LIVESTOCK
FEED ON OFFER
ASSESSMENT GUIDE

DYNAMIC AG CONSULTANCY
Livestock Nutrition, Health & Management

YARRILINKS LANDCARE

WARRACKNABEAL BESTWOOL BESTLAMB

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FUNDING

Project funded from National Landcare Programme, Sustainable Agriculture Small Grants
Testing and sampling completed by Warracknabeal Best Wool Best Lamb Group and Yarrilinks Landcare with consultancy and testing conducted by Dynamic Ag.

Australian Government | National Landcare Programme

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INTRODUCTION

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The following guide has been developed to help farmers determine the most productive grazing strategy for cropping and livestock farms. This information builds on the Lifetime Ewe Management Program where there is a gap in literature for low rainfall mixed farming enterprises.

Identifying and making use of all grazing opportunities is key to improving outcomes on any farm, but is especially important in areas affected by drought. Through careful planning, crops can offer vital nutrition to livestock after harvest (Stubble Grazing), as well as during the growing season (Green Grazing).

Grazing cereal and pulse stubble can provide a valuable food source for livestock, particularly from any spilt grains and green weeds. There is also an opportunity for grazing prior to Growth Stage 31 with minimal to no effect on crop yield. This 'Green Grazing' offers an energy efficient Feed On Offer, as well as a number of other substantial benefits.

As nutrient values of the feed differ depending on the crop type and growth stage, it is imperative to understand the Feed On Offer (FOO) rating and the impact grazing will have on a particular crop.

This guide helps assess Feed On Offer during the growing season and calculate residual grain in a stubble paddock. With a better understanding of grazing strategies, farmers can make accurate and timely decisions on when to graze, how long for and the number of livestock to carry.

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HOW TO USE THIS GUIDE

1

IDENTIFY YOUR CROP TYPE

Use the reference photos in this booklet to visually match your crop to the sample highlighted.

2

CHECK THE FOOD ON OFFER

Reference the results table and FOO rating on the photo that best matches your crop type

3

CREATE A GRAZING BUDGET

Determine the stocking rate and number of grazing days for your crop.

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POINTS TO CONSIDER

Here's what to keep in mind when creating your Green Grazing budget:

- The Dry Sheep Equivalent (DSE) rating of your sheep
- 1 DSE = 45-50kg weather bare shorn 2-year-old condition score 3
- Introducing sheep to paddock when the crop is well anchored. Use twist and pull test to confirm anchorage.
- Your crop growth rate
- The likely timing of 'Growth Stage 31'
- The size of your paddock (check for uneven grazing in areas of the paddock)
- Your stocking rate
- Ensuring residual plant matter is left for regrowth

DSE LOOK UP TABLE

The table below shows Dry Sheep Equivalents (DSE) for different classes of sheep.

Note that 1 DSE is equivalent to a mature Merino Wether or Dry Ewe weighing 45kg and maintaining its weight. DSE values for Fibre Goats (Angora and Cashmere) may be assumed to be similar to that of a sheep with equal live weight and physiological state.

	Sheep – Crossbreds		Sheep – Merinos	
Weaned lambs			15 kg	25 kg
Gaining 100 g/day			0.9	1.2
Gaining 200 g/day			1.4	1.8
Mature sheep	70 kg	60 kg	40 kg	50 kg
Dry ewes, store wethers	1.3	1.2	0.9	1.1
Gaining 50 g/day			1.2	1.4
Gaining 100 g/day			1.5	1.7
Pregnant ewes, first 3 months	1.5	1.4	1.0	1.2
Pregnant ewes, last 2 months weeks bearing single lambs	2.4	2.2	1.4	1.6
Pregnant ewes, last 2 months weeks bearing twins	3.2	3.0	1.8	2.0
Ewes with single lamb at foot 1st 2 months lactation	2.4	3.0	2.4	3.1
Ewes with twin lamb at foot 1st 2 months lactation	3.6	3.3	2.8	3.3

Source: Agriculture.vic.gov.au website

UNDERSTANDING THE FEEDTEST REPORT

The following notes explain each component of the results table on each of the sample photos.

	DM	Moist	CP	NDF	DOMD	ME
Barley La Trobe	**13.5**	**86.5**	**35.7**	**33.6**	**83.6**	**14.0**

Dry Matter (DM) – Dry Matter refers to the amount of material (feed) left after water has been removed by oven drying. This is expressed as a percentage of the original sample. It is the Dry Matter component that contains all of the energy, protein, fibre and minerals; and, because the moisture content of plants differ, all analyses are conducted on Dry Matter. As pasture quantity is measured as kg DM/ha, there is no requirement to convert your 'Feed Logic' figures to 'As Fed' figures.

Crude Protein (CP) – Crude Protein measures the amount of True Protein (Amino Acids) and Non-protein Nitrogen. This is expressed as a percentage of Dry Matter. Since proteins contain around 16% Nitrogen on average, the Nitrogen value is multiplied by a factor of 6.25 to calculate the Crude Protein content. Because CP indicates both True and Non-protein Nitrogen, it does not provide information regarding the quality or availability of the protein in a particular feed – it is a crude value.

Moisture (Moist) – Moisture is a measure of the amount of water in the feed. This is determined by weighing the sample as it enters the lab; then oven drying and weighing the sample a second time once the moisture has been removed. Moisture varies according to the crop type, which is typically 10% for grains and upwards of 50% for silage, fresh pasture and some hays.

Neutral Detergent Fibre (NDF) – NDF is expressed as a percentage of dry matter, and is a measure of the total cell wall material or plant structure in the feed. It is comprised of the Acid Detergent Fibre (ADF) fraction (cellulose and lignin) as well as hemicellulose, and this value reflects the amount of forage an animal can consume. As NDF percentage increases, dry matter intake will generally decrease.

Digestibility of Organic Dry Mater (DOMD) – DOMD is the portion of the organic dry matter that can be digested by the animal and is expressed as a percentage of dry matter. This parameter objectively measures the quality of the feed and takes into account the inorganic matter, ash, which is made up of sand and dirt. This component is calculated by an industry agreed equation that relates DOMD to Digestible Dry Matter (DDM).

Metabolisable Energy (ME) – ME is the amount of energy present in the feed that is available to an animal for maintenance and growth. It is calculated from the digestibility of organic dry matter (DOMD) and expressed as megajoules per kilogram of dry matter (MJ/kg DM). Use the ME figure given in the FeedTest report to determine if your stock are receiving adequate energy for growth based on their nutritional requirements. If feeding to stock, use the "as fed" figures to calculate requirements.

Notes:

- Ring size = 0.1M2
- All plant material was harvested to ground level, using electric shears
- Samples were refrigerated and sent to FeedTest Werribee
- FOO samples were oven dried to constant weight, weighed and then converted to a kilograms per hectare Dry Matter figure (kg DM/ha)
- Samples for quality analysis were selected at random from the paddock and sent to FeedTest Werribee

‘GREEN GRAZING’

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Allowing stock to graze green crops prior to Growth Stage 31 helps to ease grazing pressure and build a pasture feed wedge. The new growth is nutrient dense and offers better energy conversion than during Stubble Grazing. The residual plant matter left by livestock will keep sprouting and promote further growth.

Grazing winter cereals offers a number of significant advantages:

- Increase the productivity of a mixed enterprise farm
- Fill a feed gap for Autumn lambing
- Provide a more energy efficient Feed On Offer (FOO)

Green Grazing also comes with some important health considerations due to nutrient values being different to that of a crop once it is stubble. Planning ahead can help avoid any adverse health effects when Green Grazing.

The following information is intended as a guide only. Consult your veterinarian or animal health care provider for specific advice relating to your operation.

Health Considerations of Green Grazing

1. Nutrient Imbalance

Winter cereal crops (especially wheat) commonly have an imbalance of nutrients, which can impact the health of livestock. Most cereals are found to have low calcium and sodium levels, and high levels of potassium and phosphorus. While, compared to grasses, Brassica crops and Legumes (such as Lucerne) are generally higher in calcium.

As a general rule, sudden dietary changes should be avoided, especially in the lead up to lambing or calving.

