

# DAIRY SCIENCE 2007

*Meeting the challenges for pasture-based dairying*

## **Use of genetic merit to improve productivity in the Australian dairy industry, and role of genetic markers into the future**

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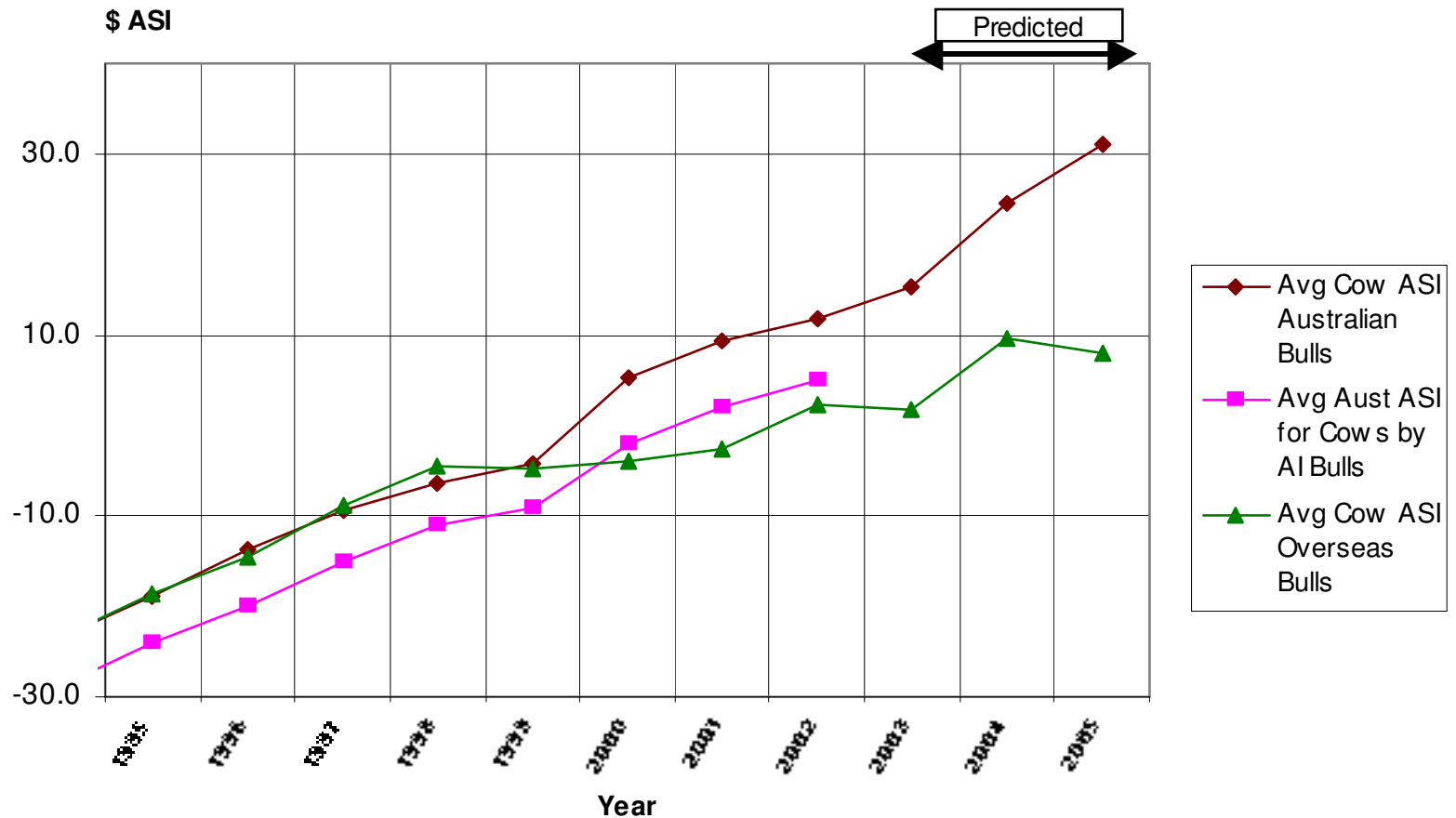
- Productivity improvements are the cornerstone of the profits made by dairy farmers and the global competitiveness of the Australian Industry.
- However, it is apparent that there has been little to no productivity gain over at least the last decade (Kompas & Che, 2004).
- Genetic gain underpins productivity improvements in the Australian dairy industry, contributing somewhere between 30-50% of annual improvements.
- Our studies, using ADHIS database:
  - First we compared the rate of genetic improvement in daughters of bulls progeny tested in Australia compared to cows sired by foreign bulls.
  - Secondly, we compared the phenotypic production of cows that differ in Australian Breeding Value (ABV) for Australian Selection Index (ASI).



