



Dick Richardson, Nature's Equity.

GRAZING NATURALLY STAC METHOD:

Feed assessment and budgeting for graziers

By Dick Richardson, Nature's Equity



The *Grazing Naturally STAC Method: Feed assessment and budgeting for graziers* is an essential guide, developed with the invaluable expertise of Dick Richardson (Nature's Equity).

NQ Dry Tropics collaborated on its design and compilation to ensure it's relevant and accessible for graziers throughout the Burdekin Dry Tropics region.



This resource is supported by the Australian Government through funding from the Natural Heritage Trust under the Climate-Smart Agriculture Program.



BACKGROUND

The STAC Method originated in the northeastern United States as a way to assess forage in meadow systems. In 1998, Dick Richardson learned about it through educator Jim Weaver and has since adapted the method to suit wild grazing systems and Australia's arid and variable environments.

To distinguish it from the original, Dick calls the adapted version the 'Grazing Naturally STAC Method'.

WHAT IS THE STAC METHOD

The STAC Method offers a simple and reliable way to assess pasture availability while maintaining sufficient ground cover to support healthy grazing ecosystems. It avoids complex calculations about residuals, species mix, or other variables.

- S.T.A.C. stands for Sole, Toe, Ankle, Calf – referring to pasture height relative to your boot, providing a clear visual reference.
- It's quick and easy to use.
- Ideal for one person, but better with two, making it more collaborative and enjoyable.
- Can be done on foot, horseback, quad bike, or motorbike.

FEED BUDGETING AND GRAZING PLANNING

Feed budgeting is a tool for understanding how much feed is needed over a set period. It also helps you assess whether the nutritional needs of each class of stock are being met.

Feed budgeting is essential for planning during the non-growing season (also known as the non-self-replacing period). This phase requires several key steps:

- 1.** Estimate total feed availability across your property or properties using the Grazing Naturally STAC Method.
- 2.** Class feed based on both quantity and quality.
- 3.** Determine how long the feed needs to last.
- 4.** Do a Stock Flow: Use the Grazing Naturally spreadsheets (see next page) to calculate feed needs based on herd/flock numbers, class, and time period.
- 5.** Match Stocking Rate to Carrying Capacity – considering quantity, quality, and class of livestock. Ensure equity between mobs.
- 6.** Plan grazing use for the period:
 - a)** Use multiple light grazes per paddock.
 - b)** Graze in sequence: mid zones first, then priority areas, then Sabbath paddocks those with a year-long spell.
 - c)** Factor in animal performance needs.
 - d)** Prepare paddocks for the next wet season.
- 7.** Run your plan and adjust based on real seasonal conditions as they unfold.

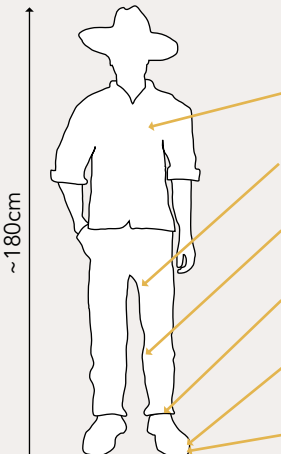
UNDERSTANDING YOUR CONVERSIONS

1 STAC = 1

- LSU Day or SD South African version 450kg at 2.5% of body mass per day
- 11.25 KgDm (Kg Dry Matter)
- 10LbDM/acre
- 9 DSE days (Dry Sheep Equivalents days - Aus)

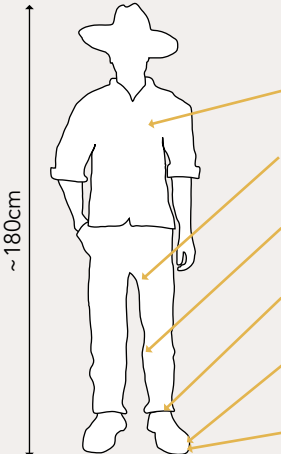
The Grazing Naturally STAC METHOD for FORAGE ASSESSMENT

The first step to FEED BUDGETING Kg/ha conversion.

