

Aligning livestock numbers to available fodder: the best way to mitigate the impact of drought

Bertus Kruger (Technical Advisor: Rangeland Management – Agra ProVision)

Three of the most important questions that a livestock farmer could ask are:

1. how much fodder do I have available at the end of the growing season
2. what are the fodder requirements of my current livestock herd (including game)
3. how long will that fodder last with the current livestock numbers I have on the farm

This article suggest an easy method to do just that.

Step 1: Developing a photo guide

The series depicts fodder availability scenarios for veld in the eastern parts of the country varying from low to high and is based on clipping of 10 quadrats of 1 sq. meter at each site. Please take note that these pictures are very area specific and can only be used in the eastern parts of the commercial farming area in Namibia. A unique set of pictures need to be developed for each agro-ecological zone in the country.



Picture 1 depicts a situation where there are 219 kg dry material (grass) per hectare, while picture 6 depicts a situation in the veld at the top end of the scale with 1,450 kg dry grass

material per hectare. Note that only 6 pictures out of a current series of 20 are used to demonstrate the methodology.

Step 2: Estimating fodder availability (question 1)

The next step is to set out a number of observation points on the farm that are representative of the fodder availability, in other words select sites that represent both good and poor veld. The more sites set out that are well distributed over the farm, the more accurate will the estimation be. Using the photo guide, relate the fodder availability situation at the site to the most appropriate photo in the guide and write down the fodder availability as depicted on the picture.

Photo Number	Dry matter (Kg/ha)
2	687
4	1 009
1	219
2	687
3	824
5	1 250
4	1009
2	687
Average (kg/ha)	797
Farm size (ha)	5 000
Total fodder available (kg)	3 985 000
Total consumable fodder (kg)	1 992 500

According to the table above only six sites have been scored and the photo numbers and production figures are recorded. The average production from the six sites is 797 kg dry grass/hectare. In order to calculate the amount of fodder on the whole farm, it needs to be multiplied by the farm size, in this case 5,000 ha. This gives a total available fodder on the whole farm of 3,985,000 kg. Not all of this grass is however accessible to the livestock and this method recommends that only half of the available fodder is consumed while the other half remains on the veld to make up for needs of the environment (organic material for litter and fertiliser) and other losses. This means that on the whole farm of 5,000 ha only 1,992,500 kg dry grass is consumable for the livestock.

Step 3: Calculating the fodder requirements of the livestock herd (question 2)

In order to calculate the fodder requirement of the current livestock herd on the farm, the table below needs to be filled in. For each of the cattle categories on the farm, the number of cattle and the average life body mass are recorded and multiplied with each other to get the total cattle weight on the farm. A similar calculation is done for small stock and game and added to the table. At the same time the number of large stock units is also calculated. The total life body mass on the farm is 200,500 kg and at an intake rate of 3% of body mass per day, the daily fodder requirements of the total herd is 6,015 kg. If this calculation is done at the end of the growing season (May), it is recommended to make provision for at least 9 months (270 days) until February the next year. This will to a large extent be sufficient until the next growing season starts and enough green grass is available. Remember that it does not “rain grass” that that sufficient time is needed for the grass to grow before a “full bite” is possible. The total fodder requirements of the whole herd for 270 days are therefore calculated to be 1,624,050 kg.

Current livestock	Number	Average weight (kg)	Large stock units	Total Weight (kg)	Daily fodder needs (kg)	Total fodder needs (kg) (270 days)
Bulls 1-2			-	-	-	-
Bulls 2-3			-	-	-	-
Bulls	4	750	7	3 000	90	24 300
Cows	250	450	250	112 500	3 375	911 250
Calves	200	150	67	30 000	900	243 000
Heifers (young) 1-2	50	300	33	15 000	450	121 500
Heifers (older) 2-3	50	350	39	17 500	525	141 750
Steers (young) 1-2			-	-	-	-
Oxen (2-3)			-	-	-	-
Old/Slaughter	50	450	50	22 500	675	182 250
Sub-total Cattle	604	332	446	200 500	6 015	1 624 050
Small stock	-		0	-	-	-
Game	0		0	-	-	-
Horses	0		0	-	-	-
Donkeys	0		0	-	-	-
Total	604	332	446	200 500	6 015	1 624 050

Step 4: Calculating the number of grazing days available (question 3)

Now that we know how much fodder is consumable on the farm (question 1: 1,992,500 kg dry grass) and we know what the fodder requirements of the livestock on the farm will be for the next 9 months (question 2: 1,624,050), the next step is to calculate the number of days that the available fodder will last for the current livestock numbers on the farm (question 3). By dividing the daily fodder requirements of the whole herd (6,015 kg) into the available fodder on the farm (1,992,500 kg), it is calculated that the available fodder will last for 331 days, which is more than the 270 days that need to be provided for.

Farmer Name	
Farm Names	
Farm size (ha)	5 000
Days to be provided for	270
Total fodder available on farm (kg)	1 992 500
Current fodder requirements on farm (kg)	1 624 050
Days provided for under current stocking rate	331

Conclusion

This method is very easy and quick to implement without having to cut any quadrates. Although it is based on a visual assessment done by the farmer, it will provide a good estimation of the available fodder and the number of days the current herd will have fodder available until the next raining season. It is however very important to monitor fodder availability constantly over the dry season in order to make timely adjustments if needed. Remember this estimation and does not replace the “eye” of the farmer in the veld.