
Animal identification and recording systems in the Southern African Development Community (SADC): 1. Overview of the current situation

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There are different animal identification systems in operation in most of the SADC countries, whilst some have not implemented any form of a legal and uniform system on a national scale at all. During August 1999, the SADC Council of Ministers had agreed that all member states should embark on a sound livestock identification, trace back, and information system. Countries not participating in such an arrangement would risk exclusion from future trade within the region and will not be part of negotiations, as a unified regional economic block, with other markets in Africa and abroad. This situation would penalise the smaller and often impoverished farmers who rely heavily on livestock for their subsistence and indeed, survival. In this paper an overview of the current situation in the SADC region is given.

Key words: animal, branding, identification, microchip, recording, SADC member countries, tattooing.

There are two different approaches to the identification of animals. In the first instance, one may have a system whereby all the animals belonging to a particular owner are identified with the same identification mark. The aim of such a system is to prove, beyond any reasonable doubt, the ownership of any animal in the herd or flock. The second approach to the identification of animals is to identify each animal within the herd or flock individually with a unique numbering system. The aim of such an approach is not to prove ownership, but to be a management tool in animal husbandry. Without identification of each animal individually the livestock owner cannot do performance evaluation, genetic selection, keep proper health records, accurately measure production, or perform many of the other important management functions required to run an effective and productive herd or flock.

Summary

Introduction

Issues of responsibility

The important issue, however, is whose responsibility it is to curb stock theft, and whose responsibility it is to ensure proper animal husbandry practices. Since theft, whether it be cars, livestock, property, or whatever, is a national issue affecting the well being of the entire nation, it shall always remain the responsibility of the State to implement measures and legislation to address theft and prosecuting criminals. There is little doubt that a formal, legalised, national system of identification is the only solution to the problem of positively identifying animals belonging to a particular owner to stamp out stock theft as far as possible. As was argued earlier, it is the sole responsibility of the government to implement and maintain such a system. This national and therefore compulsory system has to be supported by a sound legal infrastructure, i.e. a political will, laws, regulations, policing, independent courts and proper punishment. However, the livestock owner also has a responsibility in this regard as it remains one's duty to protect one's own property.

On the other hand, the higher productivity and well being of the herd or flock of the livestock owner is in his/her own financial interest. Hence, the responsibility to individually identify animals within a flock or herd for purposes other than to curb theft firmly lies with the individual livestock owner. The important aspect to remember is that the identification of the individual animal within the herd, need not either be expensive, nor necessarily permanent. Plastic ear tags, rubber leg bands, ear notching, and such other inexpensive identification methods are widely used all over the world for performance record, production and veterinary treatment purposes.

Reasons for identification

As a result of globalisation and the growth in the world population, in recent years other important reasons for the identification of animals, whether it be by a mark to identify the owner, or an individual mark to identify each animal uniquely, became a necessity.

Firstly there are zoo-sanitary needs such as movement control, trace-back to origin, international trade requirements and the prevention of the spreading of diseases. Whether each animal must be individually identified, or whether the identification must be on a flock, owner, area, village, district or national basis, remains open to debate. There is no question that such a system should also be the responsibility of the State. It stands to reason that the best solution would be if the identification system to prevent stock theft could at the same time be used for zoo-sanitary purposes. It makes little sense to have different identification systems, both managed by the government, but for different purposes. In the case of the developing world, it is also very important to consider cost and sustainability when designing such a system.

