AgResearch MIRINZ Workshop 2009

Market Access Session Introduction – Neil Smith Silver Fern Farms

Ensuring continued market access is essential for the NZ economy in general, and critical for the NZ meat industry as a specific export industry. SFF exports approximately 95% of our total production; this would not be too dissimilar to most of the other major industry operators. As an exporter we send sheep meat, beef, venison and associated products to about 60 countries around the globe.

Without continued unrestricted (I use this term loosely) access into global markets, especially those that are critical ie US and the EU, then the viability of the industry would be questionable.

There is little doubt therefore, that the market access session should hold a keen interest for the industry participants here today.

From my own perspective there are 2 levels of market access that we are realistically faced with, firstly meeting the regulatory requirements that are outlined in the NZFSA OMAR's upon which certification is provided, the second level is meeting the specific extra customer commercial requirements that are frequently imposed over and above those that entry into the market requires.

The presentations being given this afternoon will have an influence to a varying degree at both market access levels.

There are 3 speakers giving presentations in this session:

John Mills - Test methods for *E-coli 0157:H7*

Helen Withers - Starvation adaptation can increase bacterial resistance to chemical carcass washes

Rhys Jones - Bio-preservation can control unwanted bacteria without reducing sensory acceptance.

Regulatory Market Access

NZFSA export certification is required before animal products can be exported into almost all markets. The OMAR's outlined in the NZFSA website are based on the NZFSA interpretation of the specific market regulatory requirements as they impact on NZ operations, and form the basis for providing Govt to Govt assurances through the Export Health Certificate system.

Not sure how many of you may have had the pleasure of ploughing through the raft of OMAR requirements that are critical to ensuring certification will be given without issues being generated, but trying to gain clear and agreed understanding of them is at times challenge in itself.

There are approximately 113 different OMAR's documented on the NZFSA website, they range widely from being 1 page outlining acceptance of existing NZ requirements, to the US OMAR which

contains 270 pages. The EU OMAR outlines the certification requirements for in excess of 27 countries.

There are a number of specific market requirements that have become so entrenched over the years in industry processing operations, that they have actually become an intrinsic component of the current Industry Standards and before them the Meat Manuals. There is a process underway to identify and extract these non NZ requirements from standards as part of the Code of Practise development.

One of the issues with the OMAR requirements is, that most are prescribed and imposed not based on sound science, as such we are not in a position to refute them by using institutions like AgResearch. However there are some that do involve significant amounts of science, one in particular being all things impacting on E coli 0157 H7 and its influence on beef operations for products destined to the US since the Mega Regs were introduced to the US industry in 1996, in doing so classified E coli 0157 as an adulterant of meat products.

It is not without coincidence that a high proportion of meat industry research in the past few years, has been related to *E coli 0157*, it's prevalence, identification, and potential control.

Most of the manufacturing beef produced in NZ is exported to the US for burger manufacture, there are very few other markets outside that are commercially viable. Given around 45% of all beef production is packed as manufacturing items, access to the US has a huge influence on the NZ beef industry. It is vital that this access be maintained.

A significant proportion of the US OMAR (48 pages out of 270 – 20%) outlines the technical procedures for monitoring *E coli 0157:H7* in manufacturing beef and veal. A key component of these procedures is the implementation of the sample analysis and the methods used for initial screen testing. The integrity of these initial screen tests have a significant influence on NZ's ability to give official assurances as to the status of manufacturing product sent to the US.

John's presentation outlines the detail and outcome behind recent work to evaluate the effectiveness of existing NZ approved screen test methods along with a few that were not approved. The results as many in this room will be aware of, were not surprising with what was confirmed with regards to false positive performance; however there were other areas within the various screen kit performances which were surprising and more than a little alarming.

John will provide detail as to what some of the issues are with the test methods, and what changes have been recommended to ensure the integrity of NZ's official Assurances to the US in relation to E coli 0157 is maintained.

Having been involved with various industry correspondences on this topic previously, I am somewhat confused as to how some of the figures relating to false positive reporting have been derived. When compared with the data received from SFF veal results, the false positive rate documented during this project is vastly different to what we have determined. I am hoping that

John can clarify how these figures are specifically derived as I may have to review my basic layman approach as to how these are calculated.

