required
1936-1400 = 536 kg DM deficit; this ideally should be added as supplement.

These are examples only but the principle of allocating area applies to your ideals of feeding cows. At the end of the day it does not matter how you allocate the area as long as you stick to the area set out by the planner.

Wintering cows off farm

Much of the previous discussion has primarily focused on a situation where the majority of cows are wintered on farm. Many of the issues discussed still apply here but there are some variations that need to be considered.

Wintering a large proportion of the cows off the farm is probably the hardest situation to deal with in terms of a structured feed plan over the spring period. There are (potentially) many options available around the management of stocking rate and/or cow movements so that it is difficult to work through a spring feed plan. The principles still apply however. The underlying principle is that by controlling the area of grass fed each day we are managing the decline of average pasture cover from our pre-calving target until balance date and the average pasture cover target that has been set for that date. The mechanisms for allocating the area for each day vary greatly and so the focus must fall on monitoring the decline in average pasture cover. Weekly farm walks are essential.

There are two main types of wintering arrangements, firstly where a proportion of cows are wintered off and come home on the same day (or over a short period of time). This situation is relatively easy to deal with as you can operate a plan similar to that already detailed above. The second is a situation where there is plenty of flexibility in cow movements and cows can come home in smaller lots spread throughout calving. This situation is much harder to deal with and farm pasture covers should be expected to continue to increase for the first two weeks of calving before they begin their steady decline. I will primarily focus on this type of wintering arrangement.

Table 5 tries to explain some of the difficulties you may face. You have 300 cows on 2.44 ha with 1800 kgDM available/ha, this gives the average cow 14.6 kgDM in grass. As each day passes the rotation increases slightly and assuming the feed available per hectare does not change the cows will

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get slightly more grass each successive day. However when a large group of cows comes home the amount of grass fed drops away significantly and then continues to rise again. This goes against one of the principles of a spring plan a proportional distribution of pasture eaten throughout the calving period.

Table 5: Changes in grass intake per cow with a large addition of cow numbers

	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug	20-Aug
Cows On Farm	300	300	300	450	450	450
Area available (ha)	2.44	2.48	2.53	2.56	2.61	2.67
Feed available / ha	1800	1800	1800	1800	1800	1800
Grass/cow (kgDM)	14.6	14.9	15.2	10.2	10.4	10.7

Essentially we have many more cows and only a small increase in the amount of feed available. The most obvious strategy to deal with this issue is to fix the grazing area (m²/cow) for the differing mobs at the level you would choose if all cows were on the farm. This will effectively mean you are grazing much less area than your spring rotation planner suggests. This is not an issue as long as the actual cover matches your predicted cover. What this does is give you more flexibility in terms of area grazed when the next lot of cows comes home. Essentially it's a short-term deferral of area which will allow a more stable allocation of grass. To help make the management even easier, if you can split the return of cows into much smaller lots then you can have only small increases in cow numbers to match the small increase in grass supplied. This will help minimise the change in grass provided per cow. If for example on the 18th of August only 50 cows arrived home, then the grass intakes would drop by around 2 kgDM/cow, a much more manageable drop. For this to happen there needs to be a much more flexible approach to wintering cows than we currently have.

On the converse side of the situation there may be times when your actual pasture cover exceeds your predicted pasture cover. With a flexible grazing arrangement this is an invitation to bring some more cows home (Table 1).

In a case where the arrangement is not so flexible, your feed budget needs to reflect this by having a higher target cover for when these cows come home. All your management decisions should be targeting the ability to feed these cows when they come home. There is also a case for fixing

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rotation prior to cows returning and increasing supplementation. When the cows return increasing the rotation length (Table 1) to the target for that date plus use the feed that was deferred by holding rotation earlier, then the drop in grass intakes will be kept to a minimum.

Overriding considerations

There are some factors that should be considered regarding management of feed in spring.

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Quality

While quantity is important at all times you should be aiming to feed your cows the highest quality pasture possible. This is driven by two key factors: your residual at last grazing; and the amount of pasture available at pre-grazing levels (i.e. is it too high?). By maintaining some form of feed wedge on your property - have some long paddocks and some short paddocks - and having only a small proportion of paddocks in the I need to graze that now category, you will minimise the decline in pasture quality which will happen if too many paddocks end up at this level at the same time.

Financial return

For every decision that you have to make during the spring in terms of managing feed, there will be other options that were considered but discarded. At times you may choose options that are more—expensive/produce less milk—to protect the cow or the pasture. But when all things are equal you should choose the option that will create the greater financial return.

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