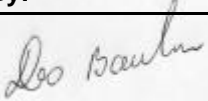



**Food Safety Traceability and EAN  
Numbering, Bar Coding and EDI for  
Beef By-Products and Co-Product**

**Final Technical Report**

A Partnership Project Between  
Australian Country Choice and  
Meat & Livestock Australia Ltd  
Project No: PRMS.002D

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## 1. INTRODUCTION

Throughout the meat industry there has been a growing need for producers and processors to provide evidence of food safety (product) traceability to consumers. Consumers world wide now have an expectation that retailers are able to identify the origin of the food they market. The growing pressure from consumers has forced a review of the concepts and methods available to provide this evidence of traceability. This review of the industry has highlighted the concept of supply chain management and the importance of product identification through the supply chain.

For food safety traceability in the meat industry to sustain consumer confidence it must embrace a "Paddock to Plate" philosophy incorporating best practice strategies for supply chain management, food safety and food quality programs.

The principles of standardisation for terminology and numbering have been readily adopted in most other industries. The use of EAN numbering, bar coding and EDI has been adopted internationally by over 900,000 manufacturing/ processing companies in over 90 countries and millions of companies world wide every day trade using this system. There are demands being placed on the meat industry by our international trading partners and domestically by the grocery industry for standardisation and the use of EAN numbering, bar coding and EDI. The reason for the rapid and total adoption of EAN numbering, bar coding and EDI through all other industries has been the huge cost saving that can be achieved by better supply chain management, both at an individual company level and at an industry level.

The first stage of the Supply Chain Management/ Food Safety traceability – Beef project was completed in October 1999. The project demonstrated the way EAN Numbering and bar coding could be cost effectively implemented in any size processing facility to provide traceability through the supply chain. This demonstration showed that the system was scalable from very small facilities to very large facilities. The use of DNA fingerprinting systems for validation provided an absolute level of independent integrity. The level of implementation of EAN systems for pass forward/ track forward and DNA trace back systems can vary greatly. The systems can range from very complex to very simplistic. The chosen level of complexity is a management decision of the organisation to limit their exposure to risk. The more complex the system the higher the level of pass forward and the lower the cost for trace back. The more simplistic the system the lower the implementation and operating costs but the higher the cost for trace back. The project also resulted in the issue of guidelines for Bar Coding in the Australian Meat Industry and endorsement by the meat industry organisations.

The stage two demonstration projects for carcasses, primal cuts, value-added products and carton products has been conducted with very positive outcomes. The overall adoption of a combination of: **EAN** codification, bar coding and Electronic Data Interchange (**EDI**); and DNA finger Printing for validation and audit, has been well accepted.

The issue of by-products and co-products is still to be addressed in terms of demonstration projects. A Food Safety Traceability Audit was conducted at Australian Country Choice in March. This audit identified that the area of by-products and co-products had not been addressed in any of the previous Traceback projects.

This Project was undertaken to build on the existing project work that has been completed at Australian Country Choice on EAN Numbering, Bar Coding and EDI for food safety traceability.

For this project, by-products and co-products includes but is not limited to:

- Offals,
- Specialty Co-Products (Gall, Foetal Blood, etc)
- Hides
- Tallow

- Bone/ Meat Meal
- Speciality By-Products (Paunch Contents, Manure, etc)

## **1.1 Project Methodology**

The project was undertaken by Australian Country Choice at their processing facility in Brisbane Australia.

The project methodology was based on the following activities:

- Review, analyse and determine the best methods for adoption of EAN standards for by-products and co-products at Australian Country Choice;
- Develop specific generic applications of the EAN standards for by-products and co-products at Australian Country Choice. These generic applications must provide linkage from slaughter batches to by-products and co-products batches as a minimum;
- Consult with industry and standards bodies as part of the development process to ensure compliance with the various regulatory requirements;
- Consult with customers of by-products and co-products to determine the context and content of the information required in the EAN Bar Coding and EDI; and
- Model and demonstrate for a period of three months the use of the EAN system and DNA fingerprinting, where suitable, for the traceability of by-products and co-products at Australian Country Choice.

## **1.2 Project Outcomes**

The project outcomes to be delivered as a result of the project include the following:

A 3 month trial unitizing EAN Numbering, Bar Coding and EDI.

3 stages of reports matching to each milestone.

Video, poster and power point presentation prepared for dissemination to Industry on the results of the project.

## 2. CURRENT WORK PRACTICES FOR BY-PRODUCTS AND CO-PRODUCTS - Milestone 1

The project analysed what portions and parts of carcasses are deemed to be by-products and co-products. Once co-product and by-products were defined and their respective percentages identified and classified, analysis was undertaken for defining traceability linkages to other on plant systems.

The project identified that the saleable meat quantity of the live weight of a bovine animal was only approximately 37%. The rest of the carcass relates to by-product and co-products and on-plant related moisture loss. By increasing the amount of the bovine animal that could be used as co-product lowered the amount of moisture loss (weight) caused by rendering. Thus increasing the value of the whole bovine animal.

The need for a high level of traceability to satisfy market requirements for by-products and co-products highlighted the necessity to implement suitable supply chain management tools such as the EAN system and validation by DNA finger printing.

### 2.1 Research Undertaken

Research was undertaken for a number of areas, these include:

- Definitions of by-products and co-products
- Relationship of co-product and by-products to saleable meat content of carcasses
- Methods for EAN adoption for by-products and co-products
- Uses of by-products and co-products
- Current work practices and methods for by-products and co-products.
- Traceability options and methods for by-products and co-products

Over 100 reports and documents comprising in excess of 5,000 pages and spanning 15 years were reviewed and used as a basis of analysis. Research on site at Australian Country Choice was extensively undertaken.

### 2.2 Types of By-Products and Co-Products

The specific portions of a carcass were grouped into three areas. These groups were based on possible use of the material as follows:

- Chilled or frozen products (co-products)
- On-plant processed product/materials (by-products)
- Hides

By-products and co-products can fall into each of these groups and is described as follows:

- Chilled or frozen products (refer to the Australian Handbook of Meat for details) (generally referred to as Co-Products)
  - Chilled or frozen carcass or carcass portion
  - Chilled or frozen Primal cuts
  - Chilled or frozen trim
  - Chilled or frozen Fancy Meat and Variety Items
- On-plant processed products/materials (Generally referred to as By-Products)
  - Rendered or other processed products. (includes tallow, meat meal, bone meal, blood meal, etc)
- Skins and Hides
  - Wet hides
  - Green hides

Market prices, market demand, availability and plant capability may determine what portions of a carcase are used for each group. That is, if tallow prices go up and fancy meat or variety item prices go down, then a higher portion of the carcase will go into tallow production.

The various type of possible derivative products have been represented on the following diagram:

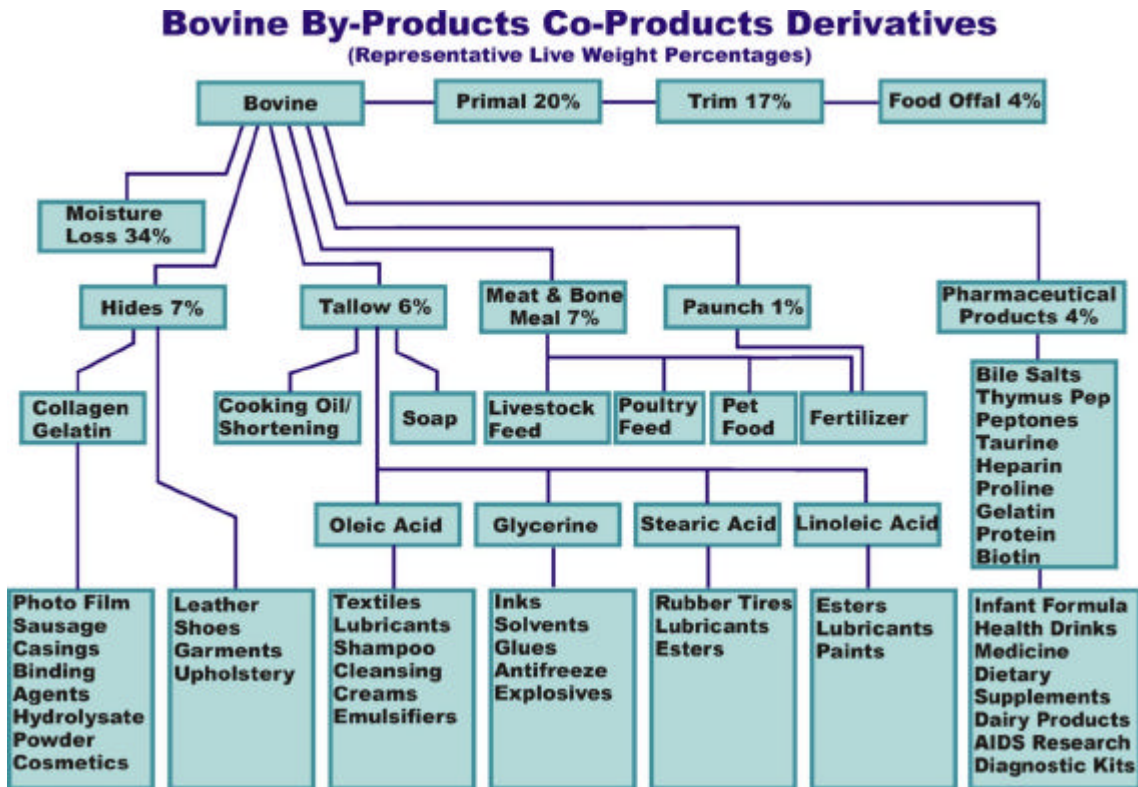


Figure 1 - Bovine By-Products Co-Products Derivatives

There are many possible derivative processing uses for the various bovine by-products and co-products generated from slaughter. The percentage for the tallow, meat & bone meal, (and thus Moisture Loss) and Pharmaceutical products changes based on market demand and slaughter facilities. E.g. The more products that are able to be sent for pharmaceutical uses the less percentage tallow, meat & bone meal and moisture loss.