Secondly there is the question of food security. It is a well-known fact that the Southern Oscillation (also known as the *El Niño* phenomenon) has a detrimental effect on food production in the southern parts of Africa with some areas indeed more prone to devastating droughts. If there is to be any form of basic planning to be done on the potential for food

production it is imperative that the current status of food production be known in much greater detail. Across the SADC region statistical information and proper data are often sadly lacking. One of the reasons being that it is mostly impossible to get accurate figures on livestock numbers and marketing data, simply because farmers either don't keep accurate numbers, or refuse to give accurate numbers, or the infrastructure to collect and analyse the data is not available. Should a proper livestock identification, marking, registration, trace back and marketing system be in place, much needed data can be generated on issues such as current and potential production, reproduction and fertility, mortality rate, movement, production cycles, off-take and marketing. The basis of this is proper animal identification per region, district and area. Movement of animals and animal products in times of a crisis from "production excess" areas to "production deficit" areas within the SADC region potentially holds many food security benefits for smaller farmers, and naturally, all the people in the sub-region.

The purpose of this paper is to give an overview of the current status of animal identification systems in the SADC member countries and also to describe possible problems and flaws to assist other countries to develop systems not having these pitfalls that may seriously affect the success of implementing a new system.

The South African branding and tattooing system to identify animals belonging to a particular owner is in operation since the late 1800's. Before unification each of the two British colonies, i.e. the Cape of Good Hope and Natal, as well as the two independent (at the time) Republics of the Orange Free State and the Transvaal had their own pieces of legislation regarding animal identification and stock theft. These separate pieces of legislation were in place until 1962 when they were combined into a single Livestock Brands Act. Although attempts were made during the past decade to streamline and modernise the 1962 legislation, pressure from various interest groups to retain outdated ideas and systems, resulted in the new legislation and administration still having serious flaws.

Probably the biggest problem is that the South African system has been in operation for such a long time. Since it wasn't compulsory to brand or tattoo animals for almost a century, farmers were allowed to do as they pleased and it is difficult to convince them to strictly adhere to the law. A second important problem is that back in the early 1960's, the South African government centralised the entire animal identification system. In the days before centralisation the magisterial districts each kept an own register and also had its own unique identification mark for the owners in that district. In this system it was also possible to ask for one's initials to be incorporated in the brand/tattoo. The district brands and the personalised brands/tattoo disappeared as a result of the 1962 centralisation process. The old provincial systems (1890 to 1962) were suddenly replaced with a system whereby all brands were issued in a strictly alphabetical order. Since branding and tattooing were not

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compulsory, and there were also no inspectors enforcing the law, livestock owners did not use these unwanted newly issued brand and tattoo marks. They simply kept on using their old outdated identification marks obtained before the 1962 legislation.

A third problem is that South Africa does not yet have a specific mark identifying animals of South African origin. This is in spite of the country's commitment in the Draft Memorandum of Agreement, drawn up in 1999, to do so. Animals found in cross-border operations by the South African Police Services and the Police Services of neighbouring countries cannot be identified by country of origin. With the serious threat of diseases like Foot and Mouth Disease, Johnne's disease, Scrapie, Lung Sickness, BSE and others ever prevalent in the SADC region, it makes a lot of sense to clearly identify each animal originating from a particular country.

Fourthly, as a result of the centralisation in 1962, the entire system is managed by only a handful of staff in a central office in Pretoria. With a livestock population of approximately 13 million cattle, 25 million sheep, one million goats and thousands animals of other species to be identified, it is simply impossible for a single inspector to do the necessary inspections. Because of this lack of a proper inspection service for more than 100 years (1890 to 1990), the farmers basically did as they pleased. Many farmers simply ignored the branding laws.

Fifthly, the administrative processes and the documentation in the central office in Pretoria are not up to acceptable standards. The security is poor and documentation/ certificates have absolutely no security features. A stock thief may therefore steal unmarked animals, brand them with a fictitious mark, manufacture a "legal" looking registration certificate, and keep or sell these animals without anyone ever noticing. Likewise, if the animals are already branded, the stock thief can simply forge an official looking registration certificate to show his/her name, and sell the animals. Since the South African system is centralised and hundreds of kilometres (up to 1,600 kilometres in some instances) away from the actual applicants, only a very small percentage of applicants personally visit the offices. It is therefore quite possible for any person to walk in with a stack of application forms made out in the names of every thief involved in a syndicate. The Registrar's office will issue registration certificates to these people without any form of positive identification.

