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Do type traits have an economic weight?

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Total Merit Index (TMI)

beef production traits

milk production traits

TMI =

economic value

mastitis resistance

* Sub-Index

longevity

type traits

persistency

milkability

breeding performance

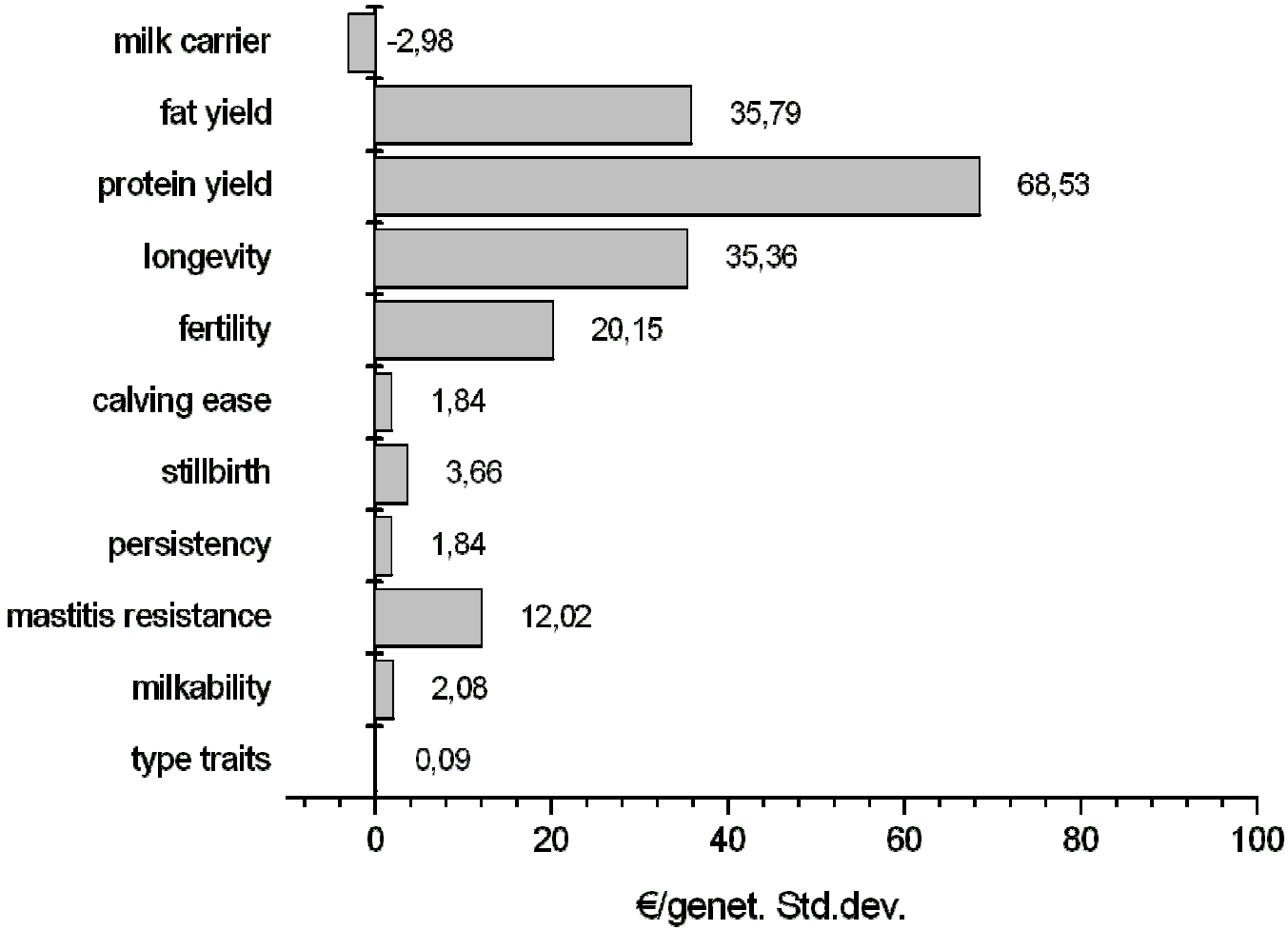
Total Merit Index (TMI) in Germany

- RZM
  milk carrier, fat yield, protein yield
- RZE
  type traits
- RZS
  mastitis resistance/SCS
- RZN
  longevity
- RZZ
  fertility, calving ease, stillbirth