Common Health Considerations:

- High potassium levels can interfere with magnesium absorption and can cause metabolic disturbances in ruminants (Grass Tetany).
- Low calcium intake leading up to lambing or calving can also cause the syndrome 'Hypocalcaemia', which, in turn can lead to Pregnancy Toxaemia (Twin Lamb Disease).

To overcome these deficiencies, farmers should discuss a treatment plan with their vet. This may include supplementing calcium, sodium and magnesium with a simple loose lick, and providing roughage to animals by adding hay or straw.

Injections of calcium, energy and salt can also be administered for animals that are suffering metabolic disorders.

2. Risk of Pulpy Kidney

Cereal crops are highly digestible during vegetative growth, which presents a risk of causing Enterotoxaemia (Pulpy Kidney). Stock that are to be introduced onto a cereal crop should be vaccinated at least two weeks prior to grazing, regardless of their previous vaccination history.

3. Risk of Scouring

Vegetative cereal crops have a high moisture content (80-85%), which can cause sheep to scour. Offering roughage, such as straw or hay, can help reduce the possibility of scouring. Although, it's important to note that adding a high fibre and low digestible hay will reduce the intake of the crop – possibly resulting in decreased weight gains or under-utilisation of the crop.

Scouring as a result of a bacterial gut infection or internal parasites should be investigated if animal performance is compromised.

4. Risk of Nitrate Poisoning

Nitrate/Nitrite poisoning can occur if the stock grazes within 14 days of a urea application. To avoid toxic levels of exposure, it is best to wait 21 days before allowing stock into the paddock, and for only a few hours at a time over the course of 3-4 days so that any adverse effects are picked up early.

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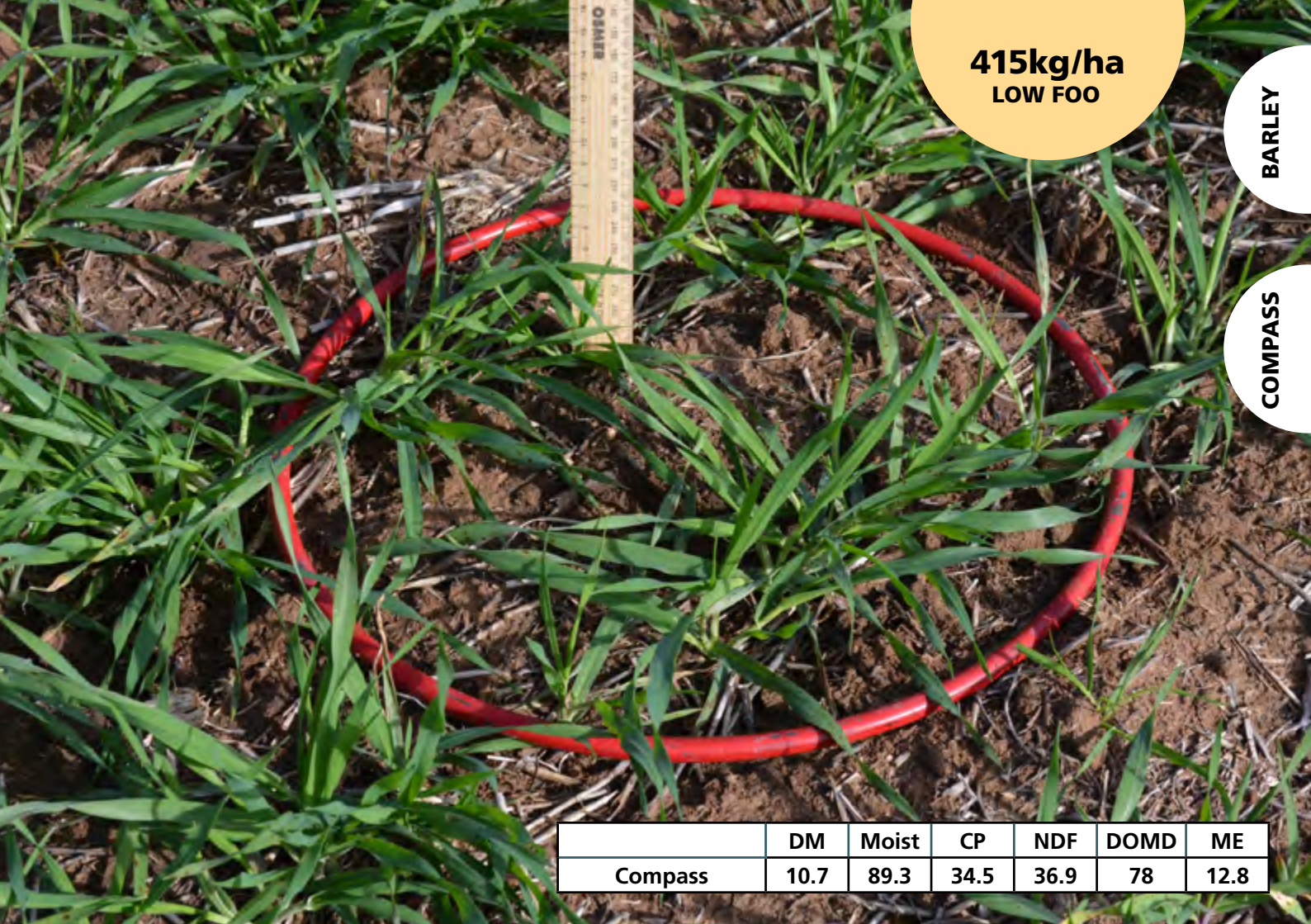


