

Leadersheep: the unique strain of Iceland sheep^a

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Summary

A unique strain of sheep, known to lead the flock, has evolved within the short-tailed, native breed of Iceland sheep. Leadersheep, known for centuries, walk or run in front of the flock, even in bad weather conditions, they may foresee climatic events and are generally very alert and attentive. The high level of intelligence expressed by these sheep is known to be strongly inherited, without being linked to sex, age, colour and other external traits. However, little is known about the genetics of leadersheep *per se*. Most of them are non-white and horned with a slender body conformation. Since they are endangered with a breeding population of only some 1 000 purebred animals, mostly ewes, conservation measures are in progress, mainly through AI and individual recording. To strengthen these efforts enthusiastic breeders and scientists founded the Leadersheep Society of Iceland in the spring of 2000. While the main aim is to conserve and maintain leadersheep, future possibilities of utilizing their unique characteristics are being considered.

Résumé

Une seule lignée ovine, reconnue comme leader de troupeau, a évolué vers la race native à courte queue en Islande. La race Leadersheep, connue depuis des siècles, marche ou cours devant le troupeau même dans des conditions de mauvais temps, et est capable de prévoir les événements climatiques, se qui les rend extrêmement attentives. Le haut niveau d'intelligence de cette race semble être de forte héritabilité, sans qu'il y ait un lien avec le sexe, l'âge, la

couleur ou d'autres caractéristiques externes. Cependant, très peu est connu de la génétique de cette race de *per se*. La plupart ne sont pas blanche, portent des cornes et possèdent un corps de conformation élancée. Etant donné la situation de danger de disparition, seulement 1 000 animaux purs la plupart des brebis, des mesures de conservation ont été mis en place surtout à travers l'insémination artificielle (AI) et le contrôle individuel. Pour renforcer ces efforts enthousiasmants, les éleveurs et les chercheurs ont fondé la Leadersheep Society of Iceland au printemps 2000. Bien que l'objectif principal soit de conserver et maintenir la race, on a pris aussi en considération la possibilité d'utiliser leurs caractéristiques uniques.

Keywords: *Characteristics, Conservation, Leadersheep Society.*

Introduction

The only breed of sheep in Iceland is the native North-European short-tailed sheep brought to the country by the settlers, the Vikings, 1 100-1 200 years ago. Without their sheep the Icelanders would not have survived throughout centuries of hardship on an isolated island just south of the Arctic Circle. Even grazing in winter had to be utilized to the utmost. Somehow, a unique small population of sheep evolved, probably through selection in certain flocks, which

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Figure 1. A leadersheep (wether) coming first across a bridge.

displayed outstanding behavioural abilities to aid the management of the flock at extensive range pastures, namely leadersheep (Adalsteinsson, 1981; Jónmundsson *et al.*, 1994).

Characteristics

The main characteristics of sheep of the leadersheep strain are to walk or run in front of the flock, even in very bad weather conditions. Moreover, they seem to be able to foresee or predict climatic events such as snowstorms. They are generally very alert and attentive and a large number of records of individual leadersheep show that they differ considerably from other sheep in many aspects of intelligence (Jónsson, 1953). Although individual sheep of this strain differ to the extent to which the traits are expressed, there is clearly a strong hereditary base present (Jónmundsson *et al.*, 1994). Leading characteristics are not linked to sex, age, colour and other external traits. However, most of the leadersheep are non-white with a range of colours. Most of them are horned, even four-horned in a few cases, they have a slender body conformation, long legs and bones, in general, and are of lighter weight than other sheep in the flock as they have been selected for intelligence, not for meat characteristics. The ewes are excellent mothers, reproductive performance is similar as in ordinary Icelandic sheep but longevity may be higher.

Distribution



Figure 2. A leadersheep leading a flock from pasture after a heavy snowfall (below)

It is generally assumed that the cradle of leadersheep breeding was in Northeast-Iceland. Around the middle of the 20th century there was a substantial decline in the population of leadersheep due to a widespread slaughter policy and restocking which resulted in the eradication of the lung diseases Jaagziekte and Maedi. Moreover, hayfield cultivation and increased hay and silage production reduced the need for winter grazing and thus the role

of leadersheep diminished in most flocks. Fortunately, steps were taken in the 1950s to conserve leadersheep and for over 40 years

farmers have been able to obtain semen from rams of the leadersheep strain kept at AI centres. The stronghold of leadersheep is still in NE-Iceland where most of the AI rams have been obtained. Those who breed leadersheep, normally a few in each flock, keep ewes and to a lesser extent rams, but contrary to ancient practices only small numbers of leadersheep are now kept as wethers. The breeding population of leadersheep in Iceland is hardly over 1 000 purebreds with perhaps some 500 crossbred individuals. The total population of breeding sheep in Iceland is 460 000 at present. A few crossbred Icelandic leadersheep are now found in Canada and the USA due to semen exports from 1998 onwards. The AI work in such a small population has been facilitated by oestrus synchronization since the mid

1970s and the Farmers' Association will continue to support the conservation of this unique strain of sheep.

Leadersheep society

Enthusiastic sheep breeders, sheep scientists and others interested in leadersheep, founded the Leadersheep Society of Iceland on 18 April 2000. The main aims of the society, stated in its by-law, are to support the maintenance and conservation of leadersheep, improve individual recording, gather past and present information about such sheep and disseminate educational material about them. The Society cooperates with the Farmers' Association and other relevant bodies, for example, on the selection of promising leaderrams for the AI services operated from two centres in the country. As



Figure 3. A Leadersheep ram.

I am the chairman of this newly founded society, already with a membership of 140, with a few in North-America, I will do my best to provide further information on request.

Conclusions

The leading instinct and other peculiarities of Icelandic leadersheep are examples of genetically based rare characteristics which due to changes in management practices have lost much of their former economic importance. However, I am one of those who believe that such unique characteristics should be conserved, not only for cultural reasons or as a means of maintaining biodiversity, but also with future practical possibilities in mind. For example, do leadersheep still have a role in facilitating flock management under extensive pastoral

conditions? Can their alertness help to protect flocks against predators? One wonders how better use could be made of such genes in the future.

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La chèvre Draa. Potentiel de production et caractéristiques d'adaptation aux contraintes de l'environnement aride

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Résumé

La chèvre Draa est la seule des populations caprines marocaines qui peut être considérée comme une race bien distincte. C'est une sorte d'isolat génétique qui est localisée et élevée principalement dans les oasis de la vallée du Draa à un climat aride. Il ressort des études réalisées que le potentiel laitier de la chèvre Draa est satisfaisant (142 litres sur 150j de lactation). De même, l'évaluation des ses performances de reproduction en station a montré une prolificité de 158 % avec une aptitude à réaliser deux mises bas par an.

De plus, la chèvre Draa présente quelques capacités adaptatives pour produire et survivre dans les conditions arides. En effet, son turnover de l'eau corporelle est relativement faible comparativement aux races caprines européennes étudiées dans les mêmes conditions expérimentales. Enfin, la chèvre Draa présente une bonne capacité à préserver l'appétit en cas de privation d'eau. Ces caractéristiques de production et d'adaptation, prises ensemble, font d'elle un bon candidat pour le développement d'une race caprine laitière marocaine et pour continuer les efforts pour sa préservation, son amélioration et la connaissance de ses caractéristiques physiologiques.

Summary

The Draa goat can be considered as a distinct breed among various goat populations in Morocco. It is considered as a genetic isolate reared in the oasis, along the Draa valley in southern Morocco, which is characterised by

an arid climate conditions. The results of previous investigations showed that the Draa goat has a good potential for milk production (142 litres during 150 day lactation). The evaluation of its reproductive performances under station conditions indicated a prolificacy of 158% and an ability to produce 2 crops per year. Moreover, the Draa goat showed some adaptive characteristics to produce and survive in arid conditions. Its water turnover is low compared to European goat breeds studied in similar environment conditions. The Draa goat also has the ability to maintain food intake unchanged during period of water deprivation. Taken together, these results indicate that the Draa goat could be a good candidate for developing a Moroccan goat breed for milk production. Thus, effort to preserve, improve and to study the Draa goat should be continued.

Mots clefs: Chèvre Draa, Maroc, Caractéristiques d'adaptation, Production laitière, Fertilité.

