FOREIGN MATTER CONTAMINATION OF RENDERING RAW MATERIAL

Joint Meeting MLA, AMIC & AMPC
MLA Corporate Office, North Sydney NSW
17th May 2016

AUSTRALIAN RENDERERS ASSOCIATION INC.

Product Safety Recall

GLOBAL RECALL - RENDERED PRODUCTS

Meat and Bone meal has been recalled due to the presence of foreign matter.

Pet food and stockfeed manufacturers have deemed the incident to be a hazard to animal health.

The recall is the first of its kind for the rendered products and now sets a benchmark for the industry.

Regulators are now investigating the recall to ascertain the likely cause and the impending actions to be taken.

See www.recalls.gov.au for Australian Product Recall information

Foreign matter contamination

The previous slide could soon be a reality:

> *"Earlier this year, after a consumer reported a piece of plastic in a Snickers bar, Mars had a foreign body incident that caused the company to recall a selection of Snickers, Mars, Milky Way and Celebrations chocolates across 55 countries"*

Mars established the recall after they determined the plastic came from one of its processing plants

Large scale recalls like this could cripple our industry

Recall

Another example of foreign matter contamination recall

Probably ended up in rendering

INDUSTRY NEWS - AM

Foster Farms recalls chicken nuggets

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By Rita Jane Gabbett on 5/2/2016

Foster Farm's Farmerville, La.-based Foster Poultry Farms is recalling approximately 220,450 pounds of fully cooked frozen chicken nuggets that may be contaminated with extraneous blue plastic and black rubber materials, USDA's Food Safety and Inspection Service announced.

The fully cooked frozen chicken breast nuggets were produced on Feb. 22, 2016 and March 8, 2016. The following products are subject to recall:

- 5-lb. bags containing FOSTER FARMS "Breast Nuggets - Nugget Shaped Breaded Chicken Breast Patties with Rib Meat." The bags exhibit best by dates of 2/21/17 and 3/8/17.
- 10-lb. bulk boxes containing FOSTER FARMS "Fully Cooked Breast Nuggets - Nugget Shaped Chicken Breast Patties with Rib Meat Fritters." The boxes contain package code 6053 and 6068.

The products subject to recall bear establishment number "P-33901" inside the USDA mark of inspection. These items were shipped to distributors in Alaska, Arizona, California, Utah, and Washington state.

Foreign matter contamination

More protein meals are being claimed on, or rejected due to the presence of plastics, tramp metal, wood and glass

The main perpetrators are plastic from animal ear tags, NLIS tags, carton liners, strapping and rubber gloves

Foreign matter contamination

While our focus appears to be on pet food ingredients it includes all animals being fed animal protein meals

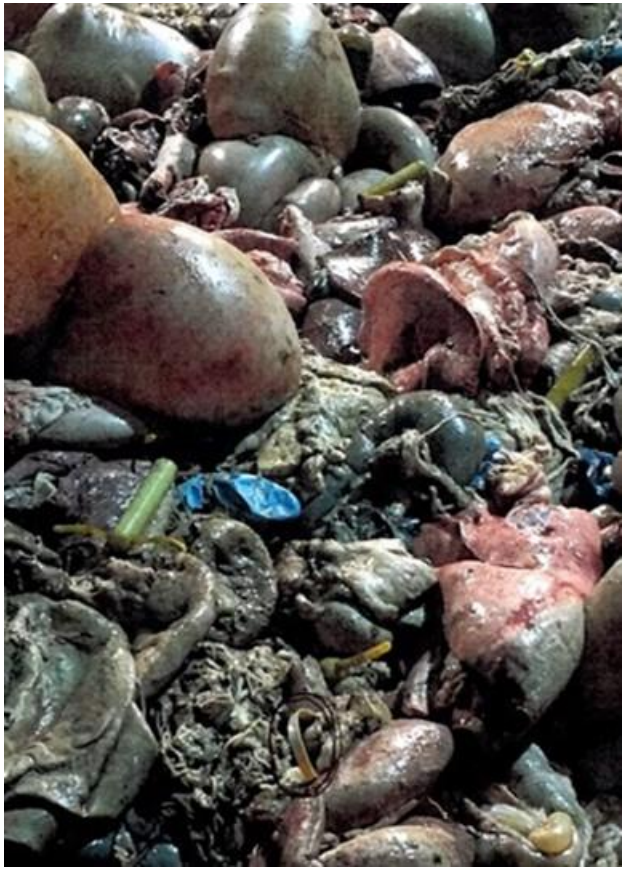
Nothing was more apparent than on the first AQSIQ audit from China and their criticism of the plastic contamination

