

## Managing sheep on stubbles

Sheep are an important part of Nick Correll's farming system because of the diversification they offer.

Stock have some impact on a no-till system but Nick is willing to compromise and accept relatively minor impacts in the areas of soil compaction, reduced effectiveness of some herbicides and disturbance of weed seeds as trade-offs against the benefits of having animals in his farming system.

Nick has property at Lochiel, in the Lower North, and in the South East and the sheep spend periods on both at different times of the year.

Cereal and legume stubbles are the main feed source for sheep on the Lochiel property during summer and autumn. Lambs are transferred from the South East property to graze the Lochiel stubbles before most of them are finished in a finished in a feed lot.

Nick focuses on meat production and requires lambs to gain weight while on the stubbles, not just maintain weight. Stubble quality varies from year to year so it is important to Nick that he knows how much grazing value is in a stubble paddock. If a paddock is grazed two or three weeks too long the lambs may lose weight gained and be back to their starting

weight by the time they are removed.

It is important paddocks not be over-grazed, he said, and stubble in grazed paddocks still needs to be managed to accommodate the cropping program, whether by reaping lower to leave shorter straw or by slashing before or after grazing.

### Stubble quality

After the 2010 harvest a 38ha paddock of Gladius wheat stubble was monitored from December to March to determine what was happening to the quantity and quality of the feed in the paddock. After the monitoring period the stubble was slashed in March ahead of seeding. The paddock was then sown to crop using a John Shearer universal bar with knife points on 250 mm row spacing and press wheels without any trash clearance issues.

The Gladius crop, which yielded 5 t/ha, was harvested in early November using machine fitted with spinners but without the capacity to handle large amounts of straw.

The following rainfall was recorded during the monitoring period.

December	98mm
January	5mm
February	44mm
March	51mm

### Quality

A stubble comprises components with different nutritional values (Table 1). Grain and palatable green weeds (in this case, volunteer wheat) are the most nutritious elements, followed by dry leaf material, chaff and stem.

**Sheep will generally maintain or gain weight while there is grain or palatable green feed in stubble.**

Where there is only dry matter that is less than 50-55% digestible – seven to eight units of metabolisable energy (ME) – stock will lose weight because the low palatability and digestibility and the high fibre content of stem and leaf material reduces feed intake. Consequently, the animals are unable to take in enough poor quality feed to meet their nutritional requirements. In such a paddock stock would need to be fed a supplement to maintain weight after they had eaten the grain and green.

Summer rainfall can reduce the quality of dry feed but can also result in additional good-quality feed in the form of new growth that occurs as a result of the moisture.

Tests on the Gladius stubble showed that there was no decline in feed quality over time or after rainfall events. This could be because the quality of the stem and leaf was very poor to start with.

The feed quality of summer weeds declines as the plants mature. In this paddock the volunteer cereals provided good-quality feed while green but the vegetation lost quality once the grain formed and the nutrients were diverted into the seed. As a result the feed quality accumulated in the newly formed grain. If the green growth had been sprayed before the plants ran to head the feed quality of the vegetation would have been maintained at a higher level.



GLADIUS WHEAT STUBBLE AT LOCHIEL.

Analysis	Stubble component	Analysis date			
		13/12/2010	14/01/2011	17/02/2011	15/03/2011
<b>Metabolisable energy (ME) (MJ/kg)</b> 8ME is required to maintain body weight. More than 8ME is required for growth	Stem	4.6	4.7	5.2	4.7
	Leaf	6.2	6.2	6.8	7.4
	Chaff	5			
	Wheat	12.9			
	Wheat heads			10.8	
	Volunteer wheat	10.9	9.8	6.45	
<b>Protein %</b> <b>8% is required to</b> maintain body weight. More than 8% is required for growth	Stem	1	2.6	3.5	2.5
	Leaf	4.8	7.1	5.7	7.6
	Chaff	1			
	Wheat	12.9			
	Volunteer wheat	29.8	19.8	5	
	Wheat heads (volunteer)		12.3		
<b>Neutral detergent fibre (NDF) %</b> (30-40% is ideal for sheep)	Stem	85	84	84	87
	Leaf	70	62	70	62
	Chaff	88			
	Wheat	9.5			
	Volunteer wheat	42.4	60.7	80	
	Wheat heads (volunteer)		36		

TABLE 1. FEED ANALYSIS RESULTS

**Quantity**

The quantity of stubble is important because it impacts directly on how much feed is available and the erosion protection available for soil surface.