### 2.2.1 Percentage Break Down of a Bovine Animal (Live weight)

Through the slaughter and subsequent on plant processes a bovine animal is broken down in to various components, a 485kg bovine live weight is broken down by representative weights and percentages, as following:

Product	Quantity (kg)	Quantity (%)
Saleable Meat Products	179kg	37%
Saleable Offal	19kg	4%
Rendered and other inedible products	83kg	17%
Hides	34kg	7%
Water/ Moisture/ Chiller Loss (blood, heating for rendering, etc)	170kg	35%

Table 2 - Percentage Bovine Breakdown (Live Weight)

(Source Aginfo, Australian Meat Marketing Pty Ltd, MLA and MacArthur Agribusiness)



## 2.2.2 Weight Break Down and Price Value Comparisons

The representative weights and their respective representative value for a 275kg dressed carcass is shown below:

<b>Product</b>	<b>Quantity (kg)</b>	<b>Value (\$ per head) Sept 2001 prices</b>
Boneless meat	187kg	\$1300
<b>Co-products</b>		
Hide	29kg	\$86
Edible offals	15kg	\$54
Pet Food	5.5kg	\$2.5
Tallow	56kg	\$34
Meat meal	51kg	\$26
Blood meal	2.5kg	\$2.25
Total co-products		<b>\$205</b>

**Table 3 - Value of Co-Product from 275 kg dressed steer**

(Source Bill Spooncer, Food Science Australia, MLA Co-Products newsletter No.10 March 2002)

<b>Product</b>	<b>Price range/ kg</b>
Foetal blood high volume producer	93 - 103 \$/kg
Foetal blood low volume producer	79 - 88 \$/kg
Ox gall concentrated to 75% solids	7.2 - 8.0 \$/kg
Adrenal gland	12 - 15.2 \$/kg
Pituitary gland	122 - 130 \$/kg
Ovaries	13 \$/kg
Trachea (trimmed)	2.8 \$/kg

**Table 4 - Co-Product for biologicals**

(Source Bill Spooncer, Food Science Australia, MLA Co-Products newsletter No.10 March 2002)

It can be seen that the value of co-products is a significant percentage of the value of the carcass. The more co-products extracted for high value areas such as foetal blood, beef ovaries, Adrenal gland, etc the lower the percentage moisture loss due to blood, heating for rendering, etc and the increase in net value.

## 2.2.3 Uses of Beef By-Products and Co-Products

The by-products and co-products derived from bovine animals are used in many various final products. The processes to achieve the various final products are often quite complex. This report uses the term derivative processing to indicate additional processing that occurs after leaving the slaughter plant.

## 2.2.4 Derivative Processing

As a general category " derivative Processing" is deemed to include the following:

- Animal Feed/ Pet Food simple processing
- Value added for meat products (retail ready meals, etc)
- Food Product simple processing (margarine, etc)
- Fertilizer derived from paunch contents, blood meal, bone meal, etc
- Pharmaceutical Products (blood, bone, meat and gland component extraction, etc)

- Cosmetic base material (soap, etc)
- Nutraceutical Products (health food, meal supplements, etc)
- Food additive products (gelatin, protein source, Binding Agents, confectionery, dairy products thickeners and others)
- Complex processed to derive denatured material (collagen extraction)
- Other

The derivative Processing is used to produce complex products which include:

- Bile Salts
  - Sodium Cholate (NaC)
  - Sodium Deoxycholate (NaD)
  - Bile Salts No 3
  - Special Bile
- Thymus Products
  - ThymuPep
  - Thymopur NZ 25
  - Thymus Extract Powder (TEP)
- Peptones
  - Casein Peptone
  - Gelatin Peptone
- Bovine Cartilage Extracts
  - Bovine Cartilage Extract Powder
  - Chondroitin Sulphate Food Grade
  - Collagen Hydrolysate Powder
- Natural Taurine
  - Pure Natural Taurine
  - Crude Natural Taurine

Final Products include:

- Gelatin or animal jelly, foodstuff obtained from connective tissue (found in hoofs, bones, tendons, ligaments, and cartilage) of vertebrate animals by the action of boiling water or dilute acid
- Collagen any of a group of proteins found in skin, ligaments, tendons, bone and cartilage, and other connective tissue
- Proline organic compound, one of the 20 amino acids commonly found in animal proteins. Only the l-stereoisomer appears in mammalian protein
- Protein are any of the group of highly complex organic compounds found in all living cells and comprising the most abundant class of all biological molecules. Protein comprises approximately 50% of cellular dry weight.
- Thymus gland is often referred to as the "ageing" organ. In humans it decreases in size and activity after puberty. As it decreases in size it undergoes various morphological changes, including the gradual build up of fat and the displacement of functional cells
- Collagen Hydrolysate Powder. Collagen hydrolysates are extensively used in cosmetic creams, shampoos and conditioners for their substantive and moisturising properties. In dietary supplements they are used in arthritis remedies and weight loss products.

- Heparin is a sulphated glycosaminoglycan, which occurs in various mammalian tissues including liver, lung and intestine. Heparin has the characteristic property of delaying blood clotting through its action on antithrombin III which inhibits the activity of thrombin and Factor Xa. Thrombin and Factor Xa influence conversion of fibrinogen to fibrin, which is the main clotting process.
- Taurine is used in a number of different products. The main use is in infant formula to make it more like human milk (dairy milk is deficient in taurine). Taurine is also used in a wide variety of different functional drinks, ranging from "smart drinks" in Europe to "energy tonics" in Asia and is often used in conjunction with caffeine. In Asia it is also used for the prevention of the side effects from excess alcohol consumption

### 2.3 Current Packaging, Labelling and Batch Sizes for By-Products and Co-Products

The current work practices used at Australian Country Choice for packaging, labelling, EAN compliance capability, batch sizes and DNA validation capability for by-products and co-products has been analysed and is summarised in the following table:

Product Type	Packaging Type	Batch Size	EAN Label With S/N	DNA Validation
Abomasum	Carton	1 Day	Y	Y
Beef Lips	Carton	1 Day	Y	Y
Brain	Carton	1 Day	Y	Y
Bones	Carton	1 Day	Y	Y
Cheekmeat	Carton	1 Day	Y	Y
Diap. Membrane	Carton	1 Day	Y	Y
Fat	Carton (edible) Truck Load	1 Shift > 1 Day	Y Shipment SSCC	Y
Gall Concentrated	Drum	> 1 Day	Y	N
Hc Tripe	Carton	1 Day	Y	Y
Headmeat	Carton	1 Day	Y	Y
Heart	Carton	1 Day	Y	Y
Heart-Aorta	Carton	1 Day	Y	Y
Hooves	Carton	1 Day	Y	N
Intestine - Small	Carton	1 Day	Y	Y
Intestine - Large	Carton	1 Day	Y	Y
Kidneys	Carton	1 Day	Y	Y
Larynx	Carton	1 Day	Y	Y
Liver	Carton	1 Day	Y	Y
Lungs	Carton	1 Day	Y	Y
Omasum	Carton	1 Day	Y	Y
Pancreas Gland	Carton	1 Day	Y	Y
Petfood Offal	Bulk Bin/ Truckload	> 1 Day	Shipment SSCC	N
Pituitary Gland	Carton	1 Day	Y	Y
Rum.Pillar	Carton	1 Day	Y	Y
Rectum (Bung)	Carton	1 Day	Y	Y
Spinal Cord	Carton	1 Day	Y	Y
Spleen	Carton	1 Day	Y	Y
Tail	Carton	1 Day	Y	Y
Tendons	Carton	1 Day	Y	Y
Testes	Carton	1 Day	Y	Y
Thickskirt	Carton	1 Day	Y	Y
Thinskirt	Carton	1 Day	Y	Y
Thinskirt Gf	Carton	1 Day	Y	Y
Thymus Glands	Carton	1 Day	Y	Y

Tongue Rt Fillet	Carton	1 Day	Y	Y
Tongue Rt Meat	Carton	1 Day	Y	Y
Tongue Sc	Carton	1 Day	Y	Y
Tongue Sw	Carton	1 Day	Y	Y
Tongue Sw Gf	Carton	1 Day	Y	Y
Trachea	Carton	1 Day	Y	Y
Tripe Pcs	Carton	1 Day	Y	Y
Tripe Raw Scalded	Carton	1 Day	Y	Y
Weasand	Carton	1 Day	Y	Y
Bloodmeal 85	Truck Load	> 1 Day	Shipment SSCC	N
Bloodmeal 85 Ring	Truck Load	> 1 Day	Shipment SSCC	N
Tallow Ined.<1ffa	Truck Load	> 1 Day	Shipment SSCC	N
Tallow Ined.<2ffa	Truck Load	> 1 Day	Shipment SSCC	N
Hides 11-18 Kg	Bulk Bin	1 Day Individual	Shipment SSCC	Y
Hides 18-24	Bulk Bin	1 Day Individual	Shipment SSCC	Y
Hides 24-30	Bulk Bin	1 Day Individual	Shipment SSCC	Y
Hides 30-35	Bulk Bin	1 Day Individual	Shipment SSCC	Y
Hides Ext 35-40	Bulk Bin	1 Day Individual	Shipment SSCC	Y
Foetal Blood	Vac Bag	Individual	Y	Y
Foetal Calf Serum	Unknown	Unknown	Unknown	Y

**Table 5 - Packaging, Labeling, EAN compliance, Batch Sizes and DNA Validation**

The above table shows the complexity of the various by-products and co-products at the plant level. Each of the headings for the table are defined as follows:

- Product Type
  - The product type is comprised of the various AUS-MEAT descriptions for Fancy Meats and Variety Items as well as the industry terms for on-plant processed items.
  - Some of the product types may be repeated for different classifications or grades
  - Some of the product types may have different names for the same product depending on final use. Eg pet food offal which may be derived from many of the other product types.
- Packaging Type
  - Carton is a meat industry type carton suitable for chilling or freezing.
  - Bulk Bin is a CB7 or other similar 1,000 kg wet or dry palletized container
  - Truckload maybe be a dry truck, wet truck or a bulk liquid tanker
  - Vac Bag is a vacuum bag for the collection of blood and other fluids.
- Batch Size
  - 1 day batch size indicates that the current work practice does not allow for segregation or separation of individual items to create linkage to a carcass better than a days kill.

