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PO115
USING GARLIC OLEORESIN TO MODIFY THE FLAVOUR OF PORK - FROM THE PERSPECTIVE OF SINGAPORE AND NEW ZEALAND CONSUMERS

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Sensory quality is an important consideration when Singapore consumers purchase pork. They often associate non-Indonesian pork with the presence of an unpleasant off-flavour described as a mutton-like flavour. Some evidence indicates that the intensity of undesirable flavours in meat can be reduced by herbs and spices. The current experiments assessed the possibility of reducing mutton flavour in pork and improving its acceptability by adding garlic oleoresin. The threshold level for aroma of garlic oleoresin when added to rice bran oil or minced pork was determined. For cooked pork mince the threshold for garlic taste was also assessed, along with levels of mutton aroma and taste, and acceptability. Singapore and New Zealand panellists were used.

The concentration at which aroma of garlic oleoresin could be detected by Singaporean (n=50) and New Zealand (n=49) consumers in rice-bran oil, and in either raw or cooked pork mince (n=30 for Singaporean consumers and n=50 for New Zealand consumers) was assessed using a threshold test protocol. Most panellists in Singapore (80%) and New Zealand (75%) could detect garlic aroma in rice bran oil at a concentration of 75 ppm. Increased garlic oleoresin concentration in rice bran oil had a positive influence on garlic aroma intensity (p<0.05) for Singapore and New Zealand panellists, and also on garlic aroma hedonic scores for Singapore consumers only (p<0.05). For cooked pork mince, panellists detected significant differences in garlic (p<0.0001) and mutton (p<0.0001) aroma intensity with increasing levels of garlic oleoresin (0 to 175 ppm), but the degree of liking of garlic aroma did not change significantly. A garlic oleoresin concentration of 100 ppm in pork mince significantly increased the intensity of garlic aroma and reduced the mutton aroma in raw and cooked pork samples. To significantly reduce mutton taste in pork mince, a garlic oleoresin concentration of 125 ppm was needed. Increases in the intensity of garlic aroma and taste were associated with increases in acceptability of cooked-mince garlic taste to a greater extent for Singapore panellists than New Zealand panellists. It is concluded that undesirable mutton-like flavour notes in pork mince may be reduced by adding garlic oleoresin.

PO117
MILK YIELD OF HOLSTEIN-FRIESIAN AND JERSEY X HOLSTEIN-FRIESIAN COWS SUPPLEMENTED WITH CANOLA MEAL AND CRACKED LUPINS

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Milk yield is a key selection trait in dairy cows. During the course of lactation, milk yield follows a typical curvilinear pattern characterized by an initial increase immediately after calving, a rise to peak before an eventual decline. Cows in mid-lactation are typically in the decline phase and would require supplementation to ensure persistency in milk yield, particularly during summer when pasture availability is limited. This study evaluated the milk yield responses of purebred and crossbred dairy cows to two levels (1 or 2 kg/cow/day) of canola meal or cracked-lupins supplementation in a pasture-based production system. Fifty Holstein-Friesian (HF) and Jersey x Holstein-Friesian (JHF) dairy cows (10 unsupplemented control and 40 supplemented) were randomly assigned to treatment groups after balancing for initial milk yield, BCS and days in milk (mean initial milk yield, body weight and body condition scores were 12.2 ± 1.2 litres/d, 352.6 ± 31 kg, and 2.5 respectively). A 2 x 2 x 2 balanced factorial experimental design representing 2 breeds, 2 supplements and 2 feeding levels was utilized. All cows had ad libitum access to the basal diet of barley and ryegrass while supplemented cows had three weeks of adjustment before the 12 weeks of feeding trial commenced. All cows were milked twice daily and milk yield individually recorded automatically at milking. Data were tested for significance by fitting the fixed effects of breed, supplement, feeding level and their first order interactions using mixed model procedures in SAS with cow and days in milk as random effects. Overall differences between treatment means were declared significant at P<0.05. Milk yield at all times was significantly higher in supplemented than unsupplemented cows with the rate of decline in milk yield faster in unsupplemented cows. For ten consecutive weeks, supplementing with lupins elicited a better milk yield response than with canola but breed differences between purebred and crossbred cows were not significant (P>0.26).
Supplementing with lupins at 1 kg/cow/day gave the best milk yield response and would be a far cheaper option for supplementing mid-lactation cows than canola.

**PO118**
**MILK COMPOSITION AND SOMATIC CELL COUNTS IN PASTURE-BASED DAIRY COWS SUPPLEMENTED WITH CRACKED LUPINS AND CANOLA MEAL**

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The price paid to dairy farmers on the basis of protein and butterfat is significantly higher in JHF crossbreds than purebred HF, while breed differences in solids-not-fats were negligible. Supplementing with lupins at 1 kg/cow/day led to a significantly low milk fat content of 3.8% compared to 4.1% for canola meal. The price paid to dairy farmers on the basis of protein and butterfat was $0.64/kg of protein and $0.40/kg of butterfat compared to $0.38/kg of protein and $0.27/kg of butterfat for canola meal, respectively. The results demonstrate the potential of lupins as a low-cost alternative to canola meal in dairy cattle nutrition.

**PO119**
**PROTEINS AS PART OF NUTRITIONAL ASPECT**

Mushongo N

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A study on Proteins on the Copperbelt, in Ndola District was undertaken to investigate the influence on the use Protein meals as supplements. The overall objective of the study was to provide an overall understanding of Proteins as part of the nutritional aspect. Protein is needed for all cells in our body that is (Growing and Repairing). Proteins contains the elements Carbon, Hydrogen, Oxygen, Nitrogen, usually Sulphur and possibly, others according to their source. Examples of foods containing Protein are lean meat, eggs, beans, fish and milk and its products such as cheese. Data were collected between June and August 2008 using 20 people feed on balanced meals mostly on foods containing Proteins. The study revealed that a diet, with a sufficient energy content of Fats and Carbohydrates and rich in vitamins and salts will lead to illness and death because of its lack of Proteins. Proteins are particularly important during periods of pregnancy and growth when new cytoplasm cells and tissues are being made. Proteins are also needed for the babies especially those with, to start with 6 months by adding to their porridge, besides the mothers milk. People who work hard requires more Proteins and those who have been ill need more Proteins to replace the broken down cells. Proteins can build all the Amino acids they need from carbohydrates, nitrates and sulphates, but animals cannot. They must therefore, obtain their Amino acids from Proteins already made by plants or Proteins in other animals and the diet must therefore, include a minimum quantity of Proteins of one sort or another. Animal Proteins generally contain more essential Amino acids than do plants, proteins, but since milk and eggs contains the proportion of all. a vegetarian who includes these in his diet should not lack essential Amino acids. The results therefore suggest, that if Proteins are eaten in excess, there will be Amino acids in the body than are needed to produce or replace cells. The excess Amino acids are converted in the liver to carbohydrates, which then oxidize for energy, or converted to glycogen and stored. The information generated is beneficial and would help, as a knowledge base and tool for planning and for formulation of management models to sustainable on human healthy particularly, Proteins.