

Large scale screening of milk fatty acid profile: new possibilities for dairy product development

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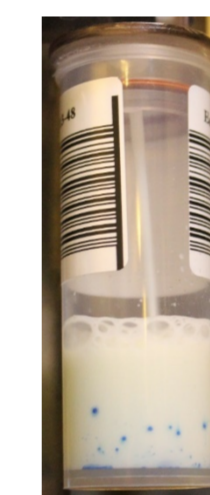
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Large scale screening of the Danish dairy cattle population for a detailed milk fat composition revealed profound effects of breed, production system, parity, lactation stage, genetics and body weight change.

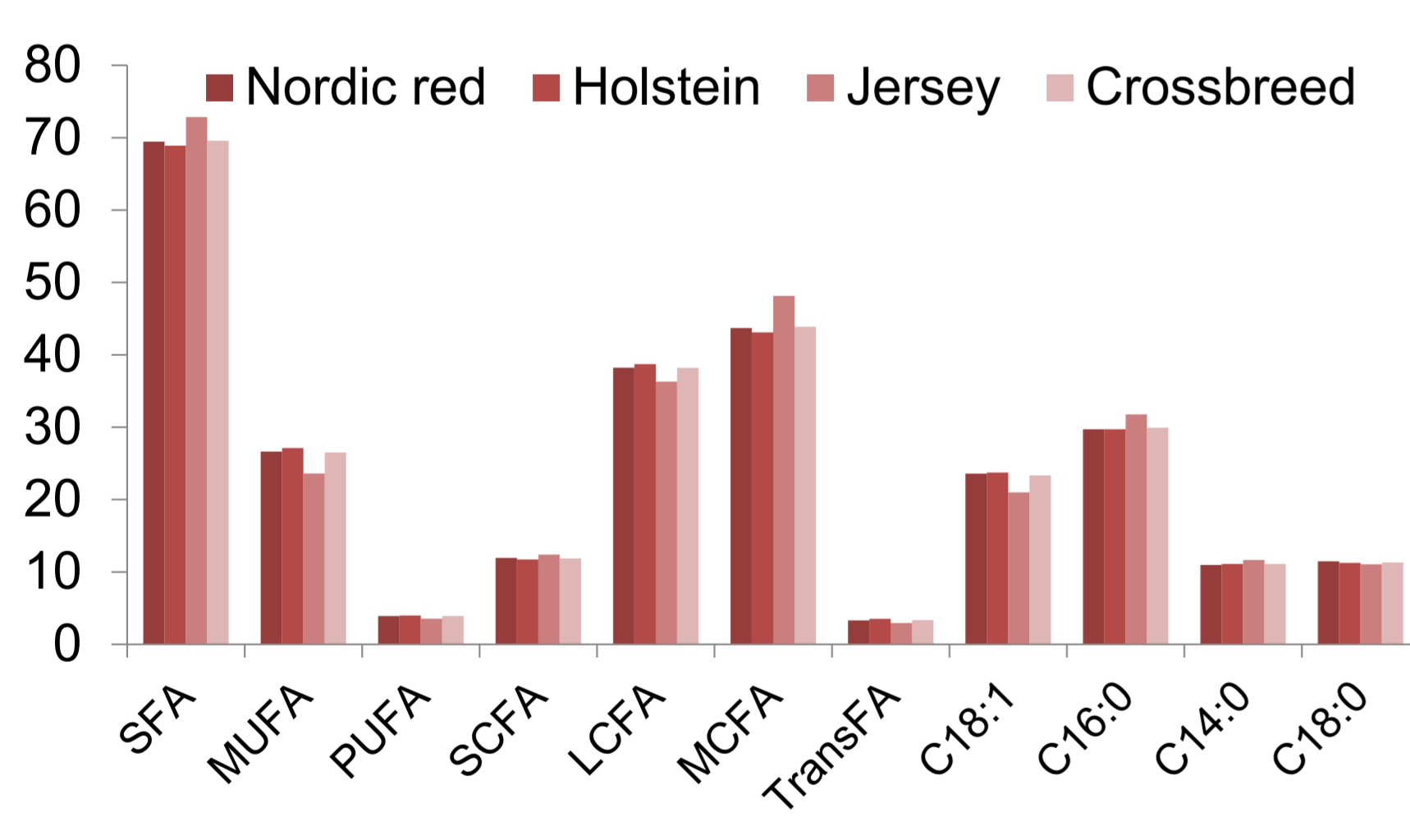
Opening up the possibility differentiate the milk at farm level, by management and breeding strategies.

