Implementation of a litter vitality index into Austrian maternal pig breeding program

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Background

- Strong **selection** on **prolificacy** in sows affects **welfare** of piglets and sows
- Revision of breeding goals for maternal lines
- Derivation of a **Litter vitality index** (LVI) for selection
- **LVI** = 0.30*Average birth weight/litter (kg) + 0.50 Standard deviation of birth weight/litter (kg) + 0.20*litter vitality score

Aim

- Model **various calculations** on different weighing (in %) of the **LVI** in the **total merit index** (TMI)
- Investigation of the effect on the **annual genetic gain** (AGG = additive genetic S.D. x 100) of all other traits in the breeding program

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Material & methods

- Deterministic approach to model **four** scenarios
  - Current TMI - Reference scenario (**Sc0**)
  - Weighing of **LVI** with 10 (**Sc10**), 15 (**Sc15**) and 20 (**Sc20**) **%** in the TMI

- **ZPLAN** input parameters:
  - Breeding nucleus of **3,640 Large White** and **1,560 Landrace** sows
  - Mean **generation interval 2.3 yr.**
  - **Selection intensity** boars **1.40**, sows **1.05**
  - In total 17 traits: **fertility** (FERT), **functional longevity** (LONG), **fattening** (FAT) and **carcass traits** (CAR)
  - **Genetic** and **phenotypic (co)variances** were estimated previously

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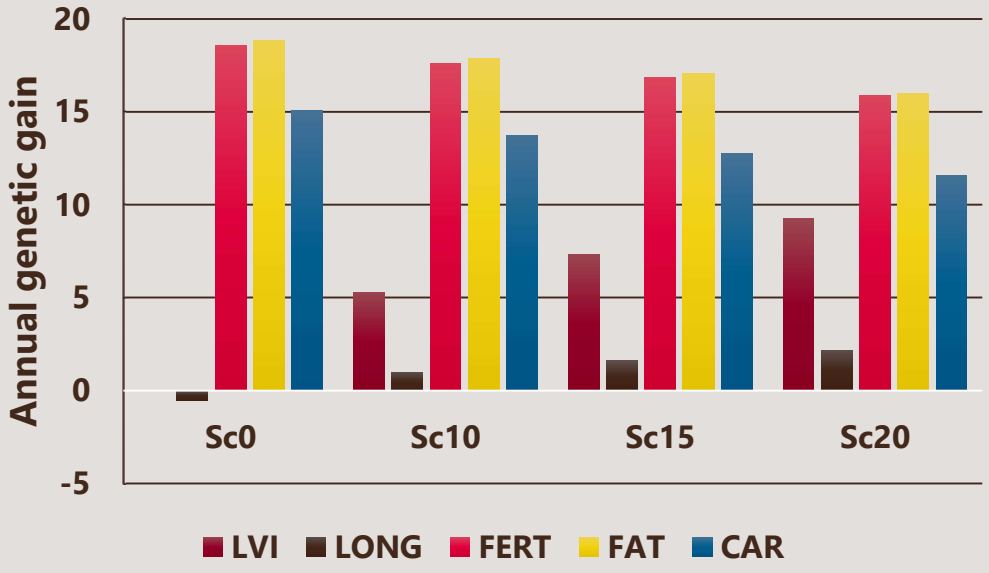
Results – Mean annual genetic gain



Conclusion

- **LONG benefited** from the inclusion of LVI
- **FERT, FAT** and **CAR** showed a **slight to moderat loss**
- **Genetic progress** for **LVI**, **LONG** can be expected
- **Small reduction** of genetic progress for **FERT, FAT** and **CAR**
- For **increasing** sow and piglet **welfare Sc20** was recommend

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