



# Defining consensus genetic gains for the Kenya Holstein-Friesian breeding objective

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# Kenya dairy cattle sector

- Mostly based on the Holstein-Friesian crosses
- Diverse production and marketing systems
  - Largescale producers  processors
  - Smallholder producers  informal market
- Dependencies between the production systems
  - Heifers/ semen from largescale to smallholder farms

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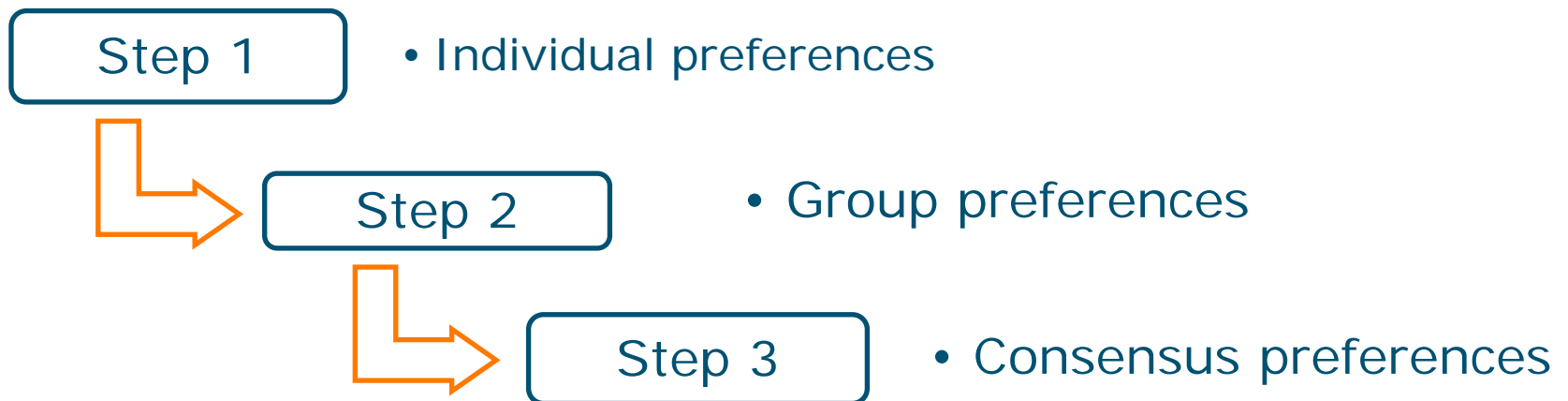
# Kenya dairy cattle sector

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- Genetic improvement - semen importation
- GxE present
  - Genotype – production environment mismatch
- Minimal pedigree and performance recording

# Aim

- Breeding goal for the Kenya Holstein-Friesian
- Diversity -> Consensus desired gains



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# Materials and methods

## a. Data collection

- Data collected using a field survey. 78 respondents
  - Smallholder farmers
  - Large scale farmers
  - Processors

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# Materials and methods

## b. Traits in the breeding goal

- Determined through a preliminary survey
- Picked 5 highest ranked traits from a list of 19
- Were: milk yield (MY), production life time (PLT), calving interval (CI), fat yield (FY) and mature body weight (MBW)

