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Benefits of ultrasound and CT scanning

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Background

- Main focus of genetic improvement programmes for venison has been improving growth rates
- High growth rate animals achieve slaughter live weights at an early age
- The amount of carcass that can be turned into meat cuts for sale is also important
- Weight of saleable meat at a given carcass weight (meat yield) is not necessarily improved under selection for growth rate



Measurement of meat yield

- Need to be able to measure it to improve it
- Ultrasound and CT scanning technologies from human medicine allow us to look inside the body of a live animal
 - ▣ Both widely used in sheep, but some issues in deer
- Use ultrasound to measure the loin
- Use CT to measure the whole animal/carcass



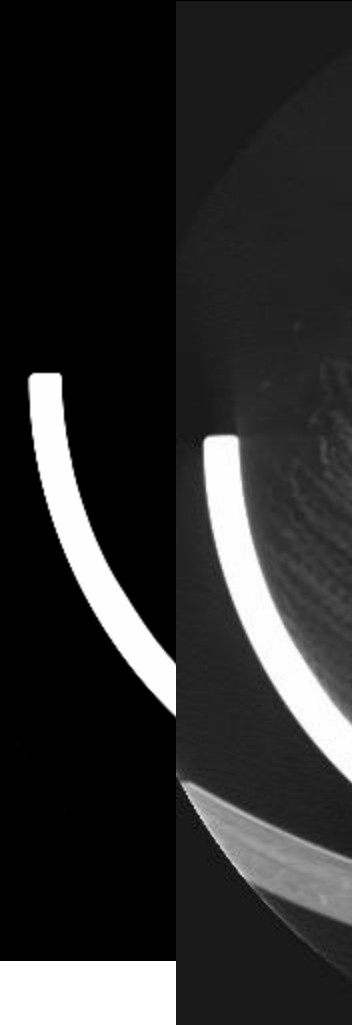
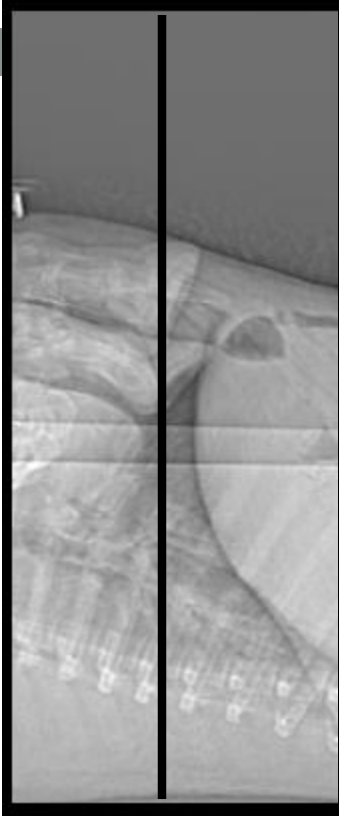
Ultrasound scanning

- Small and portable meaning it can be used on-farm
- Deer can be measured in a crush without needing to use drugs
- Can only measure the loin (EMA)
- Relatively inexpensive and fast so large numbers can be measured
- Winter coat is a big problem

