FARM ADVISORY SERVICE

Silage Analysis and Ration Planning:
Benefits of knowing what you're feeding your stock

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Issues during winter feeding

- Forage quality variation
  - How much do you have and what is it's feed value?
  - Planning ahead and assessing stocks
  - How to cope with poor silages
  - Supplementing silages were appropriate

Every farm is different!

Variation in Forage Quality

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	Pit		Bale	
	Average	Range	Average	Range
DM (%)	28	13-67	36	16 - 69
D Value (%)	67	50 -77	66	50 – 77
ME MJ/kg DM	10.7	8 -12.3	10.5	8 -12.3
CP (%)	10.1	5.3 – 15.9	10.1	6 – 16.5
pH	4.3	3.6 - 6	4.5	3.9 – 5.6

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Silage Analysis:

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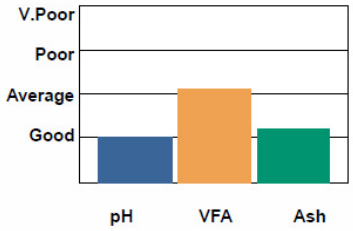
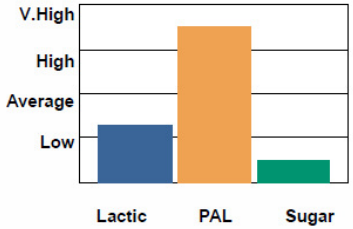
Feeding Value

Dry Matter (g/kg)*	235
D-value (%)*	68.9
ME (MJ/kg DM)	11.0
Protein (g/kg DM)*	98
SIP (gDM/kgLW^0.75)*	90
NDF (g/kg DM)*	553
Sugar (g/kg DM)	30
Oil (g/kg DM)	34
Ash (g/kg DM)	51
TFA (g/kg DM)	59.1
PAL (meq/kg DM)	927

Fermentation quality

pH (NIR)*	4.3
Lactic Acid (g/kg DM)	41.7
VFA (g/kg DM)	17.4





Degradability Characteristics

	s	a	b	c
Dry Matter	0.22	0.32	0.51	0.036
Nitrogen	0.58	0.68	0.23	0.079

* The above silage results were produced using the Forage Assurance Analysis Models on fresh silage material .

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Dealing with soil contaminated silage

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- Ash levels high on analysis (>10%)
- Clostridia bacteria
- Listeria bacteria
- Establish worse affected bales and avoid feeding to pregnant or lactating animals
- Dilute with better forage if it must be used
- Don't feed mouldy silage
- Remove refused silage to avoid build up of spoiled material

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Why does dry matter matter?

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- Dry matter is the most likely thing to vary each year
- Are you feeding enough silage?

Example: 10kg of dry matter of silage to satisfy a cow

- Wettest silage = 48kg fresh weight
- Driest silage = 16kg fresh weight

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Estimating Dry matter %

- Liquid easily squeezed out by hand <20%DM
- Liquid squeezed out but takes more effort 20–25%DM
- Very hard to get any liquid out but hands feel wet >25%DM
- Can you form a ball with it, how does it hold it's shape?
- How spikey is it in your hand – rougher it is the lower the energy

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Energy Content of silage

- To meet the needs of dry suckler cow

For example:

600kg suckler cow, 8 weeks from calving requires 83 MJ

–9 ME silage = 38kg

–11.5 ME silage = 28kg

Which silages cause you concern?

