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Kasetsart University

Association between Cow, Sire and Dam Genetic Trends for First Lactation Milk Production in 75% Holstein Crossbred Population



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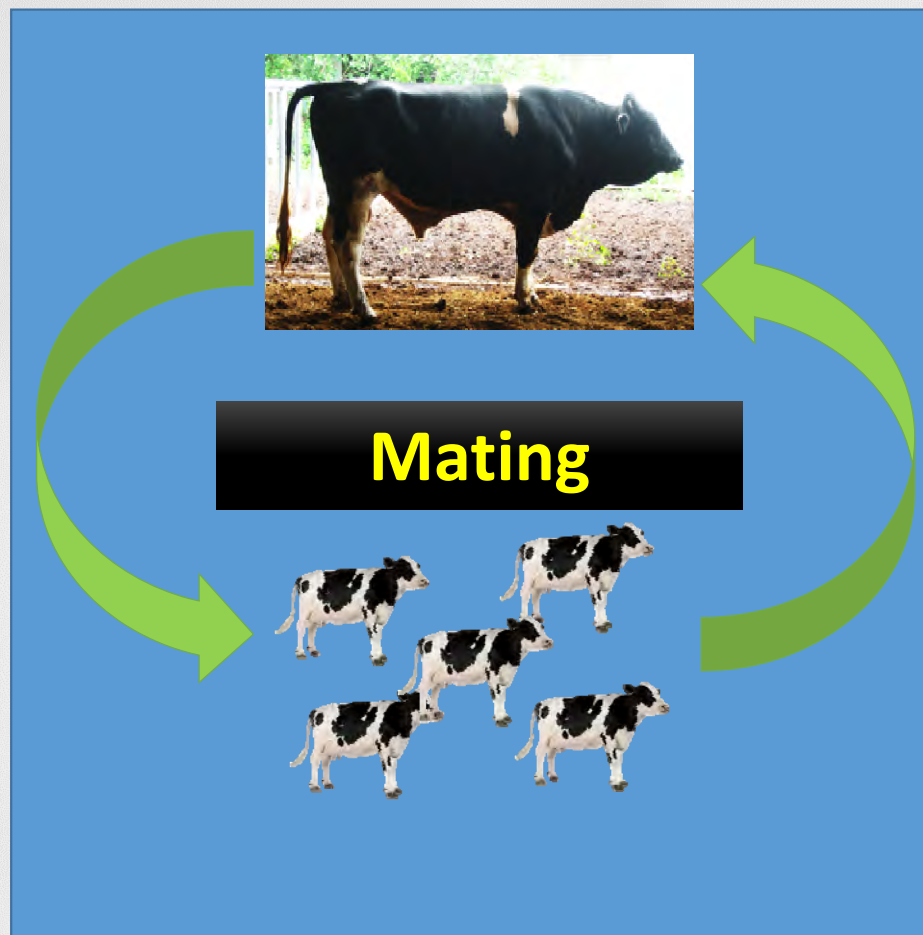
Thai Milking Zebu (TMZ)



