Brangus Veldbull Guidelines

1. Introduction to SA Veldbull

1.1. Why Veldbul tests?

Veldbul tests (Overseas it is also called forage tests) refers to a growth test or -program of young potential breeding bulls on high roughage diets. It has been concluded from scientific literature that optimal genetic gains are realised when animals are selected under the conditions in which they are to perform. This means that you will achieve the best results if the breeding bulls you select from your young bulls were raised in a similar environment and under the same nutritional conditions that the cow herd is farmed. In this way you will select animals that are adapted to *your* farm.

Secondly, and possibly even more important, is the rumen development of the bull. Cattle are ruminants, meaning they have a four chamber stomach, and the fibrous material is mostly digested by microbes within the first chamber, or rumen. When high energy diets are fed to breeding bulls, different microbes are present and the pH in the rumen is much lower (more acidic). The acidic condition damages the inside of the rumen, lowering the potential of fibre digestion. When low- to medium energy diets are fed, together with a high roughage component, the fibre digestion potential of the rumen is developed. This increases the potential of a bull to adapt to a wide variety of nutritive condition or veld types.

The acidic rumen condition caused by high energy diets, have a negative influence on a number of other functions in the body. In addition to the burning of the rumen wall (discussed in the previous paragraph), conditions like laminitis or lameness, liver abscesses and arthritis are all associated with high energy diets. These conditions will all lower the potential of the bull to serve cows, and will shorten its useful productive life.

High energy diets will cause fat to be deposited at a faster rate compared to diets with a high roughage component, and this is especially detrimental if fat is deposited in the neck of the scrotum. If fat is deposited in the scrotum, the thermo-regulatory mechanism that keeps the testis cooler than body temperature (necessary for sperm production) does not work properly and bull will be less fertile.

The Brangus - veldbull test also incorporates the measures taken during the test into the Breedplan BLUP calculation, in order to calculate breeding values for optimal genetic gain.

1.2. Aim of a veldbull- or forage test

1.2.1. The main aim of the test is to raise bulls that have a well developed rumen. Such an animal is well adapted on roughage, and do not ‘fall apart’ when put out to veld without supplemental feeds.

1.2.2. The animal should be able to efficiently serve and fertilise female animals.

1.3. Points to remember

1.3.1. High energy concentrate feeding should be avoided in breeding animals.

1.3.2. When bulls are fed for a sale, the feed should contain moderate energy and the time of feeding should be extended (at least 120 days). Roughage should also provide part of the diet.

1.3.3. The veldbull test can be adjusted to fit to your specific environment and management practises.

1.4. Brangus Veldbull concept

1.4.1. In order to provide a better service from the Brangus society, all the Brangus inspectors are qualified veldbull-coordinators.

1.4.2. The inspector will be present at the start of the test to assist with measurements, and also at the end of the test. At the end of the test the animals will be inspected as well.

2. Introduction to concepts

2.1. Animal Identification

2.1.1. All animals have to be identified using a permanent method (i.e. Either branded, tattooed or both) with a unique number. Other methods, like ear tags, are optional.

2.1.2. The identification should be clear, in order to make weightings and measurements quick and easy.

2.2. Management groups

1.1.1. Management groups, or contemporary groups, are groups in which the animals are treated exactly the same. This means that animals has to be run in the same camps, receive the same licks and the vaccination- and health management must be the same for all animals. If an animal becomes sick, or is treated different in any way, it has to be indicated together with the results of the tests/weights. If this is not done, animals will be penalized unfairly and breeding values will be incorrect.

1.1.2. It is very important that all animals are weighed or tested on the same day.

1.1.3. Each contemporary group must contain offspring from at least two stud bulls. It is preferential that there are at least 5 bulls per sire in a group, which were born within 60 days of each other. More than one slice group of 60days is acceptable.

1.1.4. The most accurate breeding values would be obtained when all the male progeny are tested.

1.2. Index values vs. Breeding values

1.2.1. Index values

1.2.1.1. Index values can only be used to compare animals that were in the *same* test and contemporary group.

1.2.1.2. Index values are relative to 100, in other words, 100 is taken as average. An index value of +10 would therefore reflect a value of +110, or 10 above average *for the specific group*.

1.2.2. Breeding values

1.2.2.1. Breeding values can be used to compare any South African Brangus animals across herds and over seasons.

1.2.2.2. Breeding values are expressed in real units, depending on the trait. This means a breeding value of +10 (eg. for weaning weight) is +10kg. Half of this value would be passed on to the animal's progeny.

3. Management Calendar

3.1. -See Excel file

4. Measurement requirements for each trait

Measures marked in blue will be measured by a veldbull technician, yellow will be measured by the farmer and red must be measured by other technicians.

4.1. Weights

4.1.1. 200 day weight

4.1.1.1. This will be the starting weight of the veldbull test.*

4.1.1.2. The animal has to be weighed between the ages of 80 days and 300 days.

* Weigh the dam of the calf on the same day, also giving her a condition score.