Foreign matter contamination

Also rumen bolusses for NLIS or medicinal purposes

The problem emanates from bolusses when they go through the hammer mill

Fine stainless steel springs can stay in the meal causing major problems for domestic or farmed animals if consumed



Foreign matter contamination

Contamination can also be metal

Forms of this can be skids, gambrels, rollers, mincer plates and blades, knives, steels and material that may have broken away from plant and equipment

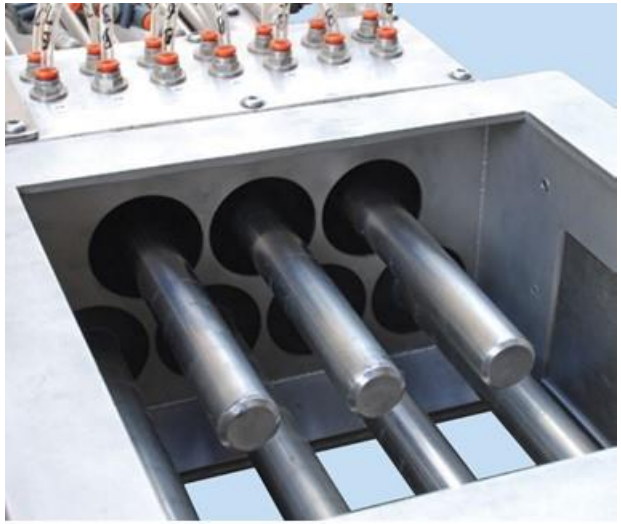
Foreign matter also includes elastic bands used for neck stringing airfreight carcasses, pork dehairing beaters, bleed rollers, etc.

Foreign matter contamination

Metal can be ferrous, non-ferrous or stainless steel

Only ferrous metal can be removed using electromagnets and magnets

New self cleaning magnets can be installed at load out, but this only captures ferrous material



Foreign matter in raw material

Foreign matter in raw material

Foreign matter in meat and bone meal

Weasand clips in meat and bone meal crax

Foreign matter in poultry

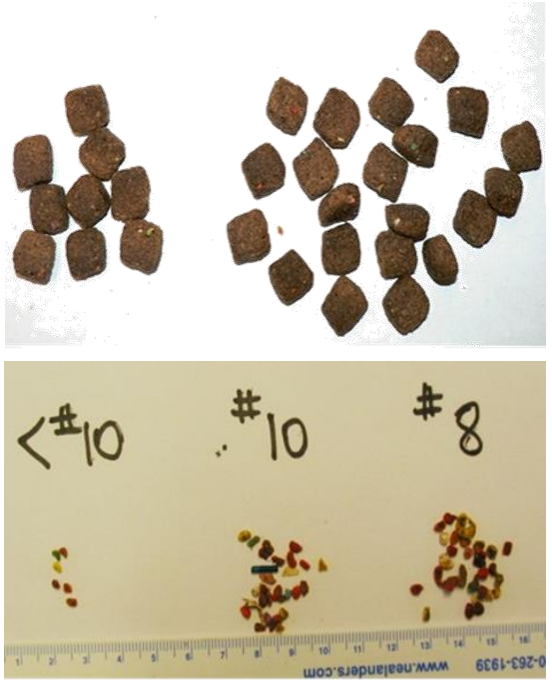
Foreign matter in poultry material can also include plucker fingers, aluminium bag clips and elastic netting/bands

Foreign matter in pet foods

Dog food contaminated with plastic foreign material - large financial impact back to the supplier

Pictured shows foreign material / plastic gloves or ear tags, found in a load of meal about to be received into a pet food mixing plant

Load was rejected. Rejection devalues $1200/t FOB consignment to near zero.