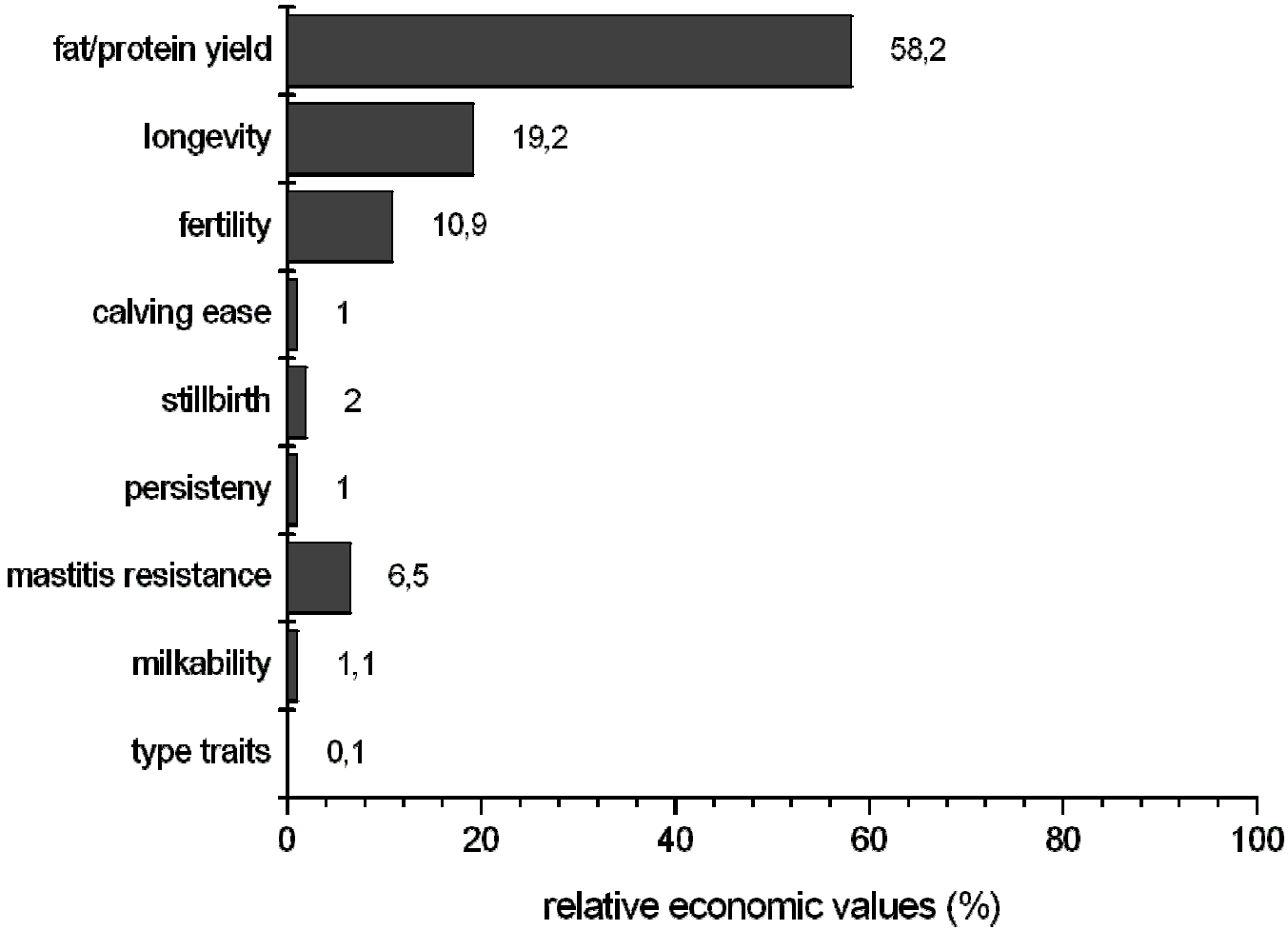
Scenario of reference

- Amer-Miesenberger-Program
- The farm is described by costs, revenues and biological terms
- No milk quota limitations
- 305-days-milk yield for Holstein (1. to 3. lactation)
  - 8000 kg, 4.05% fat, 3.39% protein
  - 8700 kg, 4.10% fat, 3.41% protein
  - 9000 kg, 4.13% fat, 3.36% protein
- 2.78 lactation longevity

