Autumn feeding guide - sheep

A producers guide for supplementary feeding sheep during autumn

Matthew Lieschke
Livestock Officer | Local Land Services | Goulburn

NSW GOVERNMENT

Local Land Services
www.lls.nsw.gov.au
We help secure the future of agriculture and the environment for NSW communities.

Table of Contents

PLEASE NOTE THE FOLLOWING BEFORE USING THIS GUIDE

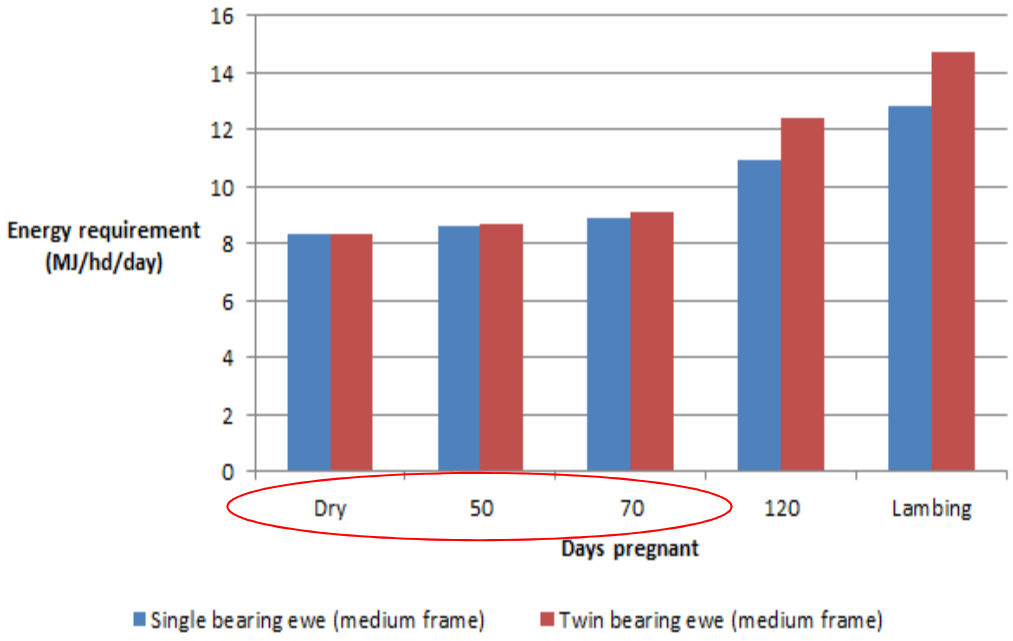
- The tables in this guide have been calculated using Grazfeed and provide a guide to the level of supplementation required for both Merino and 1st X ewes at various stages of pregnancy and into early lactation. Feeding rates have also been provided for Merino weaners.
- A number of pasture and livestock assumptions have been used when performing the Grazfeed runs. It is important to take note of these assumptions when applying the feeding rates to your own situation. Remember, these tables are provided as a guide only and are designed to help producers fine-tune their feeding rates.
- The suggested feeding rates in this guide are based on feeding cereal grain. Remember, **care should always be taken** when feeding grain to livestock to avoid grain poisoning (acidosis). Primefact 330 “Grain Poisoning of sheep and cattle” (available online) contains information on how to safely introduce sheep and cattle to grain-based diets.
- Cereal grains tend to be low in both calcium and sodium. When feeding diets that consist mainly of cereal grain, add 1.5% of ground agricultural limestone (calcium carbonate) and 0.5% salt by weight to the ration to avoid calcium and sodium deficiencies (i.e. for every 100kg of grain add 1.5kg of lime and 0.5kg of salt).

Front cover photos provided by NSW Department of Primary Industries and M Lieschke, Local Land Services

Late winter/ early spring lambing ewes

Regardless of whether a ewe is carrying a single lamb or twins, nutritional requirements are only slightly above that of a dry ewe in the first 100 days of pregnancy (Figure 1).