	DM	Moist	CP	NDF	DOMD	ME
Compass	10.7	89.3	34.5	36.9	78	12.8

BARLEY

COMPASS

1255kg/ha
MEDIUM FOO

	DM	Moist	CP	NDF	DOMD	ME
Compass	10.7	89.3	34.5	36.9	78	12.8

	DM	Moist	CP	NDF	DOMD	ME
Compass	10.7	89.3	34.5	36.9	78	12.8

BARLEY

HINDMARSH

465kg/ha
LOW FOO

	DM	Moist	CP	NDF	DOMD	ME
Hindmarsh	11.1	88.9	31.7	42.1	66.8	10.6

	DM	Moist	CP	NDF	DOMD	ME
Hindmarsh	11.1	88.9	31.7	42.1	66.8	10.6

BARLEY

HINDMARSH

1160kg/ha
HIGH FOO

	DM	Moist	CP	NDF	DOMD	ME
Hindmarsh	11.1	88.9	31.7	42.1	66.8	10.6

415kg/ha
LOW FOO

BARLEY

HINDMARSH

	DM	Moist	CP	NDF	DOMD	ME
Hindmarsh	11.7	88.3	35.7	37.5	78.2	12.9

BARLEY

HINDMARSH

630kg/ha
MEDIUM FOO

	DM	Moist	CP	NDF	DOMD	ME
Hindmarsh	11.7	88.3	35.7	37.5	78.2	12.9

	DM	Moist	CP	NDF	DOMD	ME
Hindmarsh	11.7	88.3	35.7	37.5	78.2	12.9

BARLEY

HINDMARSH

255kg/ha
LOW FOO

	DM	Moist	CP	NDF	DOMD	ME
Hindmarsh	12.1	87.9	37.5	33	33	13.4

680kg/ha
MEDIUM FOO

BARLEY

HINDMARSH

	DM	Moist	CP	NDF	DOMD	ME
Hindmarsh	12.1	87.9	37.5	33	33	13.4

BARLEY

HINDMARSH

1335KG/HA
HIGH FOO

	DM	Moist	CP	NDF	DOMD	ME
Hindmarsh	12.1	87.9	37.5	33	33	13.4

	DM	Moist	CP	NDF	DOMD	ME
La Trobe	10.3	89.7	35	36.6	81.2	13.5

BARLEY

LA TROBE

550kg/ha
MEDIUM FOO

	DM	Moist	CP	NDF	DOMD	ME
La Trobe	10.3	89.7	35	36.6	81.2	13.5

2450kg/ha
HIGH FOO

BARLEY

LA TROBE

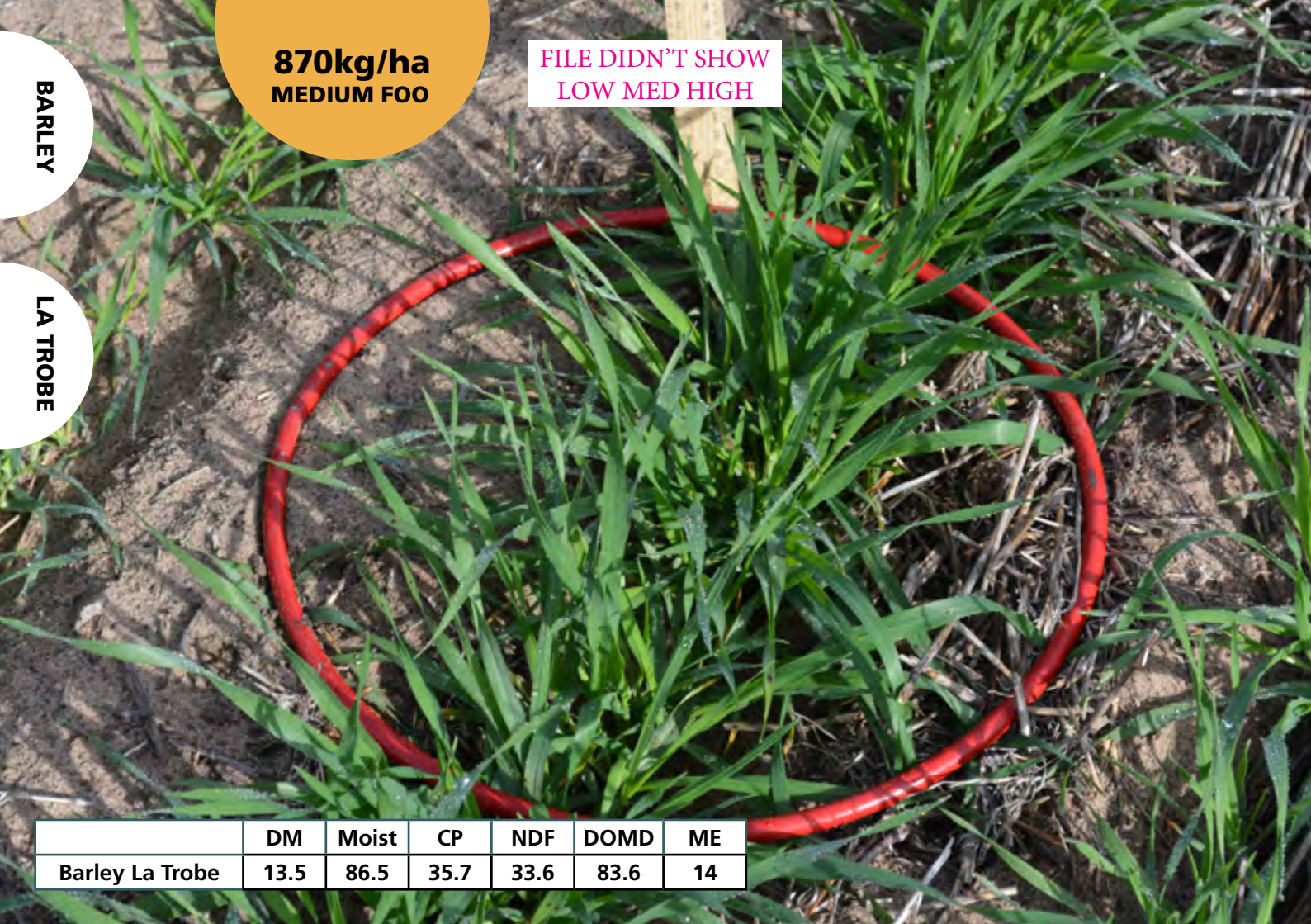
	DM	Moist	CP	NDF	DOMD	ME
La Trobe	10.3	89.7	35	36.6	81.2	13.5