# Materials and methods

## c. Individual preferences

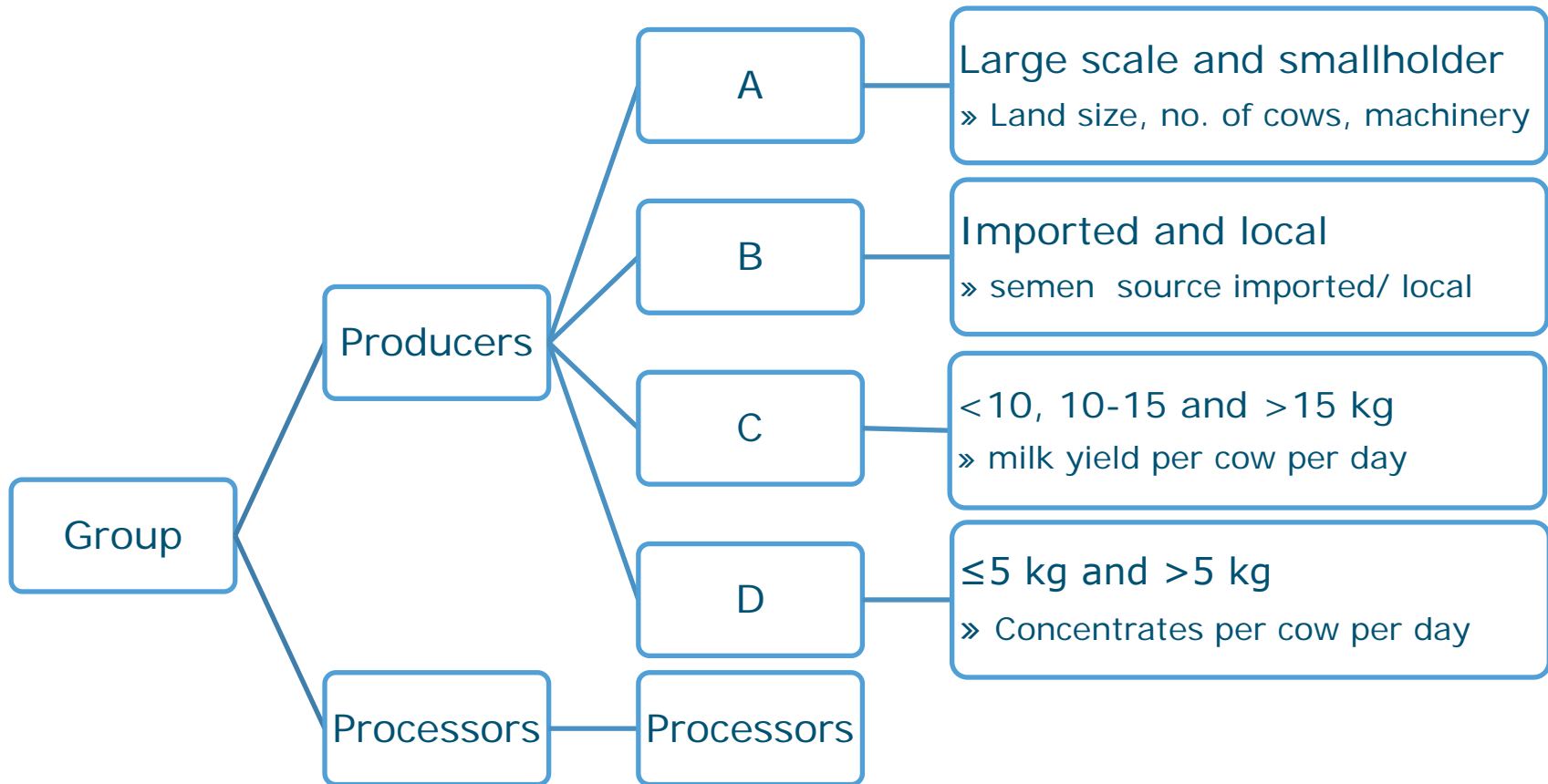
- Trait importance -> pair-wise comparisons
  - Saaty's scale of intensity of importance

10.6% increase in MY								Equal	1.3% decrease in CI								
9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	

- Analytic Hierarchy Process (AHP) -> Individual Preferences
  - Ratio scales

# Materials and methods

## d. Social groups







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# Materials and methods

## e. Social preferences

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- Criterion  Weighted goal programming (WGP)  
(Linares and Romero, 2002)
- Preferences  Minimizing disagreements between individual preferences

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# Materials and methods

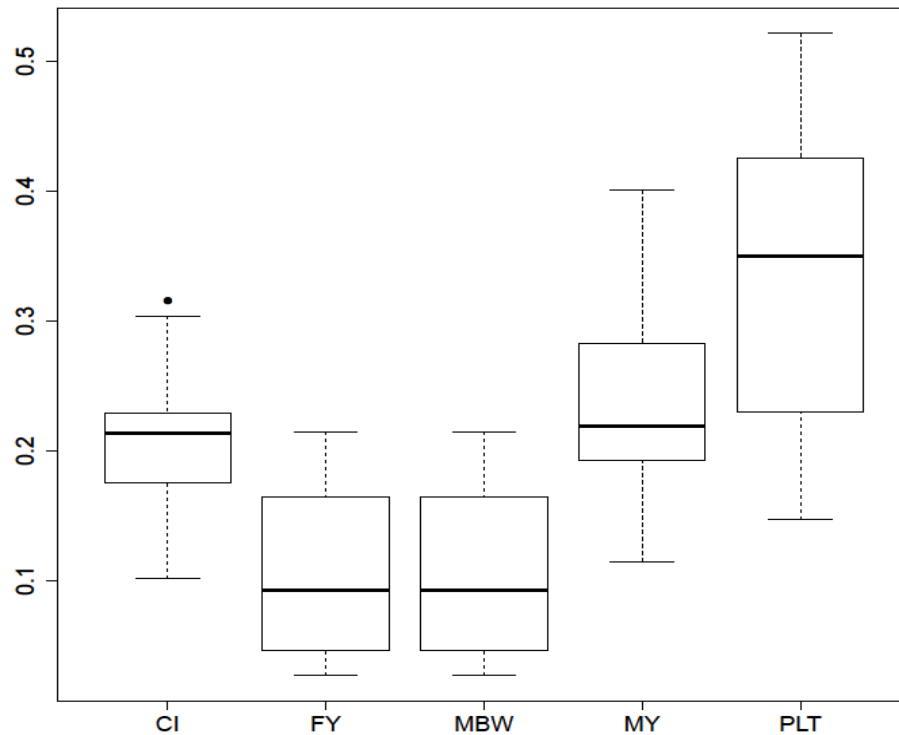
## f. Consensus preferences and desired gains

