

In vivo ultrasound measurements of muscle depth and backfat thickness of lambs in the Czech Republic

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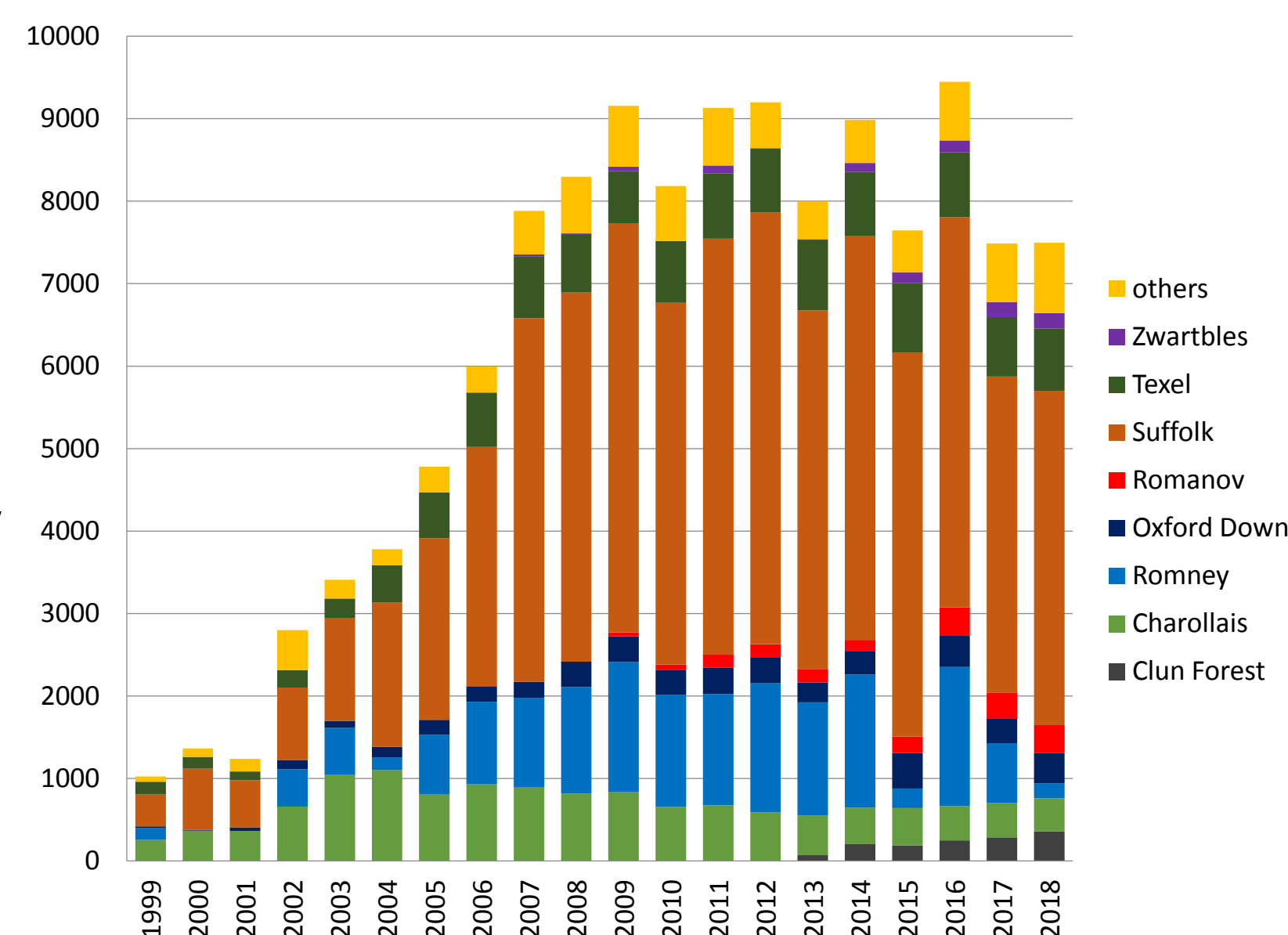
Background

- In the Czech Republic sheep are bred mainly for heavy lamb (35-42 kg liveweight) production and play important role in landscape management.
- Meat breeds, suitable for use in terminal sire position in hybridization programs, represents cca 40% of sheep population under recording scheme.
- Ultrasound technology has been routinely used in breeding programs for meat breeds of sheep since the year 1999.
- **Main goal of this work was to evaluate the impact of two decades of ultrasound technique apply for in vivo prediction of carcass quality traits in the Czech Republic.**