- 1 Shift batch size indicates that the current work practice does not allow for segregation or separation of individual items to create linkage to a carcass better than a specific work shift.
- > 1 day batch size indicates that the current work practice does not allow for segregation or separation of individual items or mixed items to create linkage to a carcass better than a number of days kill. E.g. rendered product spanning a number of days kill.
- Individual batch size indicates that a one to one match can be achieved for an item to a carcass. Examples include Vac Bag Foetal Blood. Hides currently are processed in a 1 day batch method, however one to one is possible.
- Unknown indicates that at this point in time no data could be obtained from research nor operations at Australian Country Choice. Ongoing research will be conducted to obtain industry examples.
- EAN Label with S/N
  - Y indicates that the packaging is being or is capable of being labeled with an EAN compliant label and barcode. This label would include coding to the Guidelines for Bar Coding for the Meat Industry and the use of unique Serial Numbers for each carton.
  - Shipment SSCC indicates that an SSCC could be prepared for the shipment. This would uniquely identify the specific shipment eg Truck, tanker or bulk bin load.
  - Unknown indicates that at this point in time no data could be obtained from research or operations at Australian Country Choice. Ongoing research will be conducted to obtain industry examples.
- DNA Validation
  - Y indicates that DNA finger printing is possible with the item or product. The exact costs and methods for DNA extraction and profiling need to be validated to determine the specific suitability of each item or product.
  - N indicates that DNA is not possible to be obtained from the item or product.

## **2.4 Traceability Models for By-Products and Co-Products**

By-products and co-products are compatible with the use of the EAN.UCC system for numbering (or codification), bar coding and electronic data interchange. The principles of the EAN.UCC system of all products having a packaging level, a batch size and a labelling method works with by-products and co-products.

The difficulty becomes apparent at each of the linkages through the slaughter, boning and any subsequent on-plant processes. The optimum level of linkage will be determined by the combination of market requirements, practical limitations and cost considerations. Examples include the need to have singular linkage between the live animal and the foetal blood vac bag. The other extreme is the production of tallow, meat meal and blood meal. In this instance the ability to pass forward each individual live animal identification with the shipment of a bulk tanker is neither useful nor practical. In this instance the use of a SSCC that uniquely identifies the shipment and any batches it may contain is more applicable.



**Figure 6 – Chart of EAN Numbering, Bar Coding and EDI for By-Products and Co-Products**

The above diagram has been prepared as an A1 chart representing each of the linkages and groups for the production of by-products and co-products.

The use of DNA finger printing methods for specific items or products is a component of the validation and traceability audit protocols. Where possible and practical DNA finger printing can be used for audit and validation.

#### 2.4.1 Adoption of EAN Codification and Bar Code Labelling

The three groups of by-products and co-products can be readily codified using the EAN.UCC system. The approach for by-products and co-products is the same as for primal and other chilled or frozen meat products.

The critical factors that need to be achieved, include the following:

- Obtain a registration from EAN Australian for the plant (if not already obtained)
- Allocate unique product codes to each co-product and by-product
- Include additional Application Identifiers where required for weights, batches, production dates and a unique serial number.
- Label each level of packaging of the by-products and co-products with the EAN.UCC labels
- For each pallet and/ or shipment (including truckload) generate an SSCC (serial shipping container code) and where applicable, attach to the pallet and/ or shipment.
- Ensure that the necessary individual and/ or batch linkage information is recorded within the plant systems for carcase body numbers, lots, kill dates, shifts, batch codes, etc that relate to each unique serial numbered carton or shipment.

#### 2.4.2 Use of SSCC for Truckload/ Shipments

The use of SSCC (serial shipping container code) as a unique serial number for each shipment ensures that the shipment can be readily identified and withdrawn if necessary.

The SSCC acts as the licence plate for the shipment and can be linked to a Health Certificate for export shipments.



Figure 7 - Example SSCC for Meatmeal and Tallow

### 2.4.3 EAN.UCC Applied to Hides

Hides have the ability to be uniquely linked to an individual carcass number and live animal identification. The use of SSCC (serial shipping container code) as a unique serial number for each hide can ensure that the hide can be globally identified.

Systems for generating a unique identification on the individual hide have been developed and provide a means to create a one to one linkage.

The options exist for either an SSCC on each hide or a plant allocated unique serial number that is recorded and sent with the SSCC for the shipment.

The use of an SSCC for the shipment and the subsequent individual hide serial numbers can be easily accommodated within the EAN.UCC system.



Figure 8 - Example SSCC for Hides

#### 2.4.4 EAN.UCC Applied to Foetal Blood/ Organic Bovine Adult Whole Blood

Special products such as Foetal blood and Organic Bovine Whole Adult Blood have the ability to be uniquely linked to an individual carcase number and live animal identification. The use of GTIN and application identifiers for serial numbers can be applied as a unique serial number for each bag blood. This can ensure that the blood can be globally identified and traced if necessary.

Systems for generating a unique identification on the individual bag have been developed and provide a means to create a one to one linkage.

The use of an SSCC for the shipment of bags of blood can be easily accommodated within the EAN.UCC system.



Figure 9 - Example Foetal Blood Label

#### 2.4.5 Electronic Messaging or EDI (Electronic Data Interchange)

The adoption of electronic messaging within the industry will facilitate a more efficient method for passing traceability and other commercial information forward through the supply chain.

The methods used for electronic messaging must be EAN.UCC standards compliant and cost effective to implement and maintain. Various models have been developed to achieve this objective.

The diagram below shows the levels of electronic business transactions that would be able to occur for the various levels of complexity available.



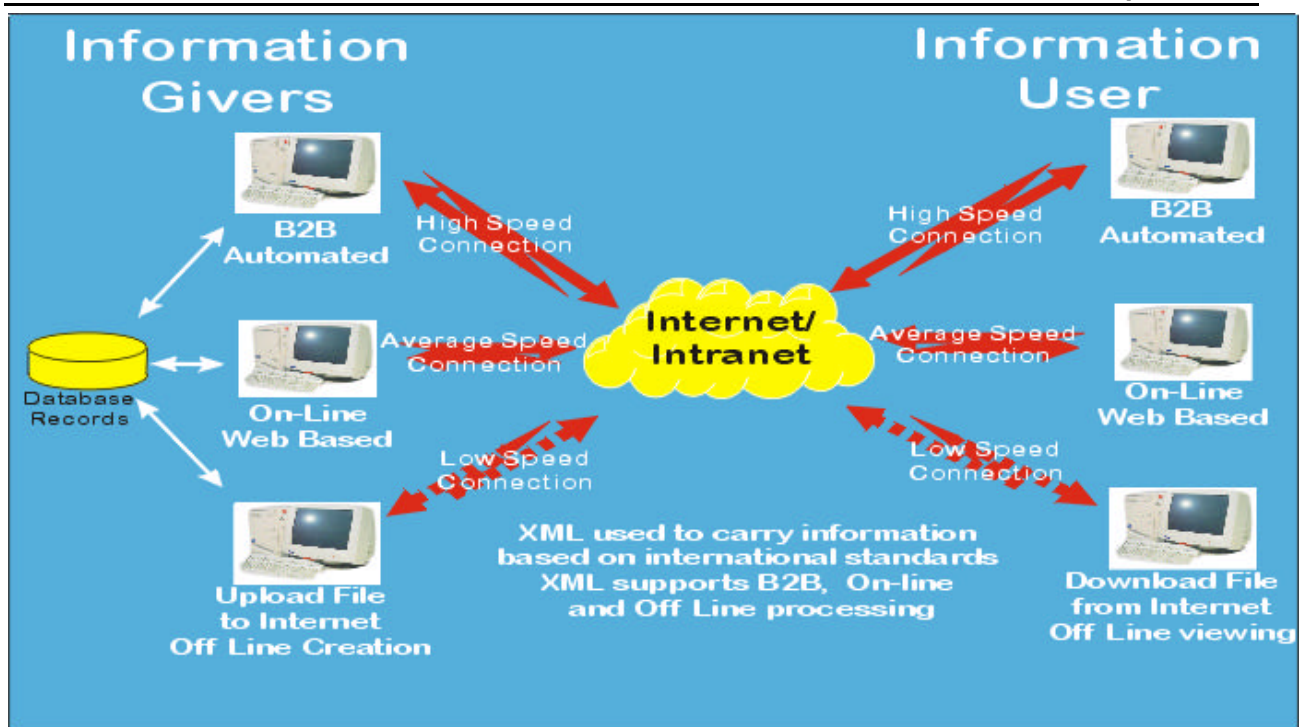


Figure 10 - Example of Electronic Messaging Flow

## 2.5 Traceability Methods

The principles of track forward and trace back apply to co-product and by-products. Should a product further down the supply chain from the processing plant identify a problem or issue the SSCC for the shipment will provide an initial reference. The individual serial numbers from the various packing levels provide a more specific group or lot linkage. The plant can then determine the possible associated products and determine a suitable response. Where the serial number information and linkage information is maintained within the plants computer system the retrieval of the necessary information should be quick and accurate.

Where the products or items have a suitable linkage grouping then DNA finger printing methods can be applied to validate the linkage between the lot and an individual or group of individuals.

## 2.6 Regulatory Requirements

The normal regulatory requirements for chilled/ frozen products and where applicable export requirements must be met. The adoption of the EAN.UCC system provides a more robust and supply chain compatible system than conventional in house based systems. This facilitates efficiency in the need for regulatory traceability information.

## 2.7 Electronic Messaging Structure Principles and Information Requirements

The information and messaging requirements for by-products and co-products are principally related to transactions and traceability.

The key elements of data that were identified for the by-products and co-products supply chain are as follows:

- Message Header Information - The parties to the message, date, times and other related information, including Health Certificate if applicable.
- Product information – SSCC for the shipment, carton/bulk container details if applicable and serial number for each carton if applicable.

