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In vivo ultrasound measurements of muscle depth and back-fat thickness of lambs in the Czech Republic

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Genetic improvement of lamb carcass quality characteristics is one of the main goals of breeding programs for meat breeds of sheep in the Czech Republic. For that reason the in vivo ultrasound measurements of loin muscle depth (UMD) and fat and skin layer thickness (UFD) between 13th thoracic and 1st lumbar vertebra are carried out in lambs at 100 (±20) days of their age. At the same time the live weights of lambs are collected. Real-time ultrasound scanners with 5 MHz linear probes are used for ultrasound measurements. During years 1999-2018 totally 124267 lambs of Suffolk (SF), Charollais(CH), Oxford Down (OD), Texel (T), German Blackhead (GB), Hampshire (H), Berrichone (BE), Dorper (DP), Merinolandschaf (ML), Romney (RM), Romanov (R) and Zwartbles (ZW) were scanned in nucleus flocks. Breeding values for UMD and UFD are estimated using multitrait animal model. The models for both traits include heard-year, sex, number of lambs reared in the litter, age category of the dam, age and live weight of the lamb at the scanning and additive genetic effects. Relative weights of the traits measured by ultrasound in the selection indexes for terminal sire breeds ranged between 16-27% for UMD and between 5-9% for UFD. In RM, H, BE, ML R and ZW the traits measured by ultrasound are not included into selection index, nevertheless the measurements and/or EBV are published and might be also used by breeders for selection.

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