

“To Cut or Not to Cut” BestWool/BestLamb Phone Seminar

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Notes for: Should I cut my pasture or crop for silage or hay? What is the true cost of the silage or hay when feeding it back to the stock?

1. Should I cut my pasture or crop for hay or silage?

In the wetter parts of the state this question will need to be answered by what are the growing conditions like currently and is there a need to conserve feed for later on to fill feed gaps. Also a consideration for the type of pasture or crop that you have in mind and will they be better suited to silage or hay being made in terms of quality.

If you have annual crops like cereals or annual ryegrass then a choice has to be made between making silage earlier for higher quality or waiting longer for a higher yield but poorer quality hay to be made. Making silage early will allow for some chance of regrowth occurring with follow up rain, but this is mainly with annual ryegrass type crops. Making silage early also allows for a follow up summer crop to be sown while there is still a chance of moisture being in the ground or from follow up rainfall. A hay crop would push back the follow up sowing date of a summer crop and make it more risky for it to germinate and grow.

For perennial pasture or crops the best option for longer term growth and quality is generally the making of silage. This can allow the pastures to continue to grow into summer and respond to any rain that falls. Pastures will a greater tiller density if they are locked up for a short time and cut early compared with a long shut up time and late cutting. Silage conservation is used as a tool to assist in maintaining the quality of pasture over the whole farm. If you do not have a genuine surplus of pasture then you shouldn't be conserving any silage. Therefore if the surplus pasture occurs late in spring, your best option is really only to make hay or to top to maintain pasture quality. If it is very late before a surplus occurs and there is a low likelihood of rain over summer you may not make any silage or hay.

In summary then you need to work through the following steps to determine whether you will or need to conserve silage or hay:-

- Do you have an annual crop or pasture that will need sowing down to a summer crop or left fallow.
- Will you have surplus pasture or crop sometime throughout spring to early summer? If you do then making silage or hay can help to maintain quality of pasture over the whole farm. If not then only topping or grazing only may be required over this time.

- An early surplus of pasture/crop can be conserved as high quality forage compared to later cut forage like hay. Silage can be used in a different manner to conserved hay due to the quality difference.
- Silage making is more costly than hay but it is a higher quality feed and is able to be made earlier when wet conditions could be an issue for drying.

2. What is the real cost of the silage or hay I have made?

If, after looking at your situation you have decided to proceed with conserving silage or hay to aide in controlling pasture quality and to transfer a surplus of feed to another time of the year when home grown feed is more scarce, then what is its real value when fed?

To determine this you need to look at the following costs to producing and feeding the silage or hay – a) For Annual Pasture/Crop:-

- Cost of spraying and cultivating
- Cost of sowing and seed
- Cost of fertiliser applied
- Cost of weed and pest control
- Cost of mowing and raking
- Cost of baling, wrapping or putting in a pit (with cover)
- Wastage in conserving and feeding out

The higher the amount of high quality forage conserved and able to be fed, the lower the cost of every kilogram of dry matter or MJ energy. Using contract rates for each of these operations is going to give you a more realistic value, as it includes a labour component of doing the jobs. Also note that the cost of establishment, fertiliser used, pest and weed control is spread over the whole period of growth of the annual pasture/crop so is diluted by the total amount of dry matter grown and used (grazing and silage).

For a perennial pasture/crop the situation is different with the establishment costs having been spread out over a period of years. This would almost see these costs as being quite small if spread over 6 or more years. Therefore the main costs to include in the calculation of the value of the silage or hay is:-

- Cost of fertiliser applied
- Cost of weed or pest control
- Cost of mowing and raking
- Cost of baling, wrapping or putting in a pit(with cover)
- Wastage in conserving and feeding out

The conservation costs are the main ones to include here but with fertiliser and pest control etc used to generate the silage or hay. As perennial pasture may grow over a period of 12 months with a number of grazings.

So let's look at two examples of how the cost of the feed conserved can be calculated on a per hectare basis.