BARLEY

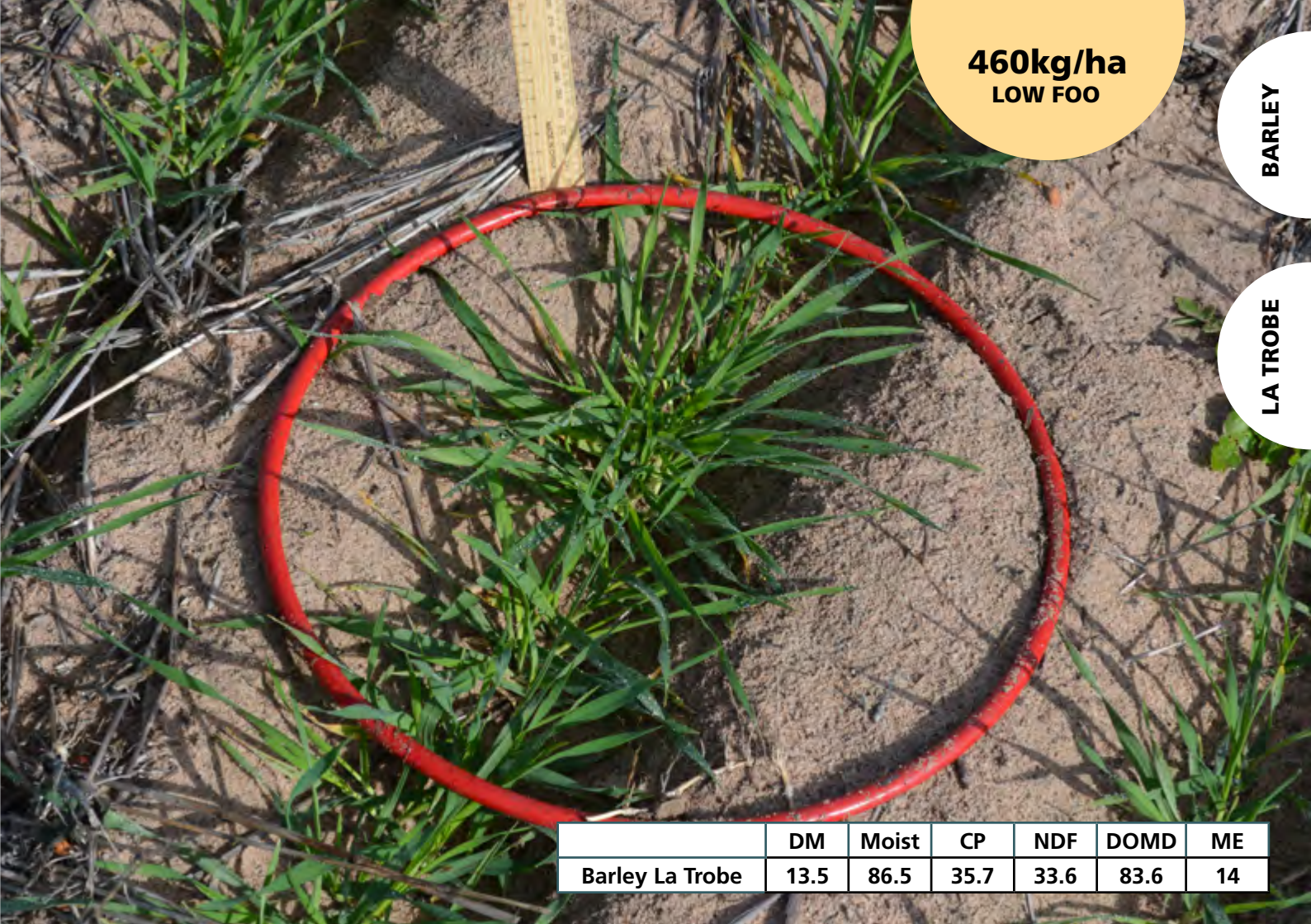
LA TROBE

870kg/ha
MEDIUM FOO

FILE DIDN'T SHOW
LOW MED HIGH



	DM	Moist	CP	NDF	DOMD	ME
Barley La Trobe	13.5	86.5	35.7	33.6	83.6	14

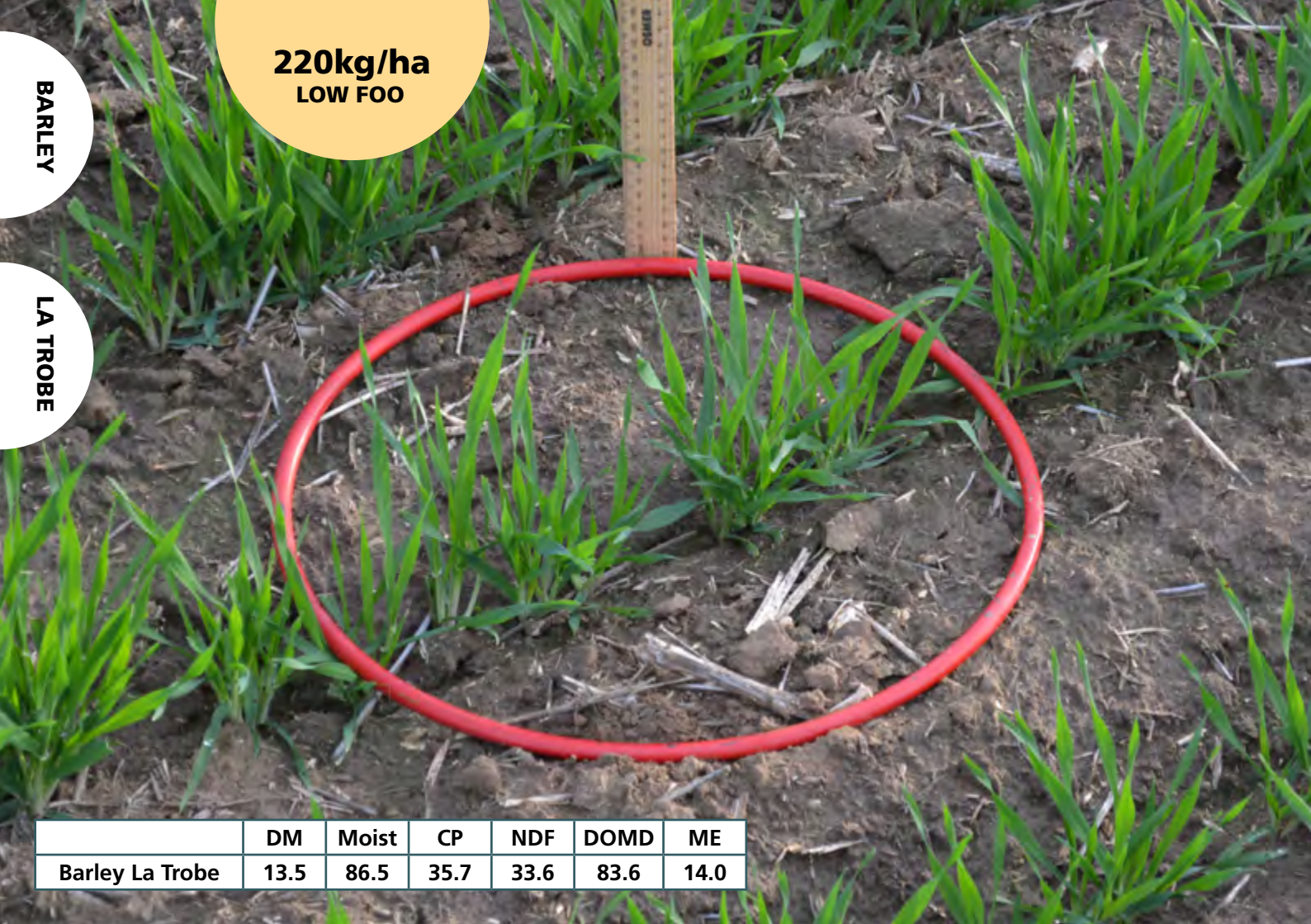


	DM	Moist	CP	NDF	DOMD	ME
Barley La Trobe	13.5	86.5	35.7	33.6	83.6	14

BARLEY

LA TROBE

220kg/ha
LOW FOO



	DM	Moist	CP	NDF	DOMD	ME
Barley La Trobe	13.5	86.5	35.7	33.6	83.6	14.0

1000kg/ha
MEDIUM FOO

BARLEY

LA TROBE

	DM	Moist	CP	NDF	DOMD	ME
Barley La Trobe	13.5	86.5	35.7	33.6	83.6	14.0

	DM	Moist	CP	NDF	DOMD	ME
Barley La Trobe	13.5	86.5	35.7	33.6	83.6	14.0

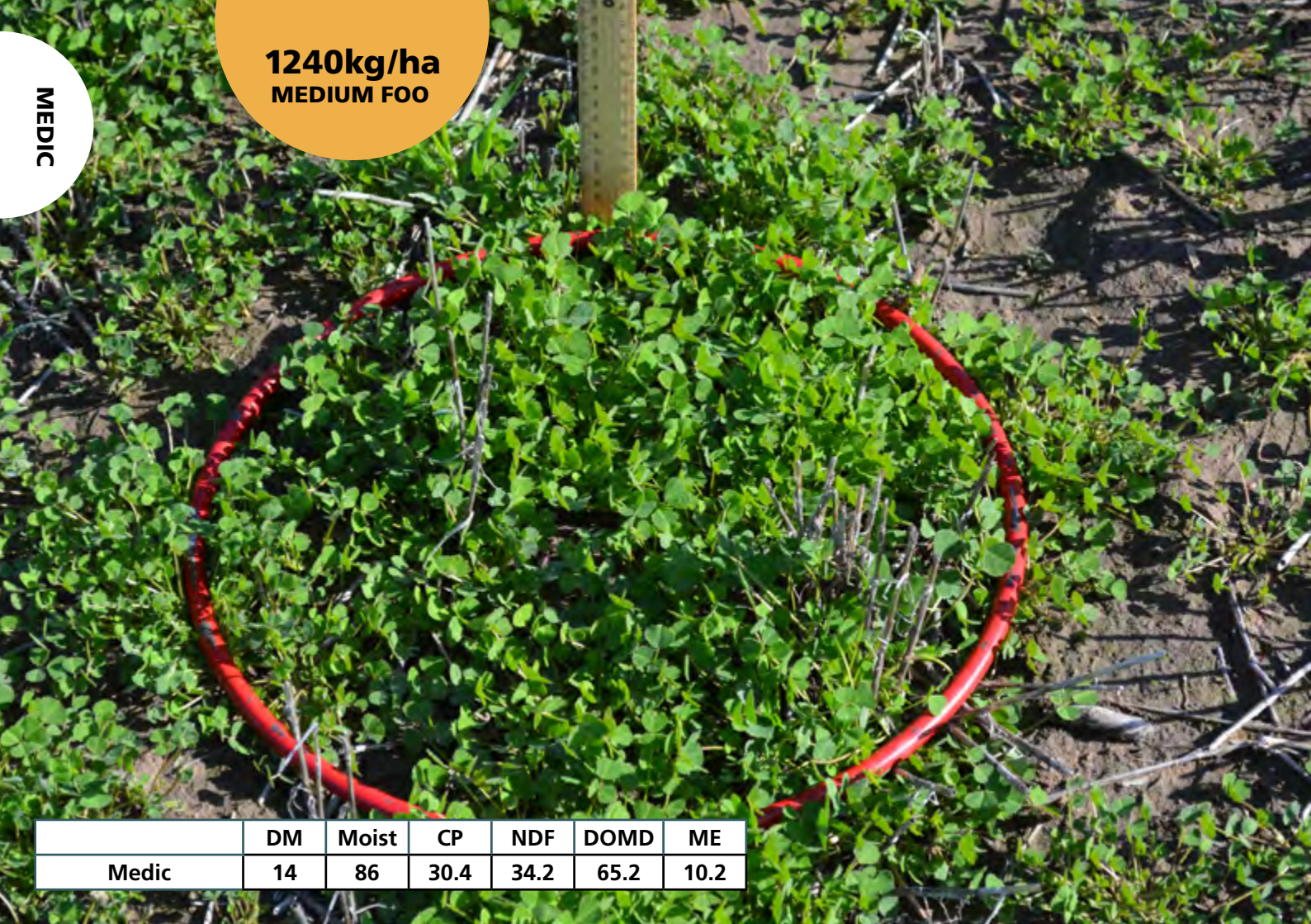
530kg/ha
LOW FOO

MEDIC

	DM	Moist	CP	NDF	DOMD	ME
Medic	14	86	30.4	34.2	65.2	10.2

MEDIC

1240kg/ha
MEDIUM FOO



	DM	Moist	CP	NDF	DOMD	ME
Medic	14	86	30.4	34.2	65.2	10.2

	DM	Moist	CP	NDF	DOMD	ME
Medic	14	86	30.4	34.2	65.2	10.2

MEDIC

1135kg/ha