Introduction

L'élevage caprin au Maroc constitue une richesse potentielle pour l'amélioration du revenu des agriculteurs dans les zones défavorisées et marginalisées. Les effectifs sont relativement importants (5,1 millions de têtes en 1999). Du point de vue génétique, le cheptel caprin marocain se caractérise par son hétérogénéité due au brassage incontrôlé entre les différentes populations. Il est donc difficile de distinguer des entités génétiques bien définies (races) à l'instar des races ovines

locales qui sont bien standardisées. Néanmoins on peut distinguer trois populations caprines marocaines (Bourfia, 1989).

La population caprine du Nord ou population Fnideq: elle résulte d'un métissage entre la population locale et certaines races espagnoles (Murciana, Granadina, Andalousia) et de ce fait présente des caractéristiques laitières apparentes comme la finesse de la peau et un bon développement de la mamelle.

La population caprine des montagnes de l'Atlas ou chèvre noire marocaine: elle possède des caractéristiques d'adaptation aux conditions arides fort intéressantes à savoir un faible turnover de l'eau corporelle ainsi qu'une bonne capacité à préserver le poids corporel lors des privations complètes d'eau

ou d'aliments (Hossaini-Hilali *et al.*, 1993; Hossaini-Hilali *et al.*, 1994). La chèvre noire marocaine se caractérise aussi par son tempérament. C'est un animal habile, marcheur et un bon grimpeur. Son défaut réside dans son potentiel laitier limité (Hossaini-Hilali et Benlamlih, 1995). Elle est typiquement non prolifique avec une taille moyenne de portée de 1,03 (Bourfia, 1989).

La population D'man ou Draa: elle est localisée et élevée principalement dans les oasis de la vallée du Draa dans le Sud du Maroc. Il s'agit d'une sorte d'isolat génétique. C'est la seule des populations caprines marocaines qui peut être considérée comme une race bien distincte. L'effectif total dans la vallée du Draa était de 20 000 têtes dans les années 80 et s'est réduit actuellement à 10 000 têtes. Jusqu'à présent, la chèvre Draa

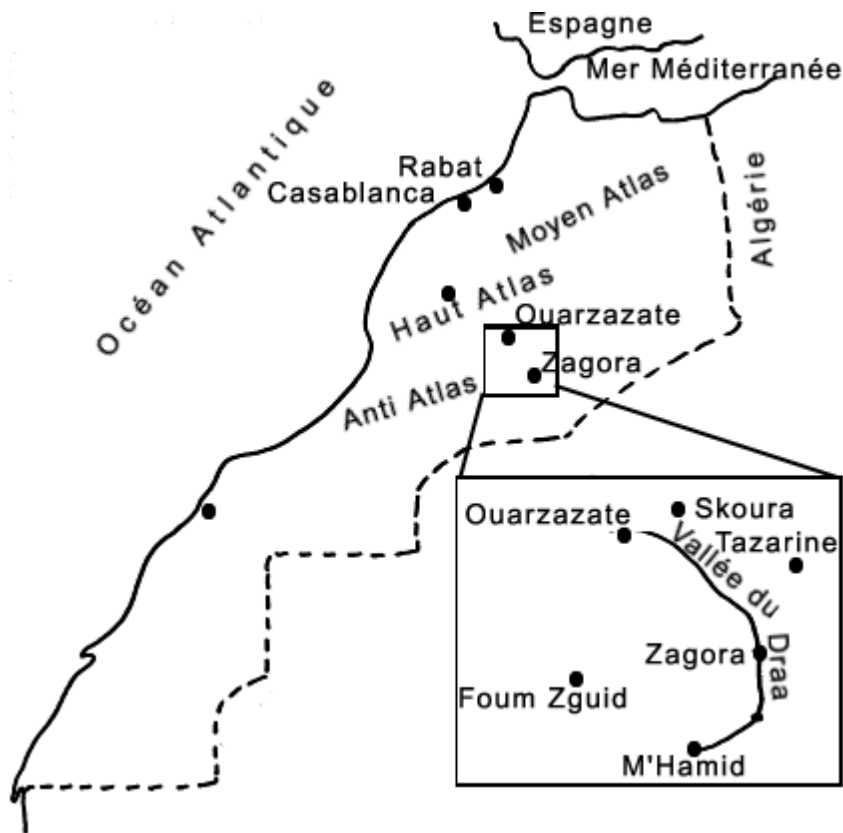


Figure 1. Carte du Maroc avec la localisation et le détail de la vallée du Draa qui est le berceau principal de la chèvre Draa.

n'a pas encore été utilisée dans un programme de croisement ni avec d'autres populations locales marocaines ni avec des races européennes.

Le présent article a pour objectif de présenter la chèvre Draa tout en mettant l'accent sur son potentiel de production ainsi que sur ses capacités d'adaptations aux conditions arides d'élevage.

Données Générales

Berceau de race

La chèvre Draa est élevée principalement dans les oasis de la vallée de l'oued Draa. Celui-ci s'étend sur 200 km dans le Sud marocain entre Ouarzazate et Zagora. Cependant, on peut trouver la chèvre Draa dans d'autres oasis situées en dehors de la vallée du Draa tout en étant proche comme les oasis de Tazarine, Skoura et Foum-Zguid (Figure 1). Le climat qui règne dans le bassin versant du Draa est un climat sec à tendance continentale. Ce bassin est ouvert vers le sud-est et le Sahara et subit par conséquent l'influence du climat désertique. Les températures sont très élevées avec une saison chaude de 7 mois présentant des moyennes mensuelles de maxima supérieures à 30 °C. Les précipitations moyennes décroissent du nord vers le sud de la vallée du Draa et sont comprises entre 150 et 50 mm.

Appellation et origine

Localement la chèvre Draa est appelée «*Horra*» ce qui signifie «pure». Ceci laisse penser que les éleveurs se sont aperçus depuis longtemps que cette population représente une race bien identifiée malgré l'hétérogénéité des robes qu'elle présente. Elle est aussi appelée «*Beldia*» qui signifie «locale». Dans les années 80 et lors de la première description de la race, Ezzahiri et Benlakhal (1985) ont décidé de l'appeler la

chèvre D'man. Cette appellation a été motivée par deux éléments. Le premier est que le berceau d'élevage de la chèvre Draa est globalement identique à celui de la brebis D'man. Le deuxième élément est que les premières études sur l'activité sexuelle de la chèvre Draa ont montré que cette race est désaisonnée et possède un anoestrus post-partum court à l'instar de la brebis D'man (Ezzahiri et Benlakhal, 1985, Lahlou-Kassi *et al.*, 1989). Cette situation n'a pas trop duré puisque l'Office de Mise en Valeur Agricole de Ouarzazate (ORMVAO) a jugé plus opportun d'appeler cette race la chèvre Draa et de garder l'appellation D'man pour la brebis évitant ainsi toute confusion. L'origine de la chèvre Draa n'est pas bien connue. On a émis l'hypothèse que cette chèvre a été introduite dans les oasis du Sud marocain à partir des îles Canaries. Cette hypothèse est loin d'être plausible. Il existe une nette différence entre la chèvre Draa et celle originaire des îles Canaries. En effet, la chèvre des Canaries se caractérise par sa relative grande taille. En plus, elle porte des cornes et possède une robe à poil long (Ezzahiri et Benlakhal, 1985).

Description morphologique

La première description morphologique de la chèvre Draa a été faite par Ezzahiri et Benlakhal (1985). C'est un animal de format moyen avec un poids moyen de 32 kg. La hauteur au garrot et la longueur du corps sont respectivement de 66 et 62 cm. L'encolure est mince, bien dégagée et porte souvent deux pendeloques. La tête est fine, triangulaire et souvent dépourvue de cornes chez la femelle. La peau est fine, souple et porte des poils ras. On note une très grande hétérogénéité des robes et les plus répandus sont le brun, le marron avec souvent des plages blanches au niveau du thorax ou de la tête. Certaines chèvres présentent les 3 couleurs à la fois (Figure 2 et 3).



Figure 2. Chèvre Draa dans l'oasis de Skoura près de Ouarzazate présentant une robe à prédominance blanche avec des taches brune et marron.

