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Harvest SA

Securing South Africa's Food Resources

Game changer

Land Bank's TP Nchocho weighs in

Herd performance

It's in the genes

Pure goodness

Potatoes can save us

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Harvest SA wins gold at the international Tabbie Awards 2013 in the Best Single Edition Category

TABBIES 2013 Award Winner

TABBIES 2014 Award Winner

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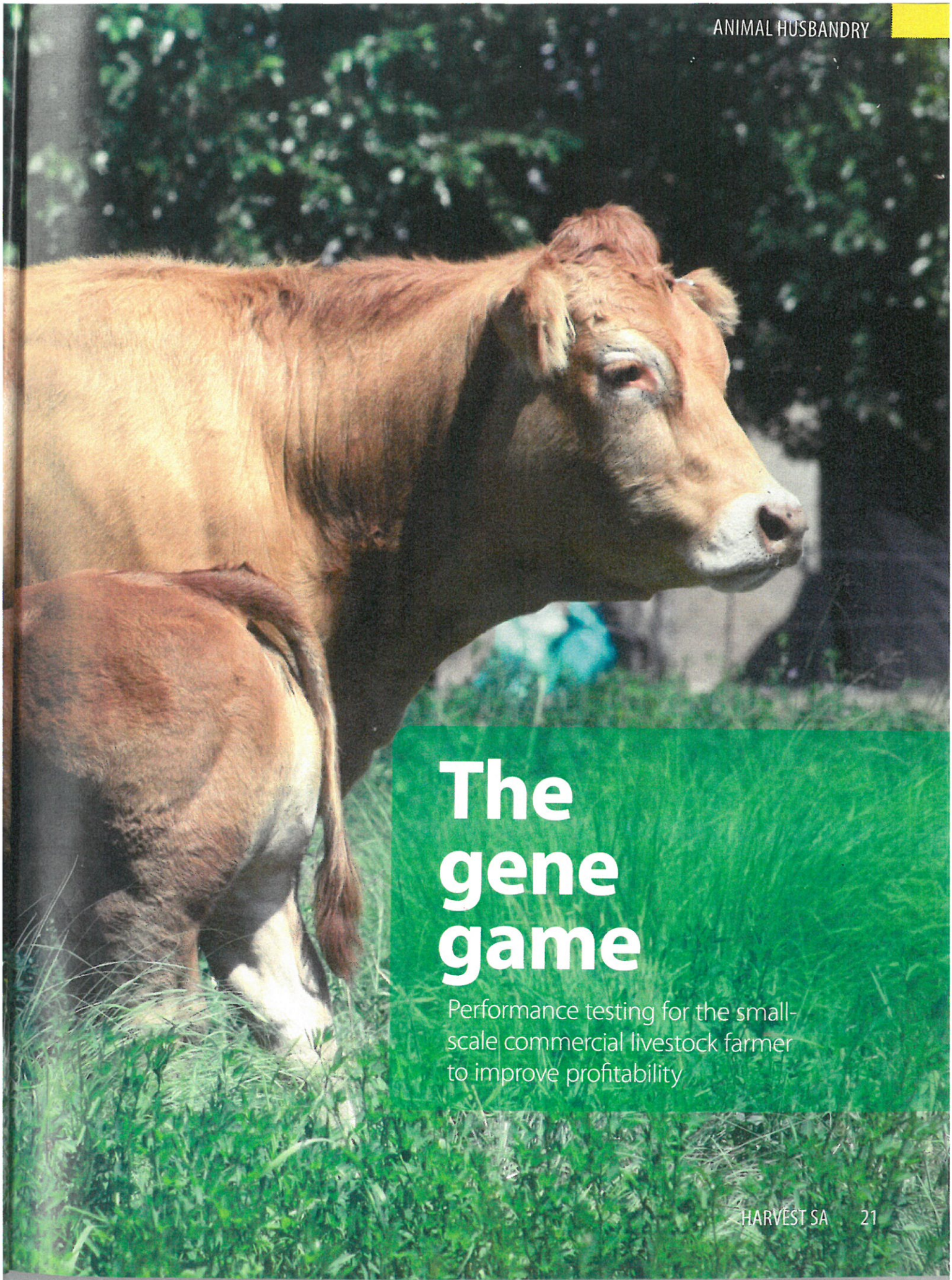


The gene game

Performance testing for the small-scale commercial livestock farmer to improve profitability

To be commercially profitable,the producer needs to produce the optimum number and weight of wean calves per cowsmated at the lowest cost possible. Wean calves need to be marketed as economically as possible directly after wean at the optimum weight. To achieve this efficiently, the fertility of the cow herd is of utmost importance as well as the growth ability of calves from birth to wean and post wean to the benefit of the feedlot industry.

