The International Committee for Animal Recording (ICAR) is the global body responsible for setting up guidelines and accreditation for farm animal recording and improvement. Ninety organisations involved with animal recording and improvement are members of ICAR.

Alims and main objectives (from the ICAR website)

The aim of ICAR is to promote the development and improvement of the activities of performance recording and the evaluation of farm livestock.

1. The Object of ICAR, an international or non-profit body, shall be to promote the development and amelioration of performance recording for farm animals and their evaluation, such Object to be achieved through the establishing of definitions and standards for measuring characteristics having economic importance.
   - ICAR establishes rules and standards and specific guidelines for the purpose of identifying animals, the registration of their parentage, recording their performance and their evaluation, and publish the findings.
   - It provides incentives for concertation and collaboration in all activities having to do with animal performance recording and evaluation within and among international organisations, public authorities and industry;
   - It encourages the use of the findings of performance recording for the purpose of assessing the value of animals and establishing specific codes of conduct, given that both aspects have a bearing on the profitability of animal production.
   - It facilitates the interpretation of findings at the practical level by publishing reports showing the results obtained through the application of methods of performance recording and evaluation.

2. The association has also as its aim the drafting of articles, publication and distribution of journals and books, the organisation of seminars and workshops, and granting scholarships to selected researchers or students.

3. Within the scope of its activities, the association can enter into any transaction having to do with movable or immovable property where such transactions are in pursuit of its aims.

During the past half century, ICAR has evolved into a global organization with a reputation for establishing standards and guidelines for animal recording, identification and genetic evaluations. ICAR standards are referenced in practice and legislation around the world and form the basis of all major animal recording and evaluation programs in countries serious about the improvement of farm animal production.
Over the years, ICAR membership has expanded from its European roots to now include members from 49 different countries across six continents. As the animal recording and evaluation industry has matured, many countries have made the transition from government owned and funded activities to private or producer owned and financed businesses. This evolution is continuing at various rates and continues to drive the evolution of ICAR and its services. Science and its applications have always played an integral part in the development of ICAR standards and guidelines. Traditional biennial sessions are evolving from a technical oriented session to one that includes key management personnel responsible for the delivery of service in a for-profit, competitive global environment. ICAR sessions are also growing into one of the leading international forums for the showcasing of new technologies and ground-breaking operational applications. This global network is being facilitated by the ease of communications and the speed of travel in today’s business environment. Along with the new technologies and changing demands of primary customers comes the need to ensure that standards and guidelines are able to keep up with new and evolving technologies.

The future animal recording and evaluation environment that ICAR is currently dealing with.

Key factors include:
- Decreasing government funding and involvement
- Decreasing herd numbers
- Increasing farm/herd size
- Decreasing profit margins for farmers
- Increasingly independent farmers with decreasing needs for current services
- Increasingly diverse service expectations by farmers
- Increasing technology applications
- Increasing global trade of agricultural components and commodities
- Increasing degrees of regulation at the production level
- Increasing demand for punctual management information
- Increasing competition for a limited market driving increased consolidation

WAAP (World Association for Animal Production) and ISO (International Organisation for Standardisation). ICAR also conducts its own accreditations, in partnership with leading laboratories, like the accreditation of milk meters, DNA laboratories, milk recording laboratories, farm animal identification equipment (also radio frequency IDs), benchmarking the efficiency of recording practices and issuing a "Certificate of Quality" (after inspection) to recording practices and systems.

ICAR has four sub committees, namely:
- **Animal identification**, dealing with the development and evaluation of identification devices and also serving as the ISO registration agency.
- **Interbull**, conducting research and development in international genetic evaluation of dairy cattle (and lately through Interbeef, beef cattle) and conducting a service to participants in global genetic evaluations at the Interbull Centre (Upsala, Sweden).
- **Milk analysis**, setting standards and accreditation of milk recording laboratories world-wide. This subcommittee is the official body for the international dairy herd laboratory network.
- **Recording devices**, mainly deals with the accreditation and registration of milk measurement devices and other recording equipment by making use of a network of test centres.

In order to conduct its business, ICAR also allows for active working groups to assist in research and development as well as setting up guidelines. These groups also conduct surveys globally to give insights into recording practices and production systems. There are working groups for: animal fibre, animal recording data, artificial insemination and relevant technologies, beef cattle (including Interbeef to conduct global genetic evaluations for beef cattle), conformational traits (such as linear scoring, udder traits, etc.), lactation calculation methods, milk recording in goats, performance recording in dairy sheep and parentage recording. South Africa have been actively involved with ICAR over the years. Not only in attending and participation in the general assembly, sub committees and working groups, but also applying ICAR guidelines in the local recording practices. This country also make use of the Interbull Centre's services for global genetic evaluation for dairy cattle (MACE, Multiple Across Country genetic Evaluations) and actively supports many research projects, including pre-evaluations for global beef genetic evaluations. The recording practices and system has also attained the ICAR Certificate of Quality.