Mode d'élevage

La chèvre Draa est une chèvre qui ne se déplace pas dans les pâturages. Elle est plutôt maintenue dans les habitations. Il n'existe pas de chèvres bien individualisées. Les animaux sont maintenus avec d'autres espèces (ovins et rarement bovins) dans des locaux situés dans le rez-de-chaussée des habitations. De mars à septembre, l'alimentation est constituée principalement de luzerne, de paille, de quelques sous-produits de maraîchage et très peu de déchets de dattes. D'octobre à février, la ration est constituée principalement du foin de luzerne et les déchets de dattes. Cette ration est complétée accessoirement par l'orge, le son et la pulpe sèche de betterave selon les disponibilités en trésorerie (Ezzahiri et Benlakhhal, 1988).

Potentiel de Production

Performances de reproduction

L'évaluation des performances de reproduction d'un troupeau de chèvres élevées en station et observées pendant 6 ans (1982-1988) a montré que la fertilité des luttés d'hiver, du printemps et d'été est supérieure à 80%. L'intervalle entre deux mise bas est en moyenne de 9 mois, cependant 20 % des intervalles sont de 6 mois (Ezzahiri et Benlakhhal, 1988). Ces observations indiquent que la chèvre Draa est une race désaisonnée comme la race ovine D'man (Lahlou-Kassi *et al.*, 1989). Cette caractéristique est un avantage pour l'établissement d'un programme de reproduction accélérée visant à l'augmentation de la productivité du troupeau. Concernant la prolificité, sur l'ensemble des naissances enregistrées pendant 6 ans en station, le pourcentage des naissances simple, double et triple a été

respectivement de 36, 57 et 7 %. Soit un taux moyen de prolificité de 158% (Ezzahiri et Benlakhal, 1988).

Production laitière

Un troupeau conduit en station (de 1982 à 1988) et formé de 14 à 39 chèvres selon les années a été suivi afin de quantifier avec plus de précision le potentiel laitier de la chèvre Draa. Les résultats du contrôle laitier de ce troupeau indiquent que la durée moyenne de lactation chez la chèvre Draa est de 150 j; mais elle varie de 90 à 150 j. La production laitière moyenne est de 142 litres et le maximum obtenu est de 219 litres. L'évolution de la production laitière journalière au cours de la lactation est consignée dans le Tableau 1.

Les performances laitières d'une race sont déterminées par la génétique, certes, mais aussi par les facteurs liés à l'environnement de production (contraintes environnementales, pression pathogène et alimentation). Ainsi, pour mieux juger des potentialités d'une race, il est préférable de la comparer par rapport à une autre maintenue dans le même milieu de production. Dans ce sens, Ezzahiri et Benlakhal. (1985) ont mené une étude qui consistait en la comparaison de la production laitière de la race Draa par rapport à une race étrangère (la race espagnole Murciana) et la population caprine

du Nord du Maroc (population Fnideq). Les résultats ont montré que sur une période de lactation de 150 j, la production laitière de la chèvre Draa a été de 142 Litres. Cette valeur est comparable à celle enregistrée chez la race Murciana (142 litres) et légèrement supérieure aux performances de la race Fnideq (125 litres). Ces résultats montrent que dans des conditions similaires la chèvre Draa présente des capacités de production comparables à d'autres races laitières bien connues (race Murciana en l'occurrence).

Adaptation aux contraintes de l'environnement aride

Les performances de production prometteuses affichées par la chèvre Draa indiquent que cette chèvre peut être un substrat génétique pour la création d'une chèvre laitière marocaine. Cette éventualité serait encore plus attractive s'il s'avérait que cette chèvre possède des caractéristiques d'adaptation et de survie dans des conditions difficiles. Cette possibilité nous a interpellé pour réaliser, dans des conditions contrôlées, des expérimentations afin de mettre en évidence les potentialités d'adaptation éventuelles de la chèvre Draa aux conditions difficiles du milieu aride à savoir la rareté de l'eau et des aliments. Les principaux résultats sont comme suit.

Tableau 1. Production laitière journalière chez la chèvre Draa élevée en station (D'après Ezzahiri et Benlakhal, 1988).

	Quinzaine de lactation									
	1	2	3	4	5	6	7	8	9	10
Production laitière (l/j)										
Moyenne	1,30	1,08	1,01	1,00	0,95	1,0	0,95	0,80	0,75	0,65
Minimum	0,70	0,65	0,40	0,50	0,45	0,40	0,35	0,30	0,30	0,30
Maximum	2,30	2,00	2,10	1,55	1,40	1,45	1,30	0,90	0,80	0,80
Coefficient de persistance %	-	83	94	99	95	-	95	84	94	87



Figure 3. Chèvre Draa en fin de gestation à l'I.A.V. Hassan II à Rabat présentant une robe marron avec une petite tache blanche au front.

Le turnover de l'eau corporelle

Un des mécanismes adaptatifs développés par les animaux vivants dans les milieux arides est le fait d'avoir des besoins en eau assez faibles. Ceci n'est possible que grâce à l'intervention de différents mécanismes physiologiques et comportementaux. Ainsi, Mouslih (1999) a rapporté que la prise d'eau journalière chez la chèvre Draa a été de 47 ml/kg PV. Ces valeurs sont comparables à celle rapportée par Hossaini-Hilali *et al.* (1993) chez la chèvre noire marocaine étudiée dans les mêmes conditions d'ambiance et recevant une ration alimentaire similaire (36 ml/kg PV). En revanche, les races caprines européennes montrent des niveaux de prises d'eau 3-4 fois supérieurs (Chaiyabutr *et al.*, 1988; Dahlborn et Karlberg, 1986). La prise d'eau a été accompagnée par des pertes hydriques urinaires assez faible, soit 7 ml/kg P.V.. La faible excrétion urinaire chez la chèvre Draa a été accompagnée par

une osmolalité urinaire en conditions de normohydratation modérément élevée (1 500-2 000 mosm/kg). Ce qui laisse penser que la capacité rénale à concentrer l'urine contribue au faible turnover de l'eau corporelle chez la chèvre Draa.

Effet de la privation d'eau

D'après McFarlane (1964) les animaux adaptés à vivre dans des conditions arides ou désertiques présentent une capacité à maintenir l'appétit lorsque l'eau manque. Chez la chèvre Draa, la privation d'eau pendant 48 heures a entraîné une baisse de 21% de la matière sèche ingérée. Cette réduction de la prise alimentaire concerne uniquement l'aliment grossier (Mouslih 1999). Cette diminution de la consommation alimentaire est comparable à celle observée chez la chèvre noire marocaine (24%, Hossaini-Hilali *et al.*, 1994). En revanche, les races caprines européennes arrêtent de

manger (90% de diminution) après 48 heures de privation d'eau (Dahlborn, 1987). Ceci montre que la chèvre Draa présente également une bonne capacité du maintien de la consommation alimentaire en période de privation d'eau. Cette ressemblance comportementale de la chèvre Draa avec la chèvre noire marocaine a été corroborée par l'étude du polymorphisme biochimique. En effet, le calcul des distances génétiques, en utilisant les variants électrophorétiques des systèmes transferrine (TF), post-albumine (GC) et hémoglobine (HBB), a indiqué l'existence d'un rapprochement entre la race Draa et la chèvre noire marocaine (Touzami, 1998)

Capacité de stockage d'un excès d'eau

La chèvre Draa n'a pas de capacité extraordinaire à stocker un surplus d'eau (Mouslih, 1999). Pour vérifier cette hypothèse six chèvres Draa vides et sèches ont été hyperhydratées à l'aide d'une sonde oesophagienne. La quantité d'eau administrée était équivalente à 10% du poids corporel. Le volume d'eau éliminé par voie urinaire a été mesuré au cours des 6 heures post-hyperhydratation. Les performances de rétention d'une charge hydrique équivalente à 10% de poids corporel chez la chèvre Draa se situent entre celle de la chèvre suédoise et celle de la chèvre noire marocaine (Tableau 2). La chèvre Draa ne présente pas de capacité

extraordinaire à stocker l'eau dans le compartiment ruminal comme cela a été démontré pour la chèvre Bédouine (Choshniak et Shkolnik, 1977)

Conclusion

Au Maroc, le cheptel caprin était de 8 millions de têtes en 1960. Cet effectif s'est réduit à 5,1 millions en 1999. La chèvre Draa n'a pas échappé à cette tendance. Au début des années 80, l'effectif total de cette race était de 20 000 têtes. Actuellement, il est de 10 000 têtes soit une réduction de 50%. Or, il s'est avéré, d'après les recherches réalisées jusqu'à présent, que la chèvre Draa présente des potentialités de production laitière et de fertilité fort intéressantes tout en gardant des caractéristiques d'adaptation aux conditions difficiles de l'environnement aride. Ces éléments, pris ensemble, font d'elle un bon candidat pour la création d'une race caprine laitière marocaine. Aussi, les efforts de préservation, d'amélioration et d'étude de la chèvre Draa doivent être maintenus et soutenus pour une meilleure valorisation des zones arides et semi-arides du Maroc.