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	A	B	C	D
DM g/kg	163	230	235	561
D Value (%)	60	58	69	66
ME MJ/kg DM	9.6	9.4	11	10.6
CP g/kg DM	118	114	98	80
SIP	72	83	90	101
Lactic Acid g/kg DM	10	51	42	10
VFA g/kg DM	0.1	27.3	17.4	9.0
pH	4.5	4.4	4.3	4.7

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Body Condition Score

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- 1 unit of BCS = 13% live weight

  =1 unit of BCS for 650kg is 85kg
- Ideally want around 2.5 BCS at calving
- If your cows are fat or thin it takes times to take off or gain condition

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Knowing weight of cows

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- If cows are not being fed the maintenance requirements to the correct weight they could lose condition quickly

Weight (kg)	ME (MJ)
550	59
650	67
750	74
850	81

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Thin and Fat Spring Calvers near calving

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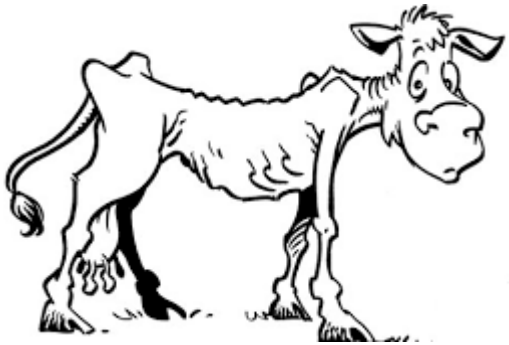

Thin:

- Separate from those in fit/normal condition if possible for extra feeding
- Give them the best forage available
- Avoid overloading with concentrates
- If cow losing excess weight near to end of pregnancy
  - Could she be carrying twins?
  - Twins increase ME req. by 20-25 MJ /day near end of pregnancy
  - Is there good access to feed
  - Other vet issues

Fat:

- Can still be losing a bit of weight right up to calving
  - Up to 0.5kg/day loss
- Meet protein and mineral requirements
- Avoid 'starvation' diets for over fat cows
  - Don't want to cause metabolic problems at calving
  - Energy still required for colostrum production

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Example Pre–Calving Rations

	FAT 650kg Cow -0.5kg/day	NORMAL 650kg cow No loss or gain	THIN 650kg Cow +0.5kg/day
Silage (kg)	30	36	45
Beef nuts (16%CP)	-	-	May need some conc. Depending on silage quality
Minerals (kg)	0.15	0.15	0.15

- Rations using an average silage
- Important to have your own forage analysed

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Minerals and vitamins

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- Advice to provide dry cows with min/vit supplement around 6 weeks pre calving
- Deficiencies can lead to health issues for both cow and calf
  - Retained placenta
  - Slow calving
  - Milk fever
- Magnesium: in 1-2 weeks pre calving provide 100g of beef cow mineral containing 10% Mg
- Iodine: Not stored in the body, must be supplied
- Selenium: Low levels can lead to poor muscle tone leading to calving difficulty
- Vitamin E:
  - Works with Se
  - Does not cross placenta so calves rely on good supply from colostrum

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Buckets & Blocks

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- Various buckets and blocks on the market:-
  - Feed buckets & blocks
  - Mineral buckets & blocks
- Labour saving & convenience
- Prevents bullying at trough
- Careful you aren't over supplying minerals
  - e.g. If you've boloused, feeding cake and providing mineral buckets
- They are a supplement not a cure all

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Post Calving

- A freshly calved cows has to:
  - Recover from calving
  - Produce milk
  - Re-start oestrus cycle
  - Increase BCS if needed
- Give freshly calved suckler priority access to best grazing at turnout
- Milk yield peaks around 6-8 weeks post calving- coinciding with breeding season
  - Increasing BCS and ovulation will only occur if your are giving them above their req. for maintenance + milk
- Energy requirements of freshly calved cow are double that of dry cow

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Nutrient Guidelines for 650kg suckler cow

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	DMI (kg/day)	Energy (ME MJ/day)	Crude Protein (%DM)
Early lactation	12-14	120-130	11-12
Late lactation	9-11	85-95	11
Dry	10	75-80	9

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Lactating Ration

- Need a minimum of 11% CP in overall ration
- For a 650kg cow she requires 116MJ of energy (8kg/day milk)

	Poor Silage 9ME	Average Silage 10ME	Good Silage 11ME
Silage (kg)	42	44	45
Beef Nuts (16%CP)	2.5	1.5	-
Mineral (kg)	0.15	0.15	0.15

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Draff

- Draff is the fibrous reside remaining after sugars have been extracted from malted barley
- Useful high NDF feed
- Can go off quickly if not in a pit/sheeted
- Oil content can limit its use care has to be taken not to use too much
- 2-3 kg/ 100kg liveweight can be fed a day
- Must provide mineral supplement
  - Extraction with hot water removes soluble minerals (Na, K, Mg etc.)