The principle messages that have been identified as relevant for the by-products and co-products supply chain are summarised as follows:

- Despatch Advice - Consignment information sent from the consignor to the consignee. The information requirements include all the relevant data related to parties and shipment, as well as specific product details e.g. carton serial numbers if applicable.

Other standard commercial messages that were identified as applicable but not considered to be currently in wide spread practice within the beef industry include the following:

- Purchase Order - Information on required product to be sent from a supplier to customer, include price, quantity, type, transport methods, etc.
- Invoice – Billing details for the completion of a commercial transaction eg the fulfilment of a Purchase Order.
- Electronic payment – Message to confirm transfer of funds as a result of acceptance of an invoice.
- Inventory Report – Message for use by integrated supply chains to state current inventory quantity and/ or variance. Used for management reporting.

Regulatory message requirements were also identified. These being regulatory have the structure and content defined to suit the specific requirements.

## **2.8 Industry Information Module**

A power point presentation and support document have been prepared for the purpose of industry awareness and training. This power point has been constructed for presentation to all sectors of the by-product and co-product supply chain. Refer to appendix for details.

**3. TRACEABILITY MODELS FOR BY-PRODUCTS AND CO-PRODUCTS INDUSTRY - Milestone 2**

A number of food safety traceability models based on the EAN.UCC system are proposed in this report. The models are based on whole of a supply chain management approach and are scalable for different organisations within the supply chain.

There are external organisations from a market and regulatory position that impact upon the proposed models.

Four chart style diagrams have been prepared that show models for four different types of by-product and co-products, and their respective derivatives.

Each of the diagrams show a number of key concepts applied to by-products and co-products, including:

- The application of the EAN.UCC system for numbering and bar coding,
- The use of electronic messaging,
- The traceability linkage between each supply chain stage,
- Validation methods by use of DNA fingerprinting methods.