LOW FOO

	DM	Moist	CP	NDF	DOMD	ME
Medic	14	86	30.4	34.2	65.2	10.2

	DM	Moist	CP	NDF	DOMD	ME
Medic	14.1	85.9	27.2	25.7	74.6	12.2

MEDIC

2370kg/ha
HIGH FOO

	DM	Moist	CP	NDF	DOMD	ME
Medic	14.1	85.9	27.2	25.7	74.6	12.2

935kg/ha
LOW FOO

MEDIC/
BARLEY

	DM	Moist	CP	NDF	DOMD	ME
Barley Medic	12.3	87.7	31	39.8	73.9	12

BARLEY / MEDIC

1570kg/ha
HIGH FOO

	DM	Moist	CP	NDF	DOMD	ME
Medic/Barley	12.3	87.7	31	39.8	73.9	12

	DM	Moist	CP	NDF	DOMD	ME
Medic/Oats	13.7	86.3	34.1	37.3	76.4	12.5

OATS/MEDIC

1215kg/ha
MEDIUM FOO

	DM	Moist	CP	NDF	DOMD	ME
Medic/Oats	13.7	86.3	34.1	37.3	76.4	12.5

	DM	Moist	CP	NDF	DOMD	ME
Medic/Oats	13.7	86.3	34.1	37.3	76.4	12.5

MEDIC / RYEGRASS

1245kg/ha
LOW FOO

	DM	Moist	CP	NDF	DOMD	ME
Medic/Ryegrass	14.6	85.4	27.8	27.5	76.1	12.5

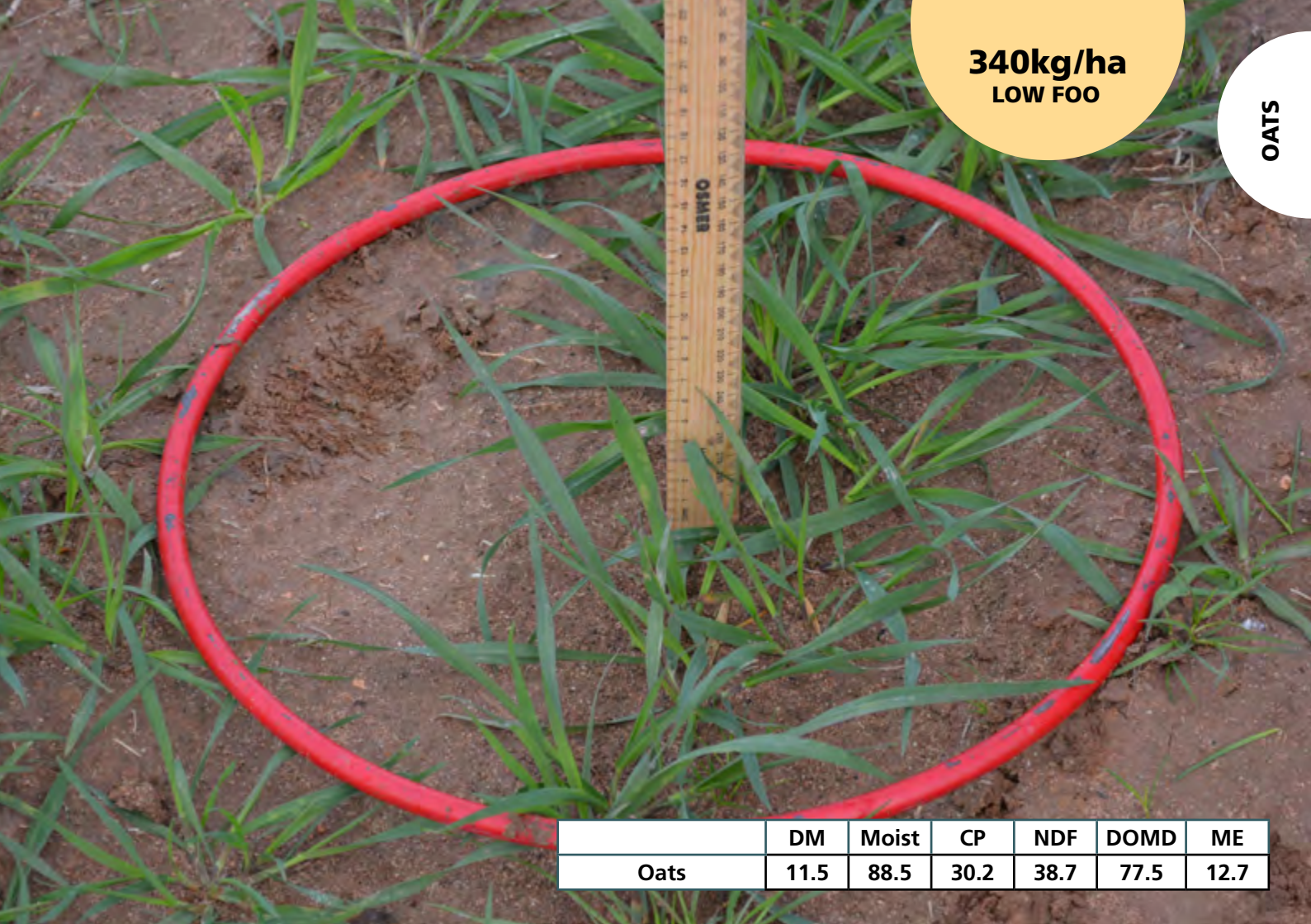
	DM	Moist	CP	NDF	DOMD	ME
Medic/Ryegrass	14.6	85.4	27.8	27.5	76.1	12.5