A sixth complicating factor is that stud breeders are exempted from the provisions of the South African legislation. All stud breeders identify their animals according to the rules of the more than 60 individual livestock breeders' societies incorporated with the South African Stud Book and Livestock Improvement Association, and not according to the prescribed legislation. Furthermore, breeders' societies are, by law, allowed to issue numbers and letters to their members without any prior consultation with either the Registrar of Brands or with any of the other breeders' societies. The result of this confusion is that there are thousands of animals in South Africa, belonging to different stud breeders and even other commercial farmers/livestock owners bearing exactly the same identification marks. Not even the legal marks issued by the Registrar

are unique. To add to this, there are even breeders' societies that are completely exempted from placing any mark on stud animals at all. They are allowed to use photographs and drawings to identify the animals. This leads to a situation where members of the South African Police Services have no form of easily available identification to find the real owner of stolen livestock.

The seventh problem is that the South African legislation does not provide for a renewal of the identification mark on a fixed term basis. When the current registration data was computerised in the early 1990's, it was found that there were literally tens of thousands of people with postal addresses that were invalid. There was therefore no way to find out if a livestock owner was still farming and if the postal address was still correct. Although the legislation provides for a process by which deceased owners' registrations shall either be cancelled or transferred, or that the Registrar shall be notified of address changes, nobody ever bothered to do this. It is also a well-known fact that data capturing typists make a lot of mistakes, generally known as "finger trouble". Many computer systems therefore provides for double capturing of data so that the computer will automatically check for mistakes made by either one of the two data typists. This is not the situation in the office of the South African Registrar. There is little doubt that a large percentage of the data on the South African database are worthless.

The eighth problem came about when the system was re-designed in 1962. It was decided at the time that the identification marks should be allocated alphabetically and that all identification marks would consist of three alphabetical letters only. Unfortunately such a system using three upright characters in all its various combinations only allows for 17 576 different combinations. Since there are many more livestock owners than this, it was then decided to rotate the letters through 90°, 180°, or 270° in order to vastly increase the number of computations. Because there were no computers in those days, the identification mark allocated to an applicant was placed on the certificate with a rubber stamp. Since a brand could become very confusing if the letters are rotated through varying degrees (see above), many farmers thought that the registration clerks made stupid mistakes when the certificate was issued and that the rubber stamp was merely held in-correctly by the particular clerk. The farmer then simply "corrected" the perceived mistake made by the clerk and turned all the letters upright when branding the animal. By doing that, he immediately duplicated the brand of another livestock owner.

Ninthly, as far as owning branding and tattooing equipment is concerned, in South Africa it is allowed that each livestock owner may brand his/her animals with branding irons manufactured either by themselves, or bought from various manufacturers. There is no control over issues like uniformity of letter sizes, training, the owning of illegal branding irons and animal welfare. It is even possible for any stock thief to own a

complete set of branding irons and tattooing equipment, thus making it possible to reproduce any of the thousands of registered brand marks on any unmarked animal.

Finally, an issue that was raised many times by the farmer's organisations arguing against a national compulsory branding system in the RSA was that subsequent owners of the same animal must brand the animal consecutively with each new owner's brand. In other words, the first owner brands the animal on the left hind leg, the second owner on the left front leg, the third owner on the right front leg and then if there is a fourth owner of the same animal, his/her brand must be placed on the right hind leg. The major concern with this consecutive branding was the damage to the hide. However, because consecutive re-branding is allowed, the complicating issue is that the thief can simply steal branded animals and place his/her brand in the next position, wait for the wounds to heal (or brand through a wet cloth) and just sell the animals as if they were his/her own. It is a major flaw in the South African system that more than one brand is allowed on the same animal.

