

PROGENY TESTING IN SOUTH AFRICA - THE PRACTICAL APPROACH

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Progeny Testing of dairy sires in South Africa began in 1971 by the AI Co-op. of the province of Natal while Insemina, a larger AI Co-op., began during the following year. In 1976 the Official Progeny Testing Scheme was launched and 20 Holstein-Friesland bulls plus three Jersey bulls entered the programme during that year. It was the progeny testing programme which gave rise to the amalgamation of the three AI co-operatives to form Taurus Co-op. The bull stud of 313 bulls includes 231 Holstein-Friesland sires and 57 Jersey sires and semen of no less than 32 breeds is produced and marketed locally.

A successful progeny testing scheme is dependant on a sound milk recording scheme and therefore the A.I. Co-op has become directly involved in milk recording and the scheme showed a steady growth until 1990/91 when 133620 cows were recorded with 104092 (78%) being Holstein-Friesland cows. It is estimated that approximately 20% of the dairy cows are milk recorded.

Following the international trend of dairy cow numbers South Africa has also recorded rather dramatic decreases in the dairy cow population and the number of cows recorded during 1992/93 has shown a slight decrease to 125122 cows. Since all dairy A.I. applied in South Africa is based on "Do it yourself (DIY)" exact semen usage is unknown but it is estimated that 80% of the recorded cows are inseminated. Further estimations indicate that approximately 50% of the total effective dairy cow population is inseminated. Semen sales are, therefore, limited and would present a financial limitation to the number of bulls which can be progeny tested per year.

Progeny testing is obviously performed to evaluate a dairy sire as early as possible in his life and to predict to dairy farmers as accurately as possible the genetic worth of such "new" sires. If the predictions are not fairly accurate then

the effort and cost of progeny testing should be abandoned. We in South Africa are proud of the accuracy of the predictions made from data based on the official progeny testing programme. Some 500 sires have been sampled and the misleading predictions which have been made "can be counted on one hand". The reason for this success is found in one most important factor, namely Random Sampling.

Sampling is performed in 346 co-operating Holstein-Friesland herds who have made approximately 30% of their herds available for progeny testing (10900 cows) while 100 Jersey herds have offered 2530 cows. Approximately 40 Holstein-Friesland bulls and 12 Jersey bulls are sampled in these "test" herds. For approximately 80% of the test herds the sampling semen is identified by a computer code (e.g. 4FR1648) only thus making selective matings most unlikely. This semen is offered free of charge while the other test herds purchase the semen after having access to the pedigrees of the sampling sires.

Progeny test data for production is based on only first lactation data and is processed by the Agricultural Research Council (ARC) using the BLUP Animal Model.

Progeny Test data for type is based on classification of the first lactation "test" cows. The classifications are performed by classifiers of the relevant Breed Society and in most cases the sire of the cow is not known to the classifier until he has completed the classification. The data is presently processed by Taurus Co-op using the Contemporary Comparison method of analysis and results are published on the internationally accepted 12 traits.

As from July 1994 the following incentives are offered to Taurus Co-op Progeny Testing Co-operators:

1. BIRTH NOTIFICATION SEMEN VOUCHER

Every six months a semen voucher will be printed for each co-operator based on a discount of R25-00 for each live female birth reported from semen of the sampling/young sire. This discount is available for as many as the

first 100 live female births of a particular bull as reported to Taurus by the co-operators.

2. CALVING REPORT SEMEN VOUCHER

As an ongoing process the co-operator should inform Taurus of the calving of test heifers.

Every reported calving of a test heifer would lead to a rebate (discount) for R20-00 on each of two doses of selected semen which must be retail-priced at a minimum of R30-00.

3. USABLE LACTATION DATA SEMEN VOUCHER

The data obtained from the completed first-lactation of the test daughters are the most valuable and the highest recognition benefit is paid at this point.

A R60-00 semen voucher is available for each of the first 30 usable lactation records used for the analysis of a particular bull. The semen voucher is R20-00 on each of three units of semen which must be retail-priced at a minimum of R30-00.

Taurus Co-op promotes the selection of sires to breed high volumes of quality milk and has, therefore, introduced the Component Value (C.V.) as a selection criteria.

The Component Value has great financial implications. This enables dairymen to select locally tested sires for protein and fat yield as a unit. Since most milk is purchased by payment for protein and fat yield (in the ratio of 13 Rands to 6 Rands per kilogram) the C.V. is calculated as follows:

$$\text{C.V.} = \frac{(13 \times \text{Prot kg}) + (6 \times \text{BF kg}) + (0 \times \text{Milk kg})}{2}$$

where the Prot kg, BF kg and Milk kg refers to the Predicted Breeding Value (PBV) as calculated by the BLUP Animal Model.

Use of the PBV (for milk yield) should be avoided in the selection procedure unless milk is sold on a volume basis.

The following example illustrates the dangers of using the PBV (milk) as a selection criteria.

Sire A:	PBV =+1284 for milk	CV = 143
Sire B:	PBV =+969 for milk	CV = 264

The Component Value difference of 85% can be evaluated as follows:

Although the daughters of Sire A produce more milk than those of Sire B, the daughters of Sire B would generate R121-00 (R=Rand) more income per first lactation. The amount after three lactations becomes considerable.