3.1.2. 400 day weight

3.1.2.1. The animal must be weighed when aged between 301 and 500 days.

3.1.3. 600 day weight

3.1.3.1. The animal must be weighed between 501 and 900 days of age.

3.1.4. Times of weighing

3.1.4.1. Bulls must be weighed every 60 days after the onset of the test, including the feeding period after the test is finished and animals are being prepared for auction.

4.2. Scrotal circumference

4.2.1. Scrotal circumference can be measured between 350 and 700 days of age.

4.2.2. In the veldbull test, this will be measured at the end of the summer period, at the end of the test (around 500 to 550 days of age).

4.2.3. This is measured on the same day that the end weight is recorded.

4.2.4. It is measured in centimetres (cm) to one decimal point.

4.2.5. It is recommended that a measuring stick is used (to avoid getting kicked). As this is measured at the end of the test, a Veldbull coordinator will be present with a measuring stick.

4.3. Docility Score

4.3.1. Scored at the start of the test

4.3.2. Score is from 1 (Very tame) to 5 (aggressive).

4.4. Flight Speed Measurement

4.4.1. Measured at the start of the test.

4.4.2. An electronic measure is used to measure the exit speed of the animal from the crush.

4.4.3. This is a less subjective than just a temperament score.

4.4.4. The meter will accompany the Veldbull – technician.

4.5. Hair score

4.5.1. A subjective score is taken on the amount of hair and hair type of an animal.

4.5.2. The score is taken from 1 (very short, shiny hair coat) to 9 (very long, felting hair type.)

4.5.3. A hair score is given at the start of the test, and thereafter every 60 days.

4.6. Condition Score

4.6.1. The condition will be recorded at the start of the test, and after that at every weighing (i.e. every 60 days)

4.6.2. The condition score must be taken on a 1-6 scale. If a 1-5 or 1-9 scale is used, you *must* indicate it.

4.7. Pelvic Opening

4.7.1. This is measured at the end of the test.

4.7.2. The goal is not necessarily to select for bigger pelvic openings, but to select against the smallest pelvic openings.

4.7.3. Larger pelvic openings in females will most likely have less calving difficulty.

4.7.4. The opening is measured with a pelvic opening-meter, which will accompany the veldbull coordinator.

4.8. Muscling score

4.8.1. This is recorded at the end of the test.

4.8.2. A scale of A-E is used, with A being very heavily muscled and E being very poorly muscled.

4.9. Ultrasonic scanning

4.9.1. Scanning can only be done by accredited BREEDPLAN technicians. Contact the Brangus office or BREEDPLAN SA for a list of technicians in your area.

4.9.2. This is an optional measurement.

4.9.3. Animals should have at least 5mm of external fat at the ribs when scanning for IMF or external rump- or rib fat.

4.9.4. It is recorded at the end of the test, but should animals not enough of a fat covering, it can be recorded at the end of the feeding period.

4.9.5. Where IMF is undetectable in some animals, while others in the same contemporary group exhibit marbling, it is recommended that technicians record 0.2% IMF rather than 0, to distinguish animals that were scanned from those who were not.

4.9.6. The animals should be weighed on the same date as the scanning.

4.10. Tick Count

4.10.1. Tick counts are done at the start and the end of the test.

4.10.2. Ticks are counted from underneath the tail to the base of the scrotum.

4.10.3. All mature female ticks are counted.

5. Health and vaccination

5.1. Animal Health

5.1.1. The normal health program against internal- and external parasites can be followed according to your environment and management practises.

5.1.2. Speak to your veterinarian to work out such a program if you do not have one.

5.2. Vaccination

5.2.1. During the test itself, vaccinations can be done as necessary for your area.

5.2.2. Should you plan to sell a bull under the auspices of the Brangus society, the bull must be vaccinated against the following:

- 5.2.2.1. Threeday Stiffsickness
- 5.2.2.2. Rift valley fever
- 5.2.2.3. Lumpy skin disease
- 5.2.2.4. Botulism
- 5.2.2.5. Antrax
- 5.2.2.6. Black quarter

5.3. The bulls should also be tested by a veterinarian for Trichomoniasis, Vibriosis, Brucellosis and TB *one month* before the auction.

5.4. It is very important that all bulls in a group are treated exactly the same!

6. Interpretation of results

6.1. Each animal will receive it's own set of Estimated Breeding Value's (EBV's).

6.1.1. An EBV is the genetic part of an animals performance. In other words, it is the part that will be transmitted to the progeny.

6.1.1.1. Only half the value of an EBV can be transmitted, as the other half originates from the other parent.

6.1.2. Each EBV has a corresponding accuracy value. Higher accuracy values reflect a smaller chance of the EBV changing as new information is collected.

6.1.3. When an EBV for a certain trait is not displayed, it means that the accuracy for the corresponding trait is insufficiently low, because of a lack of information.

6.1.3.1. The minimum accuracy required differs between traits, and is available upon request.

6.1.4. The EBV's are calculated based on the animals own performance, performance of it's parents, multiple ancestors (sibs, half sibs ect.) and offspring (when applicable).