Sources: [www.icar.org](http://www.icar.org) and [www.interbull.org](http://www.interbull.org)
**Some perspectives on Genomic EBVs**

Bernice Mostert, Japie van der Westhuizen, & Helena Theron
SA Studbook & Animal Improvement Association
ARC Animal Production Institute

SNPs based genome evaluations are changing the world of animal breeding. But what are these SNPs and how do they influence genetic evaluations as we know it?

SNPs, or Single Nucleotide Polymorphisms are places on the genome (DNA material) where differences occur in the nucleotide base constitution of the DNA, within a population. SNPs are highly abundant and can be found, on average, at one in 1,000 nucleotide positions throughout the genome. The initial interest in SNPs is primarily due to their use as markers to identify genes associated with complex genetic diseases, as well as complex health, production and reproduction traits. Another big advantage of SNPs is that it can be used very successfully for parentage testing, individual identification and traceability.

Panels of thousands of SNPs spread fairly evenly over the genome are available for genotyping of cattle. A SNP location in the genome does not indicate a specific gene but show a specific base pair (for example Adenine and Thymine or Guanine and Cytosine). Attempts are then made to estimate the effects of each genotype at all locations on the genome simultaneously, using estimated breeding values (EBVs) of animals with high reliability (usually older bulls with many measured progeny). A high quality SNP chip, containing more than 50,000 SNPs has been commercially available. Also available is high density (800,000 base pairs) and a lower density (3,000 base pairs) SNP chips.

Estimates of the SNP genotype effects can be summed together with the currently available BLUP EBVs, to give a genomic EBV or GEBV. For a young animal without a measurement, GEBVs have accuracy equal to or larger than a parent average.

The primary advantage of GEBV is that it can be obtained shortly after an animal is born, such that selection decisions can be made early. Typically in a traditional progeny testing scheme, young bulls wait for 6-7 years before progeny based EBVs are available (like in the case of...
wean maternal EBVs in beef cattle). Using GEBVs can therefore **reduce costs** for progeny testing schemes and **shorten the generation interval** drastically.

**Animals can be genotyped**, using SNPs and this genomic information can be included in routine genetic evaluations, which will have a substantial effect on the **reliability of estimations**.

**Some disadvantages of genomic selection should also be mentioned:**

- Cost of analyses - animals have to be genotyped. At this stage the costs are about US$120 - $150. As the first step involves the testing of a fairly large number of animals with high reliable EBVs the initial costs can be very high. Thereafter the real advantages can only be attained.
- SNP interval estimates deteriorate over time due to recombination and crossing, therefore enforcing re-calculation of these genomic effects from time to time.
- Estimates differ over animal populations (breeds or even sometimes within breed but in different countries). This is still true for the 50K SNP chip but will be, to a large extent, be overcome with the high density SNP chip.

**Beef Cattle**

Initial research in livestock is focusing on dairy cattle due to the high costs of progeny testing for AI bulls. Since many traits are directly measured (in most cases for both sexes) on individual animals in beef cattle, the use of this technology will be of real value for those traits that are sex limited (like weak maternal, female fertility and dystocia) or not measurable on the live animal (like carcass traits). Using GEBVs in these cases will result in breeding values predicted with higher accuracy for young animals without recorded progeny. This is of real value in the case of bulls sold before the age of four years as the risk of marked changes in the EBVs (from the current mid parent values)

**References:**


http://www.ncfa.gov/cancer_topics/understandingcancer/geneticvariation

COMPREHENSIVE HERD MANAGEMENT SOFTWARE

NOW WITH MODULE FOR FREE ADVERTISING ON BEEF CATTLE TRADER.COM

- Developed in SA by the ARC with a private software house: BongwanaSoft CC
- Equally suitable for commercial and stud herds
- User friendly MS Windows operating system
- Afrikaans, English, Portuguese and Spanish language options
- Install on more than one computer at no additional cost
- Use for more than one herd at no additional cost
- Worldwide user support, training and marketing via ARC officials and private agents
- Support SA Studbook, ARC, BreedPlan and NSBA pedigrees and formats
- Performance data processing according to ARC’s National Beef Recording and Improvement Scheme
- Various standard and user-defined screens & reports
- Reports can be viewed, printed and stored electronically in various formats
- Electronic data sending & importation, including birth notifications, performance data and weights from electronic scales
- Stock registers for animals in herd, medicines, vaccines, semen and embryos
- Powerful search, sort and select functions for fast and easy selection of animals
- Management diary and address list
- Calculate inbreeding coefficients for possible matings
- Integrated GenePro breeding management module (optional)
- Exhaustive data verification functions
- Easy updating directly from the internet
- Continuous user-driven development and upgrading