	STAC	Total STAC	STAC score	Lb/acre
	Pocket (6' person)	180	18	2025
	Thigh (6' person)	150	15	1700
	Calf	120	12	1350
	Ankle	90	9	1000
	Toe	60	6	675
	Sole	30	3	340

The Grazing Naturally STAC METHOD for FORAGE ASSESSMENT

The first step to FEED BUDGETING LbDM/acre (Pounds DM per Acre) conversion.

	STAC	Total STAC	STAC score	Lb/acre
	Pocket (6' person)	180	18	1800
	Thigh (6' person)	150	15	1500
	Calf	120	12	1200
	Ankle	90	9	900
	Toe	60	6	600
	Sole	30	3	300

Feed intake calculations: feed demand

- For African and Indicus breeds, calculate daily feed demand using 2.5% of body weight (live mass).
- One Dry Sheep Equivalent (DSE) requires 1.35 kg of dry matter (KgDM) per day.
- In Australia, daily dry matter (KgDM) demand is typically calculated as 3% of an animal's body weight.
- With Bos Taurus, dairy cattle, horses and sheep, use 3% of body mass of live animals to calculate the KgDM or LbDM intake per day.

BEFORE YOU START

Key points to keep in mind:

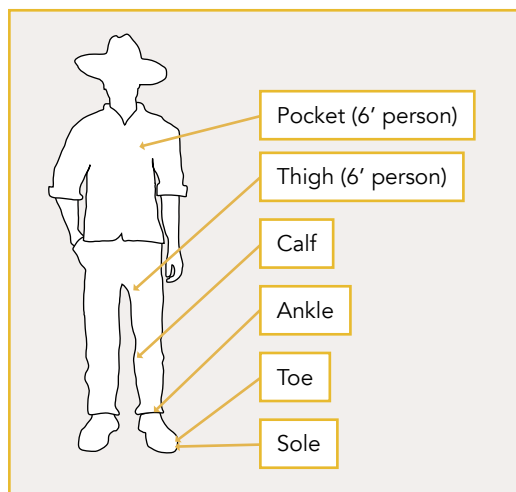
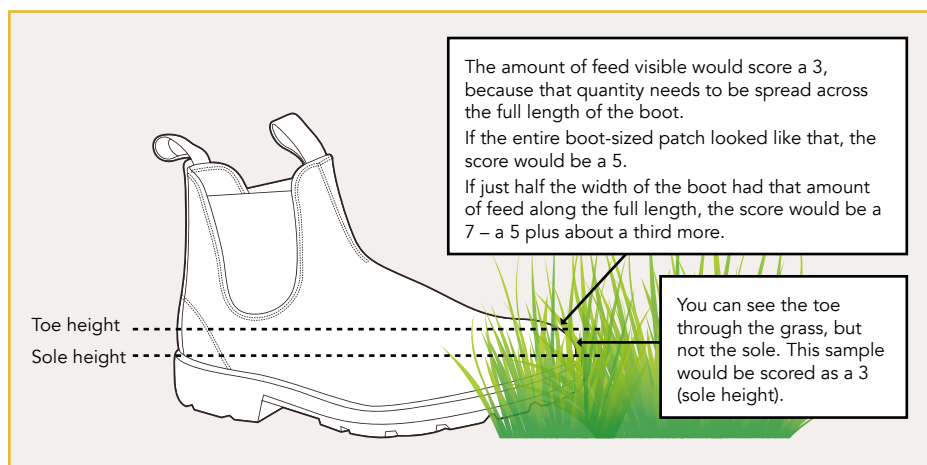
- STAC = Sole, Toe, Ankle and Calf.
- There are many weird and wonderful boot types around*. The STAC method is based on sole height, between 10mm and 20mm.
- Be consistent in the pattern you use (i.e. same foot and sample area adjacent to the boot).
- Don't anticipate your footfall. Pick an object in the distance to walk toward but don't look where your counting foot will land.
- In highly variable country, you can widen the sample area by increasing the number of steps between measurements. For example, take a sample every 20 steps in sparse veld, compared to every second step (10 steps with the same foot) in dense, uniform pasture.
- When scoring, we divide the STAC range into 10 parts and assign a score for each. We then add the 10 scores together and calculate the average to get the final STAC score.
 - Each score is worth 1/10th of the STAC score. You can use in between numbers to suit.
 - Sole height = 3
 - Toe height = 6
 - Ankle height = 9
 - Calf height = 12
 - Mid-thigh height = 15
 - Top Pocket height = 18
- Add all 10 steps to get a STAC per/ha figure.
- At each site, complete two to three STAC assessments. Walk in a triangular pattern: out at an angle, across, and then back at another angle. Repeat this process at several representative sites within each paddock, then average the results to get a STAC score per hectare (SD/ha) for the entire paddock.