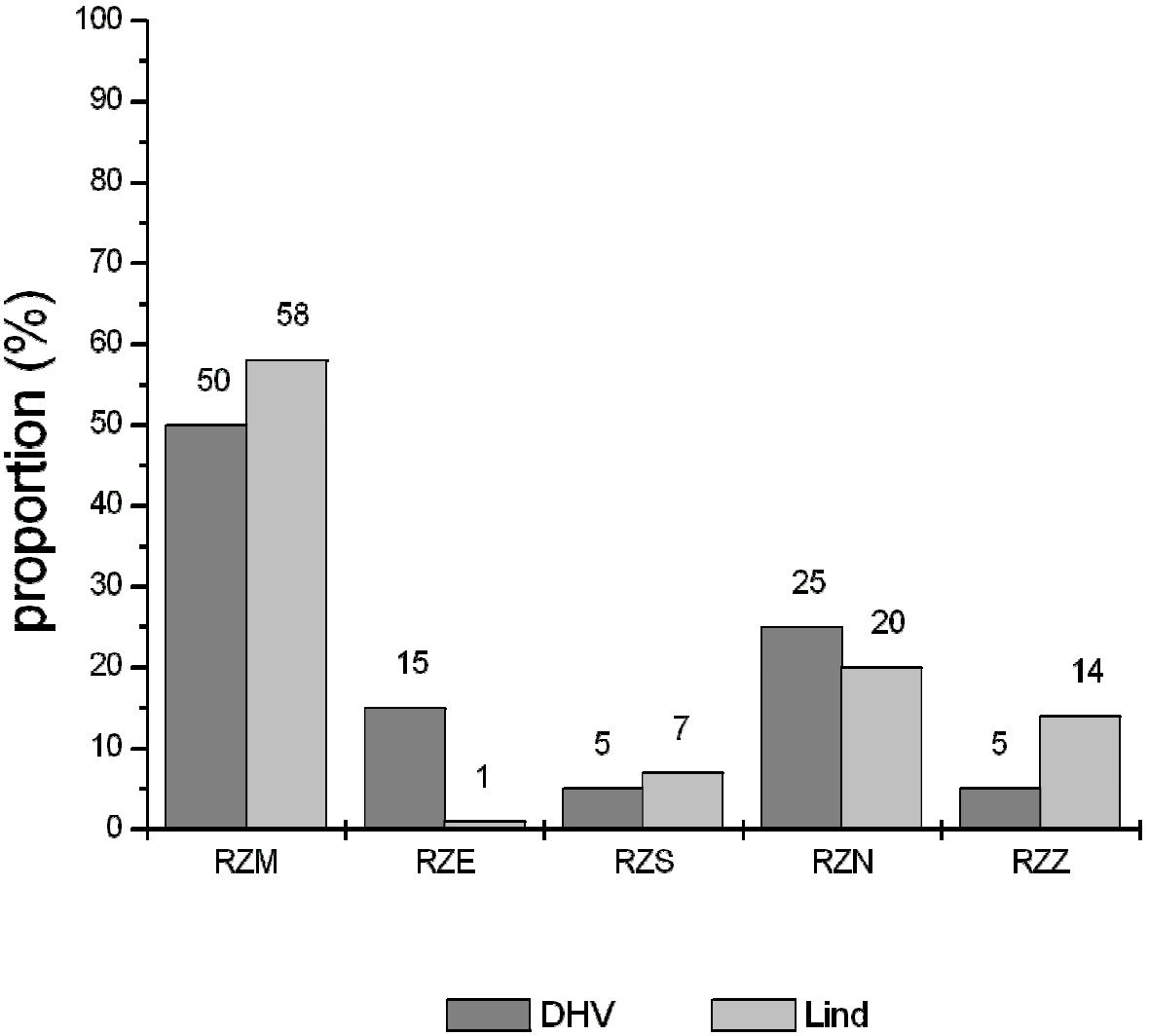
Economic values in the scenario of reference
- Holstein -



Relative economic values for Holstein



Comparison of the calculated relative economic values with the TMI in Germany (DHV)



Problems of the type traits

- No adequate consideration to estimate the influence of type traits on the economy of a farm
- Functional effects of type traits are included in other trait complexes
- Is there an influence of the type traits to the auction price? (Fürst-Waltl et al. 2004, Krogmeier et al. 2006, Schierenbeck 2006)
- The rate of realisation has to be considered