The dry weight of the stubble in the Lochiel paddock immediately after harvest was 5,802 kg/ha, which consisted of 2.6% grain, 1.4% green feed, 20% leaf and 76% stem and chaff.

By the last assessment in March there was 4,466 kg/ha of dry matter; mainly stem and leaf because the grain and green had been eaten by the sheep or mice.

These measurements show that the amount of dry matter present decreased by 23% over the four months of monitoring. It is estimated that the sheep would have consumed only about 4% of the total dry matter present at the outset, with the other 19% attributable to natural break down. Graphs 1 and 2 show how the stubble and grain components declined over time.

Volunteer cereals that germinated in early December provided 85kg/ha of dry matter equivalent before haying off by the middle of February. They also produced 20kg of grain per ha, all of which was eaten by mice in February and March.

The quantity of stubble in this paddock was sufficient to provide ground cover and potentially a huge source of feed. However the feed quality was poor and most of the stem and chaff were not consumed. The lambs were removed from the paddock on February 8; a decision supported by the monitoring later in the month, which showed there was only 32kg/ha of grain remaining in the paddock and no green feed. This indicates there was little-high quality feed remaining and if they had been left in the paddock the lambs would have gained little if any weight.

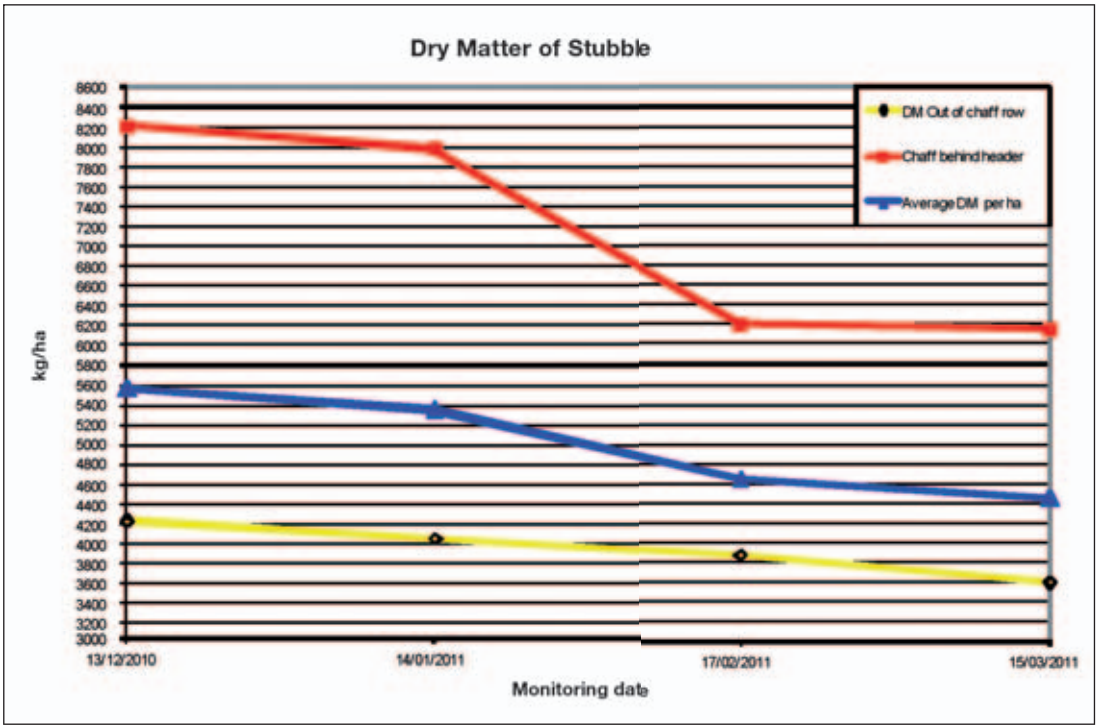
**Work from a ‘Grain and Graze’ project showed that sheep lose weight on cereal stubbles with less than approximately 40kg/ha grain or 40kg/ha of green material. Local experience suggests this cut-off point may be nearer to 100-130 kg grain/ha.**



