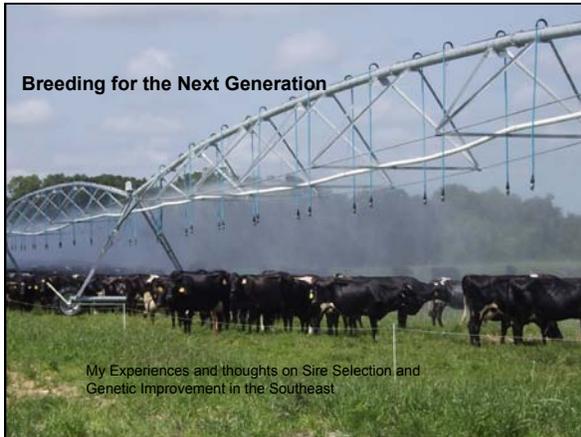


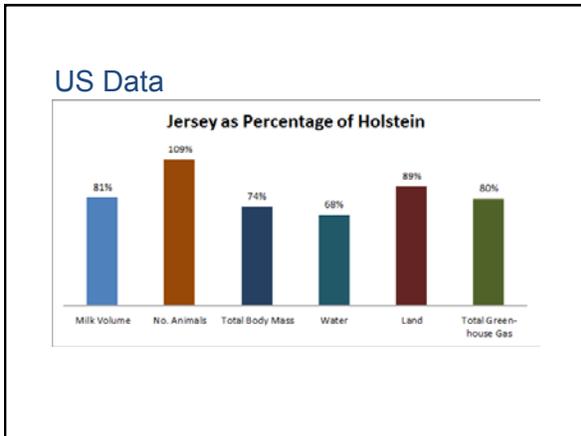
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Breeding for the Next Generation



Are cows are too big

At the same milk production levels, cow B, will consume 750 lbs more feed per year to maintain her body.



Some USA data: average mixed age performance by breed

	Milk	Fat	Protein	Liveweight
Holstein	10517	380	322	649
Jersey	7535	353	272	440

	DM intake (tonnes) at energy density 11.5 MJME per kg DM
Holstein	6.97
Jersey	5.58

	Milksolids (kg) per 1000 tonnes DM
Holstein	100,672
Jersey	111,941

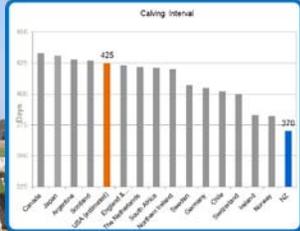
- Jersey feed conversion advantage: 11.2%
Economic advantage maintained if milk protein twice as valuable as milkfat

Data sources:
 Production – International Committee for Animal Recording
www.wasp.it/enquiry/USA043_main_breeds_cowusa_interface/Results/results_page.asp
 Liveweight – Capper & Cady, 2012. *Journal Dairy Science*, 95:165-176

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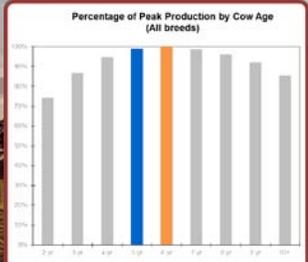
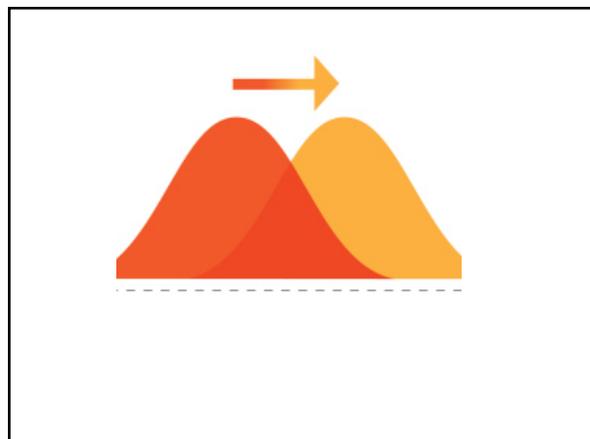
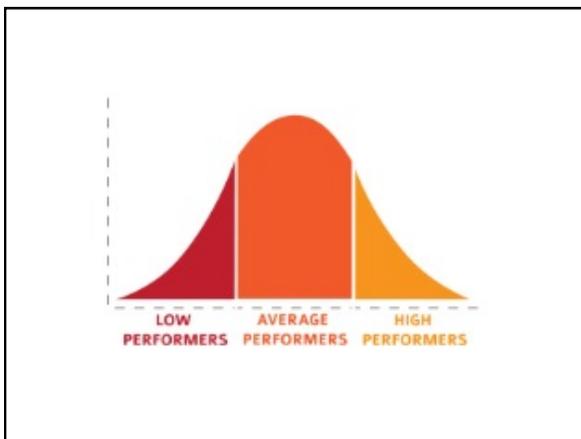
At an industry level we have serious fertility challenges



- The US dairy industry has an extremely high calving interval compared to many of its international competitors.
- Conventional dairies can overcome this by higher production per cow. As Grazers we may not have this luxury.

