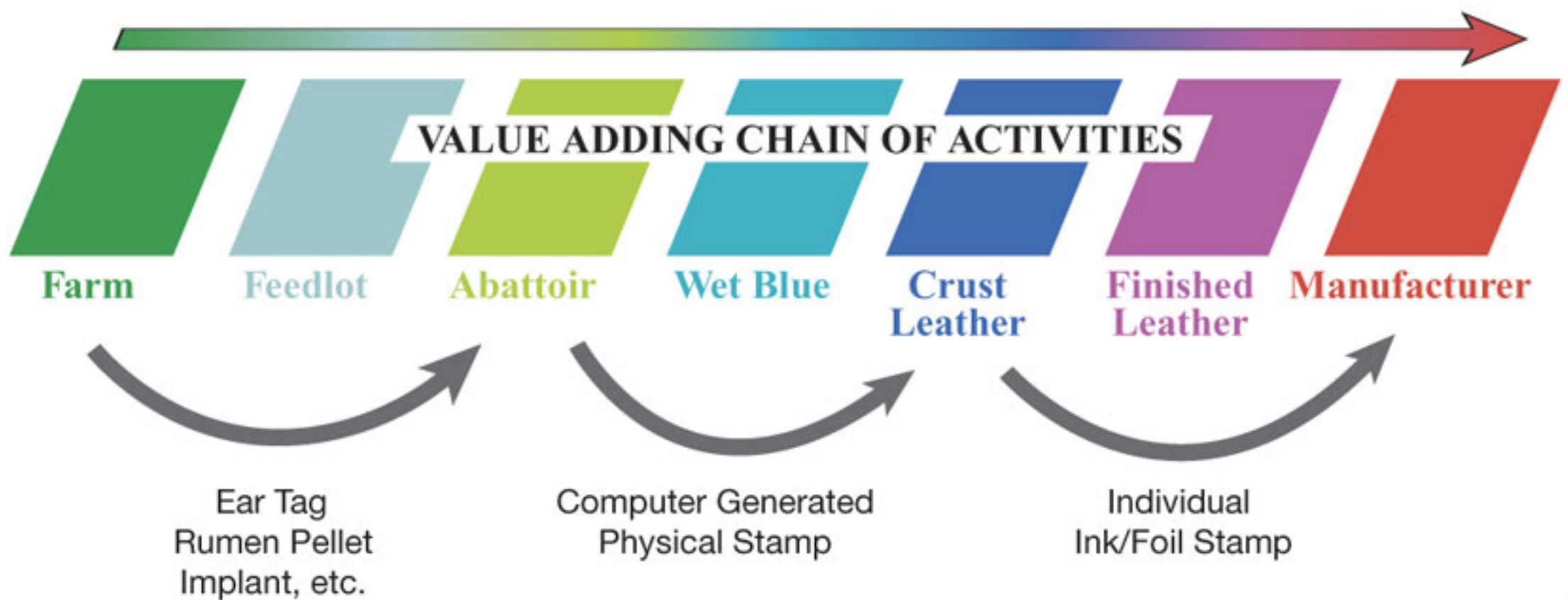




Figure 1: The Hide Supply Chain



Closing the loop

Traceability or tracking through the tannery

With the normal commercial issues of yield increase, claims and returns, raw material purchasing, new product development, occupational health and safety, the environment, and fluctuating exchange rates, why would tanners want the added complication of tracking individual hides or pieces of leather through their tanneries?

To add complexity to the problem, there has been opposition to the concept from certain quarters of the industry. Some members of the traditional leather supply chain see it as something of a threat. The constraints of a modern, secure, managed supply chain do not always suit traders, whose interest might be in selling as many pieces as possible and not in trying to improve the value of each piece so that the whole supply chain benefits.

The production imperative

One argument for identification is the quality improvement that can be achieved through traceback to the raw material source, especially if an incentive for quality improvement is offered. The savings for tanners and their customers from processing only top quality raw material can be immense and the key to gaining these benefits is a secure, well managed supply chain, with all parties committed to quality improvement. Other benefits of traceability include verification of the ownership of goods in case of claims or theft, a good example of which is the new DataDot technology used in cars for preventing theft.