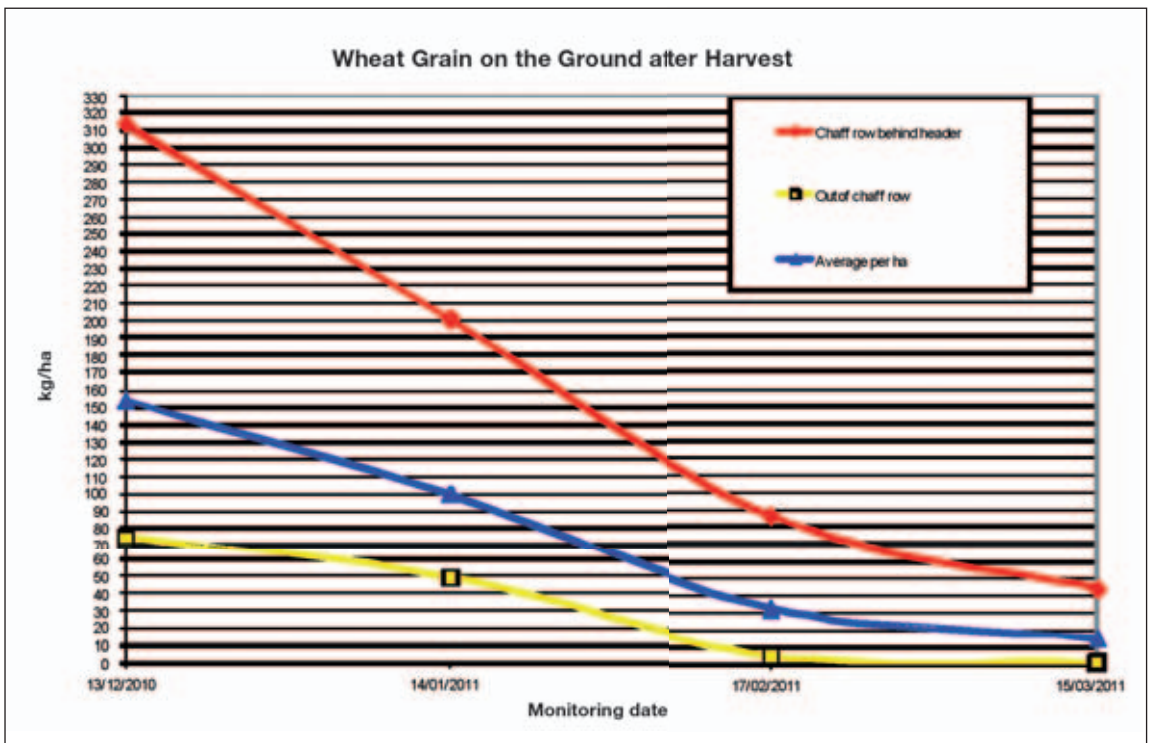
GREEN VOLUNTEERS CAN PROVIDE A SIGNIFICANT AMOUNT OF GRAZING WITH GOOD FEED VALUE.

**Surface cover**

Adequate surface cover was maintained at each monitoring date, indicating grazing did not affect the surface cover levels. Because the harvester could not handle spreading large amounts of straw, there was about 20% more cover directly in the header path (Table 2).



GRAPH 1. STUBBLE DRY MATTER AT EACH MONITORING DATE



GRAPH 2. GRAIN ON THE GROUND AT EACH MONITORING DATE

Monitoring date	Stubble height (cm)	% Cover out of chaff row	% Cover behind header
13/12/10	44.5	77	99
14/1/11	44	80	99
17/2/11	42.7	79	98
15/3/11	42.4	84	98

TABLE 2. SURFACE COVER