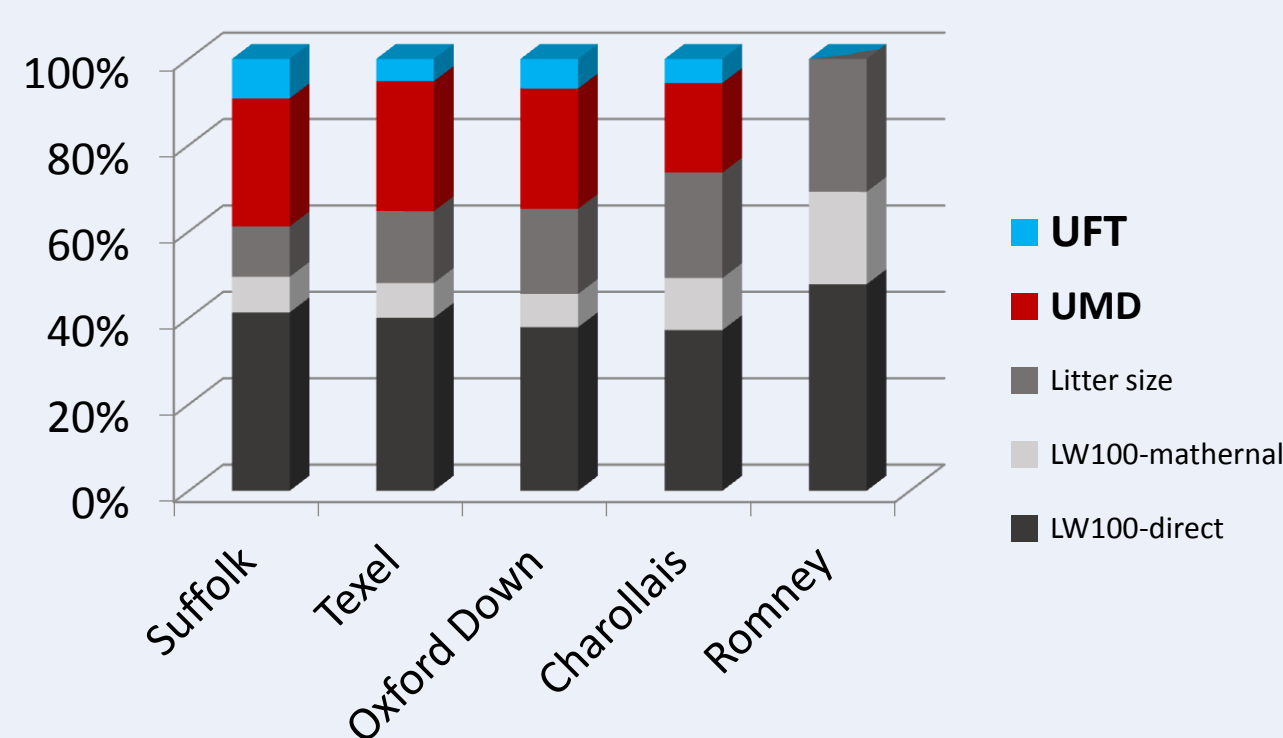
Methods

- Totally 125 372 lambs of various sheep breeds were scanned at the age 100±20 days during the years 1999-2018.
- Ultrasound measurements for backfat thickness (**UFT**) and longissimus dorsi muscle depth (**UMD**) were taken between 13th thoracic and 1st lumbar vertebra.
- Real time scanners Aloka SSD500, WED2018, SonoVet2000, Echo Blaster 128 or Mindray DP-50 Vet equipped with linear probes working with the ultrasound frequency varied from 4.5 to 8 MHz and with width of field of view 5.6 – 6.2 cm were used.
- Breeding values for UFT and UMD were estimated by BLUP Animal Model with the effects of herd and year, number of reared lambs in litter, age category of the dam, sex, age at scanning and live-weight at scanning, genetic effect of the animal and random error in model equation. The genetic trends were expressed as changes in averages of breeding values across birth years of animals.

