Estimated reading time: 17 minute(s)

Animal identification is known as ‘the combination of the identification and registration of an animal individually, with a unique identifier, or collectively by its epidemiological unit or group, with a unique group identifier (Richard, n.d).

This approach has been practiced for thousands of years, initially to signify ownership and later to prevent animal disease outbreaks and regulate trade during human disease epidemics (Bowling *et al.,* 2008).

However, there are other **benefits of animal identification**, such as accurate breeding histories of individual animals, significant contributions to breeding and genetic diversity management programmes and in the implementation of targeted biosecurity measures (Richard, n.d).

Below are several commonly known methods of animal identification.

1. Electronic Animal Identification Devices

These are **electronic tags** containing radio frequency identifiers (RFID) that emits a signal when stimulated by an appropriate electronic reader. The RFID consists of a microchip and a coiled copper antenna (Shanahan *et al.*, 2009).

Although it is not necessary for farmers to possess readers, there can be **labor cost savings** in their use due to reduced time for reading and recording identification numbers; reader use may also improve accuracy.

2. Tattoo for animal identification

Tattoo is an **animal identification method** that is mostly used on pigs, particularly white-skinned breeds, although green ink can be used for dark-skinned breeds.

Tattoos have also been proposed as a means to identify poultry; the tattoo would be applied under the wing where there are fewer feathers.

3. Ear Notching & Ear Clipping for animal identification

Ear notching is **not an approved means of identification** but may be used for on-farm management of pigs as an alternative to tattooing or ear tags: a special tool snips out a small piece of the ear flap to leave a permanent V-shaped notch.

Notches could be used (but not as an official mark) to identify a herd number on one ear and an individual on the other, or a litter number on one ear and an individual on the other.

There is a **risk of infection** in newly notched ears and the welfare concerns are greater than for some other identification methods.

Ear Clipping has a similar procedure to ear notching but a more frequently used term when used for livestock other than pigs.

5. Ear Tagging for animal identification

Ear tags are by far **the most common method of marking cattle**, sheep and goats and are sometimes used for pigs. Ear tags may be electronic or non-electronic and there are numerous designs, but **all**

entail the piercing of the ear flap. Most tags are now plastic (especially for electronic tags for which metal would interfere with the signal from the RFID), but some non electronic ear tags are metal.

Apart from the initial puncturing of the ear flap (with possible introduction of infectious agents), the welfare concerns of ear tags are that some 'loop' types, if incorrectly inserted, may limit the growth of the ear and that all types may catch on fences etc. and be torn out of the ear.

6. Dewlap Tags for animal identification

Dewlap tags are inserted into the dewlap over the brisket, where it is claimed there are few nerves in the skin. A supplied hole-punch is used to make a hole in the skin before passing the hasp of the tag through the dewlap; the tag is then passed over the hasp before the ends of the hasp are bent to retain the tag. Advantages claimed (by the suppliers) for dewlap tags over ear tags are that **they are always visible** (from in front of the animal) and the right way up, and that they do not snag on fences etc.

7. Pastern (Leg) Bands for animal

identification

Pastern bands are a **non-invasive method** in which a band is fitted around the animal's lower leg; the pastern band may be electronic or non-electronic. **The bands are not used anymore because they cause inflammation**.

8. Ruminal Bolus for animal identification

A ruminal bolus is a bullet-shaped, high density container, usually ceramic, **containing an electronic identifier**; the bolus is designed to **lodge in the rumen of the animal**. Ruminal boluses were used as a means of identifying sheep during the National Scrapie Programme (NSP), but are **not widely used for general identification** as an ear tag is also needed as a visual identifier. If this secondary visual identifier is lost, an **electronic reader** must be used to identify the animal. In addition, boluses are sometimes regurgitated (although ear tags and pastern bands can also be lost).

9. Hot Branding for animal identification

Hot branding is the application of a **red hot 'branding iron' to the skin**

of the animal to cause a permanent mark through scarring of the skin. Despite welfare concerns 13,301 **people signed an e-petition calling for the ending of multiple hot branding** of equines in June 2012:

10. Freeze Branding for animal identification

Freeze branding is permitted for cattle as well as equines and is now more common than hot branding. **The branding 'iron'** (copper and brass are preferred metals) **is cooled in liquid nitrogen**, dry ice or similar coolant. When sufficiently cold the iron is applied to a shaved area of the animal's skin and held there for 15-45 seconds, the longer time on light colored animals.

11. Micro-chipping for animal identification

Micro-chipping is the **insertion of an electronic transponder directly under the skin** of the animal, where it remains a permanent identifier that can be read with an appropriate electronic reader. Micro-chipping is **widely used for companion animals** such as dogs, but it is also common in equines.

There is a **risk that the micro-chip will migrate**, making it more difficult to locate. For this reason **microchipping is not commonly used for animals that may be slaughtered** for human consumption: if the micro-chip cannot be quickly recovered it will interfere with abattoir throughput or, if not recovered at all, it may pose a risk if ingested by the consumer.

Alternative and Possible Future Technologies are such as Barcodes, Biometric Identifiers and Ultra High Frequency (UHF) Tags.

Regardless of these methods, there are overall challenges that arise with the methods, challenges based on Readability (caused by wearing, tearing, breakage and soiling), loosing of tags, welfare reasons such as inflammation and pain, tampering of tags from one animal to another which lessens the reliability of verification.

The future of animal identification

Seeing that the former methods of animal identification have disadvantages, our **Snap Animal App** allows you to lookup animal records with AI face ID. With Snap Animal, farmers can create a visual catalog of livestock and manage image and video files of individual animals, which magically synchronizes with the **Farm management app** animal records. It is an Artificial Intelligence biometric recognition technology that allows the identification and re-identification of animals within a collection. This tool promotes **greater guarantee and protection of animal welfare and health.**

The advantages of this tool are: it is user friendly and free, it assists you in reducing and preventing stock theft, it ensures the reunion with the owners in case of stock theft, it assists in reducing mistaken animal identity and it works with and supports the current identification systems.

References

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