ENDORSED BY 19 SA BREEDERS’ SOCIETIES
Afrikaner, Angus, beefmaster, Brahmans, Charolais, Drakensberger, Gallovia, Hereford, Hugendob, Nguni, Pinzgauer, Red Poll, Santa Gertrudis, Senepol Club, South Devon, Sussex, Tull

"I WOULD LIKE TO CONGRATULATE YOU WITH AN EXCELLENT PROGRAMME – THAT HAS, IN A VERY SHORT TIME, BECOME THE PROGRAMME, WHICH OFFERS THE TOTAL PACKAGE TO STUD & COMMERCIAL BREEDERS AND IS SUITED TO CURRENTLY AVAILABLE TECHNOLOGY."

Helmien Haddad for Op die Aarde Boomsman of Transvaal Berg Trust, Rewko.

National Winner
ARC-NSBA Beef Herd of the Year Award, 2007

WIDELY USED
BeefPro is used by hundreds of commercial and stud beef cattle farmers in 12 countries on 4 continents

Your profit partner!

www.beefpro.net

Contact Mr. Leslie Bergh for more information:

tel: +27 12 672 9145
mobile: +27 82 801 2026
email: leslie@arc.agric.za
Why? NamTags

- Affordable
- No neck on tags
- Flexible material
- No metal point on males
- More stable
- UV resistant

LARGE (M1+F4) Packed in 10's
MEDIUM (M1+F3) Packed in 10's
SMALL (M1+F2) Packed in 10's
SHEEP Packed in 25's

Can be used with known eartag applicators.
You only need a NamTag steelpin

Used for years in Namibia! Packed by disabled

Available in seven colours

Tel: +27-11-7047218 • Fax: +27-11-7047203 • E-mail: fritz@swavet.co.za

SWA VET
(EDMS.) BPK
(PTY) LTD.
CHERNÈ
DURANDT

STOET

CHAROLAIS
SA

SPEENGEWIG
GEHANDHEID
VEEROMSETTING

RESULTATE MET VOORUITGANG EN WINS

Wessels Durandt 079 780 4175
Dawid Durandt 083 444 9787
Jonathan Watson 083 343 0474

Chernè Boerdery, Posbus 240, Barkly Oos, 9786. cherneboerdery@yahoo.com

U IS WELKOM OM DIE DIERE ENIGE TYD OP DIE PLAAS TE KOM BESIGTIG
Be at the cutting edge with Unistel...

...when cutting through your opponent's pride!

NEW!

Unistel®

igneity®

Feed Efficiency,
Calving Ease
Meat & Milk Quality
Carcass Traits
Stayability
Docility

GeneSTAR®

MVP’s - 56 genetic marker system

DNA-profile
Arthrogryposis Multiplex
(Curly Calf Syndrome)
Polled Testing
(All breeds)

www.unistelanimalservices.co.za
Tel: +27 (21) 938 9213/4
A. Geregistreerde rasse:

1. Koel moet iewendig wees op lopie datum (normaalweg op 1 Junie jaarlik) van die Beste Producende Koeie verslag.
2. Koel moet in besit wees van ’n aktiewe Vliesbeekskeem lid op lopie datum van die Beste Producende Koeie verslag.
3. Koel moet minstens vyf natuurlike kalfdatum op rekord hê op lopie datum van die Beste Producende Koeie verslag.
4. Koel se ouderdom by eerste kalwing mag nie hoër wees as 1187 dae (39 maande).
5. Koel se gemiddelde TKP (vir die natuurlike kalwing) mag nie hoër wees as 425 dae.
6. Koel moet ’n normale kalwing gehad het binne 548 dae (18 maande) voor lopie datum van die Beste Producende Koeie verslag.
7. Na die eerste kalf met ’n geldige speeggewig, mag die koel maksimum twee kalwers hê sonder ’n speeggewig of met ’n ongeldige speeggewig.
8. Teelwaarde vereistes:
   8.1 Slegs koel die met LNR betaamde teelwaarde van ’n BLUP ontlewing nie meer as 18 maande voor lopie datum van die Beste Producende Koeie verslag, sal aanwees word.
   8.2 Speen direkte teelwaarde in die beste 50% van die aktiewe vroulike diere in ras.
   8.3 Speen maternale teelwaarde in die beste 50% van die aktiewe vroulike diere in ras.
   8.4 Geboorte direkte teelwaarde in die laaste 99% van die aktiewe vroulike diere in die ras.
   8.5 Geboorte maternale teelwaarde in die laaste 99% van die aktiewe vroulike diere in die ras.