Foreign matter in pet foods

Kibble imbedded with plastic, ear tags, rubber gloves

Effects of contamination on rendering

This roller was introduced into the rendering plant in raw material

The foreign object was not seen until it had made it into the plant and damaged equipment

The extended length of time from receival to processing due to downtime resulted in over 60 tonnes of out-of-spec tallow downgraded and devalued

Effects of contamination on rendering

Results opposite show effects of downtime on tallow quality – free fatty acids (FFA)

6 hour delay in processing resulted in an average 40% increase in FFA

TUESDAY 26/04/16

Tallow	Tank 1	Tank 2	Tank3
FFA	4.83	4.46	4.32
FAC	19.0	19.0	19.0
BLEACH	-	-	-
PUMPED TO	T15	T11	T6
TONNES	23700	24100	18320

WEDNESDAY 27/04/16

Tallow	Tank 1	Tank 2	Tank3
FFA	2.65	3.05	3.86
FAC	19.0	19.0	19.0
BLEACH	-	-	-
PUMPED TO	DT4	T6	T5
TONNES	24830	19010	19920

$2500 loss of product value + overtime + call out, etc.

Effects of contamination in pet foods

Protein meals are used as ingredients in pet food, stockfeed and aquaculture diets

Majority of foreign matter in raw material is not magnetic and cannot be easily removed in the screening process

Effects of contamination in pet foods

Foreign materials in pet foods can lead to:

- Torn intestines (perforated intestines)
- Blocked intestines (intestinal obstructions)
- Allergic reactions (anaphylactic shock)
- Poisoning (toxicity)

Why are we seeing more?

The introduction of NLIS saw more ID tags get through into raw material

Improvements in hygienic slaughtering procedures saw more plastic kill floor aids introduced, i.e. bung bags, sticking wound protection and weasand clips

Also the introduction of blue gloves and liners to avoid plastic entrapment in meat packing; so we are seeing something that may previously have gone unnoticed

Why are we seeing more?

Historically high temperature rendering operators processed at 130-135°C end point and the plastics from raw material was melted and ended up in the tallow

These plants are now operating at around 115°C end point to protect amino acids in the meal, so as a result the plastic survives the process

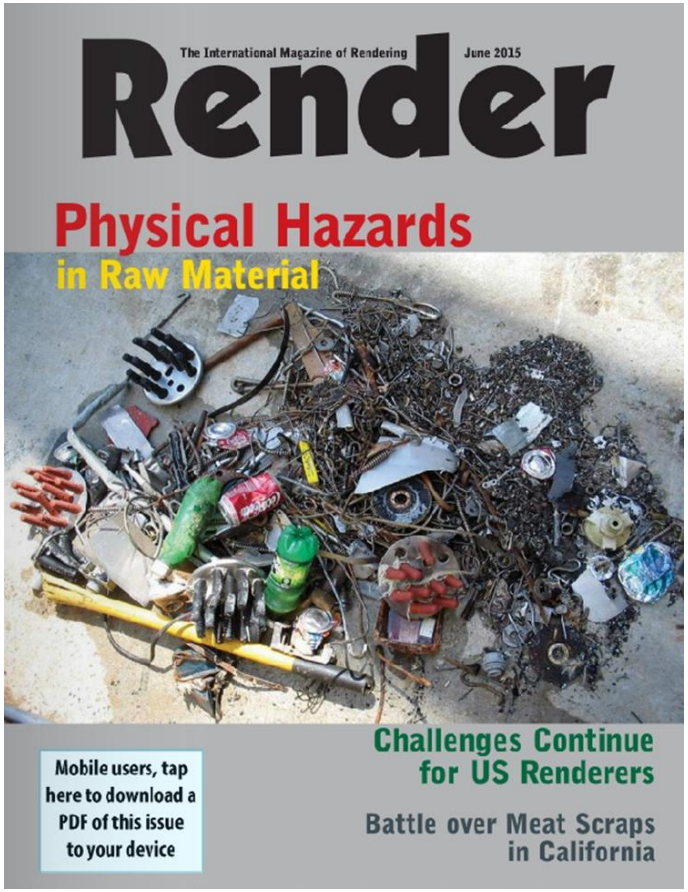
Low temperature processes preheat to 98°C and then is dried out in driers at 95-105°C

All plastics come through unscathed

A global problem

FDA Food Standards Modernization Act:
"Text of the proposed rule for animal feed is for the most part, cut-and-pasted from the proposed rule for human food... is evidence that FDA is equating animal feeds to human and pet foods..."
"... this regulation will have significant adverse effect on the animal feed industry and feed ingredient suppliers..."

Current Good Manufacturing Practice, Hazard Analysis, and Risk-Based Preventive Controls for Food for Animals (FSMA Extract):
"In the preamble for the 2013 proposed preventive controls rule for animal food we also provided examples of physical hazards (e.g., stones, glass, or metal fragments that could inadvertently be introduced into animal food)... but did not include these examples in the proposed regulatory text."



