Average pasture cover at balance date
- how to calculate (1-84)

Achieving the target average pasture cover (APC) at balance date is important to ensure that the cows have sufficient high quality pasture in peak production months. If APC is too low, cows will be underfed. If APC is too high, pasture quality will decline and production will suffer when cows are forced to graze to a lower residual than the previous grazing. This production loss can be avoided (if there is a feed surplus) by topping to restore pasture quality. However, this reduces the amount of pasture eaten (or harvested as silage), which is an important driver of profit.

Balance date

Balance date is when pasture growth rate increases to meet pasture feed demand. Normally balance date is 50-60 days after the planned start of calving (PSC) for the MA cows. Farms running high input systems may calve earlier and take 60-70 days to balance date.

To calculate APC at balance date

Generally, by balance date (7-9 weeks into calving) most of the cows have calved. Where the calving rate is slow and there are dry cows on the farm at balance date treat any dry cow as 0.5 of a milking cow when calculating herd intake per day.

\[
\text{Peak Intake per cow from Table 1} \times 80\% = \text{Cow Intake at Balance Date (assumes cows are up to 85\% of peak intake by balance date and 95\% of the cows have calved = 80\%)}
\]

\[
\begin{align*}
\text{Peak Intake per cow from Table 1} \times 80\% &= \text{Cow Intake at Balance Date (assumes cows are up to 85\% of peak intake by balance date and 95\% of the cows have calved = 80\%)} \\
A &= \frac{\text{Peak Intake per cow from Table 1} \times 80\%}{0.80}
\end{align*}
\]

\[
\begin{align*}
\text{(Cow Intake at Balance Date} & \times \text{Stocking Rate Cows/ha} \times \text{Treat dry cows as 0.5 of a milker} \times \text{Rotation Length at Balance Date (} \times 0.5) + \text{Target Grazing Residual at Balance Date (} 1400-1500 \text{ kg DM/ha)} = \text{APC at Balance Date Kg DM/ha}
\end{align*}
\]

\[
\begin{align*}
\text{(A} & \times \text{B} \times \text{C} \times 0.5) + \text{Target Grazing Residual at Balance Date (} 1400-1500 \text{ kg DM/ha)} = \text{APC at Balance Date Kg DM/ha}
\end{align*}
\]

Table 1  Peak dry matter intake requirements under good grazing conditions (kg DM/cow/day offered for 12.0 MJME/kg DM)*

<table>
<thead>
<tr>
<th>Peak Per Cow Production Kg MS/cow/day</th>
<th>1.6</th>
<th>1.7</th>
<th>1.8</th>
<th>1.9</th>
<th>2.0</th>
<th>2.1</th>
<th>2.2</th>
<th>2.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>13.9</td>
<td>14.5</td>
<td>15.1</td>
<td>15.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>450</td>
<td>14.9</td>
<td>15.5</td>
<td>16.1</td>
<td>17.2</td>
<td>18.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500</td>
<td></td>
<td>16.5</td>
<td>17.1</td>
<td>17.8</td>
<td>18.6</td>
<td>19.1</td>
<td>19.8</td>
<td></td>
</tr>
<tr>
<td>550</td>
<td></td>
<td>17.5</td>
<td>18.2</td>
<td>18.8</td>
<td>19.5</td>
<td>20.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* These are actual intake figures (after 6% wastage). Feed offered to achieve these intakes will need to be higher in some grazing conditions when wastage will be much higher than 6%.
To calculate daily pasture growth rate (kg DM/ha/day) required at balance date

\[
\text{Cow Intake at Balance Date} \times \frac{\text{Stocking Rate Cows/ha Treat dry cows as 0.5 of a milker}}{\text{Pasture Growth Rate kg DM/day Required at Balance Date}} = \text{Pasture Growth Rate kg DM/day Required at Balance Date}
\]

Example

Peak Per Cow Intake from Table 1 \times 80\% = \text{Cow Intake at Balance Date}

\[
17.8 \times 0.80 = 14.3 \text{ A}
\]

(Cow Intake at Balance Date \times \frac{\text{Stocking Rate Cows/ha Treat dry cows as 0.5 of a milker}}{\text{Rotation Length at Balance Date} \times 0.5} + \text{Target Grazing Residual at Balance Date (Normally 1400-1500 kg DM/ha)} = \text{APC at Balance Date Kg DM/ha}

\[
(14.3 \times 3.3 \times 23 \times 0.5) + 1450 = 2000 \text{ kg DM/ha}
\]

Cow Intake at Balance Date \times \frac{\text{Stocking Rate Cows/ha Treat dry cows as 0.5 of a milker}}{\text{Pasture Growth Rate kg DM/day Required at Balance Date}} = \text{Pasture Growth Rate kg DM/day Required at Balance Date}

\[
14.3 \times 3.3 = 47 \text{ kg DM/ha/day}
\]

For further information contact 0800 4 324 7969 or the DairyNZ website www.dairynz.co.nz or contact your local DairyNZ Consulting Officer.