As far as policing is concerned, it must be mentioned that the South African Police Service has specialised Stock Theft Units (STU's). These units (currently 62 in total) are placed around the country in strategic towns. The advantage is that these units are all specifically trained and well endowed with excellent equipment to solve livestock theft cases. Under normal circumstances the urbanised police investigators have little knowledge of finding clues specifically related to stock theft and how to deal with farmers. The farmers in turn prefer the STU's as they get to know the staff very well. This leads to mutual trust and friendship. Once the community and the police work together to solve the cases, the success rate in solving crimes climbs rapidly.

It is clear that even though South Africa has compulsory animal identification of all farm animals in place, there are problems that should be addressed. There are, however, valuable lessons to be learnt from their experience.

Namibia

The Republic of Namibia obtained her independence from South Africa in the early 1990's. The former South West Africa was a German colony up to World War I and after the war ended in 1918, the administration of South West Africa was entrusted to South Africa by Great Britain. After South Africa gained independence in 1961, this administrative control over Namibia remained in place. Because of this fairly long period that Namibia was administered by South African, most of the systems, processes, legislation, etc. show great similarities with that found in South Africa.

The identification of animals is compulsory in Namibia on commercial farms and was indeed compulsory long before the South African system was made compulsory. Communal farmers do not have to brand their

animals, but should they wish to sell an animal, or send it to the abattoir, it must be branded first. Individual communal farmers use the brand issued to a particular community and not that of the individual owner. The Namibian Registrar of Brands is placed under the jurisdiction of the Director of Veterinary Services. In the case of the traceability of meat, the control and administration of this system was placed in the hands of the Namibian Meat Board. All animals delivered to be slaughtered at any abattoir must be branded, whether they are from a communal area or from a commercial farm. The data of a particular batch of animals arriving at the abattoir are recorded and fed into a computer system run by the Meat Board. The meat is then labelled with a bar-coding system according to the captured information, i.e. owner, area of origin, date of arrival, date of slaughter, abattoir, carcass weight, etc. This information can then be used to trace-back any meat sold in Namibia or overseas to a particular owner. The European Union accepted these measures and Namibia is therefore allowed to export to the EU as well.

It is known that the Republic of Botswana is in the process of implementing a microchip system for the identification of individual animals. The main purpose of this system is to enhance traceability of the animals to be slaughtered at the Botswana Meat Corporation's Lobatse Abattoir. The objective of this system is to ensure individual identification of cattle within the country in compliance with the EU Council Regulation EC1760/2000 and EC1825/12 which require that a computerised system be put in place to identify and register bovine animals, and label beef and beef products.

Speaking in Parliament during 2003, the Minister of Agriculture said that the Botswana Government has at that stage already spent more than P99 million (US\$21 million) on the Livestock Identification and Trace-back System (LITS) since its inception. It was added that the money was spent on inserting the bolus into 807 600 cattle (mean cost of US\$26.30 per animal). It was estimated by the Minister that the total cost of the project by the end of December 2003 would be approximately US\$35 million. However, he added that the cost was likely to increase because of currency fluctuation. There is currently no legislation which forces farmers to insert the bolus into their animals, but it was suggested that the Government might adopt measures such as providing free vaccination only to cattle that have the boluses

It must be added that Botswana had a formal animal branding system in place before the recent microchip development. The branding of cattle as a system is still operational and it was compulsory long before animal identification became compulsory in South Africa. The system also features a district brand so that animals may be traced back to a particular area of origin.

Botswana

Lesotho

Although there were attempts to get an identification system underway in the Kingdom of Lesotho on a number of occasions, an official, nationwide identification system apparently never really materialised. The marking of animals was in operation in Lesotho in the past and are still being done today by some farmers. However, the marks used, were not on an organised and sustainable national scale and it was not compulsory for farmers to register their brands and/or marks. Even today, individual farmers identify their animals according to tradition or with methods and marks that are either not recognised, are easy to change, and are also duplicated between various livestock owners.