Figure 1: Energy requirements of single and twin bearing ewes during pregnancy



Merino ewes - early pregnancy

Table 1: Merino ewe - DAILY weight gain/loss (g/hd/day) in early pregnancy

Kg of barley fed/hd/day	Pasture height (green component)				
	0cm	1cm	2cm	3cm	4cm
0	-190	-104	-29	9	28
0.1	-158	-74	-4	18	36
0.2	-124	-41	8	30	49
0.3	-90	-7	22	43	62
0.4	-55	10	36	58	76
0.5	-20	27	52	73	90
0.6	7				

Assumptions:

- Merino ewes have a mature weight of 55kg (no gut fill, fleece-free liveweight)
- Ewes are grazing a short green pasture at 72% digestibility, 5% legume with pasture height varying from 1cm - 4cm. Paddock still has 0.5t/ha of dead material @ 40% digestibility (5cm in height).
- Ewes are 50 days pregnant. Figures indicate likely weight gain/loss with varying levels of supplement. Weight gain/loss DOES NOT include weight gain from the conceptus (i.e. ewe body condition only).
- Ration is 100% barley (13MJ ME; 12% protein).

Highlighted cells provide a guide to feeding levels needed to maintain body condition with increasing pasture height. Pasture only needs to be around 1 inch high (2.5cm) for stock to maintain body condition in early pregnancy.

What if I don't have a green pick and dry feed is minimal?

- As shown in the above table, the feeding rate would need to increase to around **600g/hd/day** to maintain weight.
- When dry paddock feed becomes limiting it's important to provide a small amount of roughage into the diet in addition to the feeding rate listed for nil green feed (e.g. **600g/hd/day of barley + 0.5kg/hd/week of hay** or straw).

Note: If pregnant ewes are in good condition (i.e. Fat Score 3+) you could save some money by feeding sub-maintenance rates and letting ewes undergo slight weight loss. Aim for fat score 3 – 3.5 at the point of lambing.

1st X ewes - early pregnancy

Table 2: 1st X ewe - DAILY weight gain/loss (g/hd/day) in early pregnancy

Kg of barley fed/hd/day	Pasture height (green component)				
	0cm	1cm	2cm	3cm	4cm
0	-243	-119	-16	23	50
0.1	-210	-89	1	31	58
0.2	-176	-56	13	44	71
0.3	-142	-23	27	58	84
0.4	-108	4	41	72	98
0.5	-73	19	57	87	113
0.6	-38				
0.7	-3				

Assumptions:

- 1st X ewes have a mature weight of 75kg (no gut fill, fleece-free liveweight)
- Ewes are grazing a short green pasture at 72% digestibility, 5% legume with pasture height varying from 1cm - 4cm. Paddock still has 0.5t/ha of dead material @ 40% digestibility (5cm in height).
- Ewes are 50 days pregnant. Figures indicate likely weight gain/loss with varying levels of supplement. Weight gain/loss DOES NOT include weight gain from the conceptus (i.e. ewe body condition only).
- Ration is 100% barley (13MJ ME; 12% protein).

Highlighted cells provide a guide to feeding levels needed to maintain body condition with increasing pasture height. Pasture only needs to be around 1 inch high (2.5cm) for stock to maintain body condition in early pregnancy.

What if I don't have a green pick and dry feed is minimal?

As shown in the above table, the feeding rate would need to increase to around **700g/hd/day** to maintain weight.

When dry paddock feed becomes limiting it's important to provide a small amount of roughage into the diet in addition to the feeding rate listed for nil green feed (e.g. **700g/hd/day of barley** + **0.7kg/hd/week of hay** or straw).

