

Field assessment of silage

Field assessment of silage is not a substitute for a laboratory test, but it is a good starting point for identifying problems in the silage-making process. A field assessment will provide valuable additional information that will not be recorded on the laboratory test.

Making a field assessment:

Step 1: Collect a sample of silage that is representative of what is to be fed to the animals.

Step 2: Make an assessment of the silage on physical appearance and texture.

Step 3: Make an assessment of the silage on the basis of colour.

Step 4: Make an assessment of the silage on the basis of the aroma of the silage.

Note: It is strongly recommended that the silage is not tasted as it may contain undesirable bacteria, yeasts and moulds.

Physical Appearance and Texture	Silage Characteristics and Interpretation
Leafy, soft texture	Likely to have high ME. Crude protein is probably high. ME for leafy tropical pasture silages is lower than for temperate pasture silages at the same growth stage.
Leafy, but leaves more fibrous	Lower digestibility and ME. More typical of tropical grasses.
Stemmy, fibrous; seed heads present	If high proportion of stems/or seed heads are present, ME and crude protein are likely to be low. Crop cut too late.
Proportion of legume present in silage	As the proportion of legume increases, silage crude protein content (and often ME content) will increase.
Presence of mould or rotten silage	Air has entered the silage. DM has been lost and silage quality (ME content) will have declined during storage.
Very wet; effluent seeping from stack or ponding in bottom of wrapped bales.	Moisture easily squeezed out of the silage. Forage was ensiled at too low a DM content. There is a high risk of poor fermentation and significant losses (quality and quantity).
Very dry, even brittle	Silage was ensiled at too high a DM content. The forage was probably poorly compacted and there is a high risk of overheating during storage, increased silage losses, reduced ME and protein degradation.

The information in this silage note is taken from the *Successful Silage* manual.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (May 2008). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.

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Colour	Silage Characteristics and Interpretation
Very dark olive green	Weather damaged, and/or very wet silage with a poor fermentation. Sour or putrid aroma. Usually occurs if high legume content, or immature grass that may have been fertilised with a high rate of nitrogen.
Dark olive green/brown	Normal colour for wilted legumes, which are usually a darker colour than grass silages.
Light green to green/brown	Normal colour range for grass, cereal and maize silages.
Pale green/straw yellow	Normal colour range for wilted grass silages. Heavily wilted silages with restricted fermentation tend to be greener.
Light amber brown	Typical of late-cut grass and cereal silages. Can occur with low DM silages, and weather-damaged grass silages. Bottom layer of wet silage can be yellow with fruity aroma.
Brown	Some heating has occurred during storage or due to aerobic spoilage during feedout. Some loss in digestibility and heat damage of protein. More common with wilted silages.
Dark brown	More extensive heating. May also be some black patches of silage on the surface. Significant loss in digestibility and high proportion of protein is heat damaged and unavailable to the animal. Inadequate compaction, delayed sealing or poor air exclusion. Usually accompanied by significant proportion of waste (mouldy) silage.
Aroma	Silage Characteristics and Interpretation
Mild, pleasantly acidic, sour milk or natural yoghurt smell	Normal lactic acid fermentation – desirable.
Very little smell, but slight sweet aroma	Heavily wilted silage with little fermentation, especially from crops with low sugar content. Stronger aroma as DM content falls.
Sweet, fruity alcoholic aroma	Yeasts have played an active role in the fermentation. Ethanol levels high. These silages are often unstable during feedout.
Sour vinegar smell	Poor fermentation dominated by bacteria producing acetic acid. Common with low DM, low sugar forages.
Rancid butter, putrid aroma	Poor fermentation dominated by clostridia bacteria that produce high levels of butyric acid. Silage wet and sometimes slimy. Rub silage between fingers, warm the hand for a few seconds and then smell. The presence of butyric acid is easily detected. Not a common problem in Australia.
Strong tobacco or caramel smell, with flavour of burnt sugar	Heat damaged silage, dark brown in colour. Often palatable to stock but nutritive value very low.
Musty or mouldy aroma with only mild fermentation aroma	Mouldy silage due to poor compaction and sealing. Also evident in aerobically spoiled silage, which can be warm and have a compost aroma.