Methods

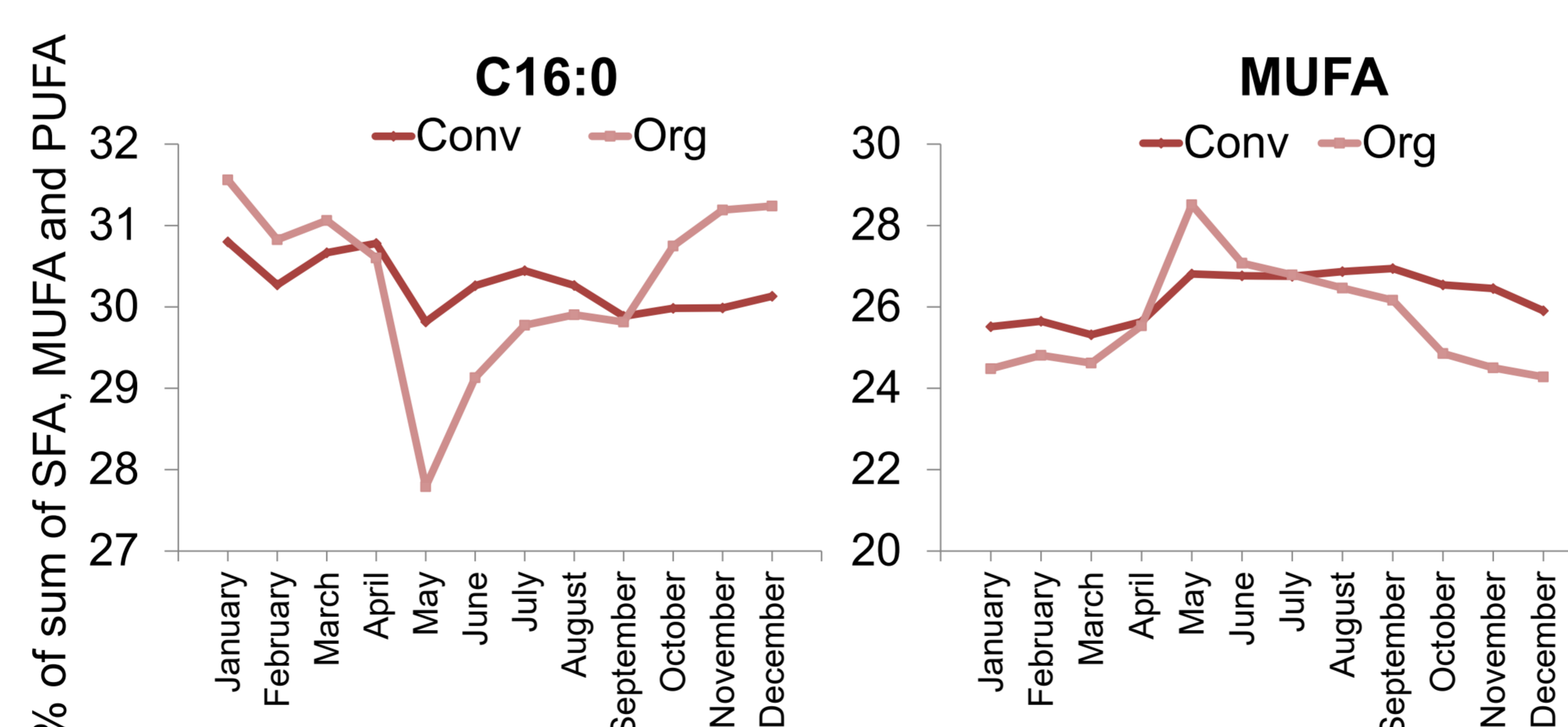
- Milk samples were collected from all cows in Danish Herd testing scheme – May 2015 to December 2017 (total of 10 mio samples)
- Milk samples analysed using MilkoScan™ FT+/FT6000
- Foss Application Note 64 was used to predict:
 - SFA, MUFA, PUFA
 - SCFA, MCFA, LCFA, TFA
 - C14:0, C16:0, C18:0, C18:1