Let wet: Die nuutste teelwaarde beskikbaar op INTERGIS op lopiedatum van die Beste Producende Koeie verslag sal altijd gebruik word.

9. Minimum aantal kalwers met geldige speeggewigte:
   Elite toekenning: 7 kalwers
   Superieur toekenning: 6 kalwers
   Voortrefflik toekenning: 5 kalwers

---

A. Registered breeds:

1. Cow must be alive at run date of the Best Producing Cows report.
2. Cow must be owned by an active Beef Scheme member on run date of the Best Producing Cows report.
3. Cow should have at least five natural calving dates on record on run date of the Best Producing Cows report.
4. Cow’s age at first calving should not exceed 1187 days (39 months).
5. Cow’s average ICP (for all natural calvings) should not exceed 425 days.
6. Cow should have had a natural calving in the past 548 days (18 months) before run date of the Best Producing Cows report.
7. After the first calf with a reliable weaning weight a cow may have maximum two calves without a weaning weight or with an unreliable weaning weight.
8. Breeding value requirements:
   8.1 Only cows with EBVs from an ARC BLUP run in the past 548 days before run date of the Best Producing Cows report will be considered.
   8.2 Wean direct breeding value within the best 50% of the active female animals in the breed.
   8.3 Wean maternal breeding value within the best 50% of the active female animals in the breed.
   8.4 Birth direct breeding value within the lowest 99% of the active female animals in the breed.
   8.5 Birth maternal breeding value within the lowest 99% of the active female animals in the breed.

Note: The newest breeding values available on INTERGIS on run date of the Best Producing Cows report will always be used.