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Tableau 2. La proportion d'eau excrétée par voie urinaire pendant 6 heures après administration par voie intraruminale d'une charge hydrique équivalente à 10% du poids vif chez différentes races caprines.

Race	%	Auteur
La chèvre suédoise	60	Olsson et al. (1982)
La chèvre Draa	51	Mouslih (1999)
La chèvre noire Marocaine	46	Hossaini-Hilali <i>et al.</i> (1994)

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Four Southern African Horse Breeds

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Summary

The history and development of the four Southern African horse breeds, i.e. Basutho Pony, Nooitgedacht, South African (SA) Boerperd and Cape Boerperd, are traced from their common ancestor, the Cape Horse, to the present day. Recent blood-typing studies of the first three have shown them to be closer related to each other than to any other world breed. At the beginning of the twentieth century the Southern African horse industry was devastated after the Anglo Boer War (1899-1902). Indiscriminate crossbreeding and intentional importation of other specialized breeds led to the near extinction of the descendants of the Cape Horse in South Africa. Fortunately, the efforts of the Government Department of Agriculture and a number of private breeders to identify, conserve and develop the then existing genetic material over the past half century, resulted in the existence today of three small, but viable, registered breeds of locally adapted and versatile horses viz. Nooitgedacht, SA Boerperd and Cape Boerperd. The recent history and apparent present situation of the Basutho Pony in the neighbouring country of Lesotho was also described.

Résumé

L'histoire et développement de quatre races d'Afrique Australe, c'est-à-dire Basutho Pony, Nooitgedacht, SA Boerperd et Boerperd du Cap, sont établis à partir de leurs ancêtres en commun jusqu'à présent. L'études ressenties sur l'examen du sang (étiquetage)

ont montré que les trois premières races sont plus étroitement consanguines que n'importe quelle autre race mondiale. Au début du vingtième siècle l'industrie chevaline sudafricaine avait été dévastée après la guerre Boer (1899-1902). L'élevage en croisement peu judicieux et l'importation délibérée d'autres races spécialisées ont failli l'extinction de la progéniture du Cap Horse en Afrique du Sud. Heureusement l'eclipse a été sauvé par l'effort du Ministère de l'agriculture et un nombre d'éleveurs privés qui avaient identifié, conservé et amélioré le pool génique existant pendant le dernier demi siècle, se terminant par l'existence aujourd'hui de deux petits mais viables races inscrites de trois chevaux versatiles adaptés au pays, c'est-à-dire Nooitgedacht, Cape Boerperd et SA Boerperd. On a fait la description de l'histoire récente et situation présente du Basutho Pony du pays voisin, le Royaume du Lesotho.

Keywords: *Basutho Pony, Boerperd, Lesotho, Nooitgedacht, South Africa.*

Origin of the Southern African Horse Breeds

There are no indigenous horses in Africa south of the equator. The first horses imported into Southern Africa were brought to the Cape of Good Hope in 1652 from Java in a Netherlands East India Company vessel returning to Holland via the newly established halfway station at the foot of Table Mountain. They were called Javanese ponies. Despite some accounts that the Javanese pony was a mixture of Barb and Arab, authorities in that country are now of

the opinion that the Java horses descended directly from Mongolian stock and later crossed to oriental horses from Persia (Hendricks, 1995). It is therefore significant to note that the next recorded importation of horses to the Cape was of Persian origin in 1689. After that, for a period of almost 150 years the descendants of Javanese ponies and Persians formed the foundation stock for large herds of small, but exceptionally hardy farm- and general purpose riding horses in the Dutch colony at the Cape.

In 1778 a shipment of South American horses, highly esteemed for their gentleness, beauty and good service, landed at the Cape. Another introduction of horses of Spanish origin followed in 1807 when, during the Napoleonic wars, two vessels carrying Andalusian horses to Buenos Aires were captured and brought to the Cape. They were eagerly taken up by the local breeders and it can be assumed that the Barb ancestry of the South American and Spanish horses were responsible for the unmistakable traces of Barb conformation that are today still to be seen in the Nooitgedacht and SA Boerperd.

In 1782 the first English National Horses (later called Thoroughbred) were introduced. Under British rule, Lord Charles Somerset, English Governor in the Cape (1814 to 1827) did more than any other individual to promote the horse industry in the South Africa of that time. Through his endeavours the export trade to India and other parts of the British Empire was greatly increased. It was then that the Cape Horse gained world renown as a cavalry horse, being reported by the Indian army officers and those who later fought in the Crimean War, to have no equal. It was able to stand the extremities of climate and terrain from the arid, dusty heat of India to the bitter cold of the Crimea. It was hardy, docile, willing and surefooted, needing no special care and able to forage for itself on the scantiest of food.

As early as 1826 Cape Horses were taken into Basutholand as war booty and as trade goods. In that mountain kingdom, with its extremely harsh climate, sheep and rocky mountain foot paths and scantiest of food,

especially in winter, the famous Basutho Pony developed virtually through natural selection as a descendant of the Cape Horse.

From 1835 onwards Cape Horses, in large numbers, went along on the Great Trek, the mass emigration of farmers with their families and livestock from the Cape districts to the lands north of the Orange and Vaal rivers and east of the Drakensberg. Eventually the horses taken from the Cape colony laid the foundation for large breeding enterprises, some of them with hundreds of mares kept virtually free-roaming on new farms in what later became the republics of the Orange Free State, the Transvaal and the British colony of Natal.

Decline and Recent History of the Cape Horse and his Descendants

Horse breeding in the two vanquished republics of Transvaal and Free State as well as in the Basutholand Protectorate was dealt a devastating blow by the Anglo Boer War (1899–1902), which led to the dispersal and even extermination of entire breeding herds during the scorched earth campaign waged by the imperial forces against the two republics and their sympathizers in the colonies of Cape and Natal. Fortunately, some of the most tenacious commando horses as well as small remnants of breeding herds survived in remote areas where they were hidden from the armies.

After the war, English Thoroughbred stallions were generally used in the two new colonies in an attempt to re-establish breeding herds and upgrade the depleted stock.

However, it was in the Cape Colony, especially in the southern districts and later in the Karoo, where major changes in breeding policies and fashions dealt the final blow to the erstwhile Cape Horse. Starting in about 1880, horse breeders and their government advisers in the southern districts embarked on a deliberate policy of introducing Hackney, Cleveland Bay and after the turn of the century, Dutch Friesian and even

Oldenburger into the Cape Horse stock in an attempt to increase size and utility for carriage and general farm work. This resulted in the development of what Schreuder and Wright (1948) called Boland Waperd (literally Western Cape Wagon Horse), which held sway until World War II after which it was finally displaced by mechanized farm implements and transport vehicles. The important point is that after the Anglo Boer War some of these crossbred, carriage type horses inevitably found their way to the northern regions where they further contributed to the dilution of the gene pools of what was left of the erstwhile Boer horses.

From the late 1930s and especially after the wool boom of the 1950s with resulting affluence of Karoo sheep farmers, the American five gaited Saddle from Kentucky took over on the farms, especially in the show ring. Boerperd mares were crossbred to American Saddle stallions.

The Nooitgedacht Horse

The name of this SA Stud Book registered breed derives from the experiment farm Nooitgedacht in the Ermelo district of the former Transvaal province. In 1952, on this research station, the Department of Agriculture of the then Union of South Africa initiated a project for "the preservation of the Basutho Pony and the development of a South African utility riding horse". Over the previous two years a special committee made extensive journeys into Lesotho and farming districts surrounding that country, in search of suitable breeding material. After due consideration a nucleus of 11 mares and two stallions were purchased from Cloete in the Molteno district and Williams in Memel. Both breeders, situated in districts close to Lesotho, had sufficient records to show that their original breeding material were of Basutho Pony origin of pre-Anglo Boer War stock. The committee found them to be phenotypically superior to the horses they inspected in Lesotho.

