

Biometrics

– Winter 2011

INTRODUCTION

The NSW Department of Primary Industries 16 plus statisticians and biometricians provide an internal statistical consultancy service to the Department's staff. They also pursue an active research program in applied statistics and statistical computing.

Our biometricians play a significant role in many large, collaborative research projects involving plant improvement, animal and plant genetics, bioinformatics, environmental monitoring and sustainable systems. They also offer a number of training courses annually to staff and supervise a number of postgraduate students.

RESEARCH CAPABILITIES

- » The Unit manages biometrical needs from research and extension officers across NSW.
- » We have highly trained and widely experienced biometricians in all areas of agriculture, forestry and fisheries.
- » We conduct research on mixed effect modelling and on the techniques to improve estimation speed and accuracy.

CONTACT US

For more information on our full portfolio please contact Dr Idris Barchia (02) 4640 6448 or idris.barchia@industry.nsw.gov.au.

PROJECT UPDATES

ENHANCING NIRS CALIBRATIONS OF GRAINS FOR LIVESTOCK(2008–2011)

INTRODUCTION: Properly designed trials are crucial to remove any controllable or known variables. Near Infrared spectroscopy (NIRS) is a non-destructive method of measurement that can provide estimates of moisture, protein, fat and starch content of cereal grains.

FINDINGS: The statistical analysis predicted all known factors likely to contribute to data variation, (for example, time, period, pen, animal and sex) and accounted for each in order to produce the most accurate values for the effect of "grain" on each NIRS measurement.

CONTACT: Simon Diffey, Wagga Wagga (02) 6938 1842



EVALUATION OF WINTER CROPS (2008–2011)

INTRODUCTION: The National Variety Trial (NVT) conducted more than 695 trials annually to test new candidates of cultivars selected from 12 crop types including lupin, barley, canola, chickpea, faba bean, field pea, oats, triticale and wheat in crop breeding programs. We provided services on trial designs and estimation of varieties performance.

FINDINGS: Mean yields have been estimated for over one thousand genotypes. The mean yields were presented across states, regions and years.

CONTACT: Chris Lisle, Wagga Wagga (02) 6938 1619



MODELLING THE DECLINE OF PH AND TEMPERATURE DURING RIGOR ONSET

(2010-2011)

INTRODUCTION: Meat eating quality has been shown to be influenced by the respective rate of decline of pH and temperature post-slaughter. Optimal eating quality is considered to occur when pH drops below 6 when temperature is within a given range. Meat Standards Australia (MSA) has set this temperature range for sheep meat as 18- 5 °C.

FINDINGS: We have developed a mathematical model for measurements of pH versus Temperature of sampled carcasses during rigor onset that will allow the estimation of the proportion of carcasses in a lot that meet the MSA requirements. Work is currently underway to develop software that will give abattoirs the ability to obtain estimates in house of the compliance rates for carcasses within a slaughter lot.

CONTACT: Dr Remy van de Ven, Orange (02) 6391 3831 or Dr David Hopkins, Cowra (02) 6349 9722



PIS&R PROJECT UPDATES