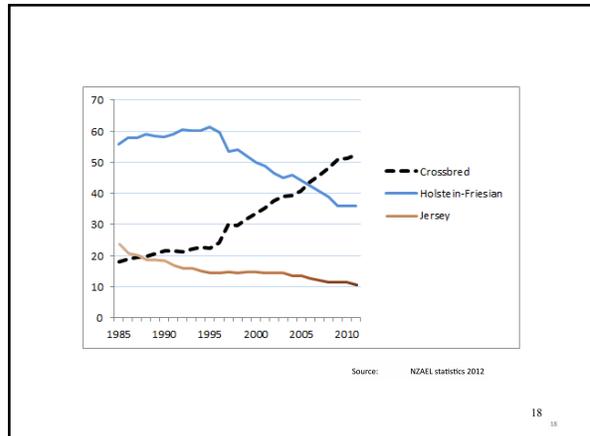
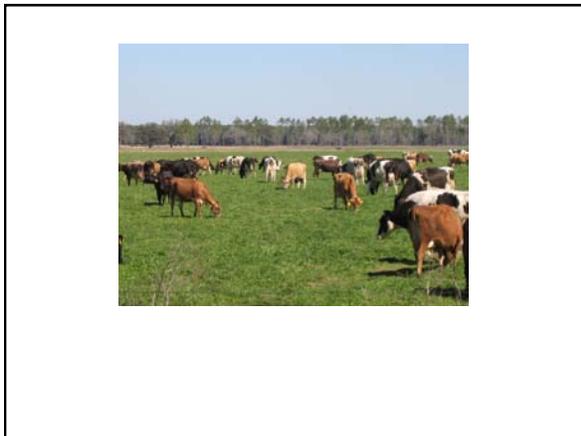
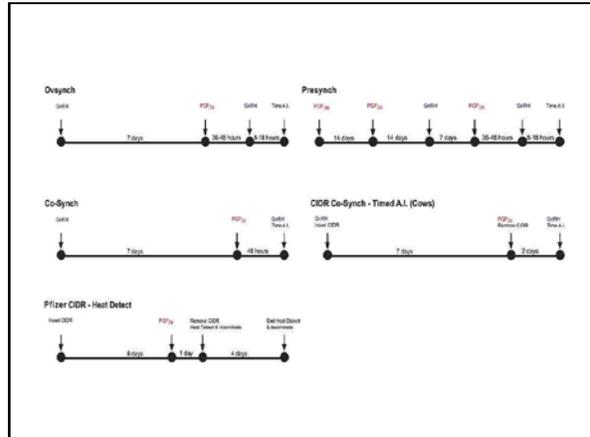
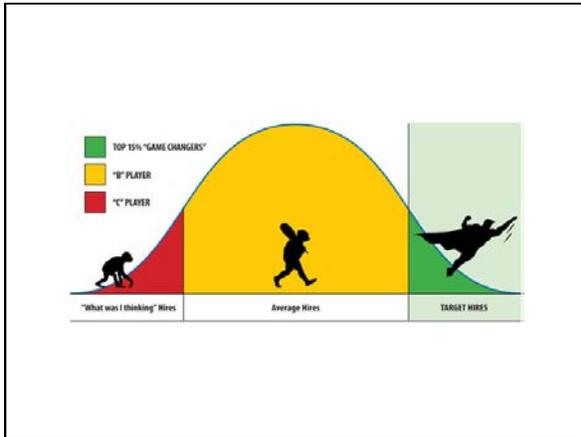
Longevity and Production

- Cows in their 5th Lactation will produce 30% than their herdmates in their first lactation
- Multiplying effect on profitability as less resources need to be devoted to raising replacement

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Breeding for the Next Generation

Crossbreeding?

- ✓ First cross (F1 Holstein-Friesian x Jersey) \$78 net income per 4.5 tonne DM better than average of parents
- ✓ rotational crossing stabilises retained hybrid vigour at 67% of F1 on average across herd
≈ \$52 (heterosis retention)
- ✓ use of crossbred bulls => retain 50% of F1 hybrid vigour into future

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If 2 way Cross is good, Will 3 way be better?

- heterosis F1 benefits (Holstein-Friesian, Jersey, Red Breed) average over \$75 net income per 4.5 tonne DM
- three-way rotational crossing stabilise retained hybrid vigour at 86% of F1 on average across herd
≈ \$65 (heterosis retention)
≈ \$13 better than two-way cross
- BUI the Red Breed is \$96 lower efficiency than the other two breeds (refer to the NZAEL Ranking of Active Sires List)
- **so to gain \$13 heterosis you lose \$32 in overall merit for efficiency**

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