The basis of good reproduction management is excellent record keeping of the cow herd and this enables the breeder to make informed selection decisions to achieve the above-mentioned objectives.

Phases A and B of the National Beef Recording and Improvement Scheme (NBRIS) offer a platform to commercial breeders to measure animals within these phases to support these objectives on a road of financial success.

Certain management practises such as weighing of animals at birth and wean are already being done by farmers, but as an additional routine, it needs to be sent to the national database, which is the integrated Recording and Genetic Information System (INTERGIS), to be captured and processed into information. The processed information is send back to breeders in the form of reports containing valuable information regarding the productivity and efficiency of the cow herd. This can be used to make important selection decisions regarding whether to cull animals or not.

Management practises

It is important to perform certain management practises in a structured way to ensure meaningful processing of data into information. Most important is a fixed breeding season with a maximum period of three months. The specific three-month period is dependent on the regional raining season of the year and must be planned in such a way as to utilize natural grazing at its peak period when the nutrient need of the lactating cow is at its peak and also ensure the condition and weight of cows and heifers at the start of the mating season. The lactating cow's nutrient needs are at its peak during the six weeks after the birth of the calf.

Phase A

All calves born need to be notified and identified with an identification system on the farm when every calf will be marked by using an ear tag and the birthdate as well as the birth weight captured on the INTERGIS. Also important is to report still-born calves and to accurately calculate traits such as "age at first calving" and "inter calving period".

Cow weights can be taken at birth or wean of the calf, which is the easiest and most practical time to weigh the cows. The purpose of a weaner production system is the optimum wean weights at the lowest cost per breeding animal, which is the cow in this case. For this reason, it is also important to contain cow weights to minimise input costs and selection and management must concentrate on improving production or output. The ideal is to wean a calf of at least 45% of its mother's body weight.

At the time when the breeder decides to wean his calves, he can request a specific form from the system, the wean weigh list, and will usually do this when the calves are around 7 to 8 months of age. All his calves born in the previous calving season will appear on this weigh list.

The wean weights and also the date of wean needs to be completed on the weigh list and sent back to the INTERGIS to be captured. This enables the system to calculate the standard 205-day weight for each calf in the wean group as well as an index value.

Animals within the same wean group will vary in age from up to three months from the youngest to the oldest because of the three-month period of the breeding season. This complicates the comparison of animals based on performance within the wean group. The older animals always have the advantage above their younger contemporaries as well between the two sexes.

Wean ages get standardized to a 205-day age for this reason and calculated for the whole wean group.

A new wean report, the wean test report, is generated with the wean weight, adjusted 205-day weight and the 205-day weight index and

enables the breeder to fairly compare animals based on their growth performance.

How to calculate the wean index per animal

For example, a bull calf weighs 40 kg at birth and weighs 280 kg at wean with a 200-day age at wean at the end of the weaning season.

Step 1: Total weight gain in kg from birth till wean:

280kg – 40kg

= 240 kg

Step 2: Average gain per day:

240 kg/200 day

= 1.2 kg per dag

Step 3: 205-day wean weight

205 x 1.2 kg

= 246 kg + (40 kg birth weight) = 286 kg

Step 4: Wean index for this animal;

286/250 x 100 (For example if the average 205-day weight for the male group calves was 250 kg)