AUSTRALIAN RENDERERS ASSOCIATION INC.

A global problem

Introduction of changes to FDA FSMA Food Safety Modernization Act taken very seriously

Large manufacturers looking to employ dedicated experts to manage changes and compliance to the act

FOOD SAFETY MODERNIZATION ACT (FSMA) SPECIALIST – RENDERING
AT TYSON FOODS
Date Posted: 4/20/2016
APPLY
Not ready to Apply?

JOB DESCRIPTION

Function: Engineering/Manufacturing Services

Pay Type: Exempt

Position Number: 11232396 Specialist FSMA

Employee Type: Full Time

Relocation: Yes

SUMMARY: The purpose of this position is to lead and assist the Fresh Meats Operation Support Team, to achieve operational, financial, and business objectives as established with the Team Leader of Rendering Operations and the Fresh Meats Leadership Team while maintaining Tyson Core Values, Cultural Tenets, Company Policies, Customer Service Creed, and BGREAT strategy. This position will provide technical, systems and control resource information and guidance for operation facilities and processing plants to maintain optimal performance and innovation. Responsibilities include: report to Team Leader of Rendering; provide support and service to plant department personnel and plant management; develop and analyze systems and controls; maintain Tyson Foods Standards and Reporting systems; interface and work with other departments within Tyson Foods; any other tasks as may be deemed appropriate for the successful performance of Tyson Foods, Inc. Additional responsibilities include, but are not limited to: Develop and train all Rendering Team Members (Currently 13 facilities) on an annual basis. Conduct Internal Audits for

Education: B.S. in related Engineering field or equivalent rendering experience.

Experience: A minimum of 3 years applicable engineering / system operation experience with a minimum of 1 year experience in the food industry; experience in rendering systems operation and process controls a plus.

Computer Skills: Knowledge and use of computer programs, spreadsheet, database and scheduling programs required.

Communication Skills: Excellent communication skills required.

Special Skills: Possess a good working knowledge of the Rendering systems and process controls; possess the mechanical knowledge of standard rendering equipment; capable of working on multi-faceted projects of any magnitude; demonstrated ability to work with other team members, contractors, engineers, etc…to assist in completing complex projects on time and on budget; demonstrated ability to analyze equipment and process systems to recommend effective corrective actions for optimal performance and quality improvements. Will be on call to handle emergency downtime situations and will coordinate and implement solutions for recovery.

Supervisory: None, but will work with Plant Management and personnel.

Travel: 40% to 60%

APPLY
Not ready to Apply?

Share With

JOB SNAPSHOT

Employee Type: Full-Time
Location: Dakota Dunes, SD
Job Type: Insurance, Science
Experience: At least 3 year(s)
Date Posted: 4/20/2016

ABOUT US

About Tyson Foods, Inc. (TSN), with headquarters in Springdale, Arkansas, is one John H. Tyson, serving as the current chairman of the board of directors. Tyson Foods provides a wide variety of protein-based and prepared foods products and is the recognized market leader in the retail and foodservice markets it serves, supplying customers throughout the United States and approximately 130 countries. It has approximately 124,000 Team Members employed at more than 400 facilities and offices in the United States and around the world.

Through its Core Values, Code of Conduct and Team Member Bill of Rights, Tyson Foods strives to operate with integrity and trust and is committed to creating value for its shareholders, customers and Team Members. The company also strives to be faith-friendly, provide a safe work environment and serve as stewards of the animals, land and environment entrusted to it.

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AUSTRALIAN RENDERERS ASSOCIATION INC.

Raw material specifications

In addition to site raw material specifications, the ARA (Australian Renderers Association) has released guidelines regarding raw material contamination

Raw materials must be fresh and free from foreign matter

Best practice rendering requires removal of contaminants prior to processing

Industry standard recommends raw material should not be contaminated at the source

Removal of contaminants is costly and uncertain

Raw material specifications

The industry standard recommends that where raw materials are contaminated:

- contaminants should be removed at the source
- contaminated raw material be downgraded in value
- contaminated material deemed unsuitable for rendering

This is reasonable considering difficulties in removing contamination and impact on saleability of finished goods

Innovations in our industry

A lot of work being done to remove PVC, PET, etc. from rendered products

Bestaxx are working with natural ingredients

Novatein in New Zealand are working with blood meal based ingredients

Challenge for innovators is cost

Possible solutions

Stemming from the presence of aluminium in Poultry By-product Meal a review of options was undertaken.

