

Meat Safety News Digest

A collection of recent news relevant to the safety of red meat prepared by the Food Safety Program of Meat & Livestock Australia, for SAFEMEAT Stakeholders

BIOTECHNOLOGY

FDA expected to declare cloned meat and milk safe

An undisclosed source indicated to the Wall Street Journal that the FDA is set to declare meat and dairy of the animals safe as early as next week. FDA in December issued its assessment of the available scientific evidence surrounding cloning, which concluded that there were no additional safety risks posed by the technology when compared to other assisted reproductive technologies currently in use in US agriculture. In 2006 the FDA ruled in principle that milk and meat from cloned livestock are no different from products derived from conventionally bred livestock. There is some commercial support for the FDA to give approval, with the Grocery Manufacturers Association, the food and beverage industry's largest representative body, believing consumers will become more accepting of such products as they become more educated. However, it is common knowledge that many consumer groups and some members of US Congress are ultimately opposed to cloned foods reaching grocery shelves. The results of such approval could have broad implications for the US food market, especially in terms of export and particularly with respect to the EU. Results of a recent poll indicate that 55% of Italians think the EU should ban food made from cloned animals. 4.jan.08 Wall Street Journal (United States) http://online.wsj.com/public/article_print/SB119938649276665241.html

New Soil Association report on GM animal feed

A recent study by The Soil Association (an organic lobby group in the United Kingdom) concludes that large quantities of the milk, dairy products and pork in the UK are produced from animals fed on genetically modified (GM) crops, without any labelling for consumer information or decision-making purposes. The report claims that New scientific evidence (reviewed in the report) shows that small traces of GM DNA are found in milk and animal tissues of GM-fed animals, apparently in contradiction to the assurances from the Food Standards Agency (UK). The report also identifies at least thirteen animal feeding trials which are believed to show a range of health effects (including lesions in the gut, toxic effects in body organs, and stunted growth of offspring) in animals fed GM foods. The report may be used to bolster lobbying for greater disclosure of information relating to the total production chain of some foods.

19.nov.2007 The Soil Association (United Kingdom) <http://www.soilassociation.org/gm>

DISEASE TRANSMISSION

Farm to fork approach vital against persisting food poisoning

The European Food Standards Authority (EFSA) again emphasised the positive influence of the "farm to fork" approach in combating infectious diseases transmissible from animals to humans. The report highlight is the increase in Listeriosis cases from 1,427 cases in 2005 to 1,583 in 2006. However, an issue of possibly broader concern is the fact that the zoonotic bacteria (such as *Listeria*, *Salmonella* and *Campylobacter*) are becoming progressively more resistant to commonly used antibiotics, which increases the risk associated with human infection.

20.dec.2007 Decision News Media SAS – from an EFSA report <http://www.meatprocess.com/news/ng.asp?id=82208-efsa-Salmonella-listeria-Campylobacter>

Poultry workers may spread antibiotic-resistant *E. coli*

Research data from studies undertaken at Johns Hopkins Bloomberg School of Public Health has found that poultry workers were more than thirty times more likely to carry gentamicin-resistant *E. coli* bacteria than those workers in other industries. The results indicate that food processing plays a more significant role in the spread of drug-resistant bacteria than had previously been thought. Gentamicin is reported to be the most

widely used antibiotic in the US poultry industry, and the findings give rise to further criticism of the broad use of such drugs in the poultry sector.

2.jan.2008 Decision News Media SAS <http://www.foodqualitynews.com/news/ng.asp?id=82271-poultry-e-coli-drug-resistant-infections>

New study reveals MRSA bacteria common among pigs and farm workers

A new Canadian study found methicillin-resistant *Staphylococcus aureus* (MRSA) to be prevalent in Canadian pig farms and pig farmers. The study considers results to be proof of animal agriculture as being a source of the resistant and harmful bacteria. The study conducted across in 285 pigs in 20 Ontario farms is the first to show that North American pig farms and farmers commonly carry MRSA. It found MRSA at nine of the twenty of farms and in nearly one out of every four pigs. Five of the twenty-five pig farmers studied were also found to carry MRSA, which is a significantly higher rate than in the general North American population. To link the study with concerns over animal-human transmission of such organisms, the strains of MRSA found in the pigs and pig farmers included a strain known to be common to human MRSA infections in Canada. A different study (Klevens et al. 2007) published during October in the Journal of the American Medical Association estimated almost one hundred thousand MRSA infections in 2005, and nearly nineteen thousand human deaths in the United States alone.

6.nov.2007 5M Enterprises Ltd <http://www.thepigsite.com/swinenews/16192/new-study-reveals-mrsa-bacteria-common-among-pigs-and-farm-workers>

CROHN'S DISEASE

How Bacteria In Cows' Milk May Cause Crohn's Disease

Mycobacterium paratuberculosis, a bacterium known to cause illness in cattle, may be a causative organism of Crohn's disease in humans according to recent research findings. The organism releases a molecule that prevents the macrophages (specific white blood cells) from destroying *E. coli* bacteria present in the gut. The *Mycobacterium* is also harmful to cattle themselves, causing an illness called Johne's disease which is a wasting, diarrhoeal condition. It is believed that the organism enters a cow's system via milk and dairy intake.