According to Joubert and Bosman (1971) the ultimate object of the Nooitgedacht project was to stimulate the establishment of private studs elsewhere in the country with a vision of reviving the breed to its former status and usefulness. Although they recognized the keen demand for horses of this type in and around the bigger urban communities of South Africa, those officials responsible for the project nevertheless firmly adhered to the policy that the ponies bred at Nooitgedacht should retain their pre-eminence primarily as work horses on livestock farms. In the selection of breeding stock, special care was given to the tractable disposition and docile temperament which were such treasured characteristics of the Basutho Pony.

Initially culled males were given out as castrates to other experiment farms for testing. Most of these proved to be excellent hacks and a ready demand became apparent. In 1967, therefore, eight daughter studs were established as part of the breeding project. Only the applications of *bona fide* farmers, anxious to breed Basutho type ponies, were accepted, following approval, by a panel of judges, of their farming operations and ability to handle horses. At the outset cooperators were provided with one stallion and two mares, the latter being added to as they became available. This was done to strengthen the breeding nuclei of the daughter studs. It was also accepted that daughter studs would broaden the genetic base and size of their operations by bringing in suitable mares for crossbreeding and upgrading with the stallion obtained from Nooitgedacht.

At a meeting of the cooperators in 1969 a breed society was founded as a preliminary to ultimately obtaining recognition of the breed in terms of the Registration of Pedigree Livestock Act (Act 28 of 1957). A preliminary Standard of Excellence was adopted by the departmental officials and the members of the new society for the guidance of breeders and judges at shows. It was decided to strive for:

- a strongly built pony (later called horse) with emphasis on riding qualities and stamina;

- a docile temperament and high degree of human affinity;
- limbs with dense, flat bone, strong joints and high quality hooves. It was envisaged that the ponies should preferably not be shod;
- hardiness and the ability to carry a person weighing up to 80 kg for some considerable time;
- preference to all shades of grey, but deviations permitted provided the hides are clearly pigmented;
- ideal height for a stallion 14.0-14.2 hands (140-145 cm) and for mares 14 hands, but in ponies qualifying for registration a

range of 13.2-15.0 hands is allowed. Mature stallions should weigh 440 kg and mares 340 kg (Joubert and Bosman, 1971).

The question of a name caused some concern. Though the parent material came from acknowledged Basutho Pony herds, there was no doubt about small percentages of Boer Horse and Arab blood in the basic stock. It was therefore decided to call the breed Nooitgedacht instead of Basutho.

In 1976 a milestone was reached when the South African Stud Book Association affiliated the Nooitgedacht Pony Breeders' Association and recognized the Nooitgedacht

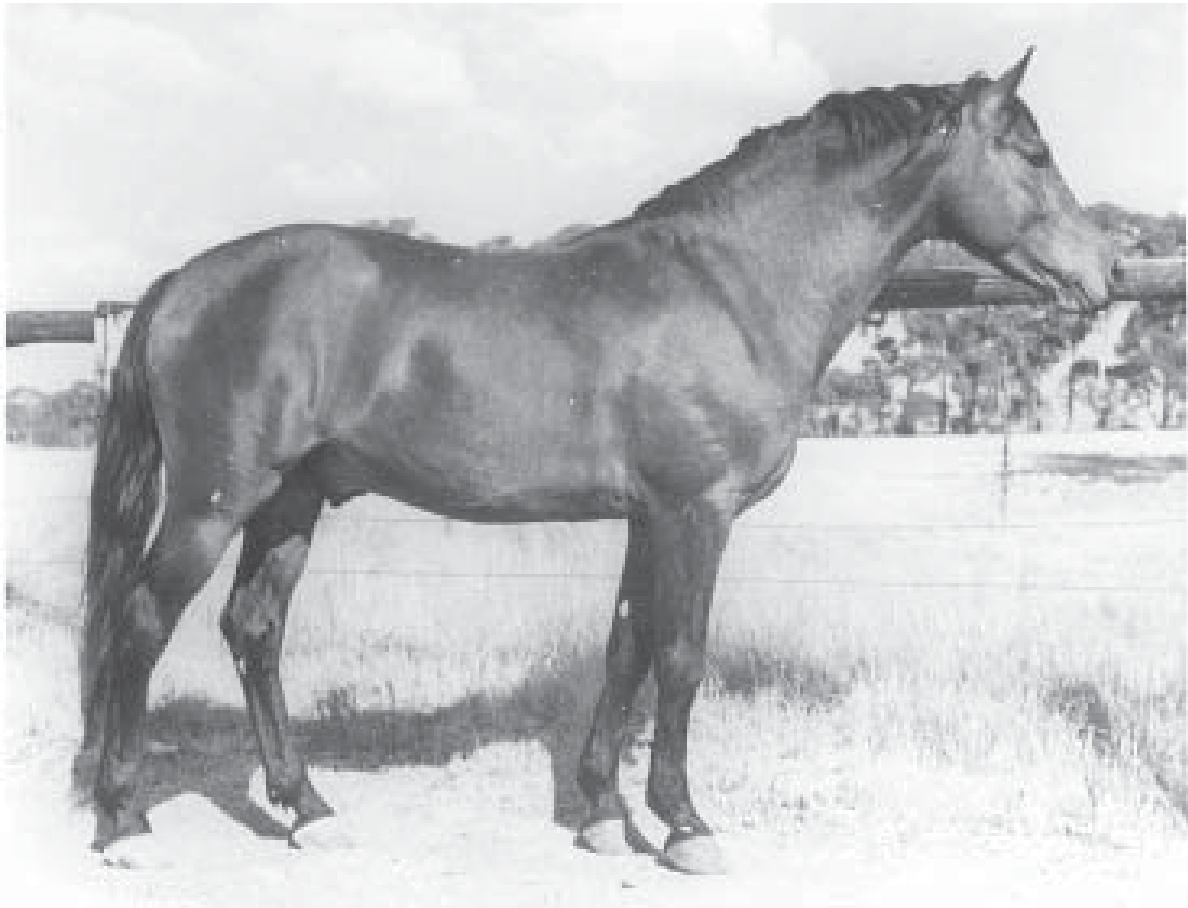


Figure 1 The stallion Mac, born at Nooitgedacht Experiment Farm in 1958, had a significant influence on the development of the breed. and can be considered the ideal type of general purpose animal envisaged by the managers of the project. The good shoulder, short, well-muscled back and loins, rounded hips and slightly sloping croup, strong legs with flat bone and round, hard hooves are evident. The small pointed ears, heavy brows and straight to slightly concave profile are characteristics of the Nooitgedacht (Photo: Landbouweekblad).

as its first “indigenous” horse breed. In that same year the Department of Agriculture decided that the project had run its course and that future development of the Nooitgedacht could be left in the hands of the breeders’ society and the two universities, Stellenbosch and Pretoria. They received a stallion and four mares each, while the rest of the parent stock at Nooitgedacht was sold at public auction.

The name Nooitgedacht pony (after Basutho pony) was soon changed to Nooitgedacht horse when it was realized that in the minds of South African people, pony was associated with small children’s ponies such as Shetland and Welsh Section A to which the Nooitgedacht had no relation.

With only limited numbers of recorded and registered breeding animals and a narrow

genetic base to start from, the stud book was kept open for the foundation to be broadened with suitable females which were accorded F_1 status after phenotypic inspection by a panel of judges. All recorded animals were identified with the breeders’ registration letters and a unique identification number branded on the left side of the neck or tattooed on the inner lip. Recently, microchips have been accepted as a third option for individual identification. Many of the selected F_1 females were of small Boerperd, Arabian or part-bred Arabian stock. No British pony breeds were allowed and only inspected and approved individuals conforming to the Nooitgedachter standards of excellence, as laid down by the breeders’ association, were accepted. Figures 1 and 2 show some examples of the breed.



Figure 2. Game warden and tourist mounted on Nooitgedacht horses, approach a female rhinoceros with calf in the background. The South African breeds have shown themselves to be exceptionally suitable for transporting inexperienced riders on game safaris (Photo. F.J. van der Merwe)

The SA Boerperd

The present SA Boerperd, registered as a breed with the South African Stud Book and Livestock Improvement Association, is, like the Nooitgedacht, assumed to be a distant descendant of the Cape Horse.