Holstein



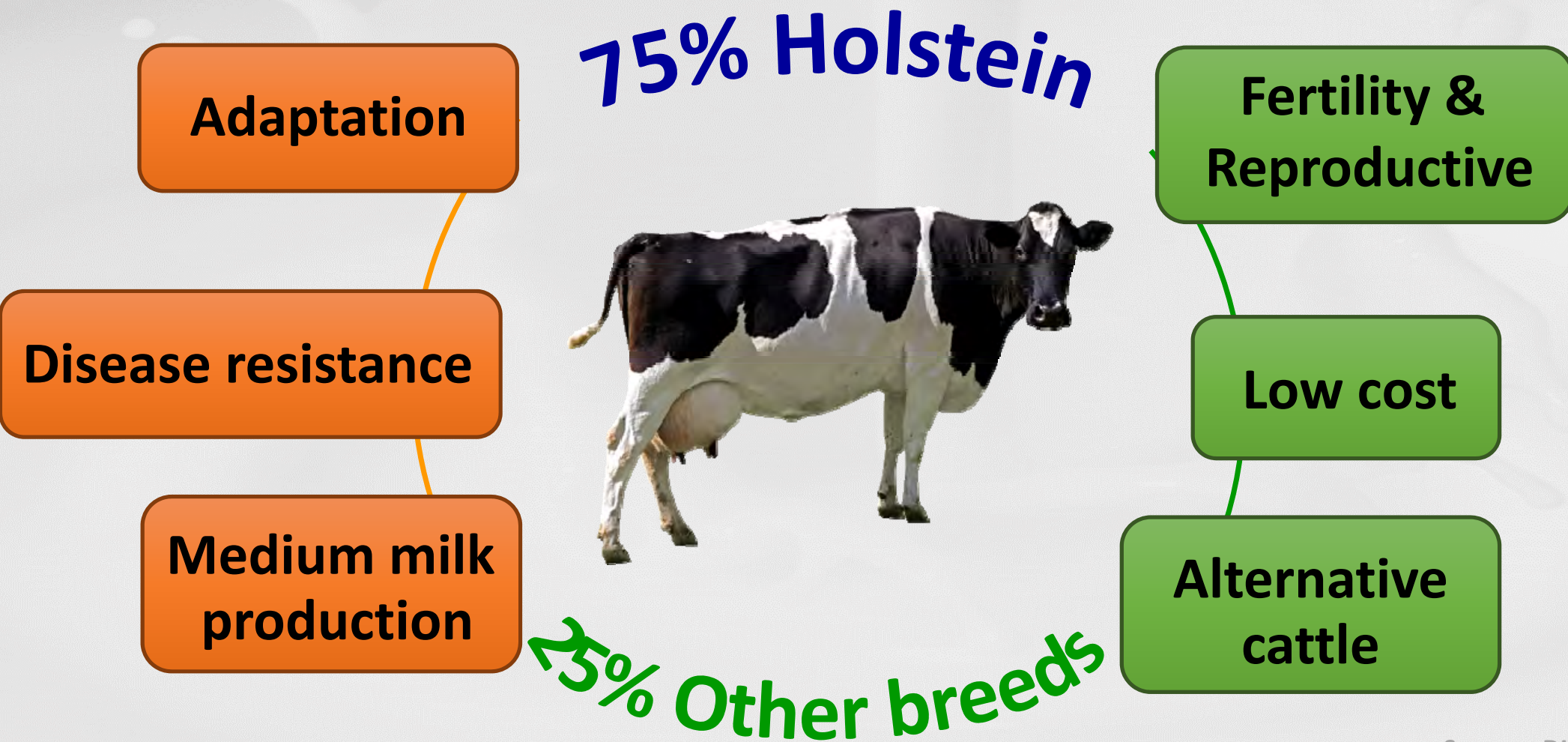
Brahman crossbred



TMZ
(75%Holstein)