9. Minimum number of calves with reliable weaning weights:
   Elite award: 7 calves
   Superior award: 6 calves
   Excellent award: 5 calves
<p>| OWNER NO  | NAME &amp; ADDRESS                           | BRED  | COMP NO | ID NO | AFC  | AV/IP | DC/LC | RI | # CALVES | AV/WEAN INDEX | # WEAN I | AV EFF/IDX | # EFF I | BIRTH W DIR | BIRTH W MAT | WEAN W DIR | W/B DIR | W/B MAT | MATURE W | M/W ACC | AWARD   |
|-----------|------------------------------------------|-------|---------|-------|------|------|-------|----|----------|----------------|---------|-------------|--------|-------------|-------------|------------|---------|---------|----------|---------|---------|---------|
| 0423795CHL | MNR J.A. LANDMAN                         | CHL   | B43932482 | 000156 | 24   | 411  | 168  | 110| 8       | 101             | 5      | -           | 0      | -0.52       | 79          | 0.39       | 82      | 10.1    | 78      | 3.1     | 80      | 29      | 72      | Excellent |
| 0438259CHL | CLAWAC BOERDEY                           | CHL   | B43565354 | 000020 | 35   | 380  | 528  | 107| 7       | 108             | 6      | 105         | 5      | 0.44        | 83          | 0.65       | 10.1   | 78      | 3.9     | 79      | 39      | 80      | Superior |
| 0438259CHL | CLAWAC BOERDEY                           | CHL   | B44704179 | 010027 | 32   | 415  | 523  | 103| 6       | 107             | 5      | 105         | 3      | 1.85        | 80          | -0.28      | 79      | 14.4    | 71      | 1.9     | 39      | 85      | Excellent |
| 0451576CHL | OTJWA BOERDEY                            | CHL   | B43532565 | 000024 | 36   | 373  | 76   | 108| 8       | 100             | 6      | 99          | 6      | 2.38        | 80          | 0.14       | 78      | 3.6     | 74      | 39      | 85      | Superior |
| 0451576CHL | OTJWA BOERDEY                            | CHL   | B45426749 | 010036 | 36   | 370  | 76   | 108| 7       | 102             | 6      | 101         | 6      | 1.99        | 79          | -0.28      | 77      | 1.7     | 72      | 1.2     | 74      | 32      | 75      | Superior |
| 0451576CHL | OTJWA BOERDEY                            | CHL   | B43671890 | 000017 | 34   | 370  | 148  | 110| 7       | 107             | 5      | 102         | 5      | 0.65        | 84          | -0.28      | 83      | 6.4     | 79      | 2.6     | 82      | 51      | 82      | Excellent |
| 0467479CHL | MNR A.P. STEMMETT                        | CHL   | B43827047 | 001621 | 35   | 410  | 211  | 102| 7       | 102             | 5      | 102         | 5      | 0.93        | 79          | 0.2        | 77      | 8.6     | 72      | 1.7     | 72      | 32      | 74      | Excellent |
| 0467479CHL | MNR A.P. STEMMETT                        | CHL   | B45981594 | 020328 | 31   | 419  | 211  | 104| 6       | 109             | 5      | -           | 0      | -0.57       | 77          | 0.24       | 74      | 5.6     | 66      | 3.2     | 72      | 26      | 60      | Excellent |
| 0504805CHL | MNR A.A. SMIT                            | CHL   | B45368016 | 010071 | 38   | 420  | 119  | 97 | 6       | 98              | 5      | 97          | 5      | 3.11        | 81          | 0.43       | 79      | 5.7     | 74      | 1.3     | 76      | 36      | 77      | Excellent |</p>
<table>
<thead>
<tr>
<th>Owner No</th>
<th>Name &amp; Address</th>