*Understanding the boot reference points

This side-on view of a boot helps clarify what is meant by “sole” and “toe” in the context of estimating feed height:

- Sole: Refers to a point just above ground level, roughly where the bottom of your boot sits when standing.
- Toe: Refers to the top of the front part of your boot, around where your toes sit inside.

Using this visual reference makes it easier to estimate feed height in the paddock, especially when describing whether pasture is sitting at sole height, toe height, or higher.



GRAZING NATURALLY STAC METHOD OF FORAGE ASSESSMENT

1. Start your measurements away from cattle and sheep camps, roads and watering points.
2. Pick a direction to walk your transect in. Go diagonal to slopes, rows, pathways etc.
3. Take 5 or 10 steps to pick your first measurement/sample point. These steps will be repeated between each sample point to randomise and standardise the transect. You should measure each sample spot off the same foot and on the same side of your boot.
4. Look at a sample area next to your boot (about the same size as your boot). Imagine you are looking across the sample area, looking at your boot from the side.
5. Judge the average height of the edible feed that you can't see through when looking horizontally towards your boot, across the width of the boot-size sample area. This is equated to a STAC per Hectare (or SD/Ha) for an individual step on the following scale:
 - i) Sole height = STAC score of 3
 - ii) Toe height = STAC score of 6
 - iii) Ankle height = STAC score of 9
 - iv) Calf height = STAC score of 12
 - v) Thigh height = STAC score of 15
 - vi) Pocket height = STAC score of 18

Remember the score can be an in-between score (i.e. 2, 4, 7 or 10 etc.). There may be differences in feed height within the boot-sized sample area, so estimate the average height of the edible feed.

6. If the feed on an individual score is so thick that you can't see through it from half way through the boot width sample, then add a third of the STAC score extra to your STAC score for that point. For example, feed that is ankle height but so thick you cannot see through half of the sample area is scored as 12 (STAC score + (STAC score / 3) = total STAC score).

7. Do 5 to 10 steps between STAC measurements, rather than at each footfall. It gives a better average and accounts for plant density, un-grazeable plants, bare patches etc.
8. SD/ha or STAC can now be translated to Kg of Dry Matter per ha (KgDM/ha) by multiplying the STAC figure by 11.25.
9. Calculate SD's in the paddock by: a. $\text{STAC} \times \text{paddock area (ha)} = \text{SD's per paddock}$
10. Calculate KgDM in the paddock by:
 - i) $\text{STAC} \times 11.25 = \text{KgDM/ha}$
 - ii) $\text{KgDM/ha} \times \text{ha} = \text{KgDM/Paddock}$
11. Total feed for the property = Sum of SD/paddock or KgDM/paddock
12. Make allowances for quality by estimating % of total available feed that is reasonable, high or low quality and note down for each paddock
13. You have now completed the forage measurement and assessment step for your feed budget and dry season grazing plan



KGDM UNIT - QUICK LOOK UP CHART

Tips:

- It's easiest to use stock weights rounded to 30's, 60's and 100's.
- KgDM Unit is the estimated dry matter intake per head per day.

Live mass (kg)	KgDM U
30	1
60	2
100	3
130	4
160	5
200	6
230	7
260	8
300	9
330	10
360	11
400	12
430	13
460	14
500	15
530	16
560	17
600	18
630	19
660	20
700	21
730	22
760	23
800	24





GET IN TOUCH

(07) 4799 3500
nqdrytropics.com.au
info@nqdrytropics.com.au

Facebook @nqdrytropicsNRM

Townsville Office
63 Bamford Lane
Kirwan, Townsville 4817