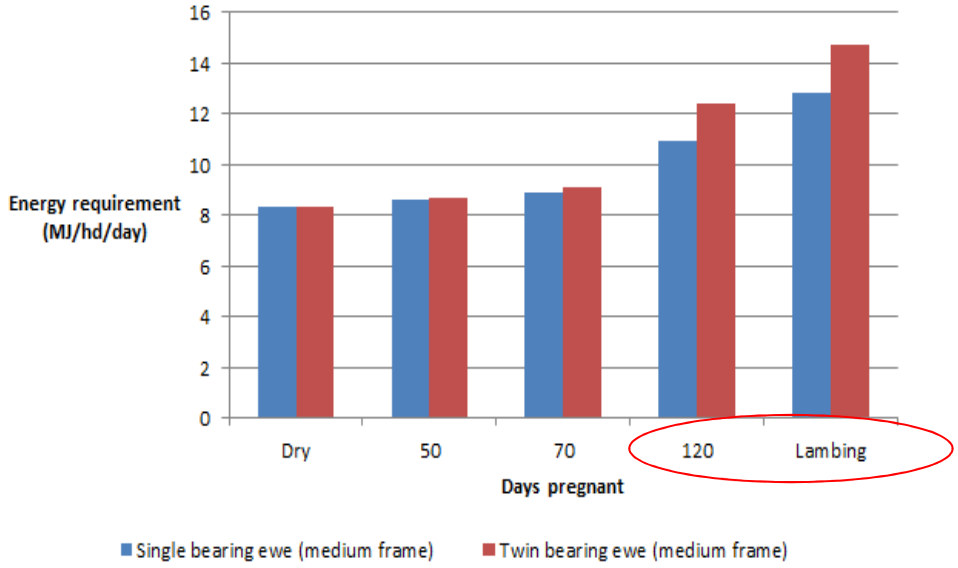
Note: If pregnant ewes are in good condition (i.e. Fat Score 3.5 or above) you could save some money by feeding sub-maintenance rates and letting ewes undergo slight weight loss. For 1st X ewes, aim for fat score 3.5 – 4.0 at the point of lambing.

Autumn lambing ewes

Autumn lambing flocks are under a lot more pressure during autumn as nutrient requirements increase dramatically leading up to lambing, especially in twin bearing ewes (Figure 2). Failure to meet nutrient requirements in late pregnancy and early lactation leads to a range of issues:

- increased risk of pregnancy toxaemia in twin bearing ewes
- smaller lambs = increased risk of dying, especially in twins.
- reduced colostrum and milk production
- increased risk of twin bearing ewes deserting one of their lambs if conditions are tough

Figure 2: Energy requirements of single and twin bearing ewes during pregnancy



With autumn lambing ewes the recommendation is to **keep feeding rates up once the autumn break occurs** to help pastures get ahead of the stock. You are better off feeding ewes in late pregnancy as once lambing starts the risk of mis-mothering increases, especially if you are trail feeding.

Photo: evergraze.com.au

Merino ewes - late pregnancy

Table 3: Merino ewe - DAILY weight gain/loss (g/hd/day); 120 days pregnant

Kg of barley fed/day	Single bearing ewes					Twin bearing ewes				
	Pasture height (green component)					Pasture height (green component)				
	0cm	1cm	2cm	3cm	4cm	0cm	1cm	2cm	3cm	4cm
0	-266	-187	-117	-49	-2	-325	-251	-186	-116	-56
0.1	-234	-158	-89	-28	5	-295	-224	-158	-91	-39
0.2	-202	-126	-58	-4	15	-263	-195	-124	-63	-15
0.3	-169	-93	-28	8	26	-229	-162	-91	-36	0
0.4	-136	-59	-2	20	39	-200	-127	-60	-9	11
0.5	-104	-26	12	34	52	-168	-90	-30	5	23
0.6	-69	2	28	48	65	-135	-55	-3	19	36
0.7	-35	19	44	64	80	-102	-21	12	33	50
0.8	-1	37	61	79	95	-67	4	29	48	64
0.9	17	57	78	96	110	-32	23	46	64	79
1.0		76	97	113	126	2	42	63	80	94

