

Providing solutions for reducing foodborne pathogens

Elanco, the veterinary pharmaceutical company, now has a business platform known as Elanco Food Solutions that focuses on providing integrated systems approaches to food safety. Elanco Food Solutions markets food safety products and services to the meat and poultry sectors. Initially this service is being offered in the USA.

There is no single 'magic bullet' strategy to food safety so Elanco Food Solutions offers multiple pre- and post-harvest technologies as part of a total pathogen control system for meat and poultry production chains.

Their Food Safety Knowledge Solutions enables customers to benchmark their operation using a statistical approach to enable packers and processors to effectively manage their pathogen control systems.

This system has many functions:

- Analyses and compares microbiological data against industry standards.
- Determines common characteristics of plants that consistently have low bacterial levels.
- Identifies factors that predispose a plant to higher or lower pathogen levels.
- Uses Systems Process Control to identify potential sources and factors which impact on the variability of pathogen levels.
- Helps plant owners analyse both pathogen data and operational processes so that they can more effectively manage their total pathogen control system.
- Defines correlations between operational variables and trim positive rates.

Their on farm, pre-harvest, post-harvest, processing and ready-to-eat interventions help the production chain control of outbreaks of E. coli

Table 1. Key food safety facts.

- In the USA there are 76 million cases of illness a year caused by foodborne pathogens with 325,000 hospitalisations and 5,000 deaths.
- Foodborne illnesses cost the USA \$5-25 billion each year.
- A 2008 Gallup survey revealed that 60% of US consumers avoid certain foods or food brands as a result of government issued food safety recalls or advisories.

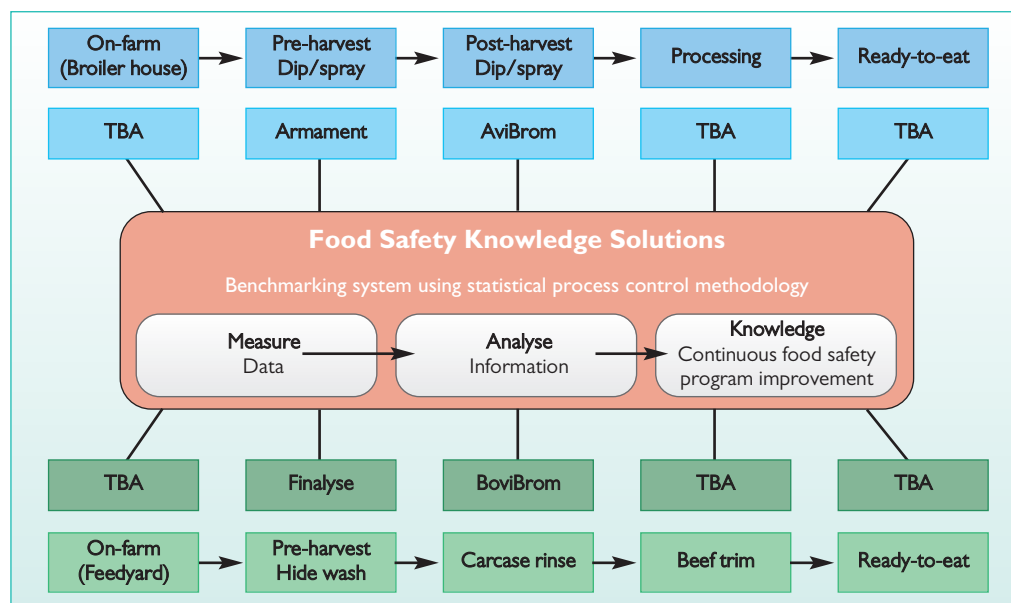


Fig. 1. The philosophy behind Food Safety Knowledge Solutions.

O157:H7, salmonella, campylobacter and listeria.

Various food safety technologies will be added over the coming months to those currently available so that meat and poultry packers and processors can meet the growing demand for high quality meats that are both safe and affordable.

Currently four products are available – Finalyse, BoviBrom, Armament and AviBrom.

- **Finalyse** is a pre-harvest hide wash that is used to reduce E. coli O157:H7 in beef cattle. It is the first hide wash for beef cattle that reduces the level of foodborne pathogens entering the packing plant. It is sprayed on the cattle hides in the holding area before the beef cattle enter the packing facility. Finalyse contains a mixture of natu-

rally occurring phages that specifically target E. coli O157:H7. Product evaluation at various plants has shown Finalyse to be effective in reducing E. coli O157:H7 burdens (by 56% in one large commercial study) and reducing E. coli burdens by 1.5 to 2.2 logs.

- **BoviProm** is a post harvest antimicrobial whose efficacy is due to bromine and, when applied as a carcass rinse, reduces salmonella and E. coli levels. Testing by USDA's Agricultural Research Service at the US Meat Animal Research Center demonstrated 1.5-2.1 log reductions in E. coli and >1.0 log reductions in salmonella. BoviProm requires no ventilation in the application area, does not require hot water, has no odour issues, does not result in meat discolouration and is less corrosive to equipment and floors than many current interventions.

- **Armament** is a pre-harvest intervention that reduces the prevalence and load of salmonella on feathers of poultry. It is applied shortly after stunning and before neck cutting and is the first line of defence for reducing pathogenic salmonella for poultry

processors. This product contains a natural mix of phages that specifically target Salmonella typhimurium, S. enteritidis, S. heidelberg and S. kentucky. Armament has its own special application system that is installed, calibrated and serviced by Elanco Food Solutions. Currently the system can support three processing lines at 140 birds per minute (a total of 420 birds per minute or 25,200 birds per hour).

- **AviBrom** is similar in nature to BoviProm but is a post-harvest antimicrobial that reduces salmonella levels at various intervention points in the poultry processing plant. Research has demonstrated up to a 2.5 log reduction in post-chill whole carcass salmonella levels. This product is less reactive to organic matter which results in a greater antimicrobial activity, is effective in protecting against biofilms, has less odour, provides a more favourable working environment and is less corrosive to equipment and floors than many current interventions.

It will be interesting to see how this strategy evolves and what products are added to it in the future. ■