



Spring Rotation Planner

Take the guesswork out of grazing management



The Spring Rotation Planner (SRP) provides guidelines for allocating pasture to cope with the milking herd increasing and the dry herd shrinking. It helps:

- Avoid going too fast or too slow in the first grazing rotation after calving
- Control the rate of pasture cover decline on the farm so enough pasture remains to maximise pasture growth
- Create high pasture quality for the coming rotations
- Minimise pasture deficits during spring so supplement is used efficiently

What does the research tell us?

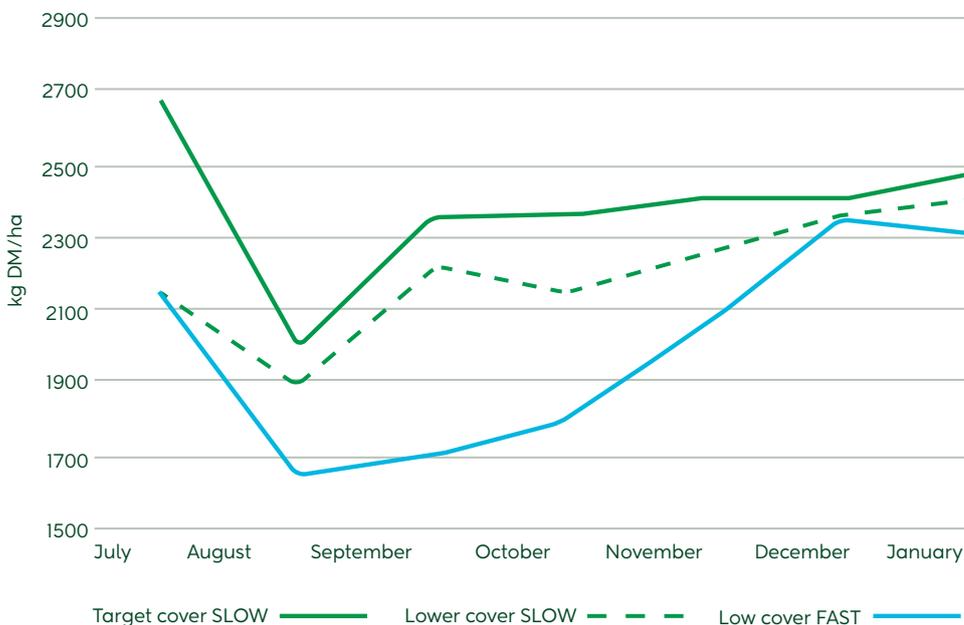
Where average pasture cover (APC) is below target, the quickest way to get back on track is to hold the rotation at the opening rotation length for the spring rotation planner (normally 80-100 days) until cover is back on target.

This was demonstrated in a trial at Dairying Research Corporation in the 1980s where the herd that started with low cover at calving but went slow post calving had the same cover at balance date as the herd that started with enough grass at calving. This compares with the herd that started with a low cover at calving and was on a fast rotation after calving with the feed cover on the farm not recovering until December.

To hold a very slow rotation and feed the cows to requirements will require supplementation and/or reducing stocking rate. If not able to hold the cows slower than the SRP, the area grazed must not be greater than allocated by the SRP.

So why is cover important if we hold a slow rotation, when this shows that we will end up at the same spot? The answer is that the difference between high starting cover and low starting cover is the greater amount of pasture growth and the amount of supplement required to feed cows. This is more costly than saving winter pasture.

Effect of speed of rotation on available feed (kgDM/ha)



Key points

- If you have a feed deficit, a slower rotation will rectify the problem – not a faster one
- Pasture growth will be limited if the average cover drops below 1800-1900kgDM/ha
- Maintaining cover through a slower rotation is important early on when leaf emergence is slower
- Get your rotation length right and monitor your cover

Tips for success

- Allocate area accurately. Know the area of your paddocks and the daily breaks and how these relate to the rotation plan.
- Share the plan with staff and have regular updates (at least weekly, sometimes daily) on progress against the plan.
- Achieve target grazing residuals of 1400-1500 kg DM/ha (no clumps left) in first rotation.
- Track actual rotation length versus target rotation length. Plot this on the graph each week (see over the page).
- Track actual average pasture cover (APC) for the farm versus target farm pasture cover.
- Regularly tally the cow numbers in each mob.

What can go wrong?