= 114

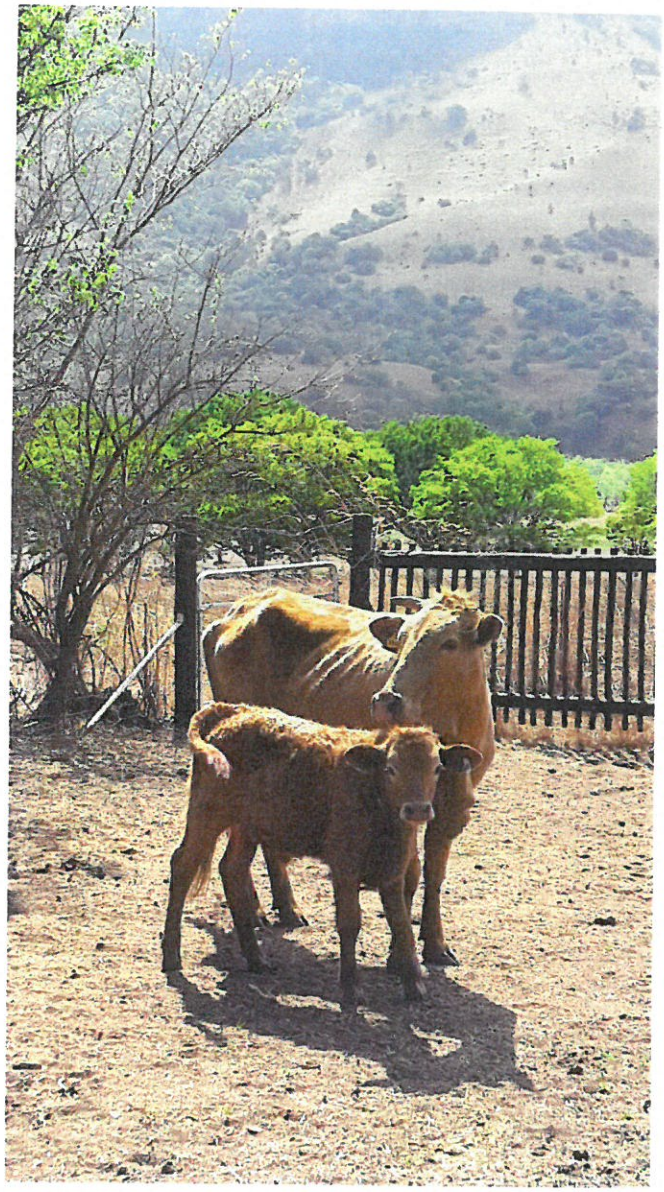
This implies that the animal grew 14% better than the average male animal in the group.

Wean production report

The wean index for each animal is its performance expressed as a percentage of the group average, which is 100 %. All animals with a wean index bigger than 100 are above-average and below 100 are below-average performers.

The wean test report contains the complete wean group with wean weights, 205-day weights and wean indexes for comparison purposes.

This enables the breeder to identify calves with the best growth ability within the group and to identify heifers for replacement of older cows which become less efficient with time. The wean weight of the calf is an indication of its own ability to grow as well as an indication of its mother's milk production.



Phase B

The general practise is for the commercial farmer to market all his bull calves at wean; his preliminary selection of replacement heifers has been done on wean already. This means mainly heifers will proceed from wean to the next phase, which is phase B1 and B2.

Post-wean production reports

Similar to the wean report, reports also get generated at 12 and 18 months. This serves mainly as a guideline for the selection of replacement heifers.

Phase B is the on-field test for adapted female animals and growth performance can be evaluated without the influence of the mother until the age of 18 months.

Reproduction report

Also known as the breeding herd report, it lists all the active cows and heifers above 24 months of age. The report includes reproduction information such as the number of calves, age at first calving, inter-calving-period and the average wean index for all calves weaned per cow. The average wean index per cow is valuable to determine the efficiency of the cow, which includes milk production and whether she still has the ability to wean an above-average calf in the herd. If she's not efficient enough or does not produce a calf every year, it might be better to replace her with a heifer.

Age at first calving is a fertility trait which enables the breeder to identify cows that calve earlier in the calving season, which enables more time after calving to get ready for the next mating season.

Additional benefits of performance testing

- Performance testing improves management with economic benefits.
- Breeding seasons ensure the optimum utilization of natural pastures especially when the lactating cows nutrient needs are on a high level with saving on additional feeding
- Reproduction records per cow are updated after each event and the cow can be evaluated on a regular basis to ensure efficiency of the cow herd.
- Data are saved on a central database with no risk of theft or damage to a personal computer.
- Subsidised services rendered by the Agricultural Research Council at an affordable prices structure and regional personnel for support in all provinces.
- A unique member number with herd designation mark is allocated to each breeder with user name to enable breeders to log into the national database to generate weigh lists as needed.
- Support from regional ARC personnel in all provinces to purchase registered bulls that support breeding objectives such as improvement of growth and milk production.
- ARC technicians who have completed inspector courses can also assist with selection of breeding material.

Financial benefits with an increase in production

As an example for a 100 cow herd size with a current calving percentage of 65% and an average wean weight of 180 kg.

At R20-00 per kg weaner price the bruto income is R234 000.

By improving calving percentage by 10% and the average wean weight per calf with 10 kg can mean an improved bruto profit of:

R285 000 – R234 000

= R51 000

Summary

It's not always easy to improve production in consecutive years because of environmental fluctuations that are out of the farmer's control, such as differences in rainfall between seasons, but it remains important for the breeder to try and improve his cow herd's genetics from one generation to the next.

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