MEDIC / RYEGRASS

1000kg/ha
HIGH FOO

	DM	Moist	CP	NDF	DOMD	ME
Medic/Ryegrass	14.6	85.4	27.8	27.5	76.1	12.5

340kg/ha
LOW FOO



	DM	Moist	CP	NDF	DOMD	ME
Oats	11.5	88.5	30.2	38.7	77.5	12.7

OATS

1250kg/ha
MEDIUM FOO

	DM	Moist	CP	NDF	DOMD	ME
Oats	11.5	88.5	30.2	38.7	77.5	12.7

2125kg/ha
HIGH FOO

OATS

	DM	Moist	CP	NDF	DOMD	ME
Oats	11.5	88.5	30.2	38.7	77.5	12.7

OATS/
REYGRASS

520kg/ha
LOW FOO

	DM	Moist	CP	NDF	DOMD	ME
Oats/Ryegrass	10.6	89.4	31.7	38.5	77.9	12.8

	DM	Moist	CP	NDF	DOMD	ME
Oats/Ryegrass	10.6	89.4	31.7	38.5	77.9	12.8

OATS/ REYGRASS

2135kg/ha
HIGH FOO

	DM	Moist	CP	NDF	DOMD	ME
Oats/Ryegrass	10.6	89.4	31.7	38.5	77.9	12.8

2310kg/ha
HIGH FOO

WHEAT

SCOUT

	DM	Moist	CP	NDF	DOMD	ME
Scout	11.8	88.2	29.3	44.8	72.5	11.7

	DM	Moist	CP	NDF	DOMD	ME
Scout	11.8	88.2	29.3	44.8	72.5	11.7

265kg/ha
LOW FOO

WHEAT

PEAKE

	DM	Moist	CP	NDF	DOMD	ME
Peake	14.6	85.4	35.5	29.7	79.2	13.1

620kg/ha
MEDIUM FOO
WHEAT
PEAKE

1065kg/ha
HIGH FOO
WHEAT
PEAKE

WHEAT

PEAKE

290kg/ha
LOW FOO

	DM	Moist	CP	NDF	DOMD	ME
Peake	14.1	85.9	31.4	38.1	75.7	12.4

	DM	Moist	CP	NDF	DOMD	ME
Peake	14.1	85.9	31.4	38.1	75.7	12.4

WHEAT

PEAKE

1255kg/ha
HIGH FOO

	DM	Moist	CP	NDF	DOMD	ME
Peake	14.1	85.9	31.4	38.1	75.7	12.4

	DM	Moist	CP	NDF	DOMD	ME
Vetch	18.6	81.4	22.7	41.3	53.7	7.9

VETCH

490kg/ha
LOW FOO

	DM	Moist	CP	NDF	DOMD	ME
Vetch	12.8	87.2	33.3	29.6	76.5	12.5

1055kg/ha
MEDIUM FOO

VETCH

	DM	Moist	CP	NDF	DOMD	ME
Vetch	12.8	87.2	33.3	29.6	76.5	12.5

VETCH

1620kg/ha
HIGH FOO

	DM	Moist	CP	NDF	DOMD	ME
Vetch	12.8	87.2	33.3	29.6	76.5	12.5

725kg/ha
LOW FOO

VETCH

	DM	Moist	CP	NDF	DOMD	ME
Vetch	12.8	87.2	33.3	29.6	76.5	12.5

VETCH

1635kg/ha
MEDIUM FOO

	DM	Moist	CP	NDF	DOMD	ME
Vetch	12.8	87.2	33.3	29.6	76.5	12.5

	DM	Moist	CP	NDF	DOMD	ME
Vetch	12.8	87.2	33.3	29.6	76.5	12.5

‘STUBBLE GRAZING’

Cereal and pulse stubble can provide a valuable source of energy to livestock after harvest, and as with any grazing, there are some important considerations.

In Stubble Grazing, majority of energy available to livestock comes from spilt grains and any green weeds within the stubble. The straw and flag leaf is generally low in digestible energy (40-45%) and high in fibre (NDF >70%), which cannot support livestock weight gains alone.

Drought affected crops that have been cut for hay offer an opportunity for grazing as there are valuable sugars trapped in the stem of the straw that improve the energy content and palatability for livestock.

Common Health Considerations:

- Rain reduces the quality of the standing straw as it washes out the soluble sugars present in the stalk, and a reduction in quality can take as little as two weeks.
- Stubble Grazing presents a risk of Pulpy Kidney, Acidosis, vitamin E and B1 deficiency, as well as Waterbelly (Urinary Calculi) in rams and wethers.
- Poisonous and toxic weeds may grow in stubbles after rain.

For further information, talk to your animal health care provider, agronomist or local Landcare representative.

Calculating Residual Grain In A Stubble Paddock

As a guide, sheep require 40-50kg of spilt grain per hectare to maintain weight, so it is important to regularly monitor stubbles and ensure enough spilt grain to maintain production. Depending on the season and stocking density, stubble paddocks may provide enough spilt grain to maintain mature age ewes or to grow weaners for 2-6 weeks.

When assessing a paddock for Stubble Grazing, spilt grain counts should be conducted at a minimum of 10 locations across the paddock. Ground cover considerations are also extremely important in the decision to graze stubbles.

The following table shows the number of grains per 0.1m2 that is equivalent to 100kg of grain per hectare. These figures can be used to estimate the quantity of grain available in a stubble paddock and the amount of ME (Metabolic Energy) ewes will derive from residual grain.

Wheat and Oats	28*
Barley	25*
Lupins	8*
Field Peas	5*
Chick Peas	5*
Faba beans	2*

*Number of grains per 0.1m2 quadrants

BARLEY

COMPASS

3475kg/ha
LOW FOO

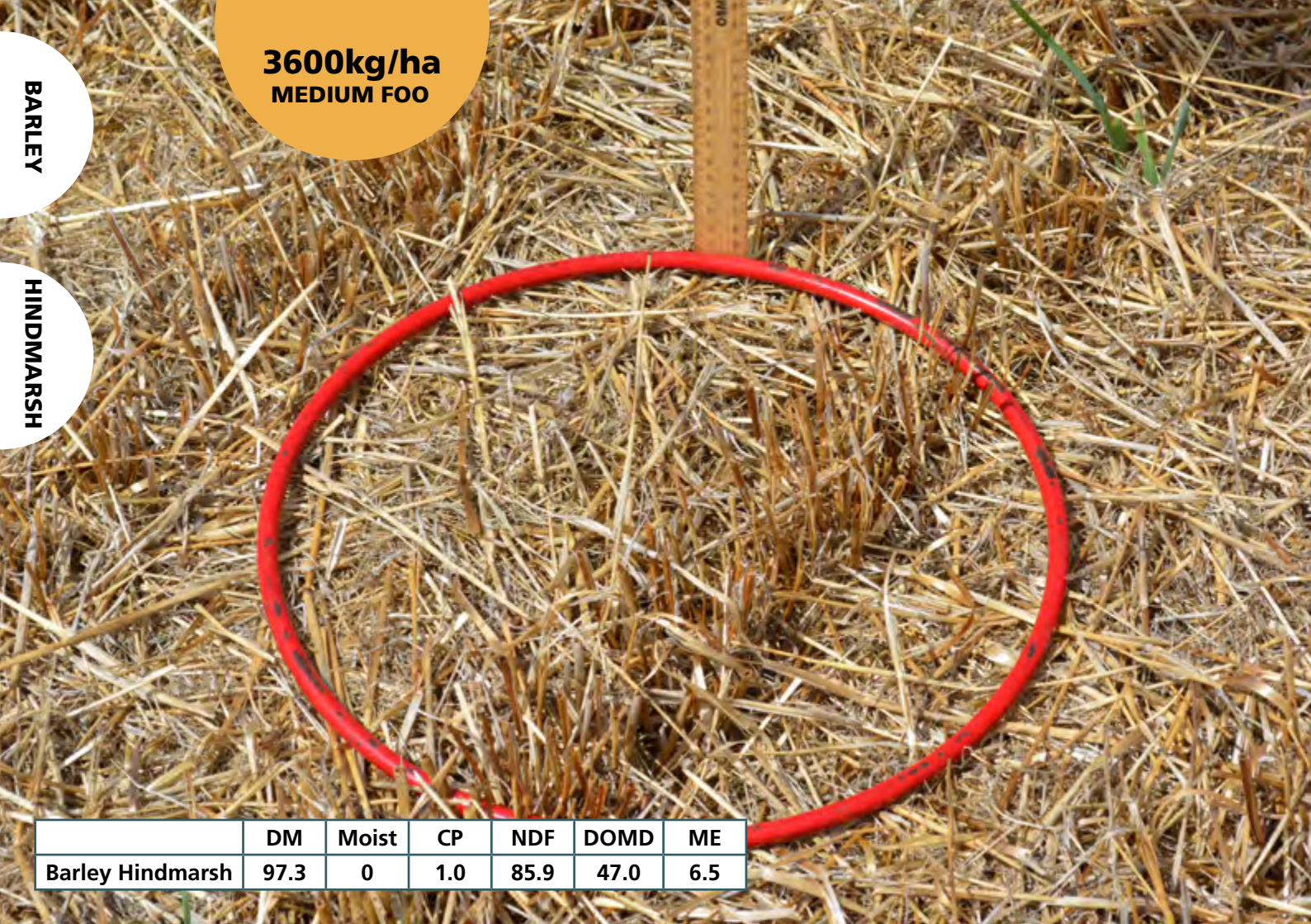
	DM	Moist	CP	NDF	DOMD	ME
Barley Compass	94.3		1.4	79.5	36.2	4.3