- Going too fast too early - avoid over-allocating pasture to early calving cows – see feed requirements over page
- Speeding up rotation to avoid pugging in wet weather, and not having a plan to get back on track.
- In a feed deficit, a slow rotation will help rectify the situation. A fast rotation will make the deficit worse and delay recovery.
- Feeding too much supplement and for too long – indicated by high grazing residuals or uneaten supplement.
- Not modifying the plan for an excellent spring – if pasture cover is above target then there is opportunity to offer more pasture area than planned.

SRP in 7 easy steps

1 Start date

A

Write down the date you plan to start calving (PSC) at (A). On the horizontal axis write down dates at weekly intervals (the graph allows up to 10 weeks)

2 Balance date

B

Balance date (B) is when you expect pasture growth will equal the amount of pasture the cows are eating (kg DM/ha/day). Mark this date on the horizontal axis. Its usually around 8 weeks after PSC and 4 weeks before mating.

3 Rotation length at the start

C

Mark the number of days for your rotation at PSC on the vertical axis – it's likely to be between 80-100 days for spring calving herds.

4 Rotation length at the balance date

D

When pasture growth exceeds feed demand, rotation length is usually around 21-28 days. Find your rotation length for this time on the vertical axis and track across to the right and put a mark (D) above (B)

5 Change in rotation length line from

C



D

Draw a straight line between points C and D. This line shows how quickly you can speed up your rotation from calving each week so you reach your expected balance date at the right time.

6 Convert rotation length to daily (ha/day) to offer

E

For each week go up to the plotted rotation line and read across to the rotation length on the vertical axis. Rotation length in days (e.g.80 days) also equals the proportion of the farm ($1/80^{\text{th}}$) that is allocated to all herds on the day. An example, 80 day rotation on a 100 ha farm. ($100\text{ha} \div 80 = 1.25 \text{ ha}$). Write the areas for each week in the boxes (E) below the graph. Refer to *DairyNZ farm fact 1-13a*.

7 Allocate the weekly area across the different mobs on the farm

F

Use the area allocation per mob and check that the area allocated is in line with the plan (F).