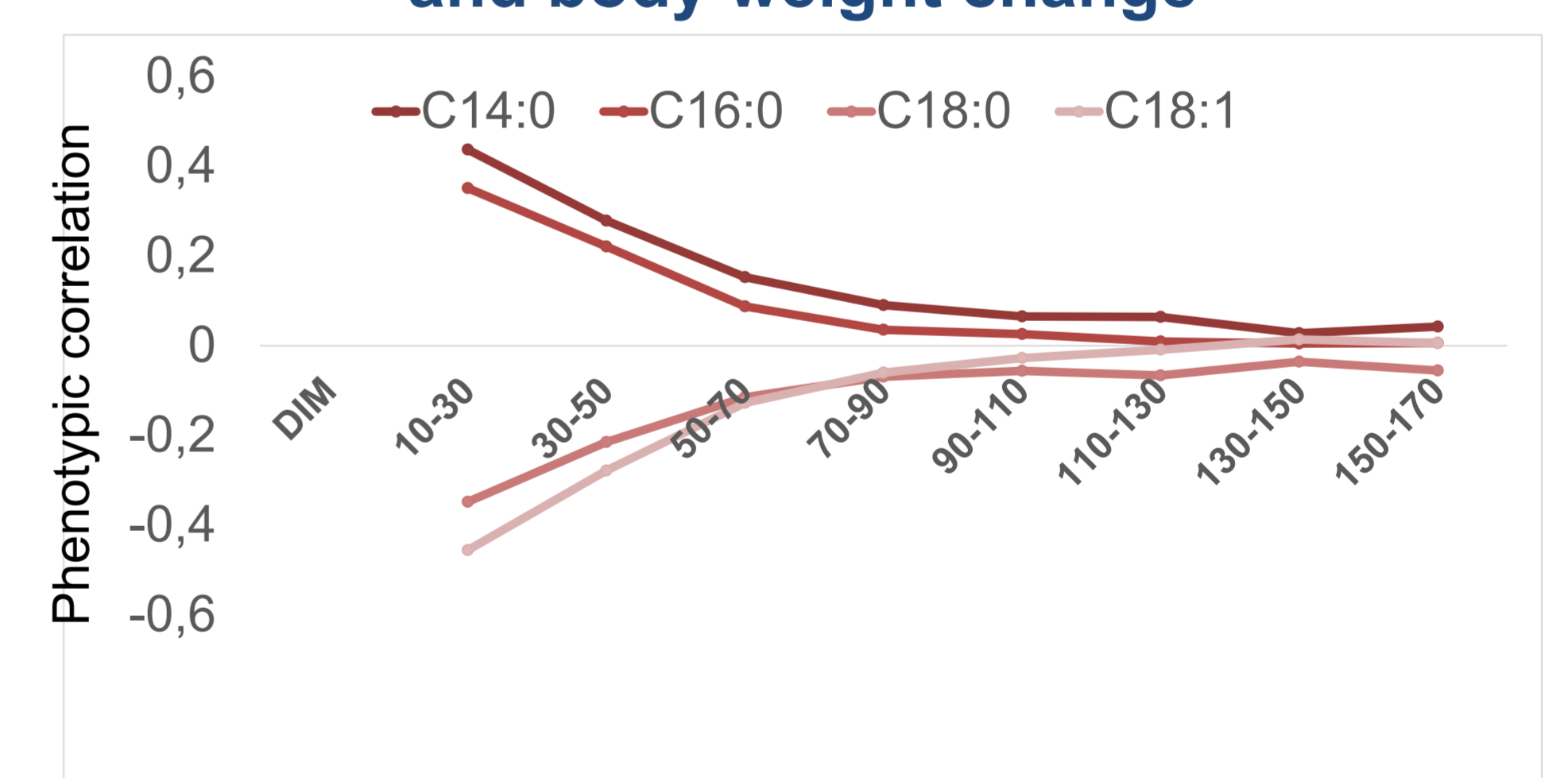
Differences between breeds



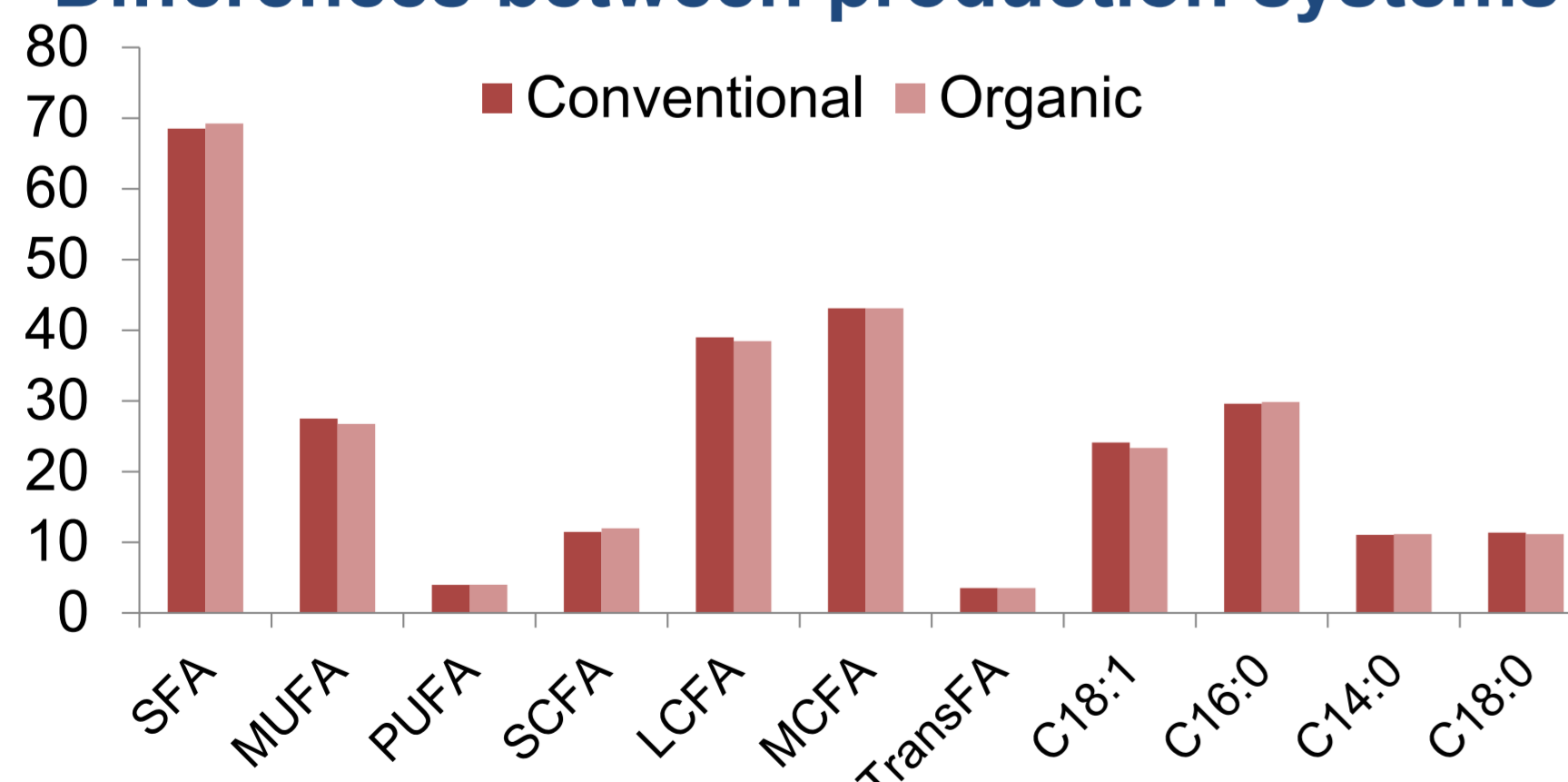
Differences between seasons



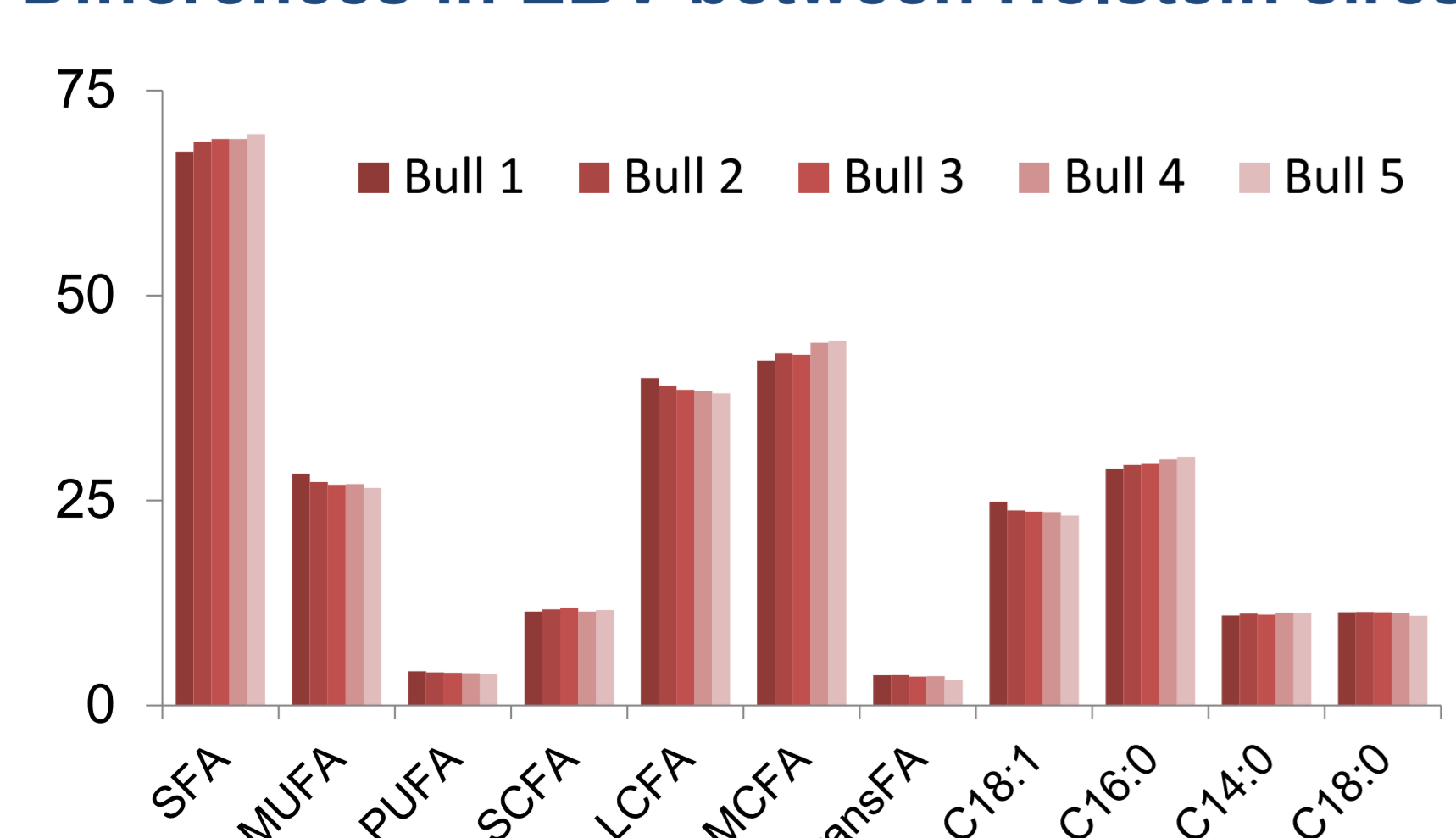
Phenotypic correlation between milk FA and body weight change



Differences between production systems



Differences in EBV between Holstein sires



Results

- Danish Holstein: high MUFA, PUFA, LCFA, and C18:1
- Danish Jersey: high SFA, SCFA, MCFA, and C16:0
- Differences between conventional and organic production systems during grazing period for MUFA, PUFA, and C16:0
- Large difference in milk FA profile of cows from different bulls
- Farm management possibilities: relation between milk FA and cow's body weight change
- New possibilities for development of dairy products with specified milk fatty acids.