	DM	Moist	CP	NDF	DOMD	ME
Barley Hindmarsh	92.0		0	84.3	36.4	4.4

BARLEY

HINDMARSH

3600kg/ha
MEDIUM FOO



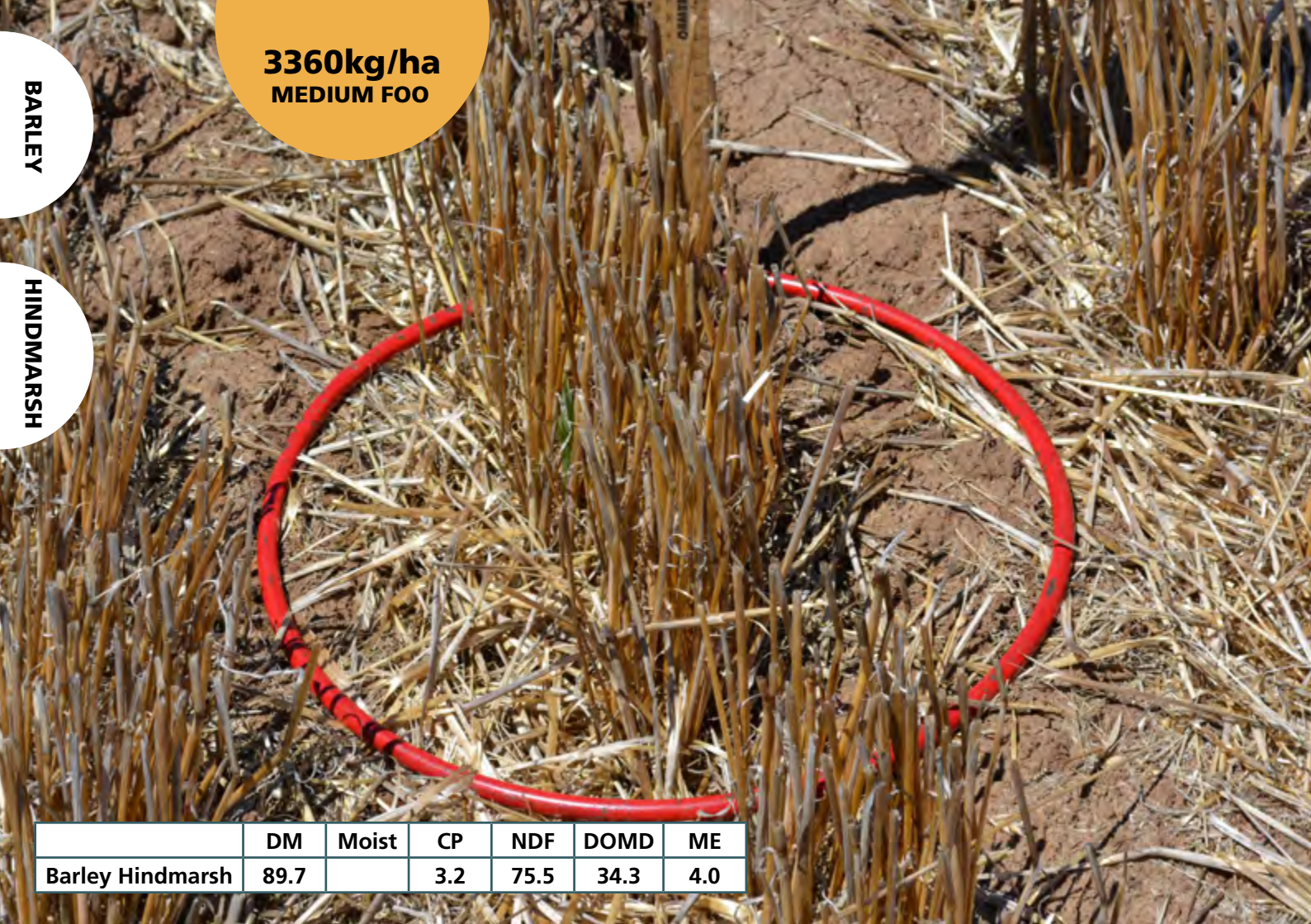
	DM	Moist	CP	NDF	DOMD	ME
Barley Hindmarsh	97.3	0	1.0	85.9	47.0	6.5