In addition, accurate inventory control and costing depends on traceability. For too long the stock held in each stage of the

tanning process has been based on averages or guesswork. However, it is now possible to know in real time, by using individual identification and a suitable tannery software package, not only how many pieces are in each drum, but exactly which pieces they are.

Software such as the TMS (Tannery Management System) from Systems Engineering Pty. Ltd. in Stirling, Australia, has been refined and tested in many tanneries over the last 15 years and is an example of the type of data collection, processing and reporting that is required to provide accurate and reliable information. The TMS allows a large amount of data on the hides, as well as their individual identification, to be accumulated quickly and easily while they pass through the production chain. For example, it can give live access to not just every pallet of leather and its location, but also the position of every hide on that pallet, along with its full processing history, the abattoir where it was slaughtered, the feedlot it was fed in, and the farm on which it was bred.

The customer imperative

An equally important need for such equipment is now developing as a result of customer demands, who not only want a product to be fit for use—they also want to know its history. Educated consumers are now demanding that manufacturers prove that the product they purchase complies with their personal values, for example they may want verification that its production has minimised harm to the environment, that animals have been treated humanely and that child labour has not been used. There is therefore no possibility of meeting this requirement without traceback ➤



Figure 2: 5 Digit Gibson Bass Hide Stamper



to the raw material source.

While lot or batch tracking is adequate for some tannery purposes, the customer imperative dictates that individual IDs must be used.

Some skins from endangered species are governed by CITES, and must be individually identified before they can be traded internationally, and some more valuable skins (e.g. ostrich) are individually identified as a safeguard. In these high value low volume examples costs are less important and the problem has been solved, albeit at a price. The problem of affordable mass individual identification of cattle hides, however, is a different matter.

Identification through the hide supply chain

The 'ideal' identification system should:

- Provide individual identification.
- Be computer controlled.
- Be integrated with the factory production software system.
- Be easy and quick to apply.
- Have a low cost per piece.
- Have a high retrieval rate.
- Be machine readable.
- Be human readable.
- Be applicable and readable at any stage.
- Be safe to use.
- Be readable with hair on and hair off.

There is no system currently available that meets all of these requirements through all of the stages of production. There may never be. But it is now possible to achieve individual ID from the on-farm to the end-user stage using a hybrid three stage system.

The on-farm to abattoir link

This link has been in place for some time. Food safety, market access, disease control and genetic improvements are the driving forces behind most schemes for individually identifying cattle. The USA, Canada, the EU, Japan, Australia and New Zealand and some other countries have their own systems for identifying cattle through the slaughterhouse as

Figure 3: Two Digit Physical Stamp made by the Gibson Bass Stamper



the need for traceback for food safety purposes has been such that the meat industry has adopted traceback much earlier than the tanning industry. A mixture of RFID (radio frequency identity) ear tags and rumen pellets (which work like ear tags but are virtually tamper proof) are used on the whole as implants lost favour due to the possibility of it migrating into the meat.

The crust leather to customer link

At the other end of the spectrum, the crust leather to customer link is also possible by attaching an individual tag to each piece, including not only the area but also the individual ID. Tracking after cutting is more complex, but where leather is already identified with an area measurement, printed in ink or stamped with a foil, there is a solution. For example, GER Elettronica of Vicenza, Italy, has developed the Multistamp Electronic Measuring and Marking machine, which stamps the back of the leather in a grid pattern to allow relatively small pieces to be individually identified, even after cutting.

The abattoir to crust leather link—the problems

Until now this has been the Achilles heel of hide traceability. Machine readable tags, including compressed symbology (which improves bar codes by storing more detailed information in a form that can tolerate extreme temperature) such as the Snowflake code have been tried for this purpose, however, there is no way of attaching a device to the hide that can cope with fleshing, splitting and shaving. Even new technologies such as bio-engineered tamper-proof DNA tags used by the USA's National Football League to mark the game-related memorabilia cannot be attached in a way that will withstand the harsh chemical and physical processing conditions in a tannery.