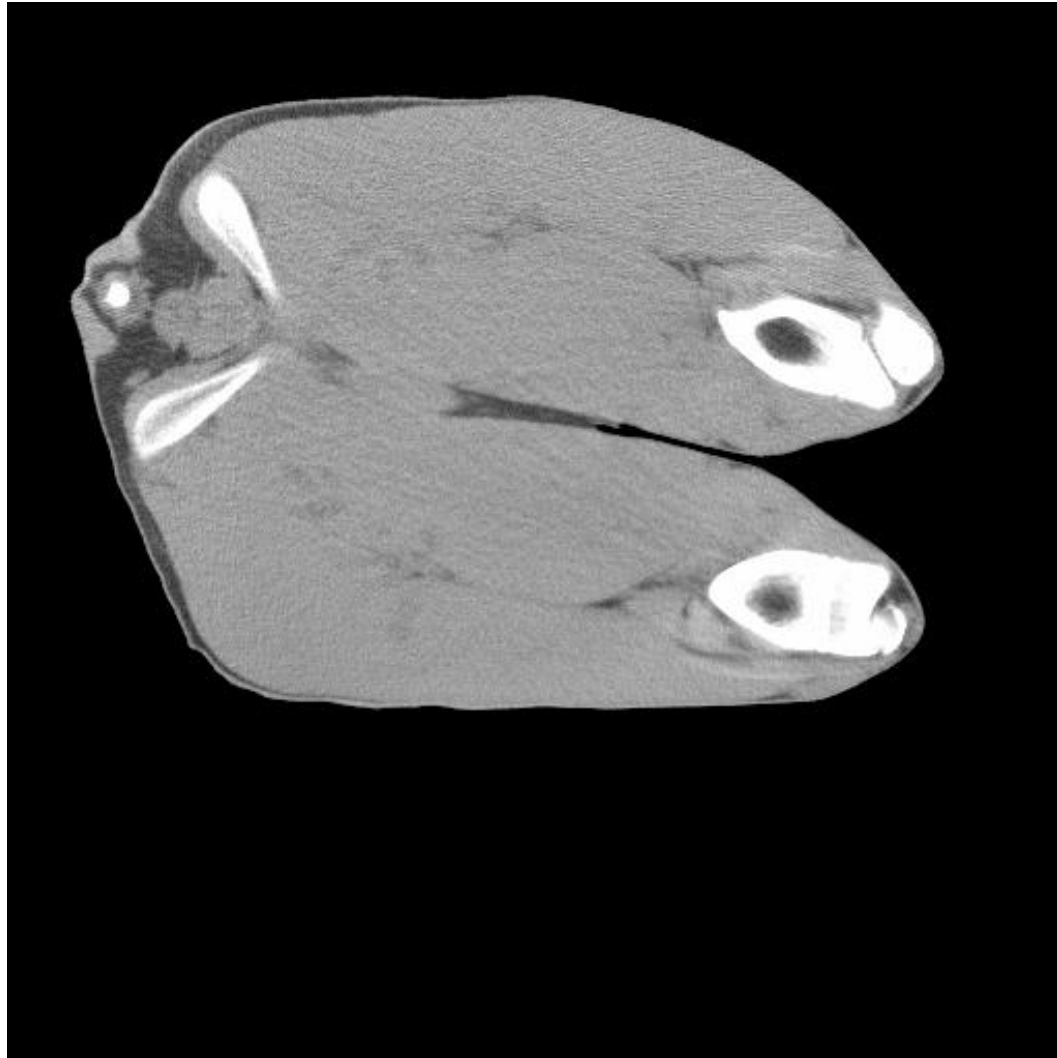
CT scanning

- Very accurate measurement of muscle, fat and bone in the carcass
- Scanning is expensive, slow and animals have to be transported to the scanner
- Maximum size restriction (100 – 110kg)
- Use two-stage selection
- Benefit is in selecting the very best stags to use as sires in the stud

Example CT images



Hindleg



Loin



Shoulder



Benefits

- Gains from using CT and ultrasound estimated at an additional 510 grams of meat per round of selection, including
 - 270g additional in the hindleg primal
 - 70g additional on the loin primal
 - 150 grams additional in the shoulder primal
- Genetic gains are permanent and cumulative

Amount of variation

- Difference in loin weight in a group over a narrow live weight range (from 113 to 117 kg) is around 1.7kg between best and worst animals
- At \$8/kg carcass weight, this equates to a difference of \$13.60 per head in the loin alone
- Overall value much greater – at \$35 a kilogram the difference is \$59
- Correlated changes in the shoulder and hindquarter



Summary

- Ultrasound and CT scanning can be used to improve carcass yields over time
- Good progress can be made with ultrasound scanning
 - ▣ Inexpensive, fast, large numbers of animals but can only measure part of the carcass
- Greatest progress with CT
 - ▣ However very expensive so only a small number of animals measured each year