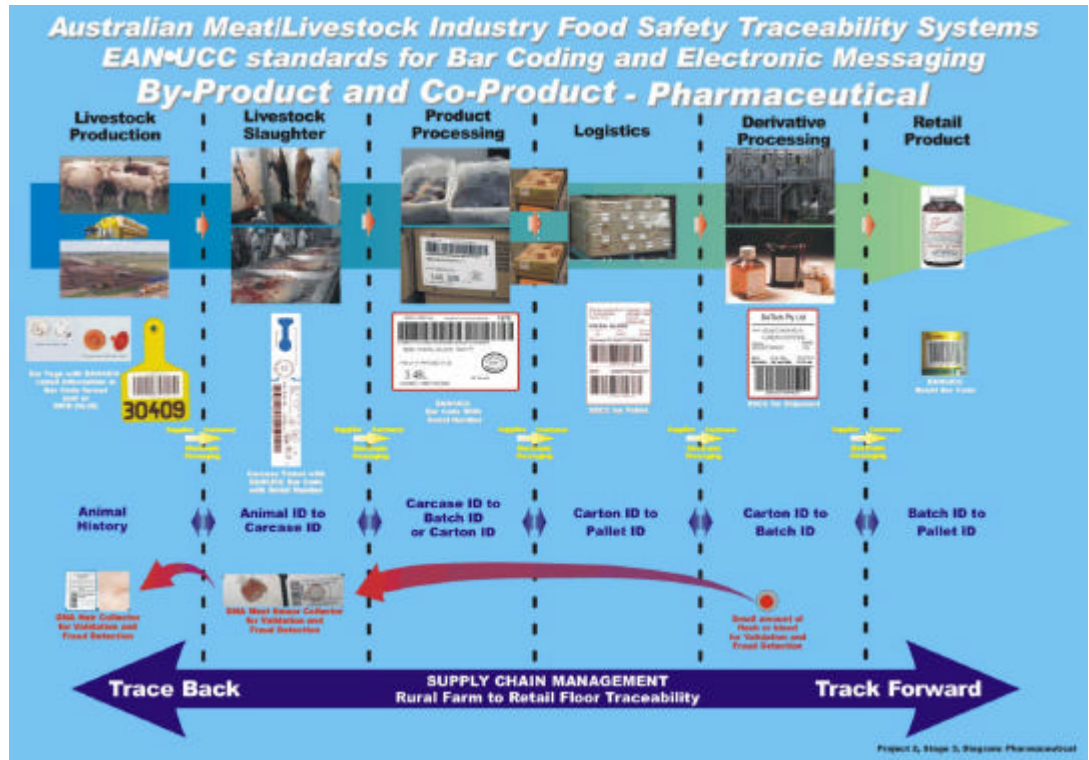


Figure 11 - Poster of Traceability Model for Pharmaceutical Products

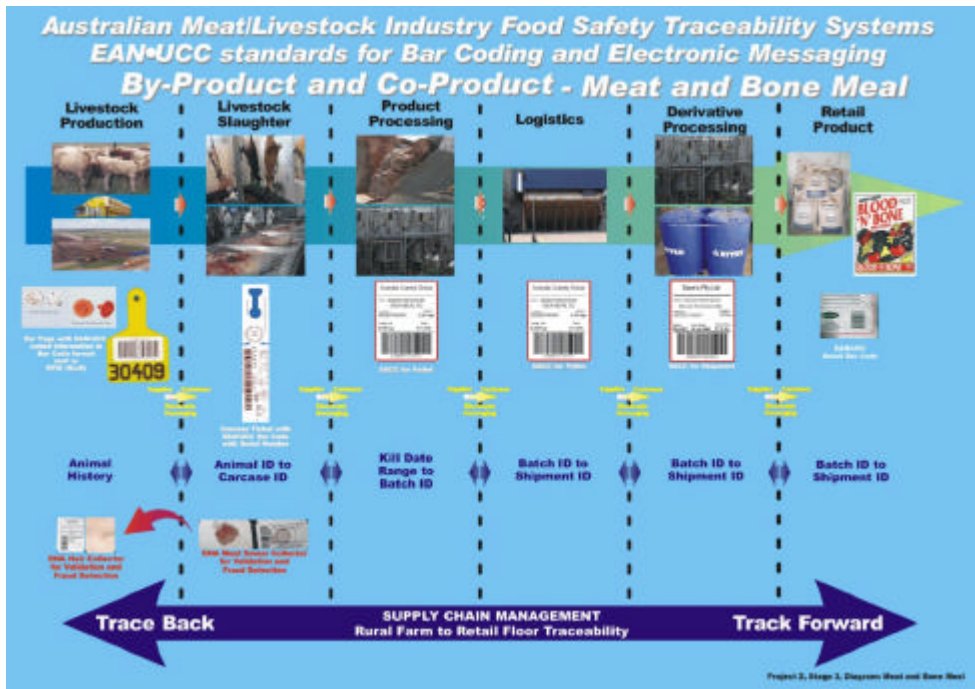


Figure 12 - Poster of Traceability Model for Meat and Bone Meal Products

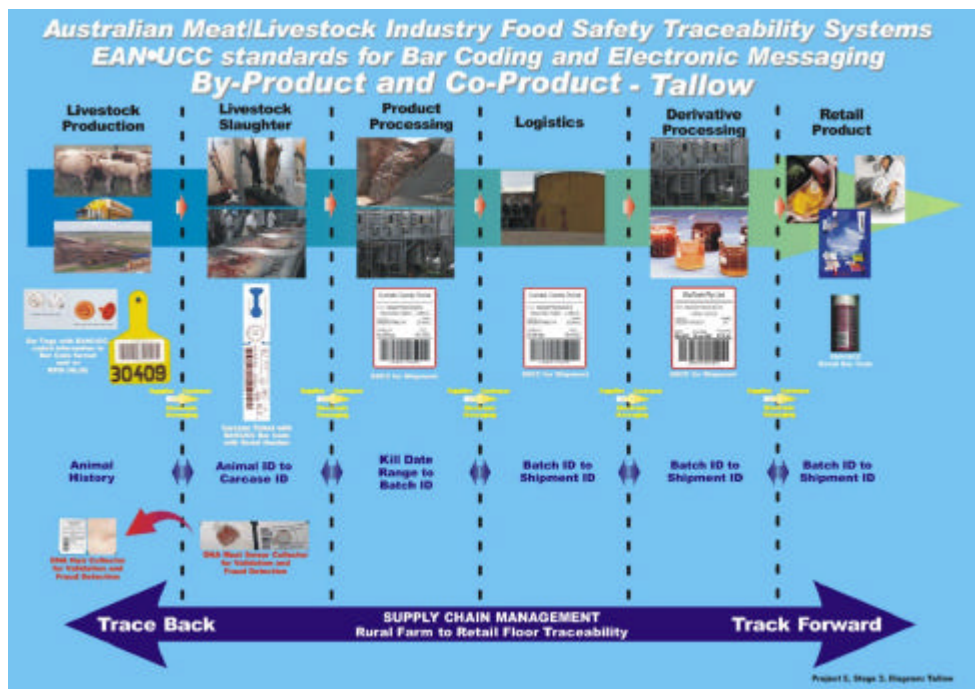


Figure 13 - Poster of Traceability Model for Tallow Products

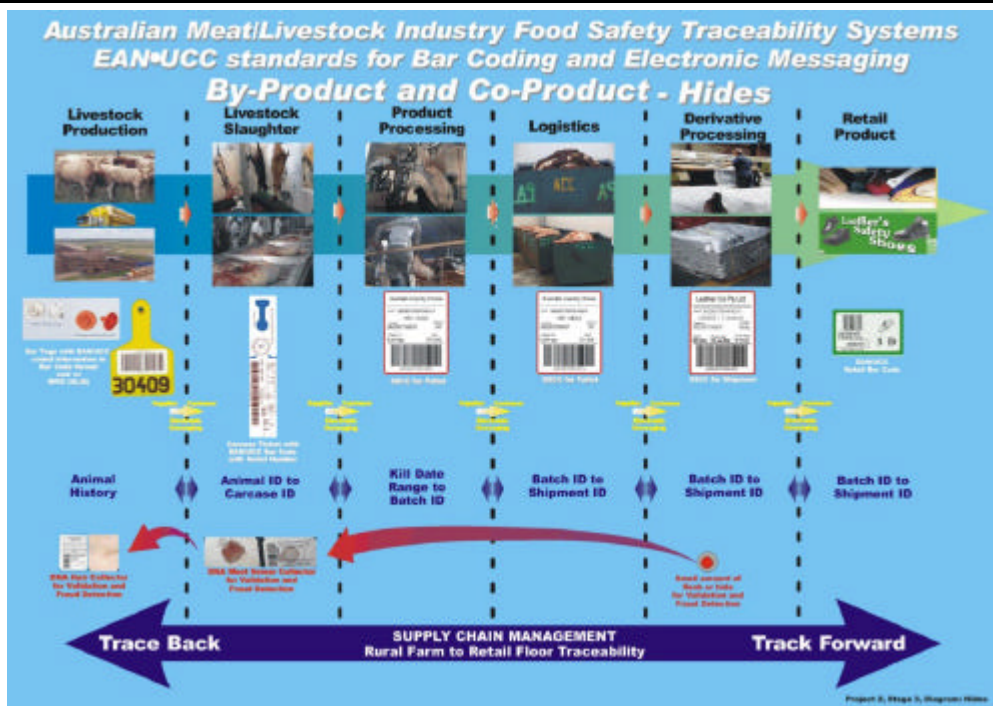


Figure 14 - Poster of Traceability Model for Hide Products

The above diagrams have been simplified to show a limited number of links in the supply chain and limited product diversity. Each of the key concepts of the EAN.UCC system, electronic messaging, traceability linkages and validation methods are applicable through each link of the supply chain and across all product diversity.

### 3.1 Regulatory Review of Traceability Model

Organisations identified as external to the project that have a key role are as follows:

- AUS-MEAT Limited
- AQIS
- MLA
- EAN Australia

#### 3.1.1 Peak Bodies and other Associations involved with the meat Industry

##### Federal Government:

Australia New Zealand Food Authority (ANZFA)

Department of Primary Industries and Energy

Agriculture, Fisheries and Forestry - Australia (AFFA)

Australian Quarantine and Inspection Service (AQIS)

Agriculture and Resource Management Council of Aust & NZ (ARMCANZ)

Standing Committee on Agriculture and Resource Management (SCARM)

Quarantine and Exports Advisory Council (QEAC)

Australian Customs Service

Cargo Management Re-engineering (CMR) Business Model

Council of Australian Governments (COAG)

##### State Government:

Department of State Development - Qld (DSD)

Food and Meat Task Force

Queensland Meat Processing Development Initiative (QMPDI)

Department of Primary Industries - Qld (DPI)

Qld Livestock and Meat Authority

New South Wales Meat Industry Authority

Natural Resource and Environment -Vic  
Agriculture Western Australia  
Primary Industry and Fisheries - NT

**By Government Charter or Act:**

Meat and Livestock Australia (MLA)  
NLIS  
MSA  
AUS-MEAT Limited  
Australian Pork Corporation  
LiveCorp  
Food Science Australia (CSIRO)  
TradeGate

**Industry Associations:**

Australia Supermarkets Institute  
AgForce Queensland  
Australian Beef Association (ABA)  
Australian Food and Grocery Council (AFGC)  
Australian Food Council (AFC)  
Australian Lot Feeders Association  
Australian Meat Council (AMC)  
Australian Natural Sausage Casings Association (ANSCA)  
National Meat Association (NMA)  
National Farmers' Federation (NFF)  
Refrigerated Warehouse Transport Association (RWTA)  
Small Exporters of Australian Meat (SEAM)  
Council of Australian Public Abattoir Authorities (CAPAA)  
Cattle Council of Australia  
Sheepmeat Council of Australia  
EAN Australia

### **3.2 Impacts as a Result of Adoption of EAN.UCC System and Validation Methods for By-Products and Co-Products**

The impact of the adoption of the EAN.UCC systems and validation methods on the by-products and co-products supply chain has a number of levels. This ranges from the impact at the processor and customer level through to government levels.

The identified areas of impact include the following:

- Processor - Direct impacts on processors will be minimal as most have sophisticated on plant systems in use. There will be a need to upgrade and make the systems compliant to EAN.UCC system for all by-products and co-products, however there is a current push within industry to move to standard compliance. The benefits to the processors are the increase in efficiency and accuracy in the collection and reconciliation of information. This therefore provides better linkage for traceability.
- Software and Service Vendors - This is an area of major impacts. Software and service vendors will be required to update their respective systems to provide integration based on standards to other systems. The benefits to the software and service vendors of the adoption of the EAN.UCC system and validation methods by industry are an increase in the customer base.
- Authorities - Impacts to authorities will be minimal. Benefits to authorities by the adoption of EAN.UCC system provide a basis for improved audit and verification of information. The ability to conduct rapid track forward and traceback as well as transaction history will be just one of the many benefits.
- Industry - The impacts to industry will be significant over all with a focus on training and better utilisation of technology. The benefits to industry will be the increased efficiency, improved traceability and better inventory control.

#### 4. DEMONSTRATION TRIAL - Milestone 2

A detailed demonstration trial was conducted at Australian Country Choice. There is a range of products involved with the demonstration trial that show varying level of traceability ranging from several days of production for products like tallow down to single live animal history linked to a vacuum bag of Foetal Blood. The demonstration trial will operate for a 3 month period to show numerous examples of linkages between final products and source livestock.

##### 4.1 Products to be Used for Demonstration Trial

The demonstration trial to be conducted at Australian Country Choice has the following products included (refer to Appendix for sample labels, SSCCs and Reports):

Department	Product	Packaging/ labelling	Trace Linkage	Traceability level	EAN Code	Validation Method
Rendering	Bone/ Meat Meal	Truckload SSCC Docket/ Label	EAN SSCC with Date and Time reference	Live animal IDs based on Kill date range	9327211101251 x	None
Rendering	Tallow	Tanker load SSCC Docket/ Label	EAN SSCC with Date and Time Reference	Live animal IDs based on Kill date range	9327211101276 x	None
Rendering	Hides	Truck load with bins. SSCC Docket/ Label	EAN SSCC with Date and Time reference. Bin reference numbers	Live animal IDs based on Kill date range	9327211101303 x	DNA
Rendering	Gall	Drums SSCC labels on drums plus SSCC Docket	EAN numbering with Serial numbers with date and time reference for each Drum	Live animal IDs based on Kill date range	9327211101328 x	None
Rendering	Paunch Contents	Truckload SSCC Docket/ Label	EAN SSCC with Date and Time reference	Live animal IDs based on Kill date range (3 day cycle)	9327211101430 x	None
Rendering	Glue Pieces (Hide face piece)	Truck load with bins SSCC Docket/ Label	EAN SSCC with Date and Time reference. Bin reference numbers	Live animal IDs based on Kill date range (2 day cycle)	9327211101351 x	DNA
Special Products	Foetal Blood	Vacuum Bag individual GTIN Label for each bag. GTIN label for each carton	EAN numbering with Serial numbers with date/ time and Live ID reference for each bag	Individual Live Animal ID to Foetal Blood Vacuum Bag	9327211101376 x	DNA
Offal	Chilled and Frozen Offal (specifically Aorta, Lungs, Trachea, Thymus Gland Spinal Cord Small Intestine Pancreas Gland)	Carton GTIN label for each carton	EAN numbering with Serial numbers with date and time reference for each carton	Time / Date windows of Slaughter floor body numbers to Offal Carton Numbers	9327211101xxx x (a range of EAN numbers have been allocated for these products.)	DNA

Table 15 - Product listing for Demonstartion Trial

## 4.2 Demonstration Trial Linkage levels

The demonstration trial shows the relationship linkages between live animals and by-products and co-products as they leave the slaughter facility. The range of linkage levels vary greatly from product to product. The following diagrams show the types of data flow relationships for different products.

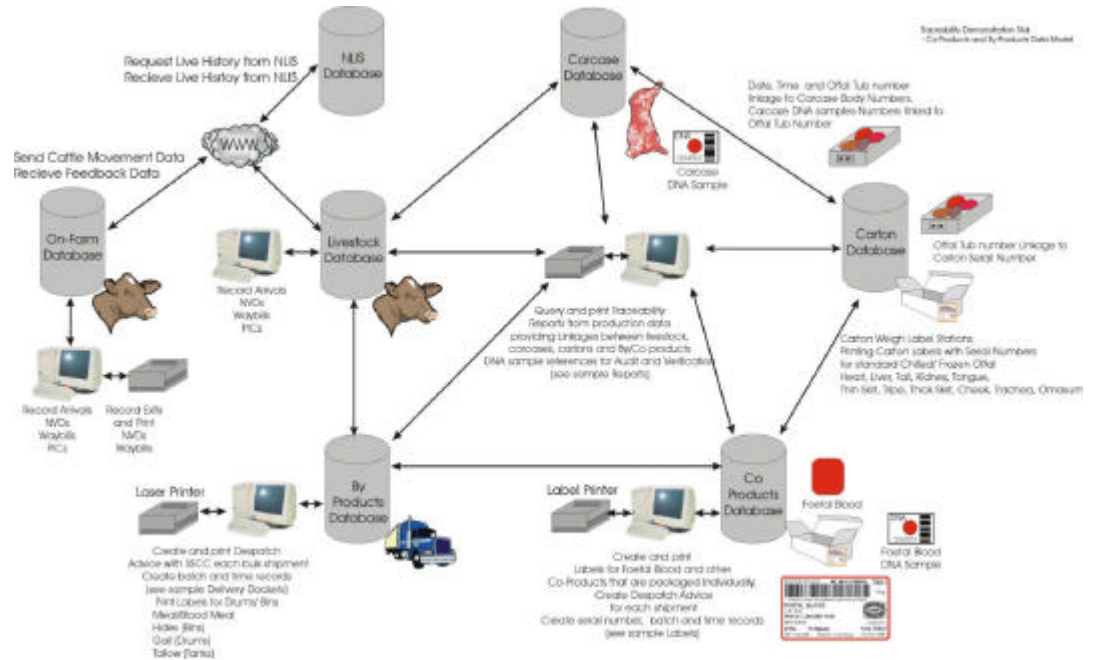


Figure 16 - Demonstration Trial Data Flow Diagrams for By-Products and Co-Products

A series of individual data flow diagrams have been prepared for chilled/ frozen offal, specialised products (eg Foetal blood) and render products/ hides. Refer to the appendix for examples of labels, dispatch documents with SSCCs and traceability reports.