<th>Breed</th>
<th>Comp No</th>
<th>ID No</th>
<th>AFC</th>
<th>AV CP</th>
<th>DCLC</th>
<th>RI</th>
<th># Calves</th>
<th>AV Wean Index</th>
<th>Wean</th>
<th># Eff I</th>
<th># Eff Ix</th>
<th>Birth W Dir</th>
<th>Birth W Mat</th>
<th>Wean W Dir</th>
<th>Wean W Mat</th>
<th>Wean W Dir Acc</th>
<th>Wean W Mat Acc</th>
<th>Mature W</th>
<th>M W Acc</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>0504805CH</td>
<td>Mnr A.A. Smit</td>
<td>CHL</td>
<td>45676673</td>
<td>...ACA 010094</td>
<td>26</td>
<td>405</td>
<td>134</td>
<td>111</td>
<td>7</td>
<td>106</td>
<td>5</td>
<td>108</td>
<td>0.81</td>
<td>82</td>
<td>0.49</td>
<td>81</td>
<td>7.6</td>
<td>78</td>
<td>4.9</td>
<td>79</td>
<td>54</td>
<td>79</td>
</tr>
<tr>
<td>0544658CHL</td>
<td>Mnr W.J. Wagner</td>
<td>CHL</td>
<td>38044749</td>
<td>...JPB 970007</td>
<td>31</td>
<td>395</td>
<td>-</td>
<td>108</td>
<td>9</td>
<td>108</td>
<td>8</td>
<td>105</td>
<td>-0.75</td>
<td>85</td>
<td>0.78</td>
<td>85</td>
<td>11.1</td>
<td>81</td>
<td>5.2</td>
<td>82</td>
<td>35</td>
<td>77</td>
</tr>
<tr>
<td>0550521CHL</td>
<td>Mnr J.C. DEGENAAR</td>
<td>CHL</td>
<td>45821212</td>
<td>...ACA 020008</td>
<td>33</td>
<td>363</td>
<td>108</td>
<td>111</td>
<td>7</td>
<td>103</td>
<td>6</td>
<td>98</td>
<td>2.42</td>
<td>78</td>
<td>0.45</td>
<td>75</td>
<td>10.8</td>
<td>70</td>
<td>2.6</td>
<td>70</td>
<td>46</td>
<td>63</td>
</tr>
<tr>
<td>0550521CHL</td>
<td>Mnr J.C. DEGENAAR</td>
<td>CHL</td>
<td>46061032</td>
<td>...ACA 020025</td>
<td>28</td>
<td>377</td>
<td>56</td>
<td>114</td>
<td>7</td>
<td>103</td>
<td>5</td>
<td>95</td>
<td>2.14</td>
<td>81</td>
<td>0.09</td>
<td>80</td>
<td>6.7</td>
<td>77</td>
<td>1.9</td>
<td>78</td>
<td>16</td>
<td>72</td>
</tr>
<tr>
<td>0559447CHL</td>
<td>Cronila Bk</td>
<td>CHL</td>
<td>44358513</td>
<td>...CY 000385</td>
<td>38</td>
<td>373</td>
<td>341</td>
<td>106</td>
<td>7</td>
<td>111</td>
<td>5</td>
<td>122</td>
<td>0.31</td>
<td>78</td>
<td>-0.45</td>
<td>75</td>
<td>10.2</td>
<td>72</td>
<td>1.1</td>
<td>72</td>
<td>4</td>
<td>73</td>
</tr>
<tr>
<td>0563413CHL</td>
<td>Coenraad Boerdery Edms Bpk</td>
<td>CHL</td>
<td>34577577</td>
<td>...MF 950002</td>
<td>39</td>
<td>365</td>
<td>458</td>
<td>110</td>
<td>12</td>
<td>108</td>
<td>10</td>
<td>95</td>
<td>1.82</td>
<td>87</td>
<td>0.27</td>
<td>87</td>
<td>14.1</td>
<td>64</td>
<td>4.1</td>
<td>65</td>
<td>39</td>
<td>79</td>
</tr>
<tr>
<td>0563413CHL</td>
<td>Coenraad Boerdery Edms Bpk</td>
<td>CHL</td>
<td>41348186</td>
<td>...MF 980011</td>
<td>38</td>
<td>406</td>
<td>107</td>
<td>101</td>
<td>9</td>
<td>111</td>
<td>7</td>
<td>111</td>
<td>-1.68</td>
<td>82</td>
<td>-0.36</td>
<td>81</td>
<td>14.7</td>
<td>76</td>
<td>6.1</td>
<td>78</td>
<td>37</td>
<td>69</td>
</tr>
<tr>
<td>0568874CHL</td>
<td>Mnr D.J. Steenkamp</td>
<td>CHL</td>
<td>45676129</td>
<td>...ACA 010077</td>
<td>31</td>
<td>381</td>
<td>142</td>
<td>110</td>
<td>7</td>
<td>101</td>
<td>6</td>
<td>102</td>
<td>0.81</td>
<td>79</td>
<td>0.36</td>
<td>76</td>
<td>5.7</td>
<td>71</td>
<td>4.8</td>
<td>72</td>
<td>62</td>
<td>75</td>
</tr>
<tr>
<td>0584344CHL</td>
<td>Mnr W.J.L. Le Roux</td>
<td>CHL</td>
<td>45176666</td>
<td>...BB 010591</td>
<td>28</td>
<td>359</td>
<td>100</td>
<td>116</td>
<td>8</td>
<td>103</td>
<td>7</td>
<td>94</td>
<td>-0.38</td>
<td>77</td>
<td>0.73</td>
<td>79</td>
<td>8.6</td>