The first is for the making of silage in two situations –

Silage Example

Cost Areas	Annual Pasture/Crop (Ann Ryegrass)	Perennial Pasture/Crop
Cost of spraying & cultivating (\$)	488 X 0.43 = 210	0
Cost of seed and sowing (\$)	200 X 0.43 = 86	0
Cost of fertiliser applied (\$)	255 X 0.43 = 110	55
Cost of weed and pest control (\$)	41	41
Cost of mowing and raking (\$)	144	144
Cost of baling, wrapping etc (\$)	330	330
Total per hectare (\$)	921	570

The silage crop is presumed to be a 3 tonne dry matter per hectare one and of 9.5 MJ/kg DM when made. Note only a proportion of the cost relating to the establishment etc have been included for the annual crop part due to other feed being grazed off. It works out to around 11 bales of silage per hectare being made.

If there is wastage of around 20% of the dry matter in the silage making process etc then actual useable silage DM is 2,400 kgs per hectare. Therefore the cost is $921 \div 2,400 = 38\text{c/kg DM}$. This works out to be $38 \div 9.5 \text{ MJ/kg DM} = 4.0 \text{ c/MJ}$ for the annual crop silage and 23.8 c/kg DM or 2.5 c/MJ for the perennial pasture option.

Now for the hay making option where a longer lock up time is involved and higher yield of lower quality feed produced. This may look like this:-

Hay Example

Cost Areas	Annual Pasture/Crop (Ann Ryegrass)	Perennial Pasture/Crop
Cost of spraying & cultivating (\$)	488 X 0.71 = 346	0
Cost of seed and sowing (\$)	200 X 0.71 = 142	0
Cost of fertiliser applied (\$)	255 X 0.71 = 181	55
Cost of weed and pest control (\$)	41	41
Cost of Mowing and Raking (\$)	81	81
Cost of baling and storage (\$)	350	350
Total per hectare (\$)	1,141	527

The hay crop is presumed to be around 5 tonne dry matter per hectare and of 8.0 MJ/kg DM quality. A total growth of around 7 tonne is presumed to have been grown before the crop finished. Note only the proportion of the cost relating to the hay making dry matter has been used from the establishment cost in the annual crop situation. It is assumed around 23 bales are made per hectare for this example.

If there is wastage of 20% for feeding out etc then the actual useable hay is 4,000 kg DM per hectare. Therefore the cost is $1,141 \div 3000 = 38$ c/kg DM or 4.75 c/MJ for the annual crop option. The perennial pasture example works out to be $527 \div 4000 = 13$ c/kg DM or 1.6 c/MJ.

So it can be seen that the effect of making a high quality product can reduce the cost per megajoule. For example the silage figures above would change if the actual silage quality was 10.5 MJ/kg DM and not 9.5. The cost would be 2.3 c/MJ at the higher energy content for the perennial pasture option.

If wanting to sell the silage or hay the true figure that these should be sold would be on the basis of minimum costs incurred to produce a megajoule, as this accounts for the energy contained in the dry matter proportion of the conserved forage. If it was based on the dry matter then you would sell the silage at \$307 per tonne DM for the annual crop example and \$190 per tonne DM for the perennial situation. These figures equate to the following costs on a cents per megajoule basis 3.2 (annual) and 2.0 (perennial). This figure is lower as the wastage figure only comes into play when you are feeding them out. The same guidelines would be used for the hay that was made. This enables the person making the fodder to at least cover their costs of conservation etc.

Those with cereal crops that were sown for grazing and potential silage/hay, the decision as to when to cut will be determined by what will happen to this area after cutting and what the intended use is for the conserved feed. Mostly if there is a chance of rain in late spring and into summer a summer crop will be sown and would need to be in the ground by early November. This would mean making whole crop silage. If this is not the intention then cutting the crop for hay will provide a reasonable quality, if grain stays on during the process, but will lead to there being a low chance of sowing anything else before the autumn break. It will also mean there needs to be suitable weather for the drying of the hay crop. Yields may be slightly higher but more fibre in the feed. So the specific requirement for the conserved feed needs to be sorted as well.

All the above factors need consideration before making the decision to cut or not. When the decision has been reached then the timing and the quality of the execution will play a big role in whether you achieve the desired outcome for your pastures/crop and the conserved feed made.