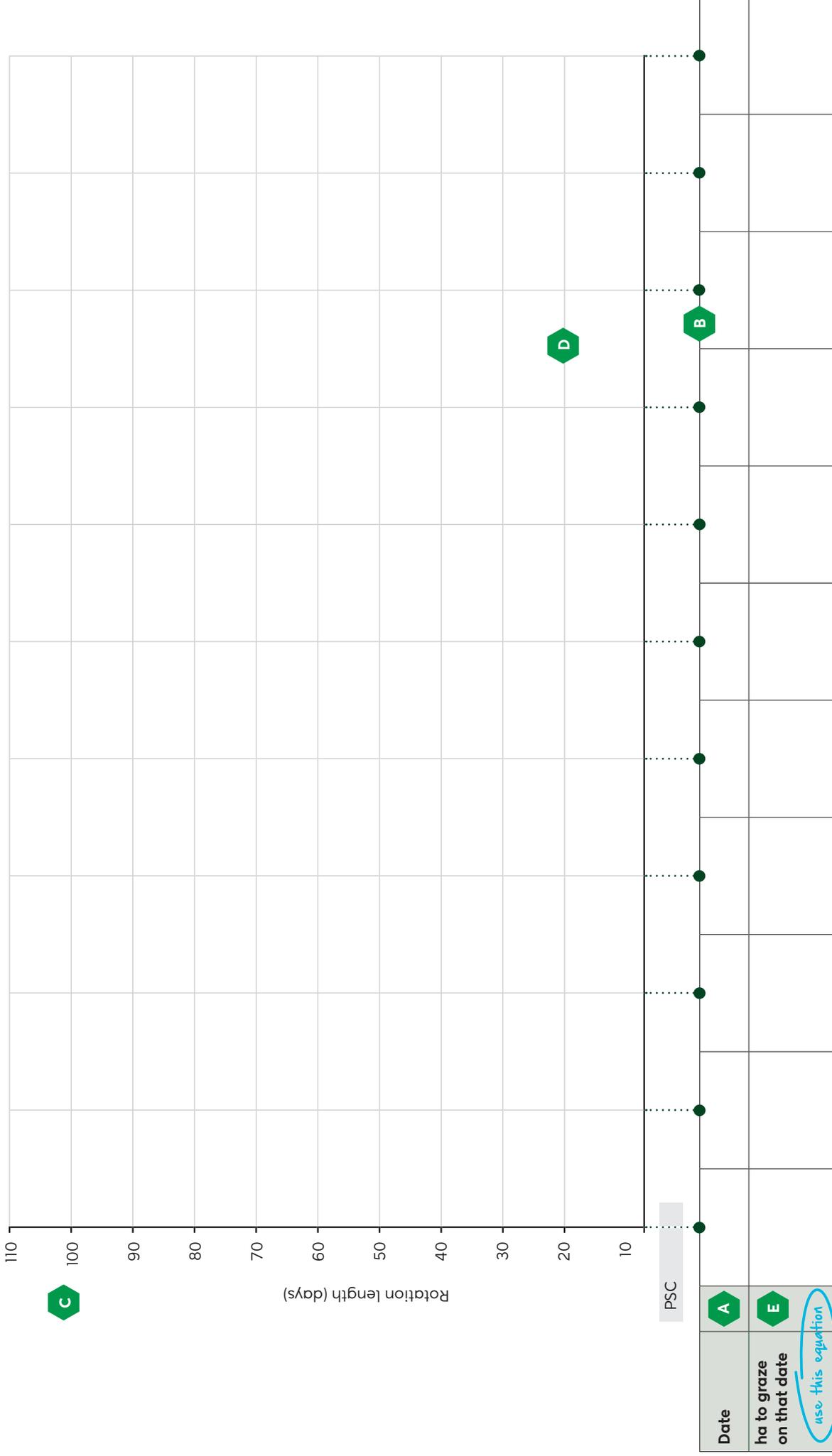
Spring Rotation Planner

Farm name:

Supply #:

Grazing area:

ha



$\text{Total area} \div \text{Rotation length} = \text{Area to graze}$

Are you on track?

- Work out the total area being grazed, using the Area Allocation per mob table above. Is this more or less than the total area the planner indicates should be grazed at this date (E)?
- If the total area to be grazed (F on table) differs from your planner check on line for things to review.
- The line is starting at the correct point for PSC. The rotation length at the start of calving is normally about 100 days. Lower stocked farms may start at 80 days. The available DM figures used are correct (pre-grazing kg DM/ha minus residual kg DM/ha).
- Feeding levels for different mobs are realistic and that you have allowed for any supplements

being fed – see Herd Level Feed Requirements table below.

- Areas of paddocks and therefore m² allocated are accurate.
- The number of cows in each mob are tallied daily (appoint someone in the team).
- Variations for winter grazing: if bringing cows from winter grazing to the milking platform after PSC, then the starting point for the slope of the line from PSC to balance date will need to change.

Area allocation per mob

| Mob name | Pasture Intake kgDM/cow/day | Pasture available kgDM/ha pregrazing – residual | m ² per cow Look up 'm ² per cow' in ready reckoner | Number of cows in each mob | Area needed m ² per cow x no. cows ÷ 10,000 = ha |
|---|--------------------------------|--|--|-------------------------------|--|
| | | | | = | |
| | | | | = | |
| | | | | = | |
| | | | | = | |
| Total (add area together) | | | | | |
| Compare with area for this date in row E | | | | | |

Ready reckoner for m² per cow

| Available kg DM/ha – difference between pre and post grazing yield | | | | | | | | | | |
|--|-----|------|------|------|------|------|------|------|--|--|
| Target intake from pasture kg DM/cow/day | 750 | 1000 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | | |
| 6 | 80 | 60 | 48 | 40 | 34 | 30 | 27 | 24 | | |
| 8 | 107 | 80 | 64 | 53 | 46 | 40 | 36 | 32 | | |
| 10 | 133 | 100 | 80 | 67 | 57 | 50 | 44 | 40 | | |
| 12 | 160 | 120 | 96 | 80 | 69 | 60 | 53 | 48 | | |
| 14 | 187 | 140 | 112 | 93 | 80 | 70 | 62 | 56 | | |
| 16 | 213 | 160 | 128 | 107 | 91 | 80 | 71 | 64 | | |
| 18 | 240 | 180 | 144 | 120 | 103 | 90 | 80 | 72 | | |

 Range for milking cows

 Recommended for non-lactating cows (can target lower grazing residuals)

 Avoid operating in these zones

Feed Requirements

Often feed budgets over estimate cow intakes at the start of calving. Cows reach peak milk production in as little as four weeks after calving but peak dry matter (DM) doesn't happen until 7-10 weeks after calving. Therefore average herd intake requirements lag behind peak intake of early calving cows.