<td>75</td>
<td>3.6</td>
<td>76</td>
<td>38</td>
<td>67</td>
</tr>
<tr>
<td>OWNER NO</td>
<td>NAME &amp; ADDRESS</td>
<td>BREED</td>
<td>COMB NO</td>
<td>ID NO</td>
<td>AFC</td>
<td>AV CP</td>
<td>DCLC</td>
<td>RI</td>
<td># CALVES</td>
<td>AV/WEAN INDEX</td>
<td># EFF I</td>
<td>AV EFF IDX</td>
<td>BIRTH W DIR</td>
<td>B. W DIR ACC</td>
<td>B. W MAT ACC</td>
<td>WEAN W DIR</td>
<td>B. W DIR ACC</td>
<td>B. W MAT ACC</td>
<td>MATURE W</td>
<td>M. W ACC</td>
<td>AWARD</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------------------</td>
<td>-------</td>
<td>---------</td>
<td>-------</td>
<td>-----</td>
<td>-------</td>
<td>------</td>
<td>----</td>
<td>---------</td>
<td>---------------</td>
<td>--------</td>
<td>------------</td>
<td>-------------</td>
<td>---------------</td>
<td>---------------</td>
<td>-------------</td>
<td>---------------</td>
<td>---------------</td>
<td>-------------</td>
<td>-----------</td>
<td>---------</td>
<td>--------</td>
</tr>
<tr>
<td>0584344CHL</td>
<td>MNR W.J.L. LE ROUX</td>
<td>CHL</td>
<td>43973565</td>
<td>BB000546</td>
<td>26</td>
<td>360</td>
<td>90</td>
<td>118</td>
<td>9</td>
<td>98</td>
<td>6</td>
<td>-</td>
<td>-0.44</td>
<td>76</td>
<td>0.33</td>
<td>78</td>
<td>9.9</td>
<td>72</td>
<td>1.1</td>
<td>74</td>
<td>37</td>
<td>64</td>
</tr>
<tr>
<td>0584344CHL</td>
<td>MNR W.J.L. LE ROUX</td>
<td>CHL</td>
<td>46964425</td>
<td>CY020606</td>
<td>25</td>
<td>354</td>
<td>510</td>
<td>120</td>
<td>6</td>
<td>99</td>
<td>6</td>
<td>-</td>
<td>1.34</td>
<td>82</td>
<td>-0.1</td>
<td>81</td>
<td>6.9</td>
<td>78</td>
<td>1</td>
<td>80</td>
<td>26</td>
<td>72</td>
</tr>
<tr>
<td>0584344CHL</td>
<td>MNR W.J.L. LE ROUX</td>
<td>CHL</td>
<td>46064300</td>
<td>CY020594</td>
<td>33</td>
<td>394</td>
<td>457</td>
<td>105</td>
<td>5</td>
<td>102</td>
<td>5</td>
<td>-</td>
<td>0.08</td>
<td>77</td>
<td>-0.13</td>
<td>74</td>
<td>8.1</td>
<td>72</td>
<td>1.9</td>
<td>73</td>
<td>30</td>
<td>65</td>
</tr>
<tr>
<td>0584344CHL</td>
<td>MNR W.J.L. LE ROUX</td>
<td>CHL</td>
<td>47208202</td>
<td>CY020614</td>
<td>33</td>
<td>393</td>
<td>438</td>
<td>105</td>
<td>5</td>
<td>102</td>
<td>5</td>
<td>-</td>
<td>0.35</td>
<td>80</td>
<td>0.64</td>
<td>78</td>
<td>11.4</td>
<td>75</td>
<td>5.2</td>
<td>76</td>
<td>31</td>
<td>69</td>
</tr>
<tr>
<td>0588340CHL</td>
<td>MARSHALL CATTLE SERV</td>
<td>CHL</td>
<td>40712481</td>
<td>THG980016</td>
<td>32</td>
<td>390</td>
<td>84</td>
<td>109</td>
<td>10</td>
<td>101</td>
<td>9</td>
<td>101</td>
<td>2.33</td>
<td>82</td>
<td>-0.3</td>
<td>81</td>
<td>7.9</td>
<td>75</td>
<td>3.8</td>
<td>78</td>
<td>28</td>
<td>68</td>
</tr>
<tr>
<td>0588340CHL</td>
<td>MARSHALL CATTLE SERV</td>
<td>CHL</td>
<td>42708446</td>
<td>THG990033</td>
<td>36</td>
<td>380</td>
<td>385</td>
<td>107</td>
<td>8</td>
<td>100</td>
<td>7</td>
<td>-</td>
<td>2.79</td>
<td>82</td>
<td>-0.35</td>
<td>84</td>
<td>15</td>
<td>79</td>
<td>0.7</td>
<td>82</td>
<td>40</td>
<td>76</td>
</tr>
<tr>
<td>0588340CHL</td>
<td>MARSHALL CATTLE SERV</td>
<td>CHL</td>
<td>42945956</td>
<td>THG990054</td>
<td>35</td>
<td>371</td>
<td>79</td>
<td>110</td>
<td>9</td>
<td>106</td>
<td>7</td>
<td>-</td>
<td>0.13</td>
<td>81</td>
<td>0.52</td>
<td>80</td>
<td>10.9</td>
<td>76</td>
<td>6.1</td>
<td>78</td>
<td>38</td>
<td>68</td>
</tr>
<tr>
<td>0588340CHL</td>
<td>MARSHALL CATTLE SERV</td>
<td>CHL</td>