13.dec.2007 ScienceDaily LLC <http://www.sciencedaily.com/releases/2007/12/071210104002.htm>

BSE

EFSA publishes a BSE/TSE risk assessment of the use of bovine dried blood products as an ingredient for feeds destined for farmed fish

European Food Safety Authority's (EFSA) risk assessment report of the use of bovine dried blood products as an ingredient for feeds destined for farmed fish, reveals and re-iterates some important opinions about containing BSE-infected animal products. EFSA again stated that, consistent with its opinion from a 2004 study, the practice of stunning and slaughtering cattle could potentially result in small quantities of BSE-infected material (brain particles) contaminating blood which is collected for use in feeds and other materials.

20.dec.2007 European Food Safety Authority http://www.efsa.europa.eu/EFSA/efsa_locale-1178620753812_1178672651567.htm

BSE In Japan May Be Linked To Milk

An investigation by Japan's Ministry of Agriculture, Forestry and Fisheries into BSE infections in thirty two farm animals suggests that these animals may have contracted the disease from alternative milk containing Dutch-made fat. The investigation considered there to be a strong link between thirteen of the cases, and milk made from powdered animal fat produced in the Netherlands. However, reports from the Netherlands and other regions have previously concluded that animal fat is not a transmitter of BSE infection.

17.dec.2007 Cattlenetwork <http://www.cattlenetwork.com/Content.asp?ContentID=183818>

EFSA opinion on the BSE related public health risks of certain animal proteins in animal feed

With limited exceptions, the practice of feeding animal protein to cattle or any other farmed livestock used for food has been banned in Europe since 2001. At the request of the European Parliament, EFSA was recently requested to provide an updated opinion on the practice. Not surprisingly, it concluded (via it BIOHAZ Panel) that the risk of transmitting BSE to cattle or other ruminants could be excluded if a tolerance level for animal protein in feed was to be introduced. Though the Panel did identify that this may increase risk of human exposure to BSE, it was considered to be negligible. However, its caution on the low degree of associated risk takes into consideration the decline in the BSE epidemic and the current control measures in place, and the Panel stressed that their opinion only remains valid in the context of the continued effective implementation of the current BSE control measures. The practice is not set to be changed in the near future.

15.nov.2007 EFSA http://www.efsa.europa.eu/EFSA/efsa_locale-1178620753812_1178659674461.htm

ANIMAL FEED

Feeding Cattle Byproduct Of Ethanol Production Causes *E. coli* O157 To Spike

Research from the United States indicates that cattle which are fed distiller's grain have an increased prevalence of *E. coli* O157 in their hindgut, up to twice that of cattle with a diet which excludes distiller's feed. This poses a health risk to humans, who can acquire the organism through undercooked meat, raw dairy products and produce contaminated with cattle manure. The increase in world-wide ethanol production raises the likelihood of this becoming a bigger issue, as more cattle may ultimately be fed more by-products from distillers. The economic motivation for distillers to continue this channel of sale for spent grain is obvious, with very few other profitable uses being available to them. Research in future will aim to determine the reason why *E. coli* O157 is more prevalent in cattle fed with distiller's grain.

5.dec.2007 MediLexicon International Ltd <http://www.medicalnewstoday.com/articles/90801.php>

E. coli CONTROL IN LIVE ANIMALS

Probiotic cultures

In this study, the effectiveness of direct-fed microbials at reducing *Escherichia coli* O157 and *Salmonella* in beef cattle was evaluated. Steers ($n = 240$) received one of the following four treatment concentrations: control = lactose carrier only; low = 1×10^7 CFU per steer daily *Lactobacillus acidophilus* NP51; medium = 5×10^8 CFU per steer daily *L. acidophilus* NP51; and high = 1×10^9 CFU per steer daily *L. acidophilus* NP51. Low, medium, and high diets also included 1×10^9 CFU per steer *Propionibacterium freudenreichii* NP24. No significant dosing effects were detected for *E. coli* O157 recovery from feces at the medium dose or from hides at the medium and high doses. *E. coli* O157 was 74% ($P < 0.01$) and 69% ($P < 0.01$) less likely to be recovered in feces from animals receiving the high and low diets, respectively, compared with controls. Compared with controls, *Salmonella* was 48% ($P = 0.09$) less likely to be shed in feces of cattle receiving the high dose. No obvious dose-response of *L. acidophilus* NP51 on recovery of *E. coli* O157 or *Salmonella* was detected in our study.