Although Richmond in New Zealand developed a tag which would survive sheepskin processing up to pickle, it was not able to survive cattle hide fleshing. The Richmond tag was scanned after pickled pelts were sorted but only third grade skins were scanned and the result was a discount for the farmers that supplied these skins.

The Golden Hide Program in Sweden avoids the problem of feedback for quality improvement by registering farms and



controlling their on-farm animal husbandry. The farmers are then rewarded, based on their adherence to a set of guidelines relating to electric fences, de-horning, louse control, clean hides, stables that prevent scratches and, when required, vaccination against ringworm. This quality assurance type approach relies on the results of a process rather than individual inspection for quality; however, it is not what customers are now looking for as it does not form a direct link from the individual hide to the farm.

To progress through fleshing, splitting and shaving—the problem areas for cattle hide identification—a physical mark is the only solution for individual identification. Manual hammers and simple stampers have been used for many years for lot or batch numbers and whilst the better pneumatic ones are reliable, the manual changing of digits makes individual identification impractical, costly and time consuming.

The solution

A computer-generated physical mark such as that produced by the Australian made Gibson Bass Hide Stamper in Brisbane, Australia, provides a practical, available solution to the problem. This stamper cuts a computer-generated number into the hide which is permanent and easily readable at any stage once the hair has been removed. It can stamp up to seven digits in one stamp and the machine can interface with the tannery software control system through an Ethernet connection.