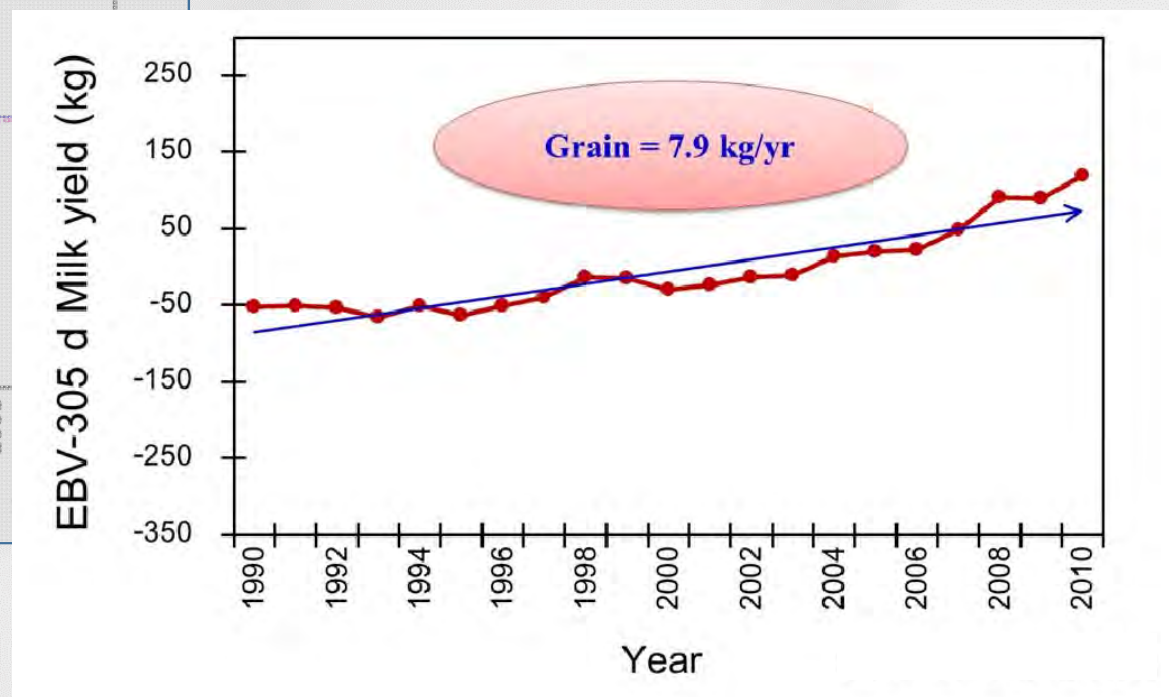
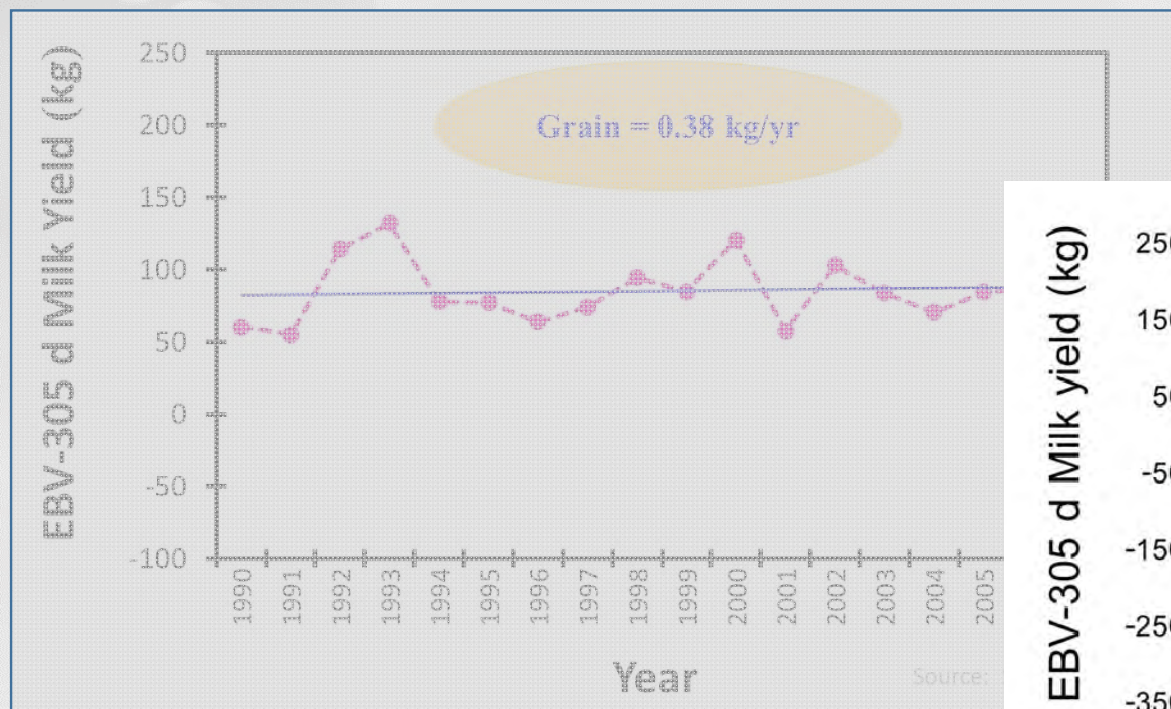
Thai Milking Zebu (TMZ)