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Lactating Ration using Draff

	Poor Silage (9ME)	Average Silage (10ME)	Good Silage (11 ME)
Silage (kg)	38.5	40	38
Draff (kg)	10	8	8
Barley (kg)	1.2	0.5	-
Minerals (kg)	0.15	0.15	0.15

- Draff analysis used was from draff analysed in Skye last year – extremely variable and may be better feed value now

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Sheep Rations

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Pre Lambing

- Important ewes are in the right condition for lambing – assess early

  -Ideally around weaning

Target Condition Scores:

	Hill Sheep	Crossbred Sheep
Mating	2.5 – 3	3 – 3.5
Mid Pregnancy	2.5	3
Lambing	2.5	3
Weaning	2	2.5

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Body Condition Score

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- Avoid extreme fluctuations
- 1 unit = 13 % live weight
  - 75 kg ewe
  - 1 BCS = 9.8 kg
- Aim to gain ½ condition score over 60 days = 80g/day gain
- Segregate thinner ewes for better grazing or feeding

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Energy Requirements (MJ ME/day)

- 75 kg ewe:
  - Ewes in good condition losing 0.5 CS in last months of pregnancy

	Weeks Before lambing			
	8	6	4	2
Single	10	11	12	14
Twins	11	12	14	17
Triplets	12	13	15	18

Forage Supplementation

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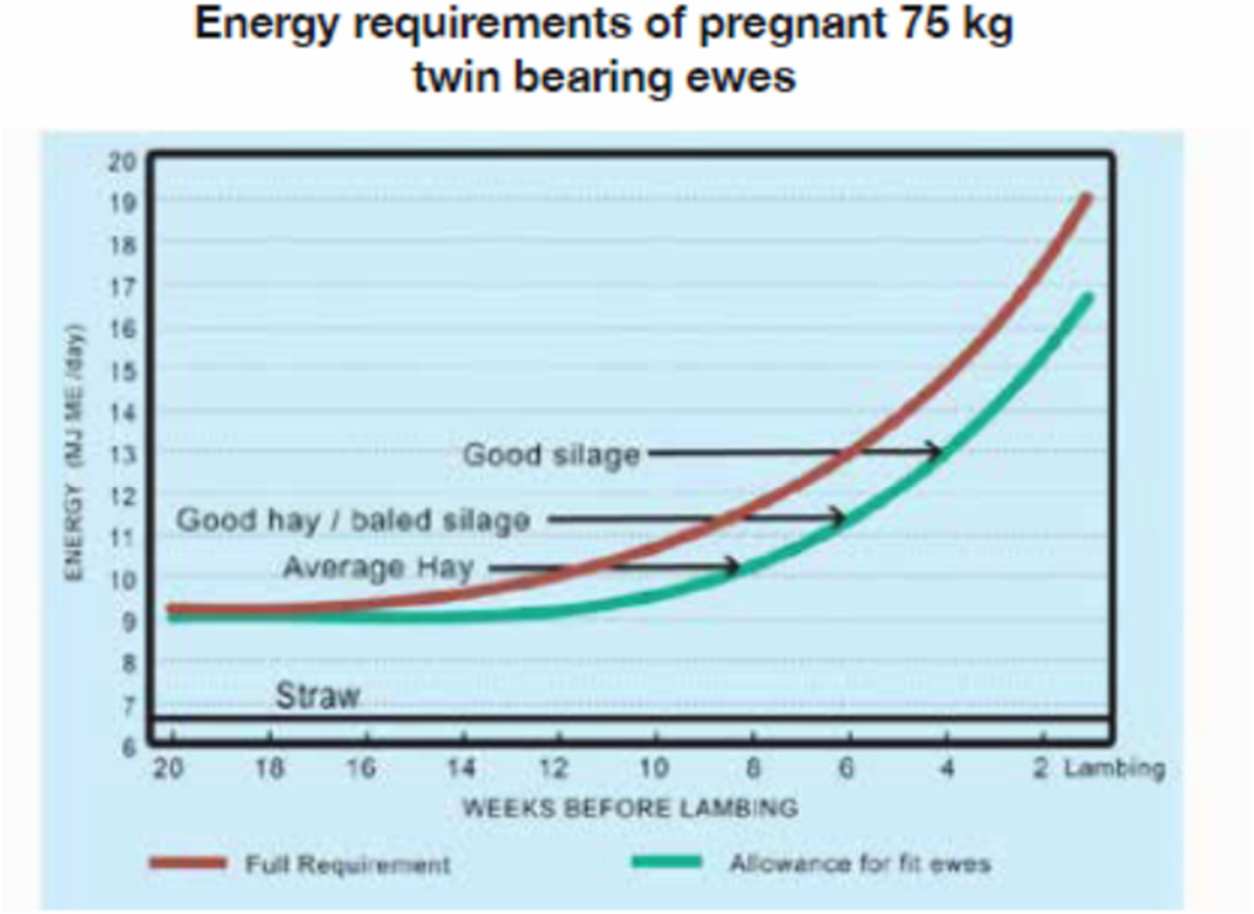