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- ConP were based on WGP
  - Compromise between minimizing disagreements and maximizing average agreements
  
- $DG = ConP \times \text{genetic gains (\% mean)}$

# Results

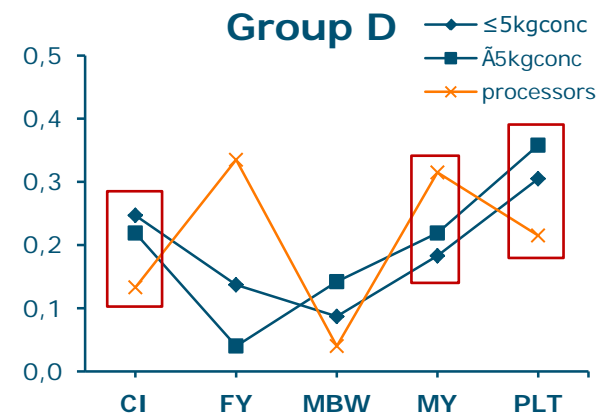
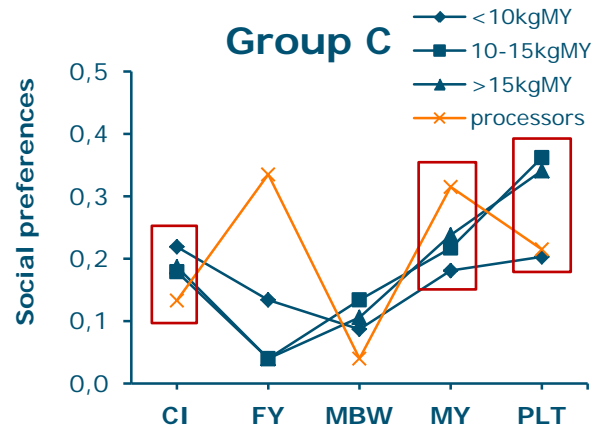
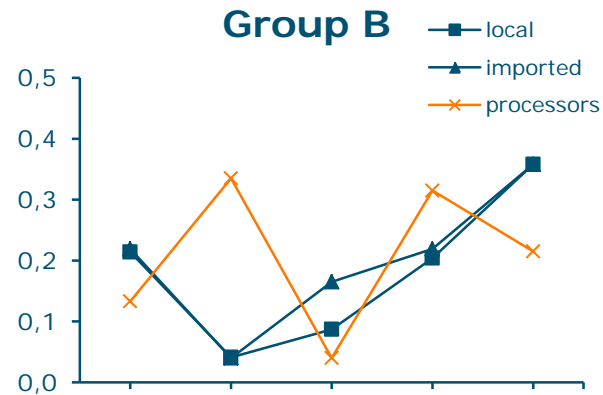
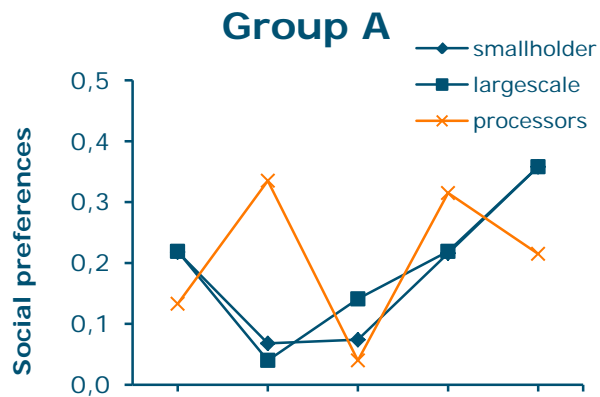
## a. Individual preferences



Median and quantiles for individual preferences

# Results

## b. Social preferences



# Results

## c. Social preferences and desired gains

Trait	PLT	MY	CI	FY	MBW
Pref	0.25	0.23	0.17	0.14	0.05
G%	10.1%	10.6%	1.3%	6.4%	3.1%
desiredG%	2.51%	2.42%	0.22%	0.87%	0.15%

# Conclusions

- Differences in preferences given to traits exist between social groups
- Classification of producers should be based on level of intensification
  - Low intensity producers
  - High intensity producers
- Single breeding goal for diverse production systems?
  - Desired gains based on consensus preferences

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# Thank you!

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Questions?