Stephens, T.P.; Loneragan, G.H.; Karunasena, E.; Brashears, M.M. Reduction of *Escherichia coli* O157 and *Salmonella* in Feces and on Hides of Feedlot Cattle Using Various Doses of a Direct-Fed Microbial Journal of Food Protection, Volume 70, Number 10, October 2007, pp. 2386-2391(6)

Vaccine

A clinical trial was conducted to test the effect of a vaccine product containing type III secreted proteins of *Escherichia coli* O157:H7 on the probability that feedlot steers shed *E. coli* O157:H7 in feces. Four treatments were (i) no vaccination; (ii) one dose, vaccinated once at reimplant (day 42); (iii) two doses, vaccinated on arrival (day 0) and again at reimplant (day 42); and (iv) three doses, vaccinated on arrival (day 0), on day 21, and again at reimplant (day 42). The probability of detecting *E. coli* O157:H7 among cattle receiving different doses of vaccine was compared with that of unvaccinated external control cattle. Vaccine efficacy of receiving one, two, and three doses of vaccine was 68, 66, and 73%, respectively, compared with cattle in pens not receiving vaccine. Cattle receiving three doses of vaccine were significantly less likely to shed *E. coli* O157:H7 than unvaccinated cattle within the same pen. Unvaccinated cattle housed with vaccinated cattle were 59% less likely to shed *E. coli* O157:H7 than cattle in pens not receiving vaccine, likely because they benefited from herd immunity. This study supports the hypothesis that vaccination with this vaccine product effectively reduces the probability for cattle to shed *E. coli* O157:H7. There was no indication that the vaccine affected performance or carcass quality. In addition, we found that vaccinating a majority of cattle within a pen offered a significant protective effect (herd immunity) to unvaccinated cattle within the same pen.

Peterson, R.E.; Klopfenstein, T.J.; Moxley, R.A.; Erickson, G.E. Hinkley, S.; Rogan, D.; Smith, D.R. Efficacy of Dose Regimen and Observation of Herd Immunity from a Vaccine against *Escherichia coli* O157:H7 for Feedlot Cattle Journal of Food Protection, Volume 70, Number 11, November 2007, pp. 2561-2567(7)

PROCESS AND PRODUCTION

New meat safety techniques compiled by regulator

More than thirty new techniques adopted by processors to reduce pathogen contamination in meat and poultry have been added to a list of such methods compiled and regularly updated by the US Food Safety and Inspection Service (FSIS). A listing of processing techniques and technologies that the FSIS has received, reviewed, and for which it has had "no objection" to use in FSIS establishments is provided at the link below. This list will be updated on a weekly basis, and provides information on processing techniques, food additive and chemical usage, and plant and process application. In sharing such information, FSIS believes that it can increase public and industry awareness of the new technologies being used could further promote their use, by small and very small plants in particular, towards improving the safety of meat, poultry, and egg products.

5.dec.2007 Food Safety and Inspection Service (United States)

http://www.fsis.usda.gov/regulations_&_policies/New_Technology_Table_Feb_06/index.asp

PACKAGING AND INGREDIENT TECHNOLOGY

Active packaging devised for clean label alternative

The new Cryovac Freshness Plus packaging range is available from Sealed Air Cooperation. The company claims the new system can ensure food quality and safety, as well as remove the need for inclusion of iron-based oxygen scavenging packs inside packaging. Although the product is only available in the United States at present, it is in the process of being made available to Australian processors, and may provide a mechanism for particularly clean food labelling.

20.dec.2007 Decision News Media SAS <http://www.meatprocess.com/news/ng.asp?id=82176-cryovac-active-packaging-oxidisation>

Grape-seed extract gives natural meat preservative

According to research published in the *Journal of Food Science* (Volume 72, Issue 4, Pages S282-S288), adding an extract from grape seeds at a concentration of 0.02 per cent reduces the development of odours associated with lipid oxidation in processed meat. The grape-seed extract, which is rich in phenolic compounds, and reportedly has no detrimental effect on flavour or colour of meat products. Consumer demand for natural antioxidants and cleaner labels continues to increase.

29.nov.2007 Decision News Media SAS <http://meatprocess.com/news/ng.asp?id=81704-kikkoman-grape-seed-extract-meat-artificial-preservatives>

Edible coatings of whey help keep pathogens off meats

Ready-to-eat meats are particularly susceptible to surface contamination. Research indicates that a protein-based surface coating film may be applied to the surface of ready-to-eat meat products with positive results in extending shelf life and reducing contamination by, and growth of, pathogens such as *Listeria monocytogenes*, *Salmonella typhimurium* and *E. coli* O157:H7. A whey protein base acts as a transmission carrier for antimicrobials and preserving additives such as grape seed extract, nisin (a peptide, protein fragment), malic acid and ethylenediaminetetraacetic acid (EDTA), which together provide the actual barrier to pathogens. The coating composition may be structured so that it allows for immediate release and action of active components, or a longer-term sustained release.

12.nov.2007 ScienceDaily LLC <http://www.sciencedaily.com/releases/2007/11/071109214121.htm>

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