Assumptions:

- Merino ewes have a mature weight of 55kg (no gut fill, fleece-free liveweight)
- Ewes are grazing a short green pasture at 72% digestibility, 5% legume with pasture height varying from 1cm - 4cm. Paddock still has 0.5t/ha of dead material @ 40% digestibility (5cm in height).
- Ewes are 120 days pregnant. Figures indicate likely weight gain/loss with varying levels of supplement. Weight gain/loss DOES NOT include weight gain from the conceptus (i.e. ewe body condition only).
- Ration is 100% barley (13ME; 12% protein).

Highlighted cells provide a guide to feeding levels needed to maintain body condition with increasing pasture height one month prior to lambing (both twins and singles).

What if I don't have a green pick and dry feed is minimal?

- The feeding rate would need to increase to **800g/hd/day for singles** and **1kg/hd/day for twins**.
- Getting ewes to physically eat these high amounts of grain in late pregnancy is difficult, so some degree of weight loss is likely, especially in twin bearing ewes.
- **Daily feeding or use of self-feeders** is recommended in the last **3 weeks of pregnancy** so that ewes receive a constant supply of feed.
- **Feed 0.5kg/hd/week of hay** in addition to the grain

Merino ewes - early lactation with single lamb

Table 4: Single bearing Merino ewe - Lambing performance at 14 days into lambing

Kg of barley fed/day	Pasture height (green component)					
	0cm		2cm		4cm	
	Ewe weight gain/loss g/hd/day	Lamb growth rate g/hd/day	Ewe weight gain/loss g/hd/day	Lamb growth rate g/hd/day	Ewe weight gain/loss g/hd/day	Lamb growth rate g/hd/day
0	-261	-28	-165	60	-90	148
0.1	-244	-2	-155	72	-84	153
0.2	-229	15	-142	87	-73	162
0.3	-211	25	-128	102	-62	171
0.4	-192	36	-115	114	-51	180
0.5	-175	50	-101	125	-40	189
0.6	-157	66	-87	137	-29	197
0.7	-141	76	-73	148	-17	205
0.8	-125	87	-59	159	-5	213
0.9	-109	98	-45	170	4	222
1.0	-92	110	-31	181	14	230

Assumptions:

- Merino ewes have a mature weight of 55kg (no gut fill, fleece-free liveweight)
- Ewes are grazing a short green pasture at 72% digestibility, 5% legume with pasture height varying from 1cm - 4cm. Paddock still has 0.5t/ha of dead material @ 40% digestibility (5cm in height).
- Ewes are 14 days into lambing. Figures indicate likely weight gain/loss with varying levels of supplement.
- Ration is 100% barley (13ME; 12% protein).

Highlighted cells show feeding levels needed if target weight loss is around 100g/head/day (0.7kg/week). The table shows impact of level of feeding on ewe condition and lamb growth rate.

Providing ewes are in good condition at the start of lambing, we can afford to 'milk of her back' as ewes will be able to recoup lost condition in spring. We can also tolerate lower lamb growth rates in autumn lambing flocks as lambs will be weaned onto good quality pasture.

What if I don't have a green pick and dry feed is minimal?

- The feeding rate would need to increase to **0.9kg/hd/day for singles.**
- For lactating ewes it's important that the diet contains at least **12% crude protein**. If the cereal grain that you are using is below 12% protein, a protein-rich concentrate (e.g. lupins or faba beans) can be used to bump the protein level up. For example, using a ration mix that contains 90% barley and 10% lupins.
- **Daily feeding or use of self-feeders** is recommended in early lactation so that ewes receive a constant supply of feed.
- Providing **roughage** via hay becomes increasingly important as paddock feed becomes limited - feed **1kg/hd/week of good quality hay** (in addition to the grain).