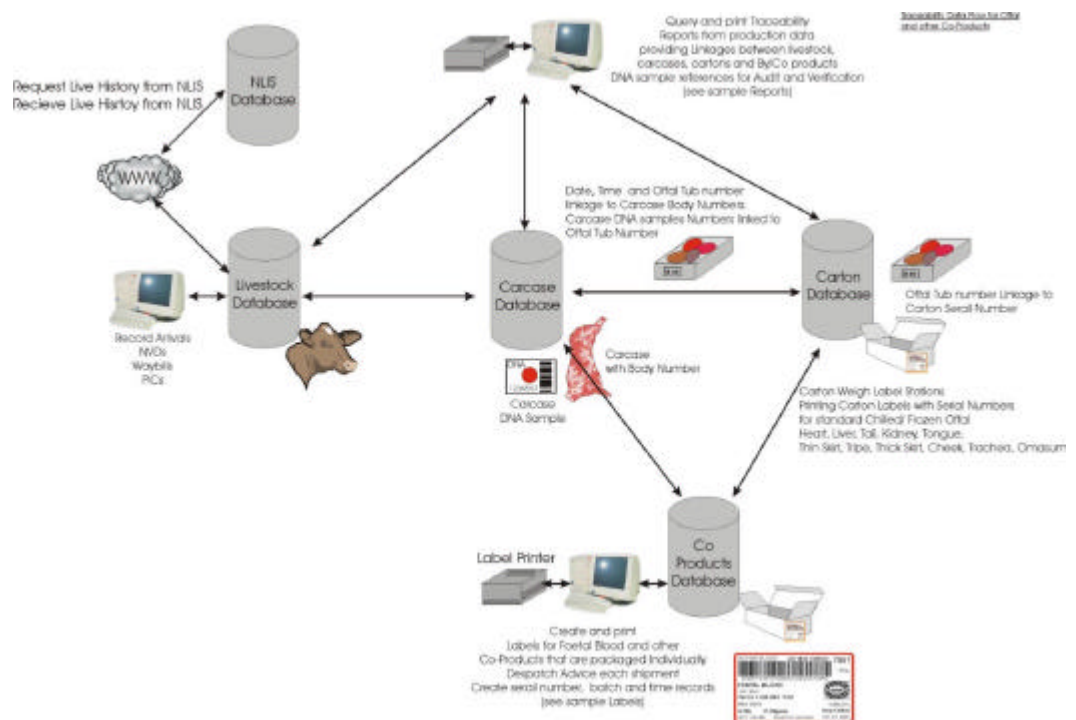


Figure 17 - Demonstration Trial Data Flow Diagrams for Chilled/ Frozen Offal



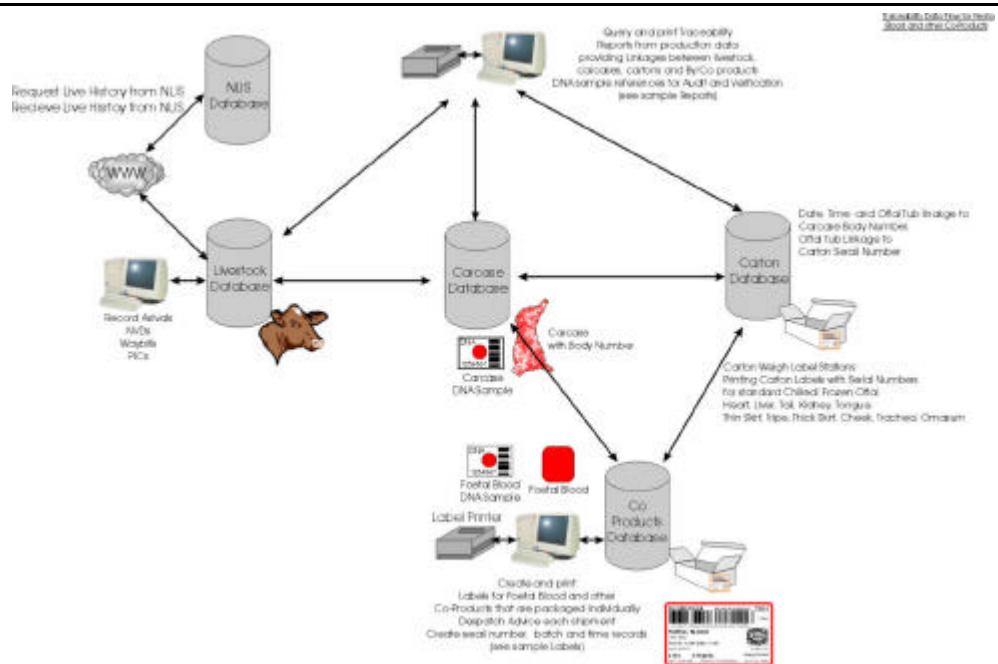


Figure 18 - Demonstration Trial Data Flow Diagrams for Specials Products (eg Foetal Blood)

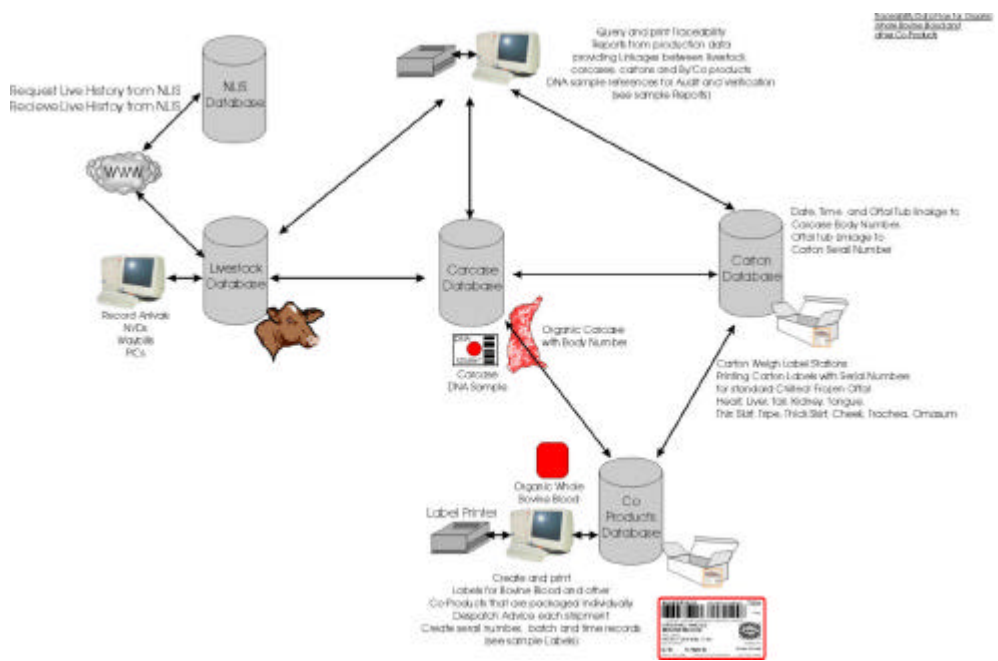


Figure 19 - Demonstration Trial Data Flow Diagrams for Specials Products (eg Organic Bovine Whole Blood)

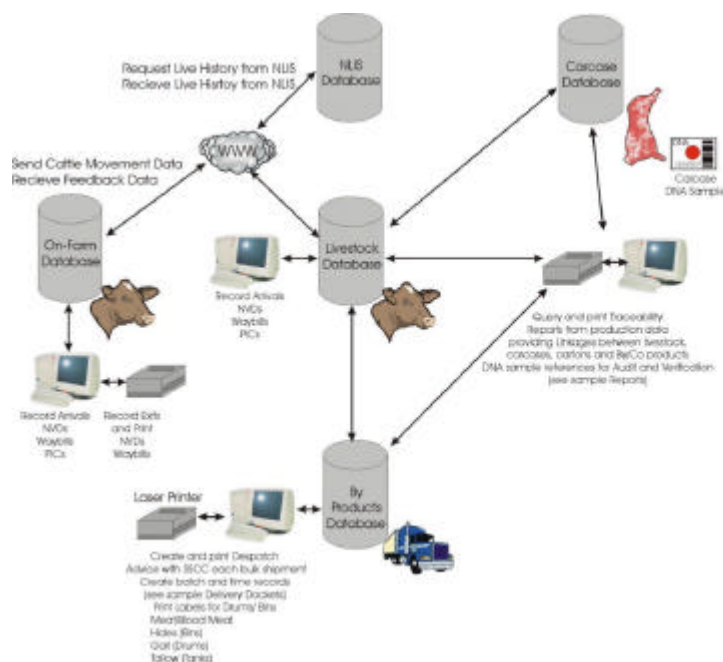


Figure 20 - Demonstration Trial Data Flow Diagrams for Rendered Products/ Hides

### 4.3 Application of the EAN.UCC System for the Trial

#### 4.3.1 By-Product and Co-Product Codification (Numbering)

Each of the by-products and co-products within the demonstration trial was allocated an internal number that complies with the EAN.UCC system requirements as well as the Meat Industry Guidelines for Number and Bar Coding published by EAN.

The codification methods has been applied equally from single packages products such as foetal calf blood vacuum pack up to tanks of tallow.

#### 4.3.2 By-Product and Co-Product Labelling/ Identification

Each level of packaging of products have been label or identified. The basic method of packaging are cartons and pallets. These packaging levels have an EAN bar coded label applied. Where bulk storage occurs such as tallow and meat/bone meal delivery dockets are generated for each shipment and show the EAN compliant product code as well as an individual Serial Shipping Container Code (SSCC).