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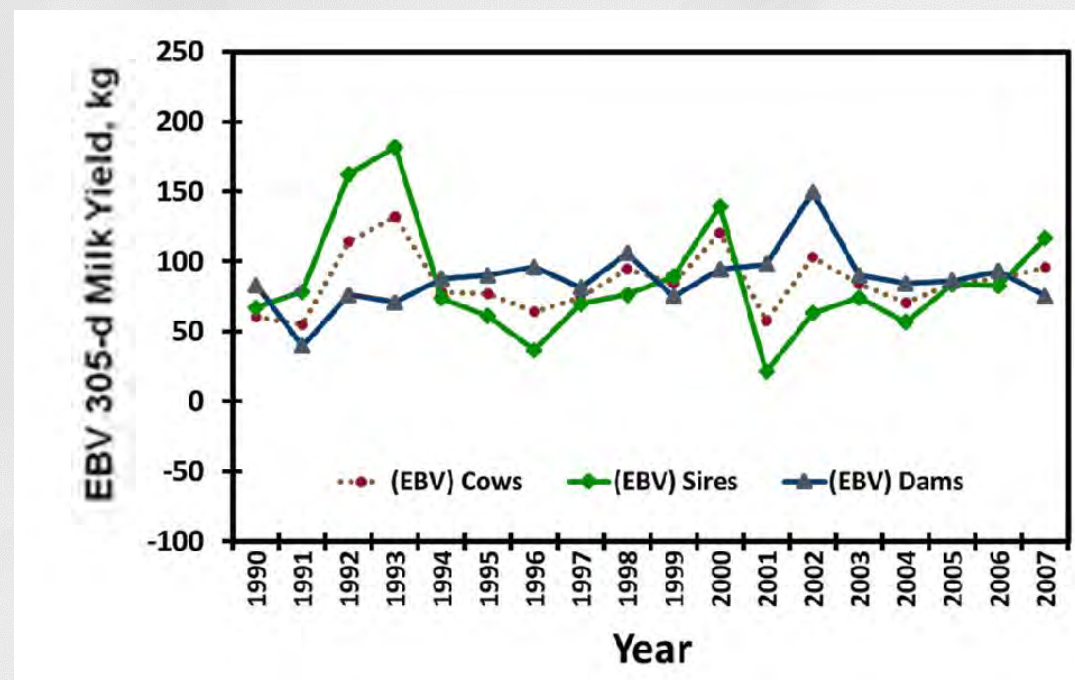
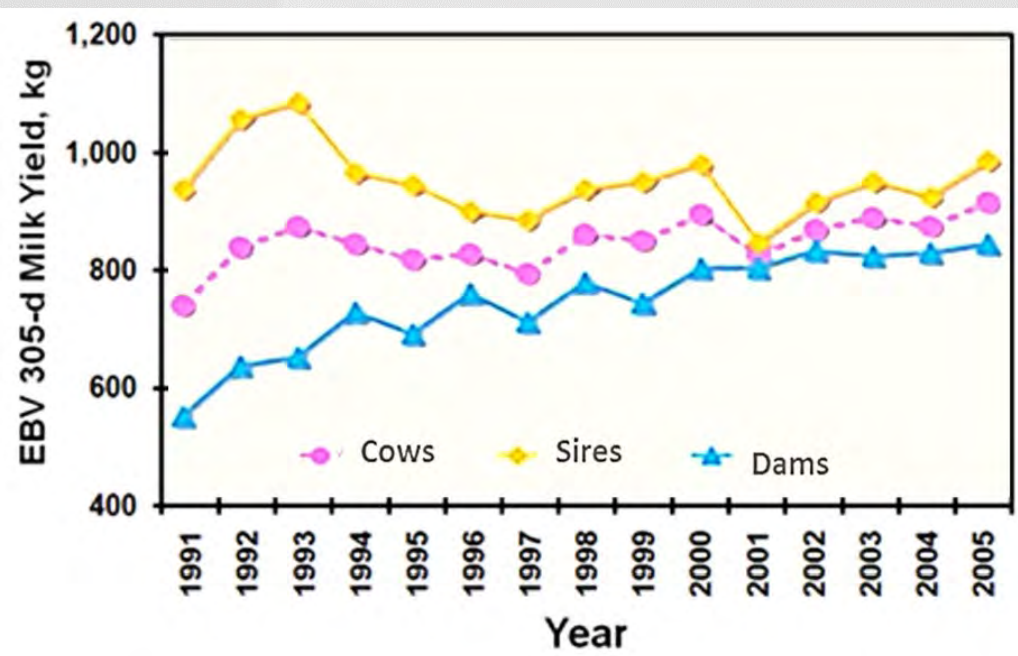
Genetic trends for milk yield of dairy cattle in Thailand