Quick table for calculating intake at a herd level

These intakes do not allow for wastage and need to be increased if conditions are wet or feeding supplements where wastage may be higher. This example is based on a 500kg cow with a peak intake of 18kg DM/day, 10 weeks after calving. This table shows herd intakes for the following calving spread: 20% 1 week before PSC, 60% by week 3, 87% by week 6 and 100% by week 10.

Herd level feed requirement for milking cows in early calving period

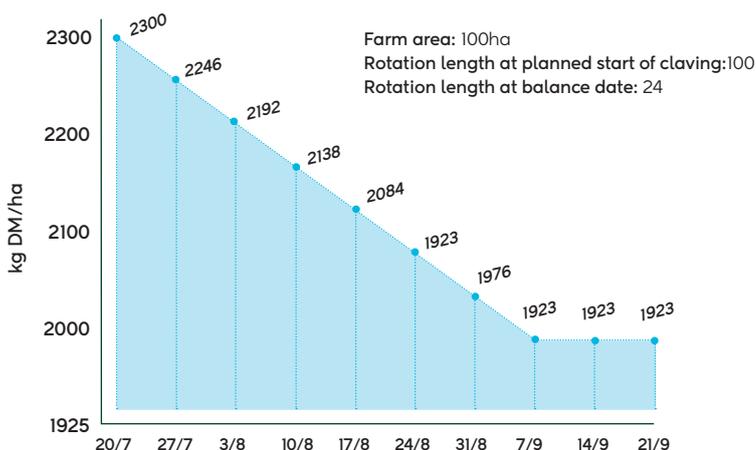
| Weeks after calving (PSC) | % of Peak intake (18kg) | kgDM/cow/day intake |
|---------------------------|-------------------------|---------------------|
| 1 | 69% | 12.5 |
| 2 | 72% | 13 |
| 4 | 80% | 14.5 |
| 6 | 85% | 15.5 |
| 8 | 90% | 16 |
| 10 | 94% | 17 |
| 12 | 98% | 17.6 |
| 14 | 99% | 17.8 |

Target average pasture cover (APC)?

Why graph target average pasture cover (APC)? Knowing the average pasture cover (APC) you're targeting for your farm at any particular time between PSC and balance date means you can adjust the spring rotation plan for seasonal conditions (good or bad) which impact on pasture cover

You can create an average pasture cover graph in 5 easy steps on the website. Monitor the pasture cover, at least fortnightly, to see how it is tracking versus the prediction on the graph. A weekly or fortnightly farm walk can actually save you time by allowing you to plan grazing a week ahead from the longest to shortest paddock list.

Example target average pasture cover graph



1. If APC is above the target line:

If the cover is well above target and the accumulated area grazed at 3-4 weeks is less than that on the SRP, the rotation needs to be sped up.

- Stop supplementary feeding,
- Increase area of pasture offered (providing residuals are kept consistent and even) and if necessary,
- Harvest the surplus.

2. If APC is below target line:

- Do not speed up the rotation
- Feed supplements to build cover
- Apply nitrogen if weather and soil conditions allow
- Prioritise intake to the most vulnerable stock: colostrum; milkers; springers then dry cows
- Minimise pugging damage to protect future growth.

Useful conversions

- 1ha = 10,000m² or 100m x 100m
- Feed available 1000 kg/ha = 0.1 kg DM/m²
- 10,000 m² in 1 ha for 100 cows = 100 m²/cow

Example spring rotation plan

Spring Rotation Planner

Farm name: *Bonds farm*

Supply #: *007*

Grazing area: *100* ha



| Date | A | 20/7 | 27/7 | 3/8 | 10/8 | 17/8 | 24/8 | 1/9 | 8/9 | B | 15/9 | 22/9 | 29/9 |
|--------------------------|---|------|------|------|------|------|------|------|------|------|------|------|------|
| ha to graze on that date | E | 1-0 | 1-11 | 1-26 | 1-44 | 1-69 | 2-05 | 2-59 | 3-52 | 4-17 | 4-17 | 4-17 | |

(use this equation)

$$\text{Total area} \div \text{Rotation length} = \text{Area to graze}$$

DairyNZ 

dairynz.co.nz/spring