Specialty items such as foetal blood has an individual EAN compliant label applied to each vacuum bag.

Refer to the appendix for samples of labels, delivery dockets and traceability reports.

#### 4.3.3 Validation Methods

A number of tracebacks was conducted during the trial by use of DNA fingerprinting methods. The information will be linked from a co-product and some by-products all the way back to live animal history information.

#### 4.3.4 Traceability Reporting

A number of traceability reports have been identified that show linkage between each process. Refer to the appendix for samples of reports.

## 5. PROJECT RESULTS - Milestone 3

The demonstration trial project required operation of the traceability component for a period of 3 months. Some aspects of the operations have continued once implemented not just for the trial period.

The areas of operation of the 3 months trials are as follows:

- Rendered product – Meat Meal/ Tallow
- Chilled/ frozen offal product
- Foetal Blood product

Each of these areas has been addressed individually within this report.

### 5.1 Rendered Product – Meat Meal/ Tallow/ Gall/ Hides

A computer terminal and laser printer were used at the Rendering Office to generate the required reports and SSCC documents. The program running on the computer terminal performed the following functions:

- Created a unique Serial Shipping Container Code (SSCC) number for each shipment.
- Date and time record was created for each shipment
- Transport details were recorded for each shipment
- Production batch details were recorded where applicable.

The products that were processed on this computer terminal were the following:

- Gall drums
- Truck loads of Meat/ Blood Meal
- Tankers of Tallow
- Bins of Hides

On completion of the relevant information for each shipment a Delivery Docket is generated.

The records of the SSCC and the other shipment details are recorded on the Australian Country Choice central databases. Linkage between shipments and production records for livestock can be analysed by the Query Reporting System. Traceability is by shipment SSCCs being linked to a number of Carcase from Slaughter by slaughter dates and body numbers. For Meat/ Bone Meal and Tallow the traceability operational window is 2 production days. Eg Approximately 2000 head of cattle per shipment.

Examples of the Delivery Dockets with SSCCs in Barcode format for the various products are shown on the following pages.

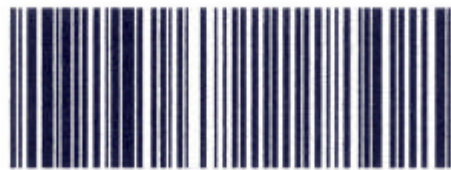


**Australian Country Choice**  
**Production**  
 Colmslie Road, Cannon Hill QLD 4170  
 P.O. Box 478, Morningside, QLD 4170

## Delivery Docket

Delivery Docket Number: **00000034**  
 Issued Date: **7<sup>th</sup> Jan 2002**

SSCC:



(00)99327111000000342

SHIP TO:

EXWORKS  
 (Meadow Lea Foods LTD  
 162 Murarrie Road  
 Murarrie QLD 4178)

TRANSPORT:

Method: Truck  
 Reg: ERR 462  
 Date: 7<sup>th</sup> Jan 2002  
 Time: 9:45am

Code	Description	Batch	Qty
99327111013345	Tallow REGULATORY STATEMENT: "This Product Contains Restricted Animal Material DO NOT FEED TO CATTLE, SHEEP, GOATS, DEER OR OTHER RUMINANTS" Store in a cool dry place	00000034	1 Tankerload

Issued by: Joe Smith

Picked Up By:

Signed:

Signed:

Figure 21 – Delivery Docket for Tallow

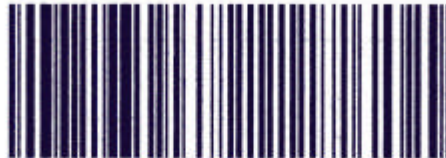


**Australian Country Choice**  
 Production  
 Colmslie Road, Cannon Hill QLD 4170  
 P.O. Box 478, Morningside, QLD 4170

## Delivery Docket

Delivery Docket Number: **00000056**  
 Issued Date: **7<sup>th</sup> Jan 2002**

SSCC:



(00)993271110000000564

SHIP TO:

Specialty Co-Product Pty  
 21 Any Street  
 Anywhere NSW 2000

TRANSPORT:

Method: Truck  
 Reg: DTY 390  
 Date: 7<sup>th</sup> Jan 2002  
 Time: 10:26am

Code	Description	Batch	Qty
99327111024154	Drums of Gall	00000567	6
		00000568	
		00000569	
		00000570	
		00000571	
		00000572	

Issued by: Joe Smith	Picked Up By:
Signed:	Signed:

Figure 22 – Delivery Docket for Drums of Gall



**Australian Country Choice**  
 Production  
 Colmslie Road, Cannon Hill QLD 4170  
 P.O. Box 478, Morningside, QLD 4170

## Delivery Docket

Delivery Docket Number: **00000068**  
 Issued Date: **7<sup>th</sup> Jan 2002**

SSCC:



(00)993271110000000687

SHIP TO:

Specialty Hide Pty Ltd  
 21 Any Street  
 Anywhere NSW 2000

TRANSPORT:

Method: Truck  
 Reg: CDI 501  
 Date: 7<sup>th</sup> Jan 2002  
 Time: 3:14 pm

Code	Description	Batch	Qty
99327111046826	Bins of Hides Bin Numbers:	00001087 00001056 00001059 00001020 00001049	921

Issued by: Joe Smith

Picked Up By:

Signed:

Signed:

Figure 23 – Delevery Docket for Green Hides

## 5.2 Chilled/ Frozen Offal Product

Offal product is collected on the slaughter floor in tubs. Each tub is identified with a unique internal bar code. When the tub is full the bar code is scanned to record the date and time from the slaughter floor. This creates a record in the Australian Country Choice database that links tubs by date and time to carcasses by carcass number date and time. This creates linkage of approximately 6 carcasses to 1 tub of offal linkage based on time and date. The weight and the product code are also recorded.



**Figure 24 – Collection of Offal on Slaughter Floor**

When the tub is packed the bar code of the tub is scanned to record what offal is being packed in to cartons.



**Figure 25 – Offal in Bar Coded Offal Tubs**

As the cartons are packed an EAN bar code carton label is created with a date/ time and serial number reference. These label details are recorded in the Australian Country Choice database and provide a means to link carcass body numbers and kill dates to carton of packed offal. The windows are based on time and date of slaughter, offal tub filling and then carton packing/ labelling.

Queries of the Australia Country Choice databases can trace cartons of offal back to possible livestock lots and individuals, as well track lots and livestock forward to possible cartons of offal. DNA can then be used to link individual livestock to individual pieces of offal from carton product.

The following report shows as example of the results of a query of the database for matching offal tubs to slaughter kill times and dates.

**Australian Country Choice  
Production**



Colmslie Road, Cannon Hill QLD 4170  
P.O. Box 478, Morningside, QLD 4170

### Traceability Report Offal Production Report

Report Range:  
Kill Date: from 7 Jan 02 to 7 Jan 02 and Kill Time: from 12:20 to 12:30

Product	Description	DNA Carcase	Body No	Kill Date	Kill Time	Lot	NVD	LivID	NLIS ID	Offal Tub Number	Tub Weight	Date Collected	Time	Date Pkd	Time Pkd	Chk' Frac.
993271104561	Carcase	3432864	563	7 Jan 02	12:20	445	8892467	2ASD335F		04561	26.78	7 Jan 02	12:27	8 Jan 02	10:30	C
993271104351	Carcase	3432990	566	7 Jan 02	12:21	445	8892467	442F3C1A		04718	22.49	7 Jan 02	12:28	8 Jan 02	10:31	C
993271104265	Carcase	3432956	567	7 Jan 02	12:22	445	8892467	7841.ASDJ		04668	18.56	7 Jan 02	12:30	8 Jan 02	10:32	C
993271104561	Carcase	3432967	568	7 Jan 02	12:23	445	8892467	187A11FF	00008369913	04849	30.55	7 Jan 02	12:31	8 Jan 02	10:32	C
993271104265	Carcase	3433017	569	7 Jan 02	12:24	445	8892467	792885A8		04719	28.14	7 Jan 02	12:31	8 Jan 02	10:32	C
993271104265	Carcase	3433145	570	7 Jan 02	12:24	445	8892467	AA8745D5		04956	27.93	7 Jan 02	12:32	8 Jan 02	10:40	C
993271104351	Carcase	3433269	571	7 Jan 02	12:25	445	8892467	478A7E88		04749	25.56	7 Jan 02	12:34	8 Jan 02	10:40	C
993271104561	Carcase	3433314	572	7 Jan 02	12:26	445	8892467	31FF8E67		04178	22.41	7 Jan 02	12:34	8 Jan 02	10:41	F
993271104265	Carcase	3433478	573	7 Jan 02	12:27	445	8892467	148A7ED9		04759	26.40	7 Jan 02	12:35	8 Jan 02	10:42	F
993271104351	Carcase	3442950	574	7 Jan 02	12:27	446	4487763	45AA5E75	00004873295	04371	27.70	7 Jan 02	12:36	8 Jan 02	10:42	F
993271104265	Carcase	3432753	575	7 Jan 02	12:28	446	4487763	9548EA78		04558	28.50	7 Jan 02	12:37	8 Jan 02	10:42	F
993271104351	Carcase	3433297	576	7 Jan 02	12:30	446	4487763	39475AA7		04317	27.90	7 Jan 02	12:38	8 Jan 02	10:50	F
993271104561	Carcase	3433302	577	7 Jan 02	12:30	446	4487763	A884E689		04118	23.78	7 Jan 02	12:39	8 Jan 02	10:50	F

Figure 26 – Traceability Report for Offal



### 5.3 Foetal Blood Product

Foetal blood is collected at the slaughter facilities of Australian Country Choice. Identification is maintained through manual means from the slaughter floor through to blood extraction. Records of the carcass number, kill date, kill time are recorded on to the Australian Country Choice database. These are linked to the EAN bar code on the label on each bag of Foetal Blood. Thus traceability can be maintained both for track forward from a livestock lots and/ or individual animal ID through to the bag of Foetal blood. Trace back is also maintained from the EAN bar code serial number on the bag of Foetal blood back through to the individual live animal.