A German company Wagner Magnete had a range of reverse polarity, eddy current magnets that can eject aluminium, brass, copper, tin and all non-ferrous metals

A different unit is required for stainless steel

Possible solutions

Samples of tramp metal were collected and sent to Germany along with a bag of unmilled product ex-the drier

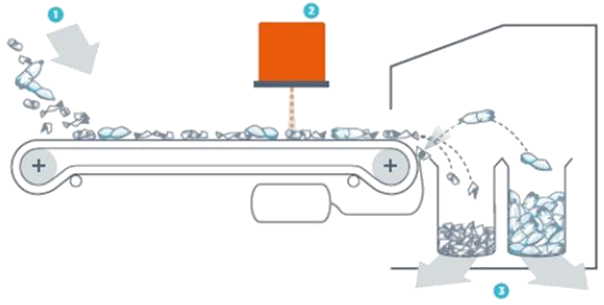
This was so they could mix it together and see if the metal would separate from the crax

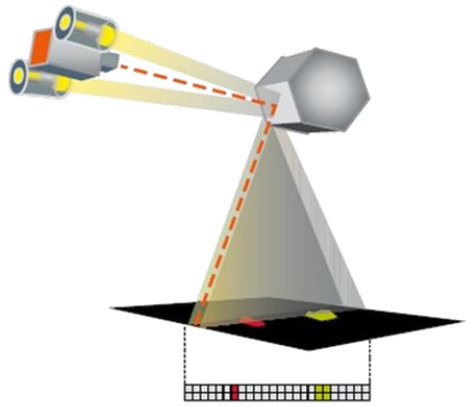
That proved successful

Possible solutions

The issue of plastic removal was raised

The Europeans had a machine using Near Infra-red light waves to detect polymers present in composted supermarket waste





FLYING BEAM®technology increases reliability and saves energy.

Possible solutions

A bulka bag of unmilled MBM was airfreighted to Germany for a trial

This was spiked with extra plastic that had been recovered earlier

First trial went reasonably well

Our engineer was sent to Germany and it was decided to re-run the procedure after screening had taken out fines less than 4mm

Possible solutions

This worked very well but the infra-red light doesn't reflect off black, so this would need to be removed from ageing codes for sheep ear tags

The unit has a belt 1.2m wide with a series of high pressure nozzles across the breadth

Once polymers and even most metals are detected the individual jet blows the contamination into a waste bin

Possible solutions

The Fats and Proteins Research Foundation (FPRF) have researchers at Clemson University developing renderable plastics for use as bin liners and work gloves

These plastics leave no residue when rendered

Believe we should aim at mandating the use of these renderable plastics in all carton liners, gloves, bin liners, aprons, carcass tags, plastic wrapping, etc.

Possible solutions

One company known to us has developed a means of magnetizing plastic

If possible, this could be utilised on all ear tags and slaughter floor aids, such as weasand clips

Support could be given to FPRF research to see if ear tags which need to last 10-12 years in cows could be made from a biodegradable plastic that breaks down at temperatures >80°C

What are we doing?