The name derives from *boer* (= farmers) and *perd* (= horse). However, this is not any non-descript farm horse. The present name, which has some historical and cultural connotations, must be seen in the context of the British officers before and during the Anglo Boer War (1899-1902) referring to *boer horses*, or more often in a derogatory manner to *boer ponies*, these being the hardy little local horses on which their enemy in the former republics and the colonies in South Africa were mounted. As shown above, they were descendants of the Cape Horse of the 18th and 19th centuries. During the war the previously

despised *boer ponies* turned the tables on their detractors and proved themselves superior in the harsh local conditions to most of the hundreds of thousands of remounts imported for the British army (Smith, 1914).

The presently registered SA Boerperd is purported to be a direct descendant of remnants of breeding herds that survived the ravages of the 1899-1902 war and which were maintained as fairly isolated nuclei in the northern provinces. Six northern foundation blood lines were eventually recognized by the breeders' association formed at Memel in 1973. These lines were the Van Niekerk's A2 horses; Cloete's Eggo; Odendaal's; Middleton's; Hancke's; and Steenkamp's. The newly formed breeders' association distanced themselves from the older SA Boerperd Breeders' Association, which was based in the central and southern Cape Province and whose members had by then clearly

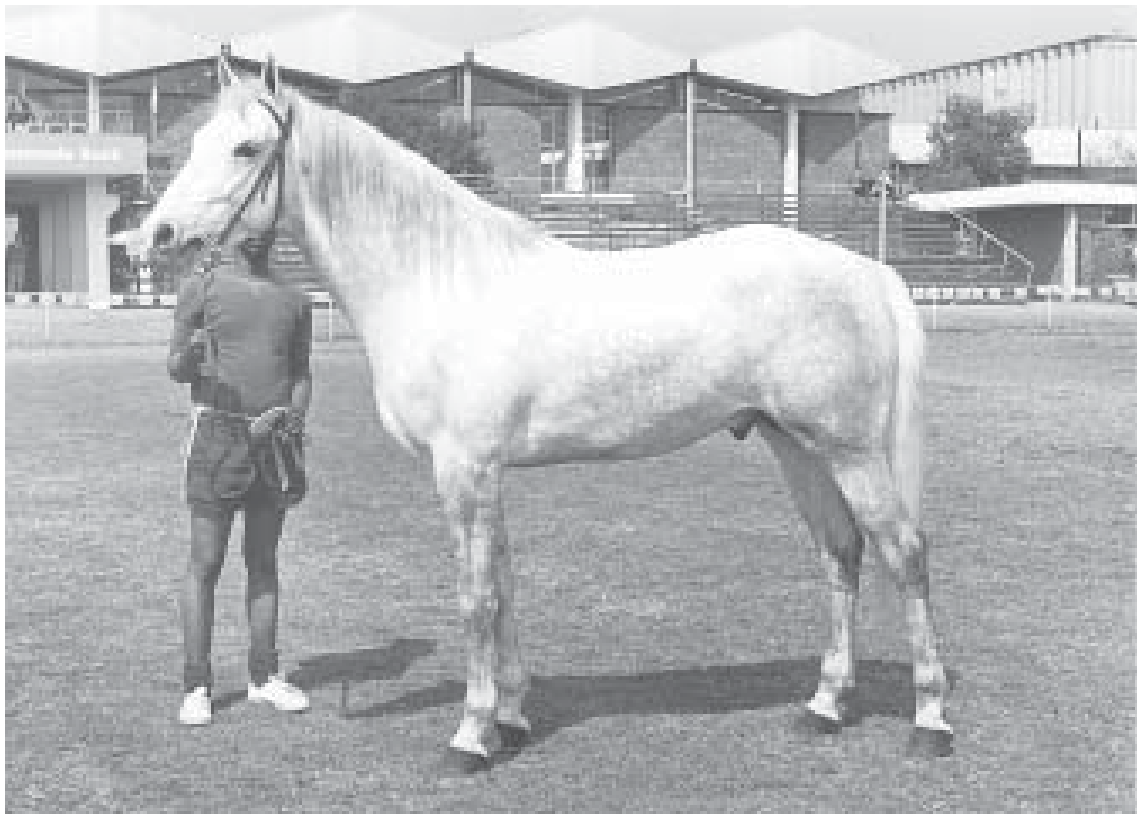


Figure 3. Young SA Boerperd stallion, Carel Hancke Yster, exhibiting the typical features of the breed and the clear resemblance to the other breeds described in this paper. (Photo: Landbouweekblad).

demonstrated that they were intentionally using American Saddle as a breed improver. In contrast the objectives of the Historic Boerperd Breeders' Association, so named from 1977 onwards, was to close ranks and conserve what they believed to have been recovered of the pre-Anglo Boer War genetic material. They preferred to call them blood lines.

The Historic Boerperd Breeders' Association was recognized by the Department of Agriculture and affiliated to the South African Stud Book and Livestock Improvement Association in 1980. They therefore became the second "indigenous" horse breed to be accepted as such. In 1998 the Association decided to discard the historic part of the name and changed to SA Boerperd.

The SA Boerperd is a comfortable riding horse (Figures 3 and 4). A high percentage of the individuals are natural pacers and trippers as were the Cape Horses of the 18th and 19th centuries. Whether these traits were derived from recent unacknowledged American Saddle infusions rather than from the distant Spanish ancestors which, on another continent, gave rise to breeds like the Paso Fino and Peruvian Paso with their characteristic lateral gaits, is open to discussion. Apart from the similarity in gaits there is, the view of the authors, a distinctive resemblance in general appearance between the South African and South American breeds, with their reputed common Spanish and, further in the past, Barb ancestors.

On paper, the Standards of Excellence, adopted for selection and judging, are very much the same for all the different riding



Figure 4. SA Boerperd brood mare with two young charges aboard, demonstrates the bright eye and honest dependability of the breed (Photo: Landbouweekblad).

horse breeds. Height at withers of mature SA Boerperd is stipulated as 14-15.3 hands (142-160 cm). All colours, except piebald and skewbald, are accepted. The most common colours are bay and brown in various shades, with grey and roan, chestnut, dun and palomino occurring less frequently. The Middleton horses used to be distinctively dark brown to black while the Odendaals are frequently dun coloured. In the Cloete horses bays and dark bays, lightly coloured flanks and muscles are characteristic while greys are common in horses of the Hancke blood line.

To qualify for stud book registration, foals have to be individually identified by lip tattoo or microchip before weaning. Inspected and approved individuals are branded with the rather attractive breed emblem, i.e. the letter B framed in a horseshoe.

The Cape Boerperd

The confusion in names of South African horse breeds is compounded by the fact that a group of breeders, based mainly in the Cape Province, from the 1950s onwards, organized themselves into the SA Riding Horse Breeders' Society and attempted to improve the existing Boerperd stock with American Saddlebred and Morgan stallions (Kaplan, 1974). Over the years they made various attempts to gain recognition from the Department of Agriculture and the South African Stud Book Association. This was eventually granted in May 1984 when the Cape Boerperd Breeders' Association was granted legal status by the Minister for



Figure 5. Champion Cape Boerperd stallion under saddle, clearly display American Saddle or Morgan influence on the development of the breed (Photo: Landbouweekblad).



Figure 6. Cape Boerperd mares and foals at pasture. On some sheep and cattle ranches, horses are still bred in numbers on free range and used for tending and working livestock (Photo: F.J. van der Merwe).

Agriculture and a certificate of incorporation with the South African Stud Book Association was issued.

At that time there were 93 breeder members of which 90 percent was in the Cape Province. The estimated 1 000 horses of which farm records existed, were entered into a development register which required six generations of line-breeding to approved stallions for full registration.

Again the Standard of Excellence differed little from the ideal set by riding horse breeders' societies and clubs in general. With the American Saddlebred as the main breed improver, it was inevitable that the saddle seat-riding style and show culture were also adopted, to the extent that it was often difficult for the lay viewer to distinguish between the Saddlebred and Cape Boerperd at rural agricultural shows.

It was stipulated that height at withers for males and females is ideally 147-157 cm and that the acceptable lower and upper limits

were 142 and 162 cm, respectively. Piebalds, skewbalds and cremellos were not accepted. The common coat colours were chestnut, bay and grey.