During 1998, the Government of Lesotho commissioned a study of the agricultural situation and the related problems. This report was extremely comprehensive and a number of projects were identified, of which animal identification was the most important. During the past decade there was a dramatic increase in cross-border problems between South Africa and the Kingdom of Lesotho, as well as a dramatic increase in stock theft internally. The situation has deteriorated so badly that the theft syndicates sometimes kill herdsmen to prevent them from becoming witnesses. Animals are stolen at night and driven across the border into South Africa. The Basotho farmers then retaliate by going into South Africa and simply take those and sometimes other animals back to their country. This spiralling problem resulted in many meetings between delegates of the two countries. It must be said that the political will of the entire Lesotho Cabinet and Parliament to urgently solve the problems of livestock theft is a great support to those that have to implement the newly designed identification system. A further advantage is that the police forces of Lesotho and South Africa work together very closely and combined operations are often carried out. The biggest problem that remained was to identify the original owners when recovered animals had to be returned to their legal owners.

The senior author of this paper was appointed by the Lesotho Department of Livestock Services to design and implement a national identification system. The design was finalised and accepted by the Project Coordinating Committee during May 2003 and the legal consultant has drafted the proposed regulations. The system accepted by Lesotho is to a very large extent similar to that proposed for Malawi (Campher & Njunga, 2004). The same design was used, as the objectives of the project is exactly the same, i.e. curbing livestock theft, movement control and traceability in the short term, and livestock improvement and food security in the longer term (Campher, 2003).

The tendering process for appointing software developers for the data capturing system, as well as the supplier of the hardware is currently underway. The implementation in one of the districts will start later in 2004.

The Great Stock Brands Act of 1937 provided for the identification of livestock in the Kingdom of Swaziland. To this day, livestock identification is compulsory only for commercial farmers on title deed land. There is no system in place for communal farmers on the so-called Swazi National Land (SNL). Commercial farmers may not sell any animal unless they are branded according to the legislation. The Great Stock Brands Act was repealed when the King and the Parliament of Swaziland approved the passing of the Livestock Identification Act, 2001. A lack of government funding and donor contributions has thus far prevented the actual design and implementation of the administration and infrastructure needed for the functioning of the system. According to Thwala (personal communication, 2003), it is envisaged that the FAO will be approached with a request of registering a TCP to acquire the necessary expertise of a suitably qualified and experienced consultant on livestock identification and registration systems. This system is urgent as livestock theft, straying of animals and cross-border movement between South Africa and Mozambique are on the increase.

The current situation is that each of the Dip Tank Veterinary Assistants (DTVA) has to keep a register in which the details of the owners, village, numbers of animals, and traditional identification marks must be recorded. In the event of the sale of an animal, the particular Dip Tank Committee, consisting of farmers, must assist with the positive identification of the animals as the lawful property of the seller and it must issue a so-called "no objection" to the animal being sold. The DTVA may only then issue a Stock Removal Permit (SRP). Whilst a copy of this SRP remains with the Dip Tank Committee, the original must accompany the animal(s) during all stages of the transfer to the new dip tank area. Upon arrival at the new dip tank, the new DTVA in charge will again record all the details regarding the arrival of animals into his/her register. Importation of animals may only take place if the animals are positively identified by means of a brand or tattoo.

The Swaziland Livestock Identification Act (2001) has a number of stipulations that will eventually cause the same problems as found with the South African system. These include:

- no provision for identifying country, district or area have so far been made in the system;
- that livestock owners will be allowed to brand and or tattoo their animals themselves;
- the owning of identification equipment; and
- the major problem, the re-branding of animals by the consecutive owners of the same animal.

However, an important aspect of the Swaziland animal identification legislation that will greatly assist in solving livestock theft cases is that all butchers, abattoirs, speculators, dealers and foreign traders must keep a register of all transactions. Complete details of the owner from whom the animal was bought, any identification marks, and the transaction itself must be in the register.