Source: Sarakul (2010), DLD (2015)



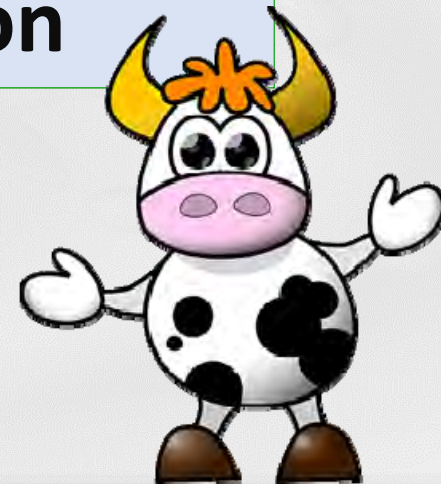
Genetic trends for milk yield of dairy cattle in Thailand



Source: Koonawootrittriron et al., (2008); Sarakul et al., (2010)



**To study the association of genetic trends
between cow, sire and dam for 305-d milk yield
in 75% Holstein crossbred population**





☐ Pedigree

- 898 cows (114 sires and 664 dams)
- 75% Holstein and 25% Others

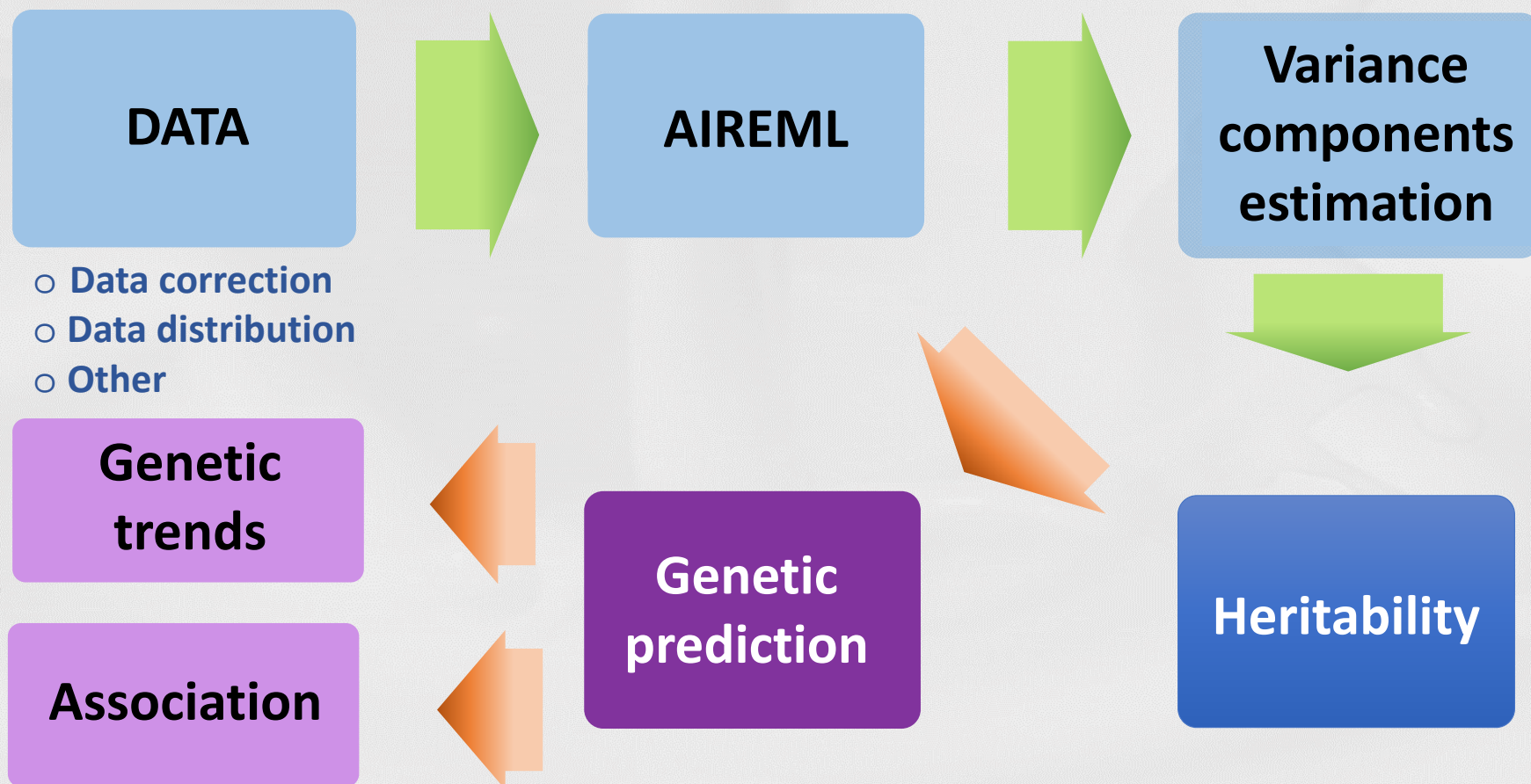
☐ Performance

- 305-day milk yield
- 1994 to 2015





Materials & Methods





$$y = Xb + Za + e$$

Fixed effects

- Calving year-season
- Age at first calving

Random effects

- ◆ Animal
- ◆ Residual



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Results and Discussion



Variance components and heritability

Parameters	305-day milk yield
Genetic variance, kg^2	$96,603 \pm 50,577$
Environment variance, kg^2	$228,087 \pm 47,518$
Phenotypic variance, kg^2	$324,690 \pm 48,389$
Heritability	0.29 ± 0.15