With the introduction of validated interventions for E coli 0157 on veal product destined for the US, the industry has been alarmed at the prevalence of the organism on veal since the introduction of N60 testing prior to the 2008 season. While there has been an increased focus on implementing best practise dressing techniques, there have also been some questions raised as to the efficacy of some of the interventions used.

Clearly the less effective the intervention operations, the greater the risk of a strain of E coli 0157 being isolated in the US, and traced directly back to NZ. Should this involve a health issue in the market, the ramifications on NZ would not be favourable.

Helen in her presentation explores some of the environmental influences impacting on E coli cells that could in turn affect the efficacy of chemical interventions used. The inference from the title is that starvation adapted E coli cells can be harder to kill by chemical interventions. The science behind this I am sure will be very interesting.

However as an industry we have to assume that any validated intervention should have proven efficacy on the typical incoming E coli population entering the system with the animals. I am confident the industry would be interested in any advise that may be offered, how in all practical reality, we are able to determine the ongoing physiological state of the E coli 0157 cells we have to deal with.

Further what application of this science could assist in ensuring we have more effective chemical interventions?

Commercial Market Access

As alluded to earlier, the second market access aspect we are faced with in reality is the standards applied and expected of our customers over and above those that enable certification access into the actual countries themselves.

Some examples of these include the following:

- Very strict SRM standards imposed by US based multinational burger retailers. While the US accepts that NZ is free of BSE as such are exempt from the US regulation applying to such products, the burger retailers have retained their global approach which is more restrictive than the US Regs due to the no-Dura component – any SRM in Boning Room, automatic delisting occurs.
- Rigid HACCP and E coli 0157 performance expectations from US grinders
- Strict application of commercial animal welfare standards for beef and lamb. NZ standards are not accepted as a default level
- Incoming micro standards for chilled lamb markets in the EU, primarily UK supermarket chains. Consignments exceeding micro criteria are rejected.

In all reality therefore the regulatory OMAR's are just the first stage.

One of the challenges the industry faces on an ongoing basis is the retail performance of chilled lamb products in the UK, where it is expected that product 45 to 50 days old has an equivalent retail display performance as local domestic product.

Equally while the total microbial loading is important, so is the makeup of the bacteria influencing up the total population. We have issues from time to time with high potential spoilage bacteria like psychrotolerant Enterobacteriacea and Brochothrix thermosphacta.

Rhys's presentation will outline how inoculating meat surfaces with selected lactic acid bacteria strains will enable the normal flora to be modified such that unwanted strains are controlled. Further it has been found that the microbial consistency of products could be improved. Both of these outcomes have potential desirable applications to chilled lamb products, however there are some challenges that may need to be overcome which Rhys may cover off in his presentation or respond to separately.

The first issue that comes to mind is the regulatory status of actually adding large numbers of bacteria for a technical effect, when all traditional expectations are that bacterial numbers are minimised. Given we are adding a solution that would not be naturally occurring on the product, would this approach be classified as a food additive or similar?

Secondly the abstract information indicates that product treated with lactic acid bacteria does not have a reduced sensory acceptance when cooked, however is there any impact to the sensory acceptance of the raw product? It is in the raw form, not cooked, that organoleptic acceptance judgements are made

Thirdly, many of the UK retail processors have incoming APC criteria ranging between 1 x 10^6 cfu/g to 5 x 10^6 cfu/g, product is rejected when these values are exceeded during incoming product testing. The methods used are non selective, and would include the recovery of lactic acid bacteria. Given the proposal in Rhys's work is to add elevated numbers of lactic acid bacteria, would this not create more issues in complying with incoming micro criteria applied by customers therefore increasing the risk of rejections?

Lastly will the application of lactic acid bacteria as a Bio-preservation control assist in reducing the incidence of confinement odour of extended shelf life chilled lamb on outturn?

Hopefully I have set the scene for the next 3 presentations relating to market access.

Neil Smith
Group Manager Technical and Quality – Silver Fern Farms Limited