Merino ewes - early lactation with twins

Table 5: Twin bearing Merino ewe - Lambing performance at 14 days into lambing

Kg of barley fed/day	Pasture height (green component)					
	0cm		2cm		4cm	
	Ewe weight gain/loss g/hd/day	Lamb growth rate g/hd/day	Ewe weight gain/loss g/hd/day	Lamb growth rate g/hd/day	Ewe weight gain/loss g/hd/day	Lamb growth rate g/hd/day
0	-357	-79	-269	8	-192	83
0.1	-341	-65	-260	17	-186	86
0.2	-324	-50	-249	29	-176	92
0.3	-307	-35	-236	39	-165	99
0.4	-291	-19	-223	47	-154	104
0.5	-276	-1	-209	55	-143	109
0.6	-261	15	-195	62	-132	113
0.7	-247	26	-182	70	-121	118
0.8	-233	38	-168	78	-110	122
0.9	-217	46	-154	86	-98	126
1	-200	53	-140	93	-87	130
1.1	-183	61	-126	101	-75	134
1.2	-166	68	-112	107	-63	138

Assumptions:

- Merino ewes have a mature weight of 55kg (no gut fill, fleece-free liveweight)
- Ewes are grazing a short green pasture at 72% digestibility, 5% legume with pasture height varying from 1cm - 4cm. Paddock still has 0.5t/ha of dead material @ 40% digestibility (5cm in height).
- Ewes are 14 days into lambing. Figures indicate likely weight gain/loss with varying levels of supplement.
- Ration is 100% barley (13ME; 12% protein).

Highlighted cells show feed that's required to limit weight loss to around 160-170g/head/day (approximately 1.2kg / week).

The amount you feed will be a function of current ewe condition – higher feeding rates will be needed if ewes are in lighter condition as there is less capacity to 'milk off her back'.

What if I don't have a green pick and dry feed is minimal?

- The feeding rate would need to increase to **1.2kg/hd/day for twins**.
- For lactating ewes it's important that the diet contains at least **12% crude protein**. If the cereal grain that you are using is below 12% protein, a protein-rich concentrate (e.g. lupins or faba beans) can be used to bump the protein level up. For example, using a ration mix that contains 90% barley and 10% lupins.
- **Daily feeding or use of self-feeders** is recommended in early lactation so that ewes receive a constant supply of feed.
- Providing **roughage** via hay becomes increasingly important as paddock feed becomes limited - **feed 1.5kg/hd/week of good quality hay** (in addition to the grain).

1st X ewes - late pregnancy

Table 6: 1st X ewe - DAILY weight gain/loss (g/hd/day); 120 days pregnant

Kg of barley fed/day	Single bearing ewes					Twin bearing ewes				
	Pasture height (green component)					Pasture height (green component)				
	0cm	1cm	2cm	3cm	4cm	0cm	1cm	2cm	3cm	4cm
0	-347	-234	-131	-43	9	-428	-319	-216	-128	-52
0.1	-316	-205	-107	-25	15	-398	-290	-193	-109	-38
0.2	-283	-172	-77	-1	25	-366	-258	-163	-82	-13
0.3	-250	-139	-47	10	37	-334	-225	-133	-55	2
0.4	-216	-106	-17	22	49	-300	-192	-102	-27	13
0.5	-182	-72	4	36	62	-266	-159	-72	-2	24
0.6	-147	-38	19	50	75	-232	-125	-41	11	37
0.7	-112	-4	34	64	89	-197	-91	-10	24	50
0.8	-78	14	50	80	104	-164	-56	8	39	63
0.9	-45	32	67	95	119	-131	-21	24	53	78
1.0	-11	50	84	112	134	-98	5	41	69	92
1.1	11					-64				
1.2						-30				
1.3						1				

Assumptions:

- 1st X ewes have a mature weight of 75kg (no gut fill, fleece-free liveweight)
- Ewes are grazing a short green pasture at 72% digestibility, 5% legume with pasture height varying from 1cm - 4cm. Paddock still has 0.5t/ha of dead material @ 40% digestibility (5cm in height).
- Ewes are 120 days pregnant. Figures indicate likely weight gain/loss with varying levels of supplement. Weight gain/loss DOES NOT include weight gain from the conceptus (i.e. ewe body condition only).
- Ration is 100% barley (13ME; 12% protein).