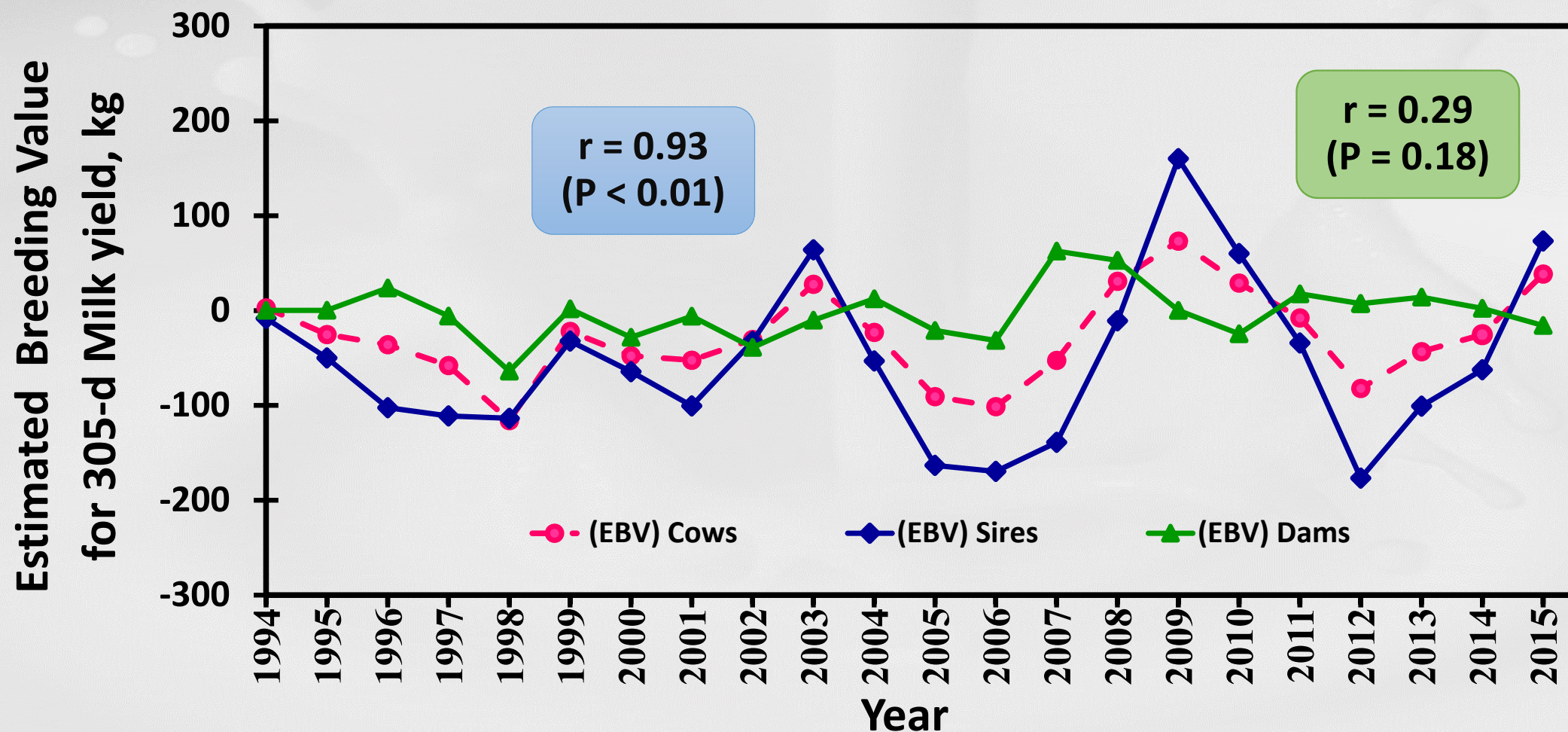


Genetic trends

Animals	Regression coefficient (kilogram per year)	P-Value
Cows	1.88 ± 1.60	0.25
Sires	2.18 ± 2.92	0.46
Dams	0.89 ± 0.95	0.35



Genetic trends of cows, sires and dams





The estimated genetic trends

- 1.88 kg per year for cows,
- 2.18 kg per year for sires,
- 0.89 kg per year for dams



Cows genetic trends had higher association with sire genetic trends ($r = 0.93$) than dam genetic trends ($r = 0.29$)



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**Department of Animal Science, Faculty of Agriculture,
Kasetsart University**



University of Florida



Tropical Animal Genetic Unit



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Thank you
For your attention



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