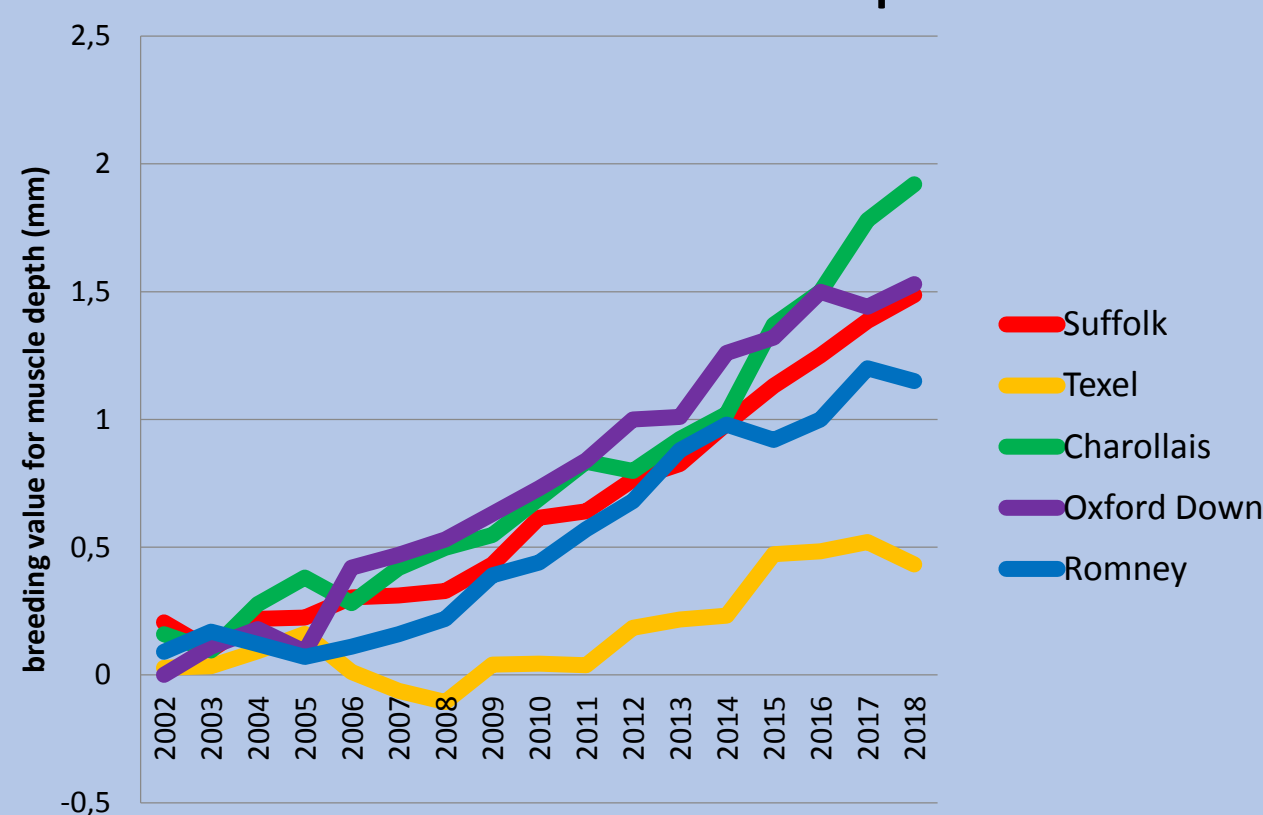
Numbers of lambs scanned



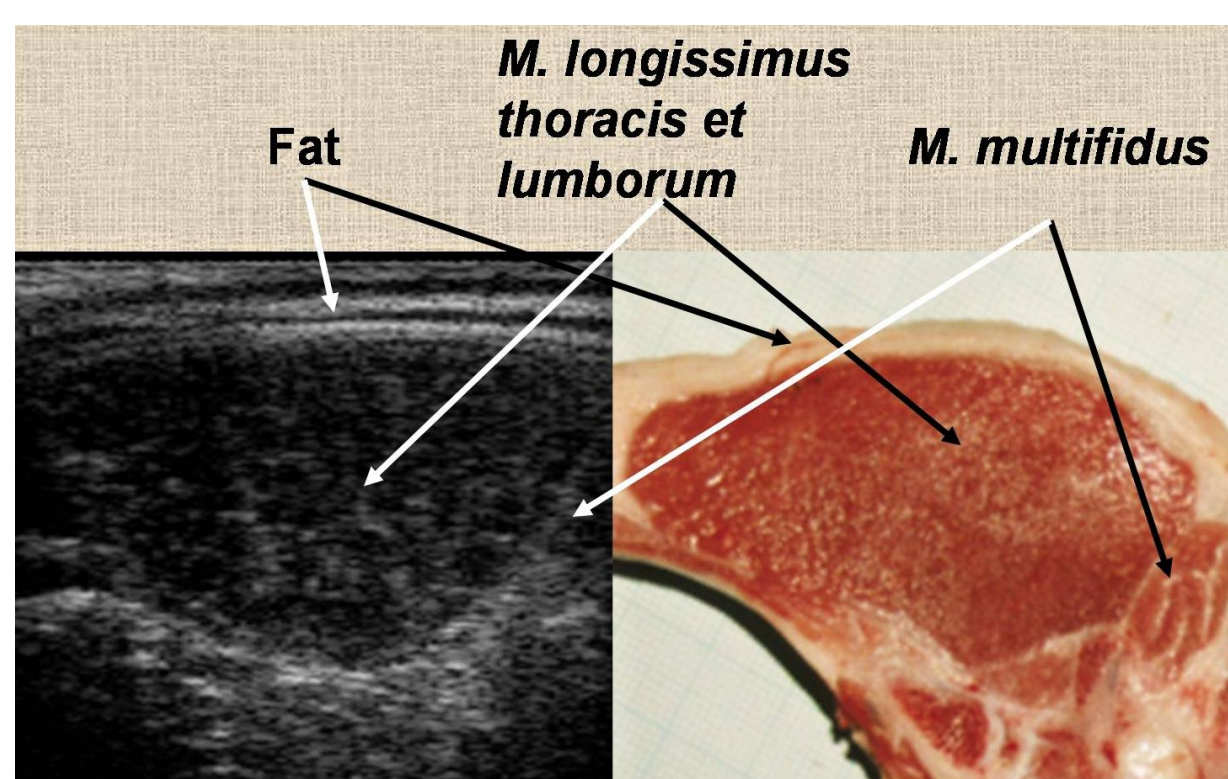
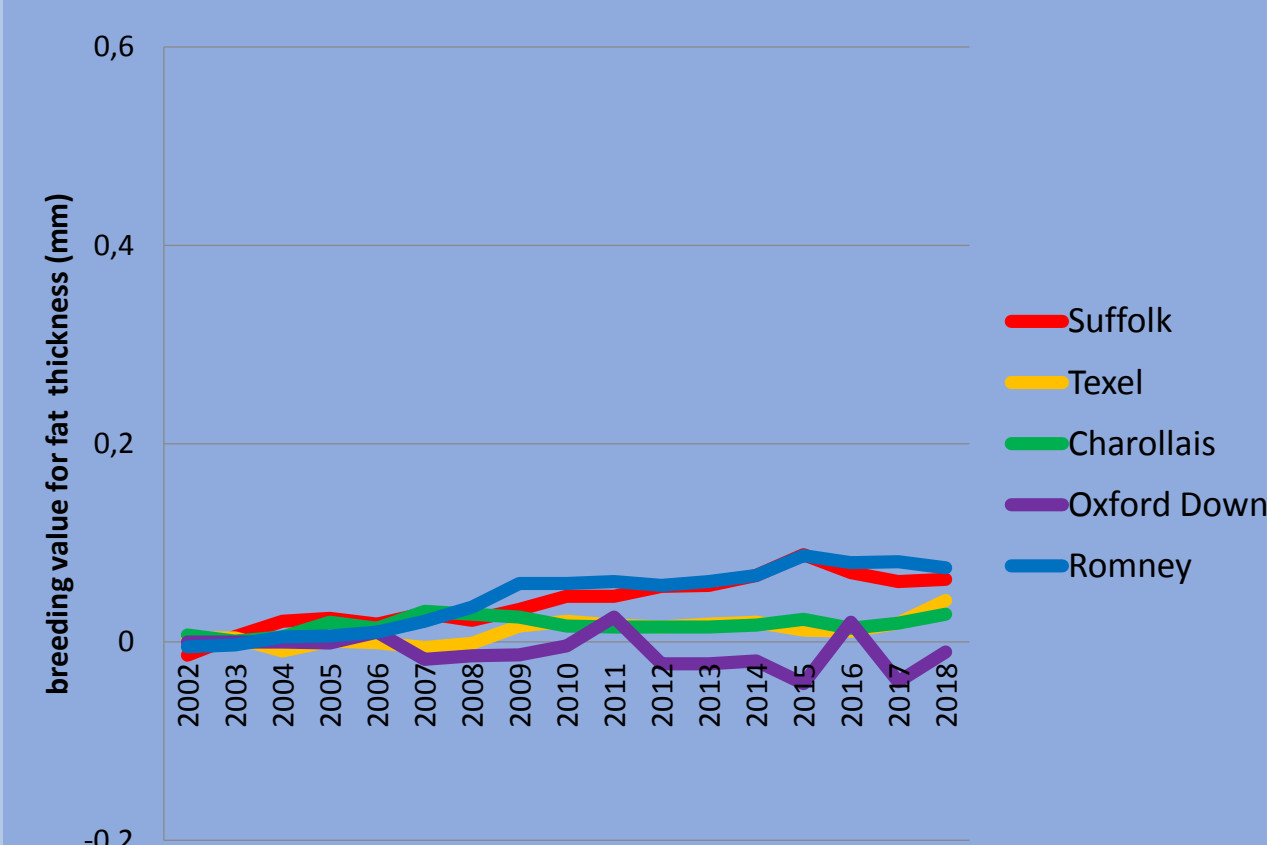
Relative weights of traits in the selection index CPH



Genetic trends for loin muscle depth



Genetic trends for backfat thickness



Conclusions

Since 2007, more than 7,500 lambs have been scanned annually, what represents 40-45% of weighed lambs under performance recording in the Czech Republic.

Genetic trends for muscle depth are significantly positive in most terminal sire sheep breeds.

Genetic trends for backfat thickness are less pronounced