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Quality

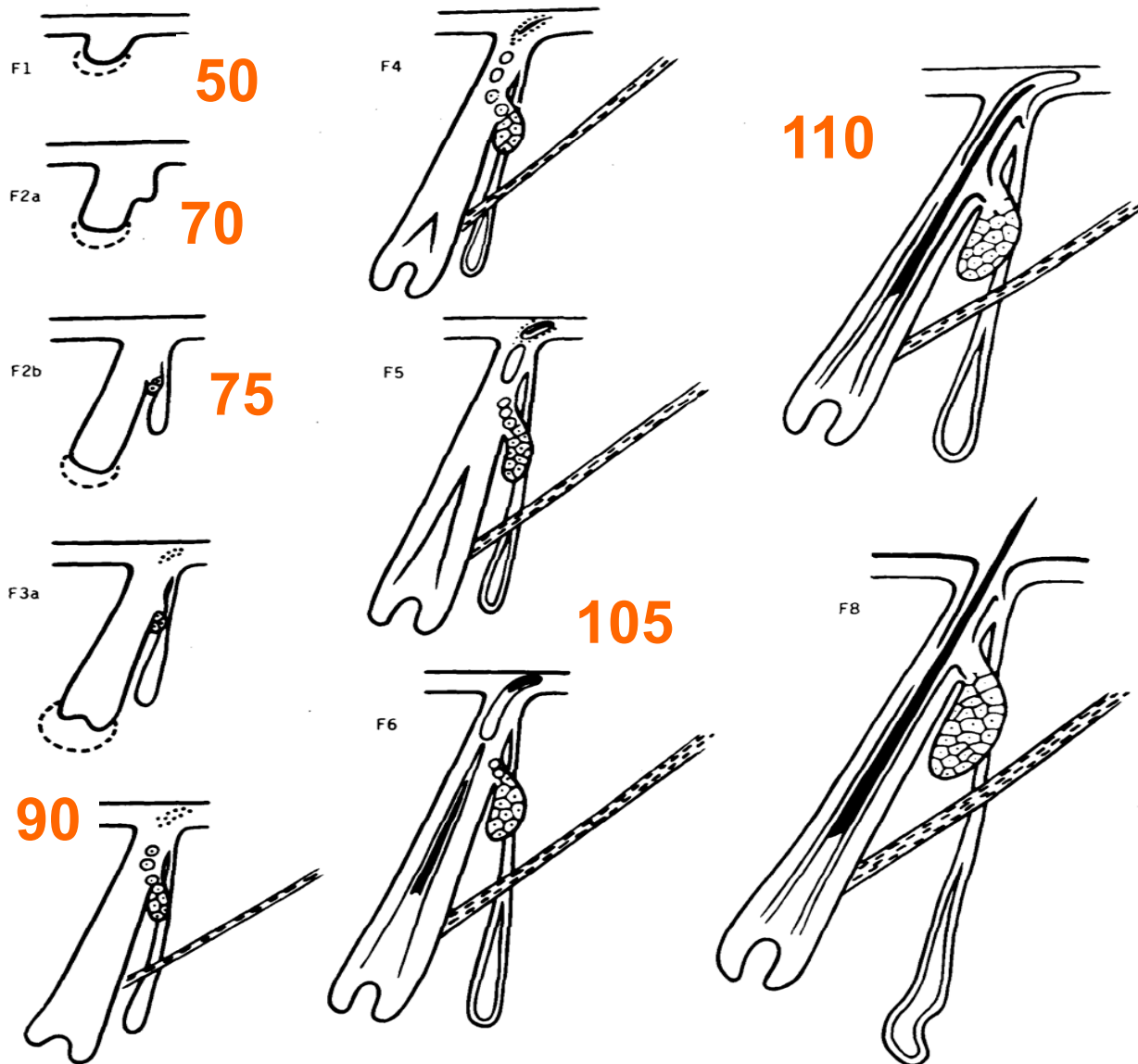
Wool

# Follicle Initiation and Development

Produced for the CRC for Premium Quality Wool undergraduate program by;  
Dr. Janelle Hocking Edwards, The University of Western Australia.



# Primary follicle initiation



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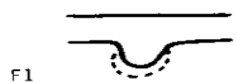
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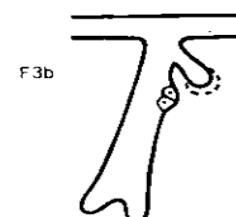
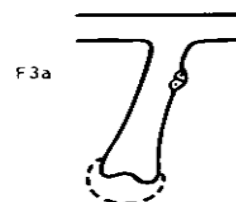
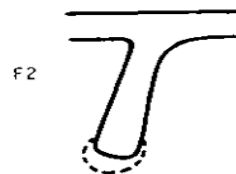
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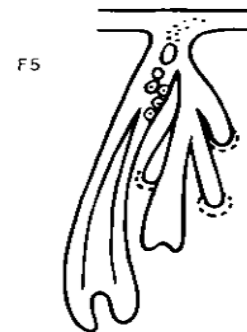
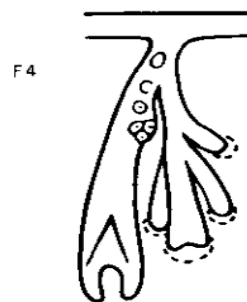
# Secondary follicle initiation