Table 6 above provides a guide on feeding rates one month prior to lambing with the **highlighted cells indicating the amount of supplement required to maintain body condition.** Nutrient requirements will continue to increase as the pregnancy progresses.

What if I don't have a green pick and dry feed is minimal?

- The feeding rate would need to increase to 1.1kg/head/day for singles and 1.3kg/head/day for twins.
- Getting ewes to physically eat these high amounts of grain in late pregnancy is difficult, so some degree of weight loss is likely, especially in twin bearing ewes.
- **Daily feeding or use of self feeders** is recommended in the last **3 weeks of pregnancy** so that ewes receive a constant supply of feed.
- **Feed 0.7kg/hd/week of good quality hay** in addition to the grain.

1st X ewes - early lactation with single lamb

Table 7: Single bearing 1st X ewe - Lambing performance at 14 days into lambing

Kg of barley fed/day	Pasture height (green component)					
	0cm		2cm		4cm	
	Ewe weight gain/loss g/hd/day	Lamb growth rate g/hd/day	Ewe weight gain/loss g/hd/day	Lamb growth rate g/hd/day	Ewe weight gain/loss g/hd/day	Lamb growth rate g/hd/day
0	-360	35	-219	170	-119	291
0.1	-344	50	-210	178	-115	294
0.2	-327	65	-197	190	-105	304
0.3	-310	80	-184	203	-94	314
0.4	-293	91	-171	215	-84	324
0.5	-274	99	-158	228	-73	333
0.6	-257	110	-145	240	-62	342
0.7	-239	122	-131	252	-51	352
0.8	-224	133	-118	264	-39	359
0.9	-208	145	-105	277	-26	363
1.0	-192	156	-91	289	-12	368
1.1	-176	168	-78	301	-1	372
1.2	-159	180	-64	312	10	376

Assumptions:

- 1st X ewes have a mature weight of 75kg (no gut fill, fleece-free liveweight)
- Ewes are grazing a short green pasture at 72% digestibility, 5% legume with pasture height varying from 1cm - 4cm. Paddock still has 0.5t/ha of dead material @ 40% digestibility (5cm in height).
- Ewes are 14 days into lambing. Figures indicate likely weight gain/loss with varying levels of supplement.
- Ration is 100% barley (13ME; 12% protein).

Highlighted cells show feed that's required to limit weight loss to around 160g/hd/day (approx 1.1kg / week).

Again, feeding rates will be influenced by amount of body condition on the ewe. Assumption in Grazfeed was lambing down in Fat Score 3.5.

What if I don't have a green pick and dry feed is minimal?

- The feeding rate would need to increase to **1.2kg/hd/day.**
- For lactating ewes it's important that the diet contains at least **12% crude protein**. If the cereal grain that you are using is below 12% protein, a protein-rich concentrate (e.g. lupins or faba beans) can be used to bump the protein level up. For example, using a ration mix that contains 90% barley and 10% lupins.
- **Daily feeding or use of self-feeders** is recommended in early lactation so that ewes receive a constant supply of feed.
- Providing **roughage** via hay becomes increasingly important as paddock feed becomes limited - **feed 1.2kg/hd/week of good quality hay** (in addition to the grain).