DNA samples are taken from both the parent at the time of grading linked to the carcass body number and the bag of foetal blood linked to the EAN bar code on the bag of blood. This allows for a trace back to occur based on parentage testing.

The steps for collection are shown in the following photos.



**Figure 27 – Unborn calf on Slaughter Floor**

A manual link is maintained between the slaughter floor carcass body number to the collection point for Foetal blood.



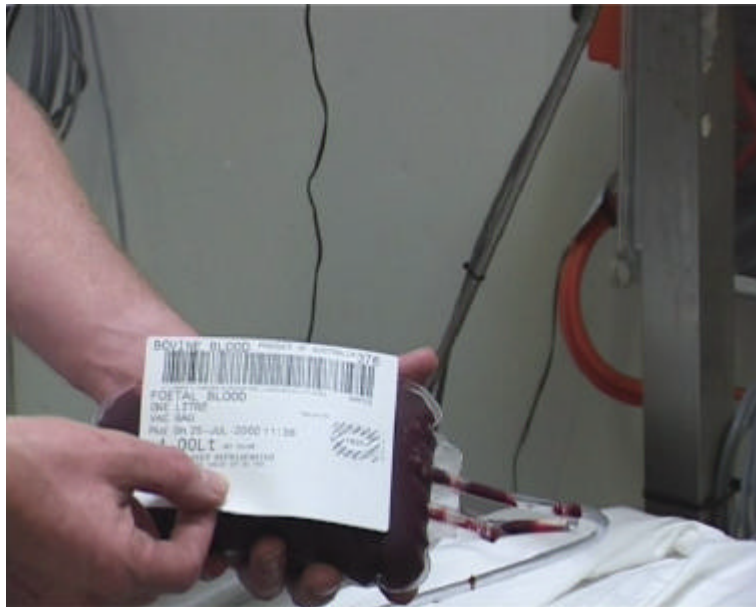
**Figure 28 – Foetal Blood Collection**

The Foetal blood is collected with the carcass body number recorded for each 1L bag.



**Figure 29 – Foetal Blood Data Caputer**

The details of the carcass body number are entered into the labelling station along with the DNA sample number taken from the Foetal blood.



**Figure 30 – Foetal Blood EAN Labeling**

An EAN bar coded label is applied to the 1L bag of Foetal blood which includes a unique serial number that is linked to the carcass body number and DNA sample number.

A delivery docket is generated for each shipment of Foetal blood. The delivery docket include a unique SSCC and lists the EAN serial numbers of each 1L bag of Foetal blood.



**Australian Country Choice**  
Production  
Colmille Road, Cannon Hill QLD 4170  
P.O. Box 478, Morningside, QLD 4170

### Delivery Docket

Delivery Docket Number: **00000056**  
Issued Date: **7<sup>th</sup> Jan 2002**

SSCC:   
(00)99327111000000564

**SHIP TO:**

Specialty Blood Products Pty  
 21 Amy Street  
 Anywhere NSW 2000

**TRANSPORT:**

Method: Company pick up  
 Reg: DTY 390  
 Date: 7<sup>th</sup> Jan 2002  
 Time: 10:20am

Code	Description	Serial Number	Qty
9932711103763	IL Foetal Blood	11714381	1
9932711103763	IL Foetal Blood	11714382	1
9932711103763	IL Foetal Blood	11714383	1
9932711103763	IL Foetal Blood	11714384	1
9932711103763	IL Foetal Blood	11714385	1
9932711103763	IL Foetal Blood	11714386	1
9932711103763	IL Foetal Blood	11714387	1
9932711103763	IL Foetal Blood	11714388	1
9932711103763	IL Foetal Blood	11714389	1
9932711103763	IL Foetal Blood	11714390	1
9932711103763	IL Foetal Blood	11714391	1
9932711103763	IL Foetal Blood	11714392	1
<b>Total</b>			<b>12</b>


Issued by: Joe Smith  
Signed: \_\_\_\_\_

Picked Up By:  
Signed: \_\_\_\_\_

Figure 31 – Delivery Docket for Foetal Blood

A traceability report can be generated based of a query on an individual live animal, a mob of cattle, a unique label serial number or a batch of serial numbers.

**Australian Country Choice**  
Production



Colmille Road, Cannon Hill QLD 4170  
P.O. Box 478, Morningside, QLD 4170

### Traceability Report

#### Product Traceability Report

Report Range: Product: 9932711103763 and PKD Date: 7-JAN-2002 and Serial Number: 12345678 Product Description: FOETAL BLOOD


Product Ref	PKD Date	Serial Number	Owner	Move Date	Current Ref	Lot	Live MVT	Waters per	Class	Issue/PC	Desc. PC	Date Recd	Time Recd	Date Recd	Time Recd	Ass
9932711103763	7 Jan 02	12345678	12345678	113	7 Jan 02	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678

Print Date: 8<sup>th</sup> January 2002 (userjrp4) Page: 1 of 1

Figure 32 – Traceability Report for single serial number for Foetal Blood

Reports can be generated either by tracing an individual or by a date/ time range. The following report is based on a date/ time range.

**Australian Country Choice  
Production**



Colindale Road, Cannon Hill QLD 4170  
P.O. Box 478, Morningside, QLD 4170

**Traceability Report**  
Special Products Reports (One Product to one Live ID linkage)

Report Range:  
KIB Date: From 7 Jan 02 to 8 Jan 02

Product: 9932711107891

Product	Description	Plat Date	Plat Time	Serial No	Batch	DNA Product	Delivery Product	Dispatch Date	Invoice No	DMA Canna	Body No	KIB Date	KIB Time	Lot	MPD	Live ID	SEB ID
9932711107891	Foetal Blood	7-Jan-02	11:54	12345678	00006	3534761	06453665	7-Jan-02	06082	3432664	213	7-Jan-02	00:30	566	780902	2A320126	
9932711107891	Foetal Blood	7-Jan-02	11:43	12345791	00006	3534721	06453665	7-Jan-02	06082	3432664	543	7-Jan-02	11:27	287	529087	4423233A	
9932711107891	Foetal Blood	7-Jan-02	12:30	12345845	00006	3534797	06453665	7-Jan-02	06082	3432666	567	7-Jan-02	12:24	495	8812467	780LASED	0000000911
9932711107891	Foetal Blood	7-Jan-02	18:30	12345961	00006	3634799	06453665	7-Jan-02	06082	3432667	689	7-Jan-02	18:46	336	0445495	357A11FF	
9932711107891	Foetal Blood	8-Jan-02	05:30	12345545	00007	3534764		8-Jan-02		3432617	004	8-Jan-02	06:23	19	041761	7528508	
9932711107891	Foetal Blood	8-Jan-02	10:43	12345290	00007	3634772		8-Jan-02		3432618	197	8-Jan-02	10:34	34	8113484	AA874915	
9932711107891	Foetal Blood	8-Jan-02	11:30	12345366	00007	3534777		8-Jan-02		3432659	246	8-Jan-02	11:21	41	4278932	478A7388	0000073245
9932711107891	Foetal Blood	8-Jan-02	15:29	12345930	00008	3634781		8-Jan-02		3432614	367	8-Jan-02	15:34	45	446790	11978023	
9932711107891	Foetal Blood	8-Jan-02	15:48	12345427	00008	3534780		8-Jan-02		3432618	806	8-Aug-02	15:38	89	8570498	10A74218	

Figure 33 – Traceability Report for time/ date range of Foetal Blood

## 5.4 DNA Trace Back for Validation of the Linkages from Livestock to By-Products and Co-Products

As part of the demonstration project validation and audits of the Traceability function is to be undertaken using DNA fingerprinting and parenting methods. Each carcass has DNA samples collected at time of grading to use for DNA trace back.

The trace back audits are to be carried out on Foetal blood, Offal products and hides. To date the results of these trace backs have not been completed.

## **6. COMMERCIAL DEMONSTRATION SYSTEM**

As part of the demonstration trial project that was conducted there was a requirement to provide a commercial demonstration capacity at Australian Country Choice. The commercial demonstration systems are intended to allow the traceability and EAN.UCC elements of the demonstration outcomes to be shown to industry.

The areas available for demonstration cover Traceability and EAN.UCC numbering and bar coding for the following activities:

- Rendered product – Meat Meal/ Tallow
- Drums of Gall
- Chilled/ frozen offal product
- Foetal Blood product
- Whole Organic Blood
- Green Hides

### **6.1 Activities and Aspects to be Shown Through the Commercial Demonstration System**

The activities and aspects of the various systems to be shown include:

- Numbering of product by use of the EAN.UCC system
- Labelling through EAN Bar codes for drums of gall, cartons of offal product, foetal blood and organic blood
- Creation of SSCCs for shipment of tallow, meat meal, hides and other products
- Conducting traceability queries from a product (individual carton or batch of tallow, meat meal) to the source livestock
- Conducting traceability queries from source livestock to possible finished product (individual carton or batch of tallow, meat meal)
- Validation by DNA finger printing methods of source live stock to finished products.

### **6.2 Availability of Commercial Demonstration System**

The commercial demonstration systems as defined above will be available for demonstration to industry from the beginning of February 2003.

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**8. APPENDIX - SAMPLE DOCUMENTS**

**Sample Labels**

1. Foetal Blood Vacuum Bag Label
2. Gall Drum Label
3. Other samples

**Sample Delivery Dockets**

1. Hides
2. Tallow
3. Meat/bone Meal
4. Gall

**Sample Reports**

1. Special Products Report (Foetal Blood) One product to One live ID
2. Offal Production Report
3. Carcase to Livestock Supply and Arrival Report
4. Product Traceability Report

**Poster of Traceability Models**

1. EAN Numbering and Bar Coding for Co-products and By-Products
2. Pharmaceutical Products
3. Meat and Bone Meal
4. Tallow Products
5. Hide Products

**Information Flow Diagrams**

1. Co-product and By-Product Information Flow Diagram
2. Foetal Blood Information Flow Diagram
3. Offal Information Flow Diagram
4. Rendered/ Hide Flow Diagram

**Derivative Products Schedule**

**Power Point**