INTRAMUSCULAR FAT LEVELS IN SHEEP MUSCLE DURING GROWTH

INTRODUCTION
A concern raised by the Australian lamb industry was that very low levels of intramuscular fat could lead to meat that is perceived as dry and less tasty. Such a situation has been found in young highly muscled lean cattle and in many cuts from modern pig genotypes.

The minimum requirement for ether extractable fat to achieve acceptable consumer satisfaction for grilling ‘red meat’ cuts (beef and lamb) is quoted at 3–4% and 5% for sheep meat based on NIR spectroscopy. For pork, a figure of 2–2.5% is cited on a fresh uncooked basis while a maximum level of 3.5% is thought to achieve optimal consumer acceptability.

In this poster we outline the influence of maturity effects on the expression of intramuscular fat in lambs and young fully mature sheep.

OBJECTIVE
To examine the maturity pattern of intramuscular fat development and understand how this is influenced by the genetic potential for growth and muscling in different maternal scenarios.

METHODS
Animals
A serial experiment was conducted with animals representing the major genotypes used for lamb meat production in Australia. Animals (wethers and ewes) were slaughtered at 4 ages, from weaning at 4 months (110 days) to 22 months (662 days).

Measurements
Carcase composition (fat, ash and protein (lean) was determined for 595 animals by dual energy X-ray absorptiometry. The entire longissimus (loin) muscle was removed, weighed and the intramuscular fat percentage (IMF%) determined using NIR.

RESULTS
As the animals matured the proportion of intramuscular fat relative to total carcass fat declined (Figure 1) thus indicating that IMF is early maturing.

CONCLUSIONS
The results suggest that feeding sheep to increase IMF levels is counter productive for profitable production systems. The practice would not meet consumer expectations for low levels of fat surrounding retail meat cuts. In the case of prime lambs there is virtually no eating quality gain associated with over fattening lambs and the minimum desirable fat score of 2 is sufficient.