One of the stated objectives was to breed a dual purpose animal, i.e. for draft and riding purposes. This was entirely in line with the history of horses in South Africa where, before motorized travel and mechanization, oxen were used for heavy transport and horses and mules for mail coaches, carriages and carts. Figures 5 and 6 show some characteristics of the breed.

The Basutho Pony

The Basutho Pony was never and is still not a formally recognized breed in the classic stud breeding mold. In other words, there are no recognized stud books or written pedigrees. Loftus and Scherf (1993) in *World Watch List for Animal Diversity*, cite Turton's definition of

a breed as either a homogenous, subspecific group of domestic livestock with definable and identifiable external characteristics that enable it to be separated by visual appraisal from other similarly defined groups within the same species, or as a homogenous group for which geographical separation from phenotypically groups has led to general acceptance of its separate identity. At certain stages of their existence the Basutho Pony complied with both these criteria and especially with the second.

Thornton *et al.* (1936) had no doubt that the Basutho Pony, like the once famous Cape Horse, became a definite and well established type due to its origin and habitat. Its conformation, character, paces, action and high powers of endurance were, according to these writers, typical of the oriental ancestors of the Cape Horse. They believe that, in Lesotho, certain characteristics became accentuated due to the nature of the country and the manner in which the horses were

kept and handled by their owners. Lesotho is the most mountainous and coldest part of the subcontinent. Thornton found the Basutho horsemen to be fast and fearless riders but, in his words, "poor horse masters". Shelter and food for the horses, other than that supplied by nature, are seldom considered. A Basutho Pony was, and is, galloped up and down precipitous mountains where any other horse and its rider would fear to proceed at a walk. This treatment, together with the climatic and topographical conditions, according to Thornton *et al.* (1936), tended to increase and accentuate the inherited characteristics viz. the small body size, endurance, etc. of these animals which were already fearless and surefooted. According to these observers, they were the most fearless and surefooted of any known type or breed.

Thornton *et al.* (1936) considered the popularity and fame of the horses, combined with a lack of national breeding policy and structures, which led to indiscriminate



Figure 7. Aged Basutho Pony stallion Twist, photographed in 2001 at the Lesotho Government Stud in Thabo Tseka, was extensively used in the Basutho Pony Project. His clean, flat-boned limbs, hard round hooves, prominent sloping shoulder and fine pointed ears, are typical features of the genotype (Photo: J. Martin).

gelding of good males and export of even the best breeding animals, as the first factors that caused a decline in the quality of the Basutho horse stock from 1900 onwards. Another contributing factor was the ever increasing human population and livestock density which led to serious overgrazing problems, especially by sheep and goats. This further diminished the horses' only sustenance viz. the natural grazing which, in the prevailing tribal system, was utilized communally.

After the Anglo Boer War various attempts were made by the Government of the Protectorate to improve the breeding stock by the importation of Arab and Thoroughbred stallions. In order to make use of superior or even just selected stallions in horse breeding, the concept of Mare Camps were established. The intention was to enable community groupings of mare owners to make use of superior imported stallions or stallions bred to be established as national studs. It meant that the local chief had to allocate a specific piece of land to a group of horse breeders to be used exclusively by them for the breeding of horses from Government stallions or stallions leased from other camps. This concept has been used with variable success, in one or another form for the past 100 years in order to circumvent the most basic problem in African agriculture viz. the communal land tenure system.

The Irish Basutho Pony Project (IBPP) was a follow-up to a donor conference in Maseru in 1975. In 1976 the Government of Lesotho requested the Government of Ireland to carry out a feasibility study for the development of the Basutho Pony. As a result the IBPP was started in March 1978 with the establishment of a National Stud at Thaba Tseka in the high mountains 120 km east of the capital, Maseru.

The objectives were to:

- maintain a satisfactory mode of transport for the rural population, particularly for the people who live in the mountain districts where travel on horseback is the only realistic alternative to vehicles;

- upgrade the Basutho Pony breed, a potentially valuable natural resource and thereby provide the farmers with a marketable commodity;
- develop and exploit the domestic and export markets for Basutho Ponies;
- improve efficiency of production by instituting an extension programme of general horse care and management; and
- reduce the overall stocking density of the land by the replacement of large numbers of inferior horses with improved stock which would be more easily sold at a young age.

At the beginning of the project it was decided to use the Connemara Pony in the breeding programme as it was well established as a hardy horse under harsh environmental conditions and was considered to be quite similar to the Basutho in general conformation and stature. Two stallions were imported in 1979. It was decided that any further infusion of Arab blood would not make a significant contribution to the breeding programme. In subsequent years Basutho stallions and even Nooitgedacht from South Africa have been used with good results.

In the IBPP the ultimate objective of the breeding programme was to build up a small stud of elite Basutho stallions and mares which would produce suitable colts for dissemination throughout the country. According to McCann (1986) assessment of the horses was made on the following criteria: hardiness and ability to survive; breed type; conformation; temperament; suitability for riding; endurance; and tripling ability.

Three subsequent developments in the project were the:

- a) initiation of an extension/registration service;
- b) establishment of a marketing centre at Mollie Enthuse in 1983; and
- c) development of Pony Trekking as a tourist facility for the generation of extra income and for performance testing of young horses.

In general, the breeding programme was considered to be developing satisfactorily through the 1980s, but progress was slower than initially envisaged. One of the reasons given, was the slow maturing rate of the Basutho Pony. Whereas in Ireland the Connemara would be expected to have reached full maturity at five years, the Basutho, according to McCann (1986), seemed to mature at around seven years.

The Registration/Extension Unit was set-up as an integral part of the project in conjunction with the National Stud at Thaba Tseka where it is based. One of the main objectives of the Unit was the institution of a National Stud Book which was considered to become increasingly important as the programme progressed and the requirement of a reputable and reliable Breed Record became necessary.

In October 2001 one of the authors (DIM) found the National Stud at Thaba Tseka in operation with six stallions, 32 mares and 53 young stock of which 30 were females and 23 males. The premier Basutho Pony stallion Twist, mentioned in the 1986 report, was still alive and well. No updated information could be obtained by the authors about the present status of the Basutho Pony Project. There are indications that most of the essential elements of the original IBPP are still nominally in existence and the Pony Trekking has gained a certain momentum which is being utilized in furthering the objectives of the project.

An interesting facet of the Extension/Registration element of the project which has developed since 1981, is the popularity gained by organized endurance competitions over 80 km and triple races. The



Figure 8. Two Basutho horses with their riders in traditional garb, following a foot path in the high mountains of Lesotho. These are working horses on sound limbs and naturally hard hooves, needing no shoe. The dark brown pony in front, showing bright but calm interest in the photographer, is a more typical example of the genotype than the grey (Photo: J. Martin).

gait known as triple in Southern Africa and which is quite similar to the *tot* of the Icelandic Pony, is a relatively rare trait worldwide. It is a four-beat gait and gives the rider a very smooth ride. As already mentioned, it also occurs naturally in the Boerperd and Nooitgedacht horses. Ridden at this gait, the surefooted Basutho Pony negotiates the steepest of mountain footpaths on the downslide without shoes. Triple races over flat ground are very popular at agricultural shows in Lesotho. Figures 7 and 8 report some characteristics of the breed

Blood-typing to Establish Relationships

The results of a recent genetic analysis of three of the breeds by Cochran and Van Dyke (1998) is briefly summarized and discussed. This study must be seen in the context of Cochran's comprehensive series of blood-typing studies at the University of Kentucky on some 140 world horse breeds and types.

As a follow-up to Cochran, Van Dyke and Van der Merle's 1996 blood-typing study of a group of Namibia Desert horses (published by Cochran *et al* in 2001), Cochran and Van Dyke (1998) carried out a similar investigation of SA Boerperd, Nooitgedacht and Basutho Pony samples collected by Van Dyke of the Onderstepoort Veterinary Faculty. In collaboration with the Breeders' Association in South Africa and officials in Lesotho, Van Dyk collected samples of SA Boerperd (n=34), Nooitgedacht (n=21) and Basutho Pony (n=34). Standard immunological procedures involving haemagglutination and complement-media haemolysis were used to detect variation of red cell allo-antigens at seven blood group loci. Starch and polyacrylamide gel electrophoresis and iso-electric focusing were used to detect variation at 10 serum rbc lysate protein loci. Values of genetic variation of the South African breeds were compared to those of domestic horse populations that have been tested at the University of Kentucky. They were regarded as international breeds and not country bound.

