



Melbourne

Armidale

Brisbane

Sydney



“Genetics and football *thrives* in Armidale!”



The Netherlands

Brazil

Korea

Paraguay

Uruguay

Argentina

Mexico

Thailand

Uzbekistan

Scotland

Tasmania



Animal Breeding in a nutshell

Breeding objectives

Where to Go

How to get there

Trait measurement

- Which traits
- Which animals
 - Males / females
 - Progeny test
 - Nucleus / commercial
- Genotypings

Estimation of breeding value

- Phenotypes
- Pedigree
- BLUP
- Genetic Markers

Reproductive technology

- Artificial Insemination
- MOET
- JIVET
- Cloning

Selection, culling & Mating

- Index / EBV's
- Balancing merit and inbreeding
- Other issues



Running a breeding program

- **Breeding Objectives**

- Which traits (biology) and what value?

- **Genetic Evaluation**

- Estimating merit of candidates

- **Breeding Program Design**

- Who to select, who to mate,
- Invest in measurement and genomic/repro technology

- Making it happen!



Outline of this course

Day 1: - Selection Theory

Day 2: - Multi Traits Selection
- Design and optimization
of breeding programs

Day 3 - Genomics in Breeding Programs

Mornings: Lectures



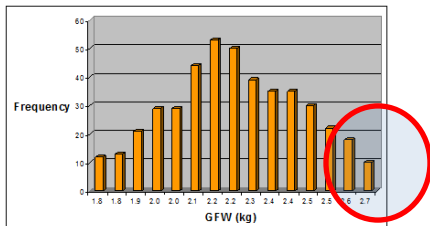
Afternoons Exercises



How much genetic change?

Breeder's Equation

Selection Response = $i r_{IA} \sigma_A$



Selection intensity

Selection accuracy

Genetic variation