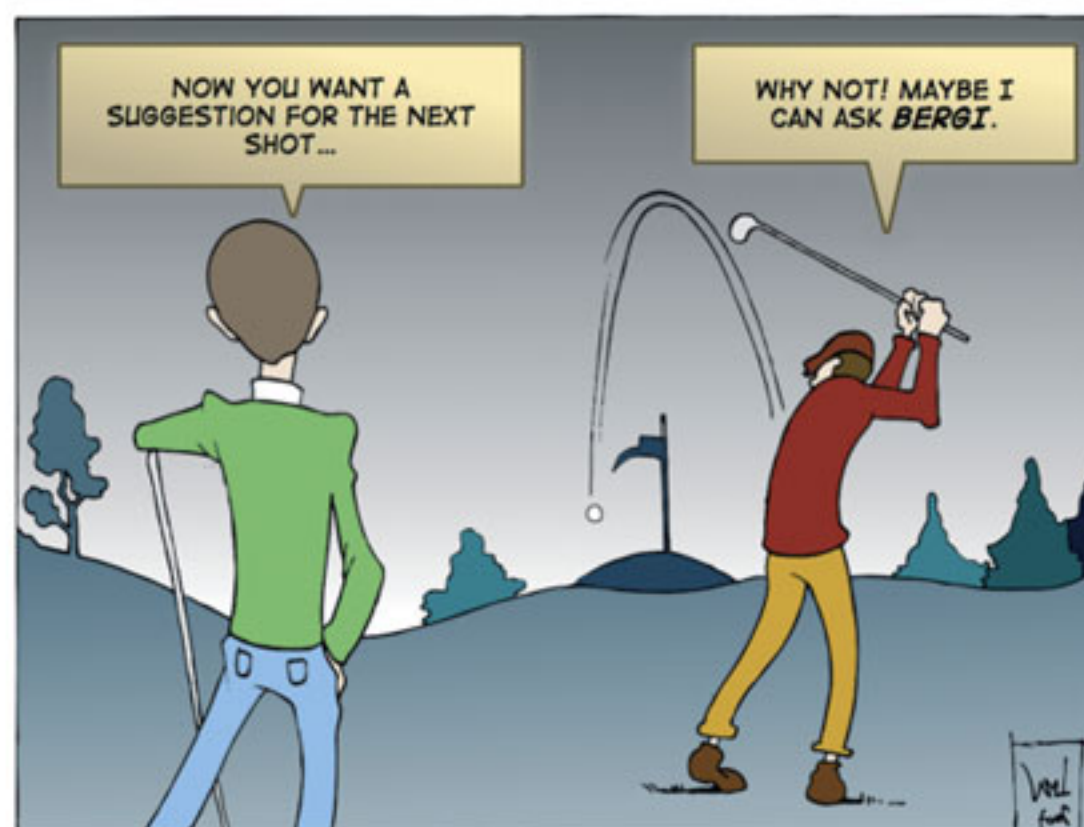
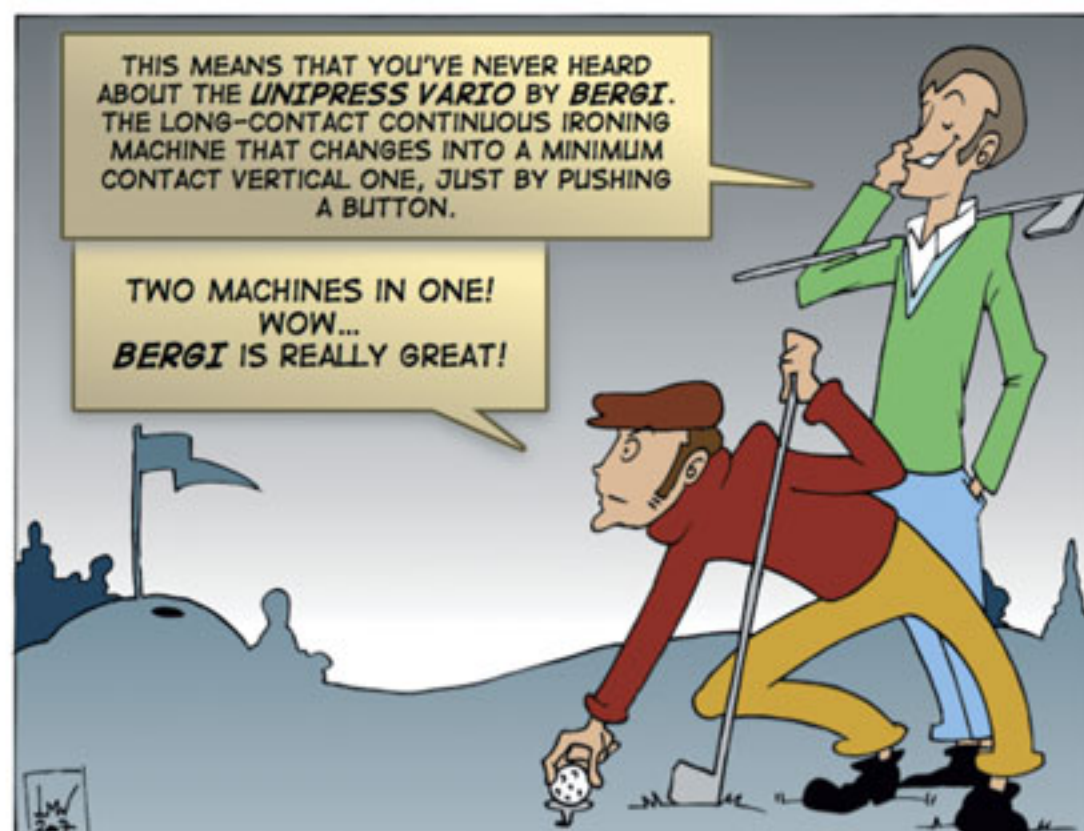
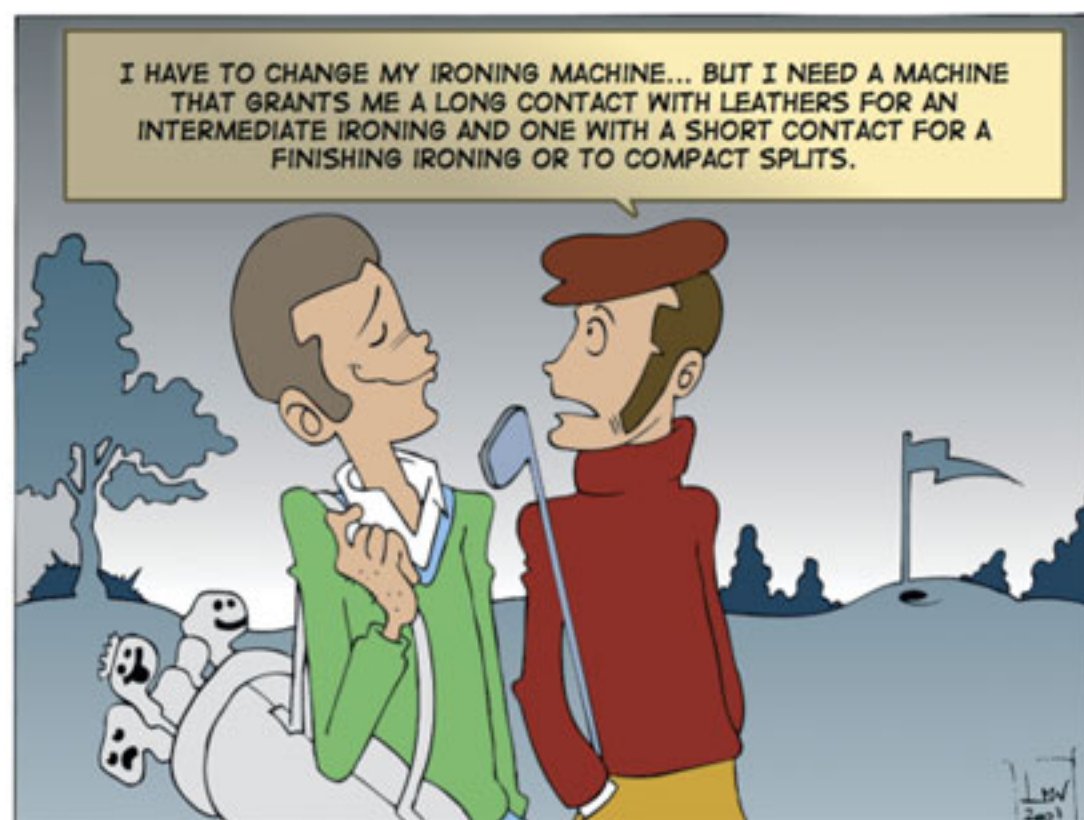
The stamp can be added at the abattoir, or can be stamped at any stage of production in the tannery. The ideal solution is to stamp the hide on the kill floor of the abattoir, where the connection between the individual carcass and the stamp can be easily correlated. In some circumstances a scannable tag is required from the abattoir to the tannery. This is the case if, for inventory control purposes, individual identification is required before the hair is removed. It is also needed if the abattoir is unable or unwilling to do the stamping, in which case the stamper could be situated at the tannery.

The cutters of the Gibson Bass stamper go right through the hide, and are even readable on the split. It can stamp numbers, letters or codes, depending on the requirement. The stamp is easily readable at least to crust, and after finishing, depending on the finish applied. The stamper is very fast, (about two seconds per stamp) low maintenance, low cost, reliable and safe.

Of course, providing a reliable ID is only the first part of the exercise. Data collection and handling is an integral part of tracking in the tannery. Reliable software is required, and if the tannery does not have the ability to collect data quickly and cheaply throughout the tannery, then there can be little confidence in the tracking system. This is where the tannery's software data collection and reporting capability must be up to the task.

There is now no excuse for not providing manufacturers, and end users with full individual information on the leather being produced at a tannery. The systems developed to allow this to happen are already in use and are readily available. However, to do it efficiently and fully there must be a secure and committed supply chain, with co-operation from all parties. This is the first step in gaining the enormous advantages that come from giving customers what they really want.

TMM



www.bergi.com
info@bergi.com