The results showed the following:

- levels of individual genetic variation within the three South African breeds studied (Cape Boerperd were not included) were intermediate for a domestic horse breed with the highest Ho (observed heterozygosity) in the Boerperd and the lowest in the Basutho Pony;
- the three South African sets of samples show that they are indeed from different breeds;
- the three SA breeds are closer related to each other than to any other horse breed in the world as tested at the University of Kentucky;
- Nooitgedacht and Basutho Pony have the closest relationship to world breeds with a strong English Thoroughbred background while the SA Boerperd falls within the North American gaited breeds cluster;
- significantly none of the SA populations sampled showed a direct close relationship with world Arabian populations sampled nor with the Namib Desert group which was included in another study (*op cit*).

Although there may be questions about the numbers and representivity of the samples, the results of the blood-typing studies tend to support the postulate that the three breeds have a common ancestor.

Present Status and Use of the Horses in Southern Africa

Horse numbers and breeding population sizes

In the 1930s the South African horse population was estimated at just under one million. Large-scale mechanization of farming operations after World War II led to a dramatic decline in numbers and to the virtual disappearance of draught horses and mules from commercial farms. In 2000 the total number of horses in South Africa was given as 270 000, which is about 25 percent of the peak numbers recorded before mechanization. In the year 2000 the Lesotho

horse population was indicated as 103 000, which is quite a sizeable number for a small country in the age of mechanization but then it should be remembered that in the mountainous kingdom the horse is still the best and often only mode of transport for rural people in the outlying districts. A further breakdown of the Lesotho horse population shows that 62 percent occurs in the mountain areas, 20 percent in the foothills and 18 percent in the lowlands.

In the Republic of South Africa the situation is quite different from Lesotho. The changed role of horses from work animals to sport and leisure companions is reflected in the dramatic drop in horse numbers over the past half-century. Although horses and mules are still used economically on a limited scale for fence riding and livestock gathering on extensive stock farms and for light draught work by the less well-off rural dwellers, horses have in general disappeared from farms. The highest concentrations of light riding and show horses are to be found in urban and peri-urban areas.

However, in this paper the emphasis is not on total numbers, but on the effective breeding populations, i.e. stud book registered animals, of three South African breeds and the Basutho Pony. The emphasis is placed on recorded and registered breeding stock because with thousands of crossbred and non-descript horses in the country, it is only in the registered breeds where dedicated and disciplined members of breeders' societies can, in the long-term, make contributions firstly to the conservation of valuable and rare genetic material as well as promoting the sustainable use of these animals in a modern economy and in competition with other world breeds.

Numbers of registered animals of six horse breeds in South Africa are reported in Table 1.

For the sake of perspective, the effective breeding populations of the three South African breeds under discussion are compared to that of Thoroughbred, Arab and American Saddle which are the most numerous of some 15 formally registered horse breeds in South Africa.

From the data, it is evident that the active breeding populations of Nooitgedacht and SA Boerperd, which are the two South African descendants of the Cape Horse most deserving of preservation, are quite small and probably fall in the range of rare breeds.

The present-day Basutho Pony in the country of Lesotho falls in a different category. No evidence of an official stud book or registration system could be obtained but, as over the past 175 years, a large practically free-mating population in very harsh climatic and scarce feeding conditions still exists. This is exactly how the Basutho Pony developed in the first instance and, because of its relative isolation of the breeding population, the fixing of a type, if not a breed, is still progressing. Despite many health, husbandry and nutritional problems the almost unique favourable factor in Lesotho is that the horses are used for everyday riding under the most stringent conditions. They are naturally performance tested while in South Africa breeders are trying to find ways of testing that are far removed from the original.

Comparative physical appearance and characteristics of the four breeds

The physical appearance of the breeds is best illustrated in the accompanying photographs. The breeders' societies of the three South African breeds each have a detailed description of the ideal conformation envisaged for their breed and use this as a manual for the mandatory inspection of each horse before it is allowed to be fully registered. It is expected of judges at shows to use the manual as a guideline. Training courses for inspectors and judges are held regularly.

As to be expected, Nooitgedacht and SA Boerperd may share many common physical characteristics and there is a minority of breeders who are of the opinion that the two separate breeders' societies should pool resources and the horses should be combined in one register. Cape Boerperd does not fall in the same category because it shows a strong resemblance to American Saddle.

Table 1. Numbers of registered animals of six horse breeds in South Africa.

	Mares	Stallions	Births	Transfers
Thoroughbred	5 000	200	3 500	1 800
American Saddle	2 500	1 500	439	492
Arab	1 900	830	300	500
Nooitgedacht	850	430	290	100
SA Boerperd	846	180	100	103
Cape Boerperd	213	90	8	34

Information for year 2000 obtained from SA Stud Book and Livestock Improvement Association, Bloemfontein, and Thoroughbred Breeders' Association, Germiston

Explain Transfers

Note 1: *Only in the case of Thoroughbred can the number of males be taken as representing actively breeding sires. With the other breeds no distinction was made between actively breeding sires and total males registered.*

Note 2: *In the case of Cape Boerperd the figures obtained from the South African Stud Book and Livestock Improvement Association are probably not truly reflecting the numbers unofficially recorded by the Breeders' Society.*

Both SA Boerperd and Nooitgedacht societies set their ideal height at 140-160 cm at withers, but in general Nooitgedacht gives the impression of being a slightly smaller animal than SA Boerperd. Liveweights vary between 380-600 kg in the two breeds.

Selection breeders lay much emphasis on temperament. The horses are tractable and docile, but willing to work and easy to train under saddle or in harness.

The horses are generally well proportioned and stylish in conformation with good muscling, clean, flat, dense bone and fine coat. General features are the rounded hips and slightly sloping croup which used to be very pronounced in the old Cape Horse. A straight to slightly concave profile, deep chest, good width between the forelegs, light hindquarters, strait pasterns and high heel bulbs with dense, hard hooves are features of both breeds.

The first of the gaits is a flatfooted, fast walk. With training some individuals are able to go over into a comfortable, shuffling pace which can be maintained for long distances, especially for farm work and on precipitous terrain. A natural progression from the pace is the faster four-beat tripple which is similar to the rack in American gaited horses, but

which was already a feature of the Southern African breeds long before the introduction of American Saddle into the country.

The trot is square and free-moving with good, but not exaggerated, knee and hock action.

The canter is free-flowing, smooth and easy. A much favoured gait in the traditional style is the slow, collected canter with its special variation the amble which can best be described as a combination of the shuffling pace and a slow, swaying canter.

Present-Day Uses of the Four Breeds in Southern Africa

In the Republic of South Africa horses have a very minor role in the agricultural economy. In rural districts some farm workers and less well-off country dwellers use light horses in harness for transport while stockmen on large livestock enterprises still find horses useful for patrol-riding and stock gathering. Although there is an increase in the request for the partial return of horse power to small farms where draught oxen have been traditionally employed, there is yet no discernible shift in that direction.

In the Kingdom of Lesotho the situation is quite different. In that country riding and pack horses have an essential role in the everyday lives and activities of people in the far-off mountainous areas. The horses are tested under the most stringent conditions and the authors believe that, amongst the majority of non-descript horses in Lesotho there are individuals of excellent merit which could be used in a properly constructed and executed selection programme for the improvement of the Basutho Pony. There seems to be no need for the introduction of any other breed, but there is a crying need for selective breeding and the gelding of the superfluous number of poor quality males.

In modern South Africa the major emphasis in the horse industry falls on the sport and leisure fields. In this market Nooitgedacht and SA Boerperd have to compete with the specialized breeds such as Thoroughbred for flat racing, Arab for endurance racing, Thoroughbred and European Warmbloods for show jumping, dressage and eventing, and the British pony breeds with their crosses for children.

Although the numbers of registered horses are small and saleable, animals are in short supply, both Nooitgedacht and SA Boerperd have a growing market in the show and leisure horse categories. Their even and docile temperament and easy-care characteristics make them eminently suitable in the peri-urban environment for weekend riding as well as in the tourist industry for pony trekking and game viewing. This is also true for the Basutho Pony.

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