6.1.4.1. The more information available, the higher the accuracy value.

6.1.5. An animal's EBV must be compared to the breed average. The breed averages are shown in table1:

Table1. Breed averages for different traits.

Trait	Gestation Length	Birth Weight	200 Day Weight	400 Day Weight	600 Day weight	Mature Cow Weight	Milk	Scrotal size	Carcase Weight	Eye Muscle Area	Rib Fat	Rump Fat	Retail beef yield	IMF
Units	days	kg	kg	kg	kg	kg	kg	cm	kg	cm^2	mm	mm	%	%
EBV	-0.3	+1.2	+11	+17	+23	+25	+2	+0.2	+14	+0.1	0.0	0.0	+0.3	0

6.1.6. The percentile table (Table 2) can be used to see where an animal lies for a specific trait, compared to the rest of the breed.

Table2. Breed averages in percentile table.

Percentile Band	Gest. Len. (days)	Birth Wt. (kg)	200 Day Wt. (kg)	400 Day Wt. (kg)	600 Day Wt. (kg)	Mat. Cow Wt. (kg)	Milk (kg)	Scrotal Size (cm)	Carcase Wt. (kg)	Eye Muscle Area (sq.cm)	Rib Fat (mm)	Rump Fat (mm)	Retail Beef Yield (%)	IMF %
Top Value	-3.7	-3.5	26	40	52	73	10	3.5	25	1.1	0.9	1	1.1	0.1
Top 1%	-2.2	-1.7	21	31	40	50	6	1.2	21	0.7	0.6	0.6	0.6	0
Top 5%	-1.4	-0.6	18	26	35	41	5	0.8	18	0.5	0.4	0.4	0.4	0
Top 10%	-1	-0.1	16	24	32	37	5	0.6	17	0.4	0.3	0.3	0.4	0
Top 15%	-0.8	0.2	15	22	30	34	4	0.5	16	0.3	0.2	0.2	0.4	0
Top 20%	-0.7	0.4	14	21	29	32	4	0.4	16	0.2	0.2	0.2	0.3	0
Top 25%	-0.6	0.5	14	20	27	30	3	0.3	15	0.2	0.1	0.1	0.3	0
Top 30%	-0.5	0.7	13	19	26	28	3	0.3	15	0.2	0.1	0.1	0.3	0
Top 35%	-0.4	0.8	12	19	25	27	3	0.2	14	0.2	0.1	0	0.3	0

Top 40%	-0.4	1	12	18	24	26	3	0.2	14	0.1	0	0	0.3	0
Top 45%	-0.3	1.1	11	18	24	25	2	0.2	14	0.1	0	0	0.3	0
Top 50%	-0.3	1.2	11	17	23	24	2	0.1	13	0.1	0	-0.1	0.3	0
Top 55%	-0.2	1.3	10	16	22	23	2	0.1	13	0.1	0	-0.1	0.3	0
Top 60%	-0.2	1.4	10	16	21	22	2	0.1	13	0.1	0	-0.1	0.3	-0.1
Top 65%	-0.1	1.6	10	15	21	21	1	0.1	13	0	-0.1	-0.1	0.2	-0.1
Top 70%	-0.1	1.7	9	15	20	20	1	0	12	0	-0.1	-0.2	0.2	-0.1
Top 75%	0	1.9	9	14	19	19	1	0	12	0	-0.1	-0.2	0.2	-0.1
Top 80%	0.1	2	8	13	18	18	0	0	11	0	-0.1	-0.2	0.2	-0.1
Top 85%	0.2	2.2	7	12	17	16	0	-0.1	11	-0.1	-0.2	-0.3	0.2	-0.1
Top 90%	0.3	2.5	6	11	15	13	-1	-0.2	10	-0.1	-0.2	-0.3	0.1	-0.1
Top 95%	0.5	3.1	5	9	11	9	-2	-0.4	9	-0.2	-0.3	-0.4	0.1	-0.1
Top 99%	0.9	4.3	1	5	6	1	-4	-0.7	6	-0.3	-0.5	-0.6	-0.1	-0.2
Low Value	2.3	6.2	-6	-4	-10	-20	-8	-2.2	1	-0.6	-1.3	-1.7	-0.2	-0.4

Additional Reading

EBV's

1.1. Increasing accuracy on EBV's (Estimated Breeding values)
   1.1.1. The contemporary groups must be as large as possible.
   1.1.2. Ensure pedigree links. This is why progeny from at least two bulls should be present. Again, the more animals from each sire, the more accurate the comparison and subsequent EBV's.
      1.1.2.1. If possible, it would greatly aid the accuracy if at least one national AI bull (but preferably more than one) has progeny in the group as well.
      1.1.2.2. Sires should be replaced gradually over years, in order to have sires linking different years (and thus Veldbull tests).
   1.1.3. Indicate if any animals were treated differently to the group, or if an animal was sick.