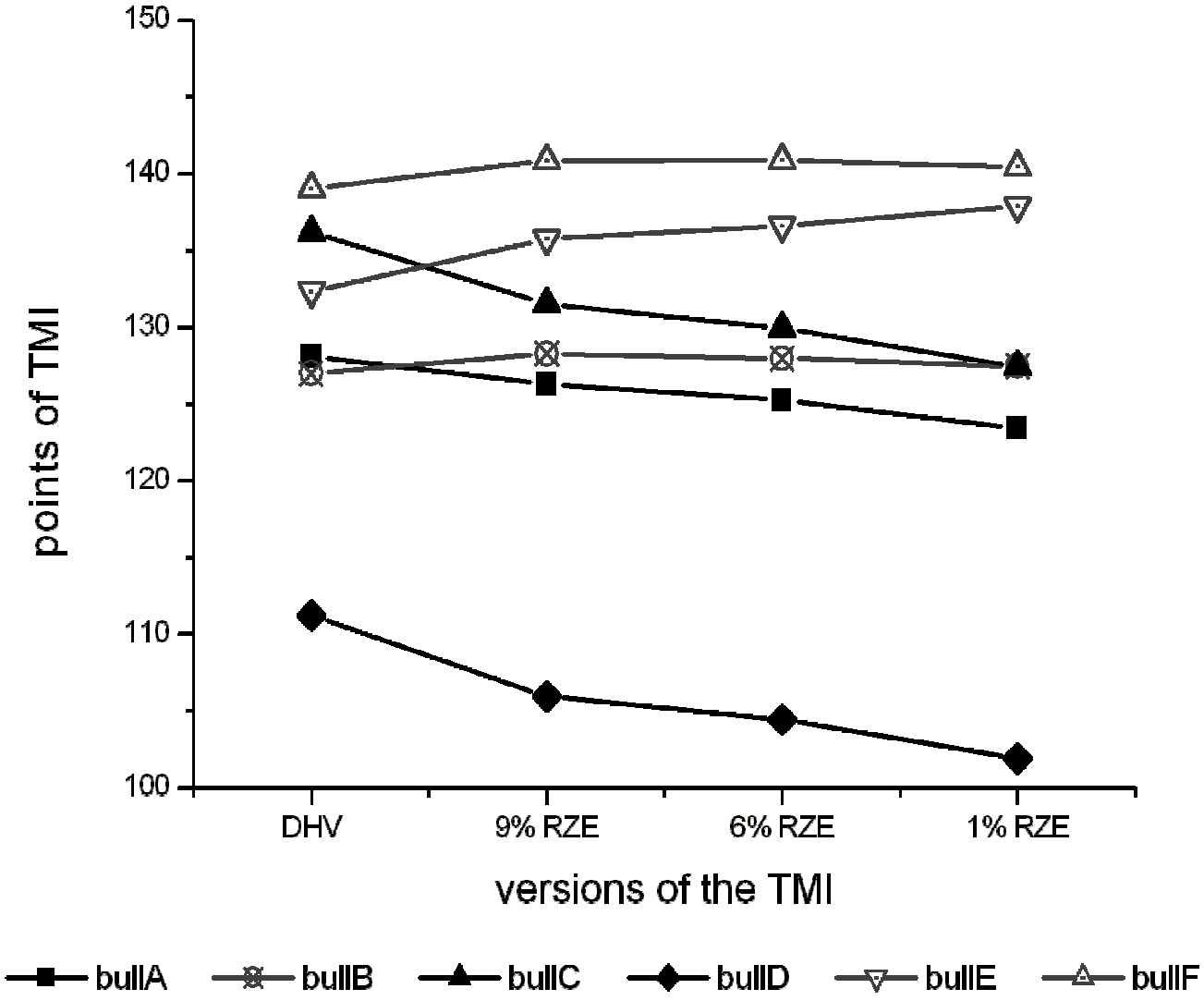
Versions of the TMI when the relative economic values of the type traits are varied

	DHV	*1%* [1]	*6%* [2]	*9%* [2]
RZM	50	58	56	54
RZE	**15**	**1**	**6**	**9**
RZS	5	7	6	6
RZN	25	20	19	18
RZZ	5	14	13	13

[1] own results

[2] according to Schierenbeck (2006)

Ranking of selected bulls by the TMI if the RZE has different proportions



Conclusion

- The diversification of the economic values is basically affected by the non-quota market situation
- The results of Schierenbeck (2006) taken, a higher weighting of the economic values of the type traits can be received

Summary

- The primary trait is the protein yield
  - followed by the traits fat yield and longevity
- The type traits have the least economical influence
- When the political and economical circumstances in the future will be changed, the composition of the TMI has to be changed

Summary

- The essentially diversifications are:
  - higher weighting of the milk production traits
  - clearly higher weighting of the traits of the fertility
  - the weighting of the longevity declines
  - the economic weight of type traits fall off

- If you see the proposed versions of the TMI (9%, 1% RZE)
  - bulls with high RZM and high RZZ benefit from TMI
  - bulls with high breeding value of the type traits loose at TMI

Summary

This research provides as basis to support the determination for the breeding goal

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