The biggest advantage that Swaziland has, is the extremely well-designed, efficient and operational population registration and crime reporting system. This system was developed as a close partnership between the Government of Swaziland and one of the largest software developing companies in Africa. It can probably be considered as the best of its kind in the SADC region.

The population of Swaziland is now being registered from birth. As soon as a birth is registered, an identification number is allocated to that particular child. At age 16, the fingerprints (with an automated fingerprint identification system called Print Track), the photograph (with a digital camera) and the complete personal details of the applicant is taken and recorded on the computer. The fingerprints (all ten digits), the photograph and the personal details of each person are then encrypted and converted to a 2-dimensional bar code. The unique key to the entire population register is the identification number. Once the registration process is done, a top quality identification card is issued. This id-card contains many high security features and can not be forged. On the id-card appears the photograph, the personal details, as well as the 2-dimensional bar code which may at any time be scanned to reveal the fingerprints, and all other details. The most important aspect of this is that the 2-dimensional bar code can be recognised by computers. This encrypted low volume data storage technology in pdf-format is freely available. Once a reader reads the bar code, the person's details, picture and fingerprints appear on the screen.

As far as livestock owners and their registration are concerned, this efficient population register will make it possible for the Ministry of Agriculture to simply link with the Ministry of Home Affairs to check on an applicant's details and issue him/her with another card bearing the details of the animal identification mark, dip tank, and other information on the new card. This card will identify the animals in a person's possession. Also, should any fingerprints be found at an illegal slaughtering scene (on a knife for instance), it will be very quick to trace the person or persons involved with the livestock theft.

Mozambique

According to Ramsay (2004, personal communication), Mozambique was given the computer system used by the South African Registrar of Brands. The important difference from the South African system being that there is provision for a country mark and the Mozambican system will also provide for district, village, dip tank and the owner's information in order to enhance trace-ability to origin of birth. There is a pilot testing under way in one of the districts. Unfortunately the former South African Registrar of Brands could not supply any details regarding important aspects such as the printing of registration certificates, security features in the system, transfer of ownership, consecutive branding by the new owner of the animal, and many other important aspects involved with

the implementation of a new animal identification system. Attempts to obtain more information regarding this pilot test from Mozambican officials have failed.

Zambia has had a Brands Act since 1913. The system provides for the use of two alphabetical letters to indicate the district of origin and then two numerals to indicate the individual owner. As is the case in South Africa, consecutive branding of the same animal upon transfer of ownership is allowed. It is compulsory to brand all cattle in Zambia. Stud breeders may, however, get exemption from this stipulation.

The Livestock Identification Trust manages the identification of livestock in Zimbabwe. Unfortunately at the time of the writing of this paper, more information on the identification system used in Zimbabwe was not available. It is known that Zimbabwe also has a system of district and individual brands. As far as could be ascertained, it is compulsory to brand all cattle in Zimbabwe.

In spite of a request for information sent to Tanzania, Angola, the Seychelles, Mauritius and the Democratic Republic of the Congo, very little regarding animal identification systems in these countries was forthcoming. It is suspected that the former colonial governments may have promulgated legislation in this regard, but whether the systems were sustained is unknown. The current situation in Malawi is reported on by Campher & Njunga (2004).

Most of the SADC member countries have legislation controlling the identification of animals, or are in the process of establishing legislation and designing new systems. Unfortunately the systems are often not maintained, or lacking in important aspects.

The decision by the Council of Ministers in 1999 to embark on a route of establishing a uniform system for proper animal identification, trace-back, movement control and the collection of production data in the SADC region is an important step towards enhancing intra-regional trade and to curb rampant stock theft.

It is important that each of the countries should take a serious look at the problems with their current systems. All too often thieves that go free because of improper control, poor documentation and above all, a lack of proper policing.

Zambia

Zimbabwe

Other SADC countries

Conclusion

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