1st X ewes - early lactation with twins

Table 8: Twin bearing 1st X ewe - Lambing performance at 14 days into lambing

Kg of barley fed/day	Pasture height (green component)					
	0cm		2cm		4cm	
	Ewe weight gain/loss g/hd/day	Lamb growth rate g/hd/day	Ewe weight gain/loss g/hd/day	Lamb growth rate g/hd/day	Ewe weight gain/loss g/hd/day	Lamb growth rate g/hd/day
0	-505	6	-370	95	-270	181
0.1	-488	15	-362	102	-267	182
0.2	-471	24	-350	113	-256	188
0.3	-454	32	-338	121	-246	193
0.4	-437	41	-327	130	-235	198
0.5	-420	50	-314	138	-225	204
0.6	-403	60	-301	144	-214	209
0.7	-387	74	-288	151	-203	214
0.8	-373	81	-275	157	-192	219
0.9	-359	89	-261	164	-181	224
1.0	-344	97	-248	170	-170	229
1.1	-330	105	-234	177	-159	234
1.2	-315	113	-221	183	-148	238
1.3	-300	121	-208	190	-137	243
1.4	-284	127	-194	196	-125	247
1.5	-267	133	-181	203	-114	252

Assumptions:

- 1st X ewes have a mature weight of 75kg (no gut fill, fleece-free liveweight)
- Ewes grazing a short green pasture at 72% digestibility, 5% legume with pasture height varying from 1cm - 4cm. Paddock still has 0.5t/ha of dead material @ 40% digestibility (5cm in height).
- Ewes are 14 days into lambing. Figures indicate likely weight gain/loss with varying levels of supplement.
- Ration is 100% barley (13ME; 12% protein).

Feeding rates and weight loss is much higher compared to the single bearing ewe. **Highlighted cells show feed that's required to limit weight loss to around 200g/hd/day (approx 1.4kg / week; or 5.5kg/month) where green grass is available.**

What if I don't have a green pick and dry feed is minimal?

- As shown in the above table, the feeding rate would need to increase to **1.5kg/hd/day.** At this feeding rate ewes will lose around 270g/hd/day.
- For lactating ewes it's important that the diet contains at least **12% crude protein**. If the cereal grain that you are using is below 12% protein, a protein-rich concentrate (e.g. lupins or faba beans) can be used to bump the protein level up. For example, using a ration mix that contains 90% barley and 10% lupins.
- **Daily feeding or use of self-feeders** is recommended in early lactation so that ewes receive a constant supply of feed.
- Providing roughage via hay becomes increasingly important as paddock feed becomes limited - **feed 2kg/hd/week of good quality hay** (in addition to the grain).

Merino weaners

Table 9: Merino weaners at 8 months of age. DAILY weight gain/loss (g/hd/day)

Kg of barley + lupin ration fed/hd/day	Pasture height (green component)			
	0cm	2cm	3cm	4cm
0	-101	30	55	77
0.1	-60	43	68	89
0.2	-18	59	84	105
0.3	9	77	101	121
0.4	29	95	118	137
0.5	51	114	136	154

Assumptions:

- Ewes grazing a short green pasture at 72% digestibility, 5% legume with pasture height varying from 1cm - 4cm. Paddock still has 0.5t/ha of dead material @ 40% digestibility (5cm in height).
- Ewes are 14 days into lambing. Figures indicate likely weight gain/loss with varying levels of supplement.
- Ration is 100% barley (13ME; 12% protein).

Your target growth rate (and feeding rate) will be driven by the current weight of your weaners. The lightest ewe weaners need to reach 25 kg (minimum) by 1 June if they are to reach a 40kg joining weight by Feb/ March next year.

The estimated growth rates in the table assumes that weaners are fed a ration containing 85% barley and 15% lupin grain, providing 13 MJ ME and 15% protein.

What if I don't have a green pick and dry feed is minimal?

- Give weaners access to **good quality hay** on an ad lib basis (in addition to the grain). Young weaners need **roughage** as part of their diet for continued rumen development and should comprise at least 20% of the total ration.

More information

For further information contact your Local Land Services Livestock Officer or District Veterinarian.