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Figure 1: The performance as measured by the Australian Selection Index (ASI) of daughters of Australian bulls compared to daughters of imported bulls with the average of all AI bred cows as a benchmark

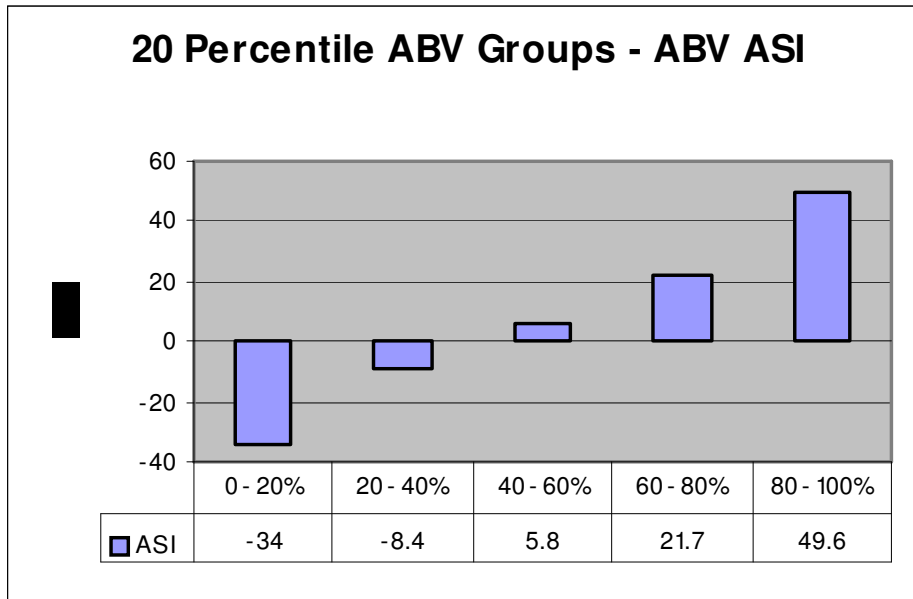




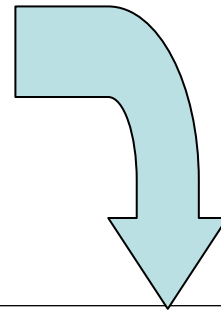
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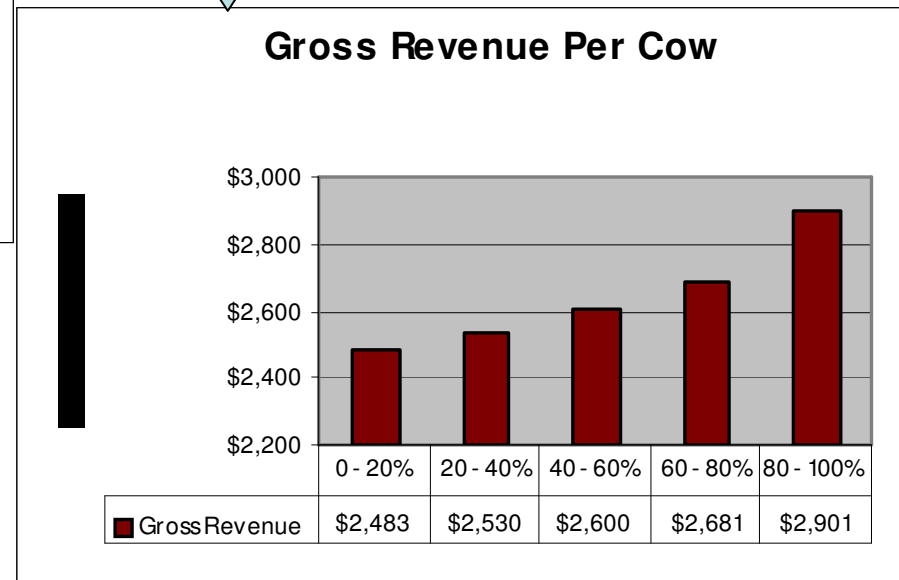
Figure 3: Segmentation of cows (n=21,000) based on their ABV for ASI into 5 x 20 percentile groups and their corresponding average gross revenue per cow.



Genetic merit



Phenotypic performance



***If we were to use this same model and apply it to the entire cow population (assuming 1.7 million cows), the potential lost gross revenue would be just short of half a billion dollars (\$445,964,330). There are also potential flow on benefits to the processing industry from the adoption of the APR/ASI as a breeding goal by Australian dairy farmers.***