<td>42946038</td>
<td>THG990060</td>
<td>33</td>
<td>381</td>
<td>24</td>
<td>109</td>
<td>9</td>
<td>102</td>
<td>2</td>
<td>-</td>
<td>0.22</td>
<td>82</td>
<td>-0.22</td>
<td>81</td>
<td>5.7</td>
<td>76</td>
<td>1.1</td>
<td>78</td>
<td>25</td>
<td>68</td>
</tr>
<tr>
<td>0588340CHL</td>
<td>MARSHALL CATTLE SERV</td>
<td>CHL</td>
<td>42946061</td>
<td>THG990065</td>
<td>34</td>
<td>367</td>
<td>97</td>
<td>111</td>
<td>9</td>
<td>105</td>
<td>7</td>
<td>-</td>
<td>1.95</td>
<td>84</td>
<td>0.63</td>
<td>84</td>
<td>15</td>
<td>80</td>
<td>4.4</td>
<td>82</td>
<td>38</td>
<td>75</td>
</tr>
<tr>
<td>OWNER NO</td>
<td>NAME &amp; ADDRESS</td>
<td>BREED</td>
<td>COMP NO</td>
<td>ID NO</td>
<td>AFC</td>
<td>AV CP</td>
<td>DLCL</td>
<td>RI</td>
<td># CALVES</td>
<td>AV</td>
<td>WEAN</td>
<td>WEAN</td>
<td># EFF</td>
<td># EFF</td>
<td>BIRTH W</td>
<td>BIRTH W</td>
<td>WEAN</td>
<td>WEAN</td>
<td>WEAN</td>
<td>W</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>----------</td>
<td>----------------</td>
<td>-------</td>
<td>---------</td>
<td>-------</td>
<td>-----</td>
<td>-------</td>
<td>------</td>
<td>----</td>
<td>----------</td>
<td>----</td>
<td>------</td>
<td>------</td>
<td>-------</td>
<td>-------</td>
<td>--------</td>
<td>--------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
</tbody>
</table>
| 0588340CHL | MARSHALL CATTLE SERV  
PRIVATE BAG 351,  
SUITE 270 - POSTNET  
KGALEVIEW, GABARONE,BOTSWANA | CHL 46841649 | THG 020057 | 37 | 371 | 75 | 106 | 6 | 104 | 5 | - | 1.58 | 79 | 0.11 | 75 | 11.5 | 72 | 2.4 | 72 | 41 | 62 | Excellent |
| 0588340CHL | MARSHALL CATTLE SERV  
PRIVATE BAG 351,  
SUITE 270 - POSTNET  
KGALEVIEW, GABARONE,BOTSWANA | CHL 46841755 | THG 020066 | 37 | 371 | 423 | 104 | 6 | 102 | 5 | - | 1.75 | 80 | -0.52 | 78 | 7.1 | 75 | 3.2 | 75 | 13 | 67 | Excellent |
| 0588340CHL | MARSHALL CATTLE SERV  
PRIVATE BAG 351,  
SUITE 270 - POSTNET  
KGALEVIEW, GABARONE,BOTSWANA | CHL 46842043 | THG 020097 | 37 | 357 | 121 | 108 | 6 | 102 | 5 | - | 2.2 | 80 | -0.87 | 78 | 10.9 | 74 | 0.6 | 74 | 26 | 67 | Excellent |
| 0588340CHL | MARSHALL CATTLE SERV  
PRIVATE BAG 351,  
SUITE 270 - POSTNET  
KGALEVIEW, GABARONE,BOTSWANA | CHL 46842084 | THG 020101 | 36 | 378 | 39 | 106 | 6 | 104 | 5 | - | 1.95 | 78 | 0.47 | 80 | 8.4 | 72 | 6.4 | 72 | 34 | 62 | Excellent |
| 0605135CHL | DAVIREN CHAROLAIS  
POSBUS 173  
SCHWEIZER RENENKE  
2780 | CHL 43423888 | ACA 000038 | 29 | 372 | 41 | 113 | 9 | 100 | 8 | 104 | 6 | 1.16 | 81 | 0 | 81 | 8.4 | 74 | 3.5 | 77 | 17 | 76 | Elite |
| 0605135CHL | DAVIREN CHAROLAIS  
POSBUS 173  
SCHWEIZER RENENKE  
2780 | CHL 43725863 | ACA 000072 | 30 | 396 | 71 | 108 | 8 | 106 | 7 | 104 | 6 | 0.96 | 81 | 0.7 | 80 | 13.7 | 75 | 6.5 | 77 | 40 | 76 | Elite |
| 0605135CHL | DAVIREN CHAROLAIS  
POSBUS 173  
SCHWEIZER RENENKE  
2780 | CHL 45620267 | MF 010010 | 35 | 390 | 28 | 105 | 7 | 100 | 6 | 102 | 1 | 1.72 | 80 | 0.22 | 79 | 13.1 | 75 | 1.2 | 77 | 26 | 68 | Superior |
| 0605135CHL | DAVIREN CHAROLAIS  
POSBUS 173  
SCHWEIZER RENENKE  
2780 | CHL 45620473 | MF 010025 | 34 | 357 | 218 | 112 | 7 | 111 | 5 | 114 | 1 | 1.12 | 81 | 0.03 | 79 | 16.4 | 78 | 2.9 | 78 | 33 | 71 | Excellent |
| 0605553CHL | FITZHENRY FARMING  
P.O. BOX 188  
INDWE  
5445 | CHL 61167870 | MF 020017 | - | 368 | 165 | 115 | 6 | 113 | 5 | - | 0.29 | 51 | 0.32 | 57 | 8 | 25 | 9.4 | 49 | - | Excellent |