	DM	Moist	CP	NDF	DOMD	ME
Barley Hindmarsh	94.4		1.8	77.5	36.4	4.4

BARLEY

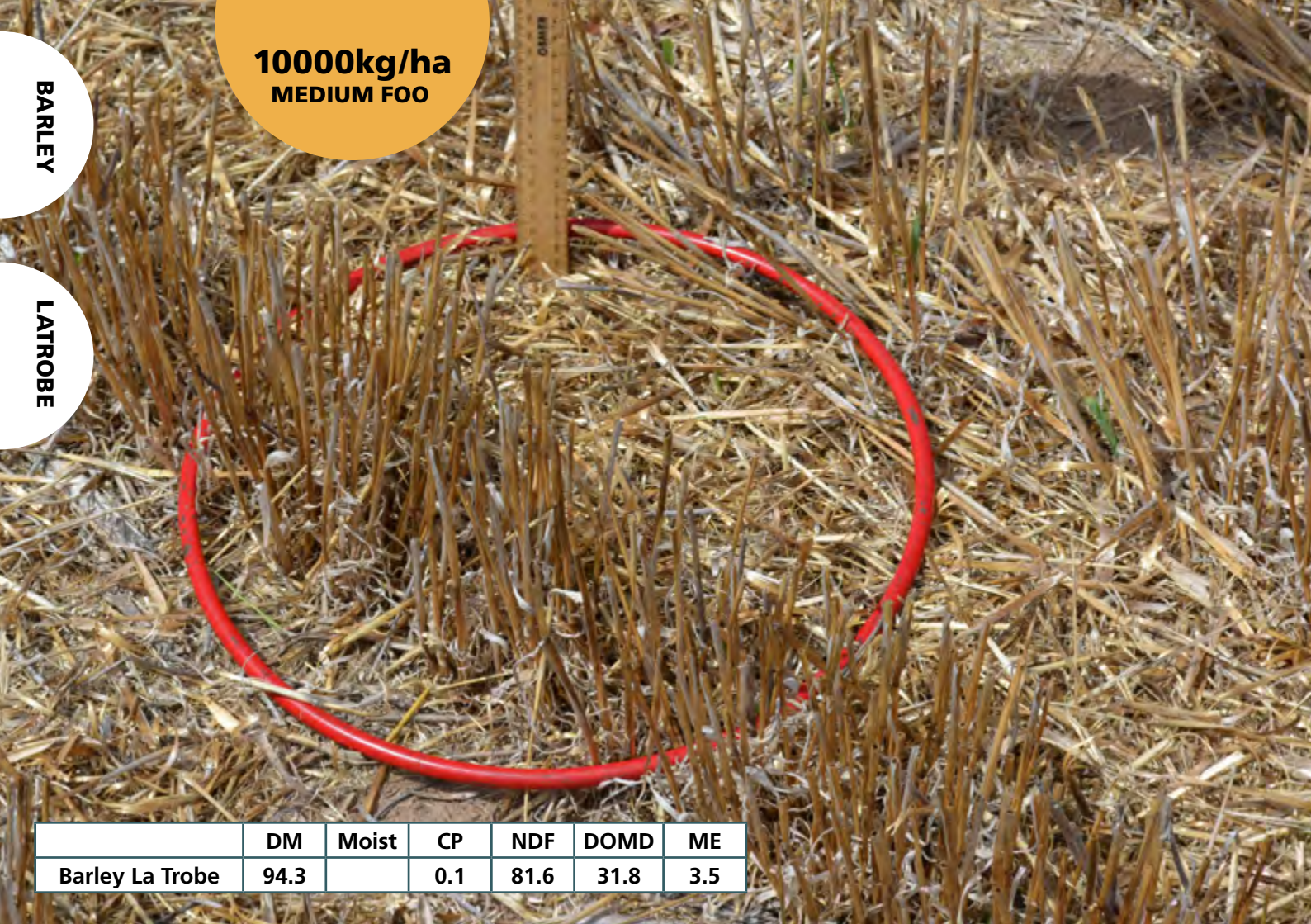
HINDMARSH

3360kg/ha
MEDIUM FOO

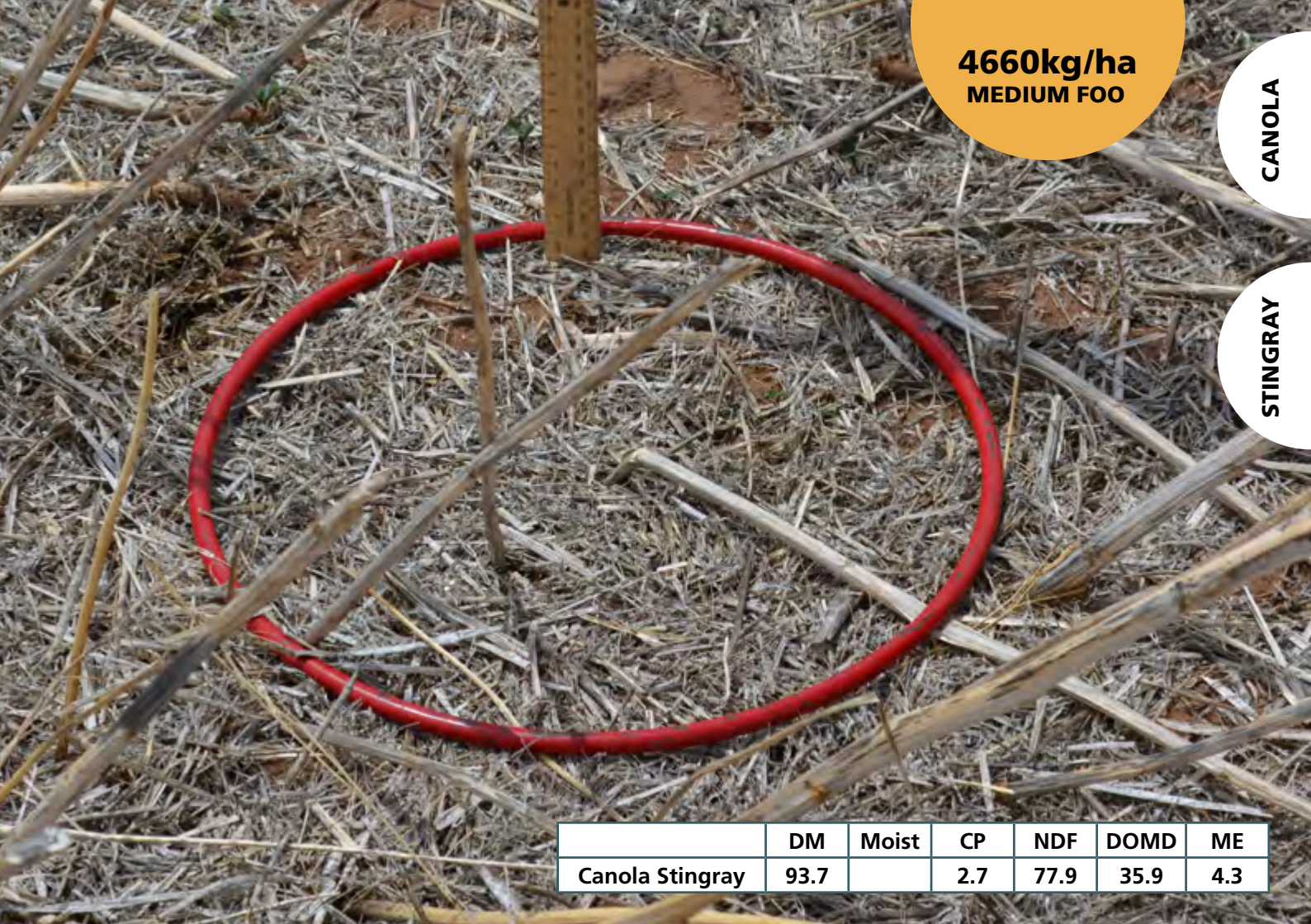


	DM	Moist	CP	NDF	DOMD	ME
Barley Hindmarsh	89.7		3.2	75.5	34.3	4.0

	DM	Moist	CP	NDF	DOMD	ME
Barley La Trobe	92.5		0.8	82.2	33.2	3.8



	DM	Moist	CP	NDF	DOMD	ME
Barley La Trobe	94.3		0.1	81.6	31.8	3.5

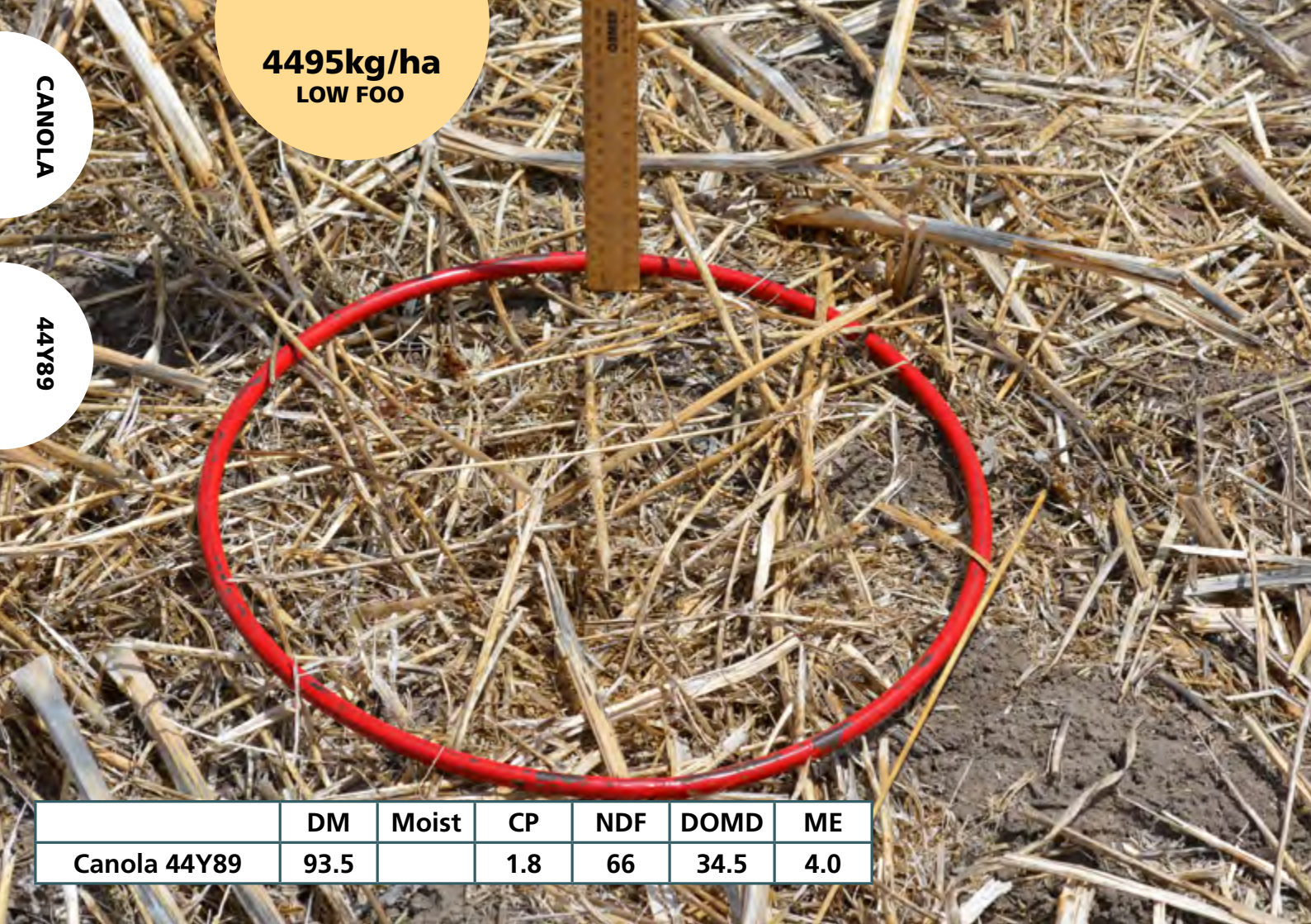


	DM	Moist	CP	NDF	DOMD	ME
Canola Stingray	93.7		2.7	77.9	35.9	4.3

CANOLA

44Y89

4495kg/ha
LOW FOO



	DM	Moist	CP	NDF	DOMD	ME
Canola 44Y89	93.5		1.8	66	34.5	4.0

	DM	Moist	CP	NDF	DOMD	ME
Oats Winteroo	95.9		<0.1	74.5	40.1	5.1

WHEAT

PEAKE

4030kg/ha
LOW FOO

	DM	Moist	CP	NDF	DOMD	ME
Wheat Peake	95.2		1.6	78.7	33.1	3.7

1000kg/ha
MEDIUM FOO

WHEAT

SCOUT

	DM	Moist	CP	NDF	DOMD	ME
Wheat Scout	90.1		2.2	77.1	32.9	3.7

WHEAT

PEAKE

4530kg/ha
LOW FOO

	DM	Moist	CP	NDF	DOMD	ME
Wheat Peake	85.7		2.1	79.8	32.0	3.5