Renderers now playing their part in ensuring raw materials meet specifications

Approved supplier programs and annual supplier audits

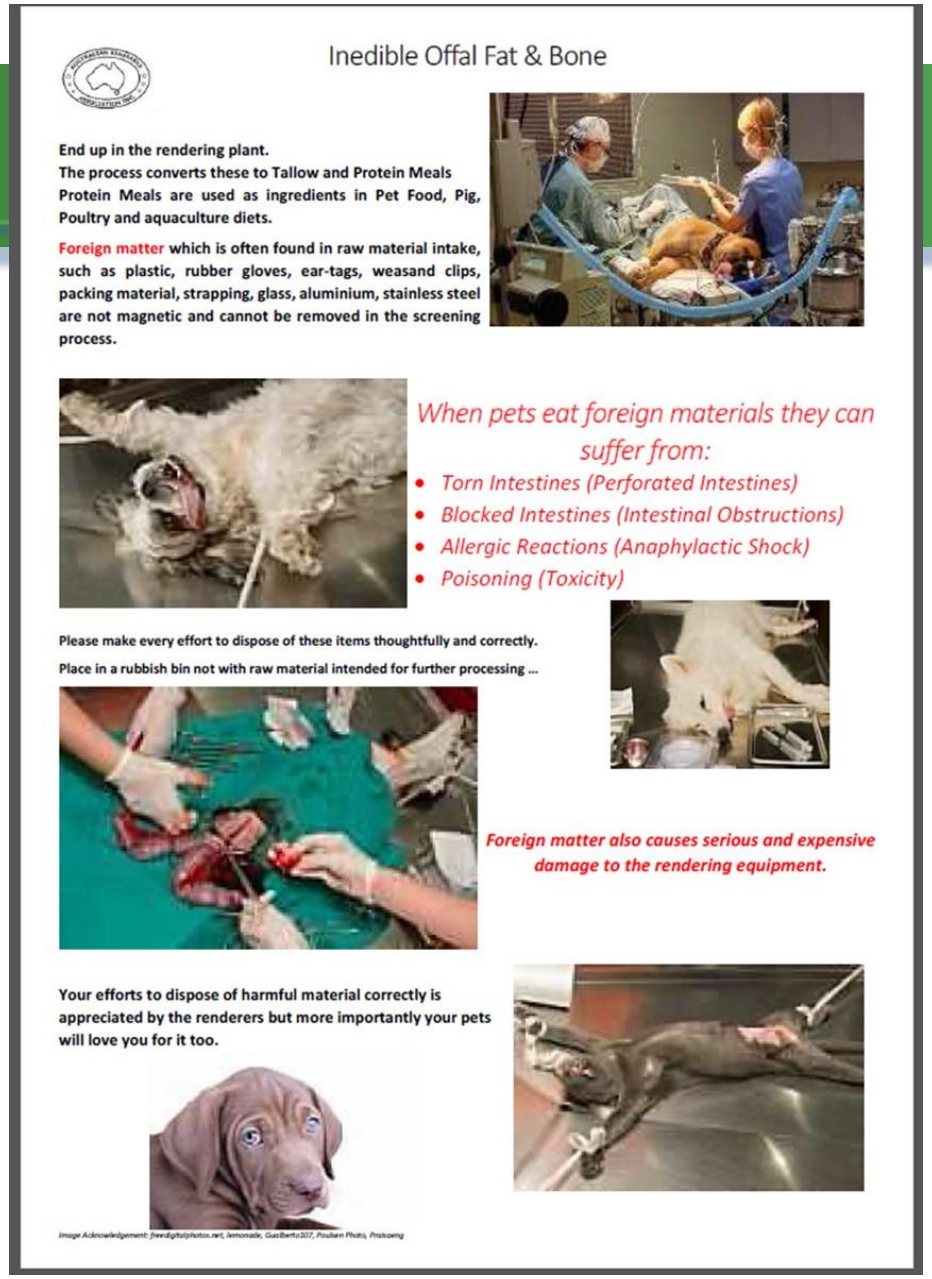
Contractual obligations regarding contamination, i.e. supply agreements that prohibit supply of contaminated raw materials

Check equipment at abattoirs during audits – screens, flues, raw material bins, etc.

What are we doing?

Supplier education is key

Posters and other visual and educational aids can be used to raise awareness with suppliers, contractors, operators and cleaners of the potential effect of foreign matter in raw materials



Conclusion

This is an important issue that needs collaboration from all stakeholders

Would suggest education of plant operatives as a starting point

The use of laminated posters on kill floors and boning rooms where permissible, and in workshops and offal rooms

Conclusion

QA should include elimination of foreign matter in raw material for rendering in HACCP program and procedures

This includes kill floor procedures and work instructions with an emphasis on cleaning procedures and waste disposal

AMIC feature the issue regularly in the weekly newsletter, maybe as a request from ARA, SFMAA and PFIA

Conclusion

MLA support research into making NLIS and standard animal ear tags more user friendly, i.e. removable by magnetic means or biodegradable

A “plastics magnet” was developed locally but never quite achieved it’s outcome – Maybe AMPC could take this on board as a project to commercialise

AMPC liaise with FRPF with the goal of manufacturing all liners, gloves and kill floor aids be made from renderable plastics and mandating the use of either magnetized biodegradable materials

With thanks...

We acknowledge the input of Tim Juzefowicz of CSF Proteins, ARA Technical Director and member of the WRO (World Renderers Organization) executive for the past five years.

He has been instrumental in highlighting this problem for a few years now

As WRO President he has made foreign material an international topic

Tim also developed the ARA Guidelines discussed earlier in this presentation