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Ration for Pregnant 75kg ewe with twins

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	Weeks before lambing			
	8	6	4	2
Hay	Ad lib			
Conc. 12.5 ME 18% CP	0.2	0.4	0.6	0.8

	Weeks before lambing			
	8	6	4	2
Average silage	Ad lib			
Conc. 12.5 ME 18% CP	-	0.25	0.45	0.6

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DUP in late pregnancy

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- Digestible undegraded protein bypasses the rumen
- In late pregnancy microbial protein is not enough
- Protein level 18% CP in compound
  - Gives no indication about quality of protein
- Feed 100g soya per lamb carried/ewe/day for last 3 weeks
- Improved colostrum quality
- Also found to reduce worm burden

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Minerals/ Vitamins

- Important for lamb vigour
- Vitamin E
  - 100 – 150 IU/kg compound feed
- Selenium
  - Works with Vit. E – high levels boost immunity
  - Shown to reduce incidence of retained placenta
  - Promote milk yield
- Iodine
  - Essential for newborn lamb to control body temperature

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Post Lambing

- If ewes on good silage with good access they will consume around 1.6% BW on a DM basis
- Ewe with twin lambs, producing 2kg milk/day require around 25MJ to maintain body condition
- Ewes reach peak milk yield between 3-4 weeks post lambing
- Housed ewes ensure ad-lib access to forage and increase the compound feed

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Lactation at grass

- Ewes at grass supplementation will depend on:
  - Ewe body condition
  - Number of lambs at foot
  - Grass quality and quantity
- Set stocked ewes won't require additional feeding if grass above 4cm
- When grass quality or quantity is poor, continue feeding ewes 3-4 weeks after lambing
- Magnesium deficiency (grass staggers) problem in peak lactation especially if ewes turned out on lush spring grass
  - Provide Mg supplement
  - Include 0.7% Mg in the concentrate feed

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Take away messages:

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- Plan ahead
- Assess condition of your stock early and regularly
- Get your forage analysed – know what you're feeding to make the most of what you have
- Prioritise animals and match what you have to what needs it
- Adjust rations for lactation
- Ensure you are meeting energy and protein requirements for lactation
- Don't forget about minerals/vitamins

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Thank You

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