86



98



115

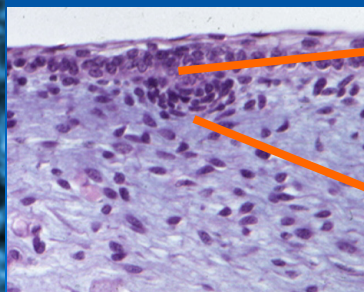


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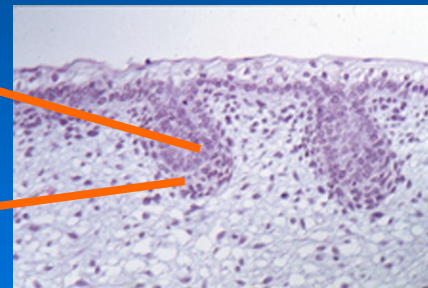
# Follicle development in Merinos from 62 until 83 days of gestation



62 days

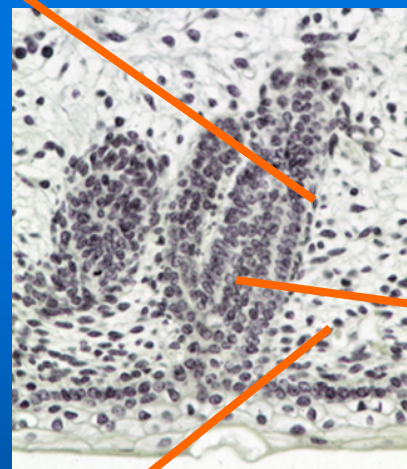
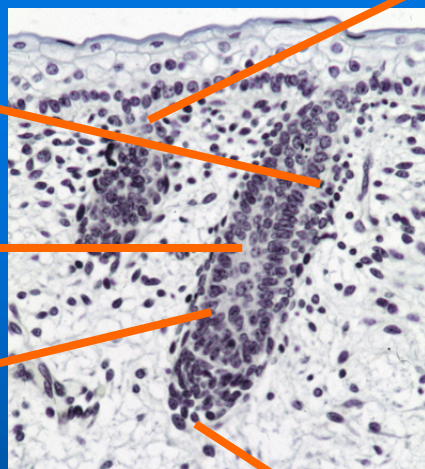
epidermal downgrowth

dermal fibroblast cluster



70 days

less developed follicles



suint gland

83 days

dermal fibroblast cluster

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advanced  
follicle

Fibre canal

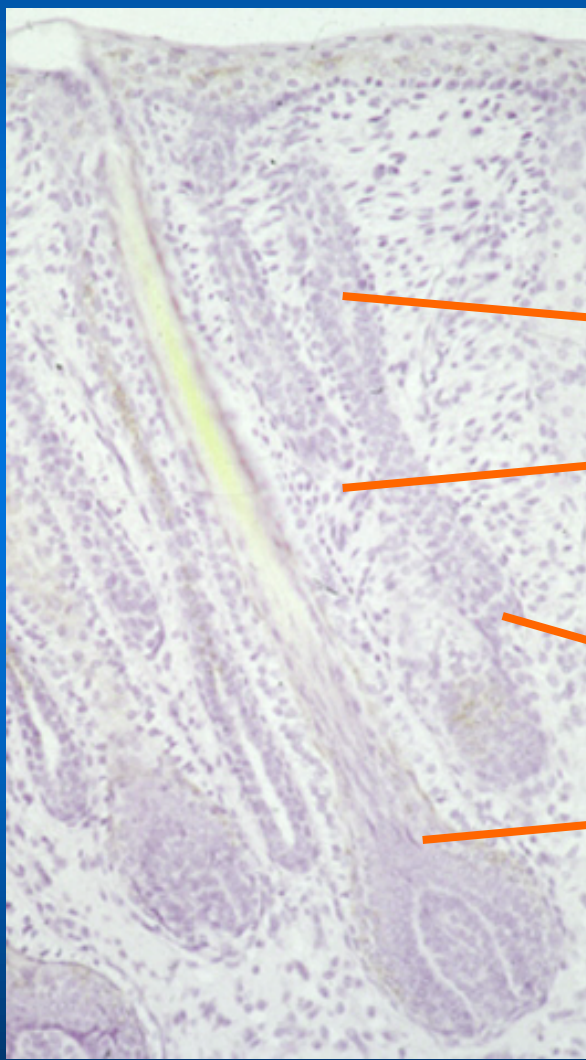
ORS

IRS



# Follicle development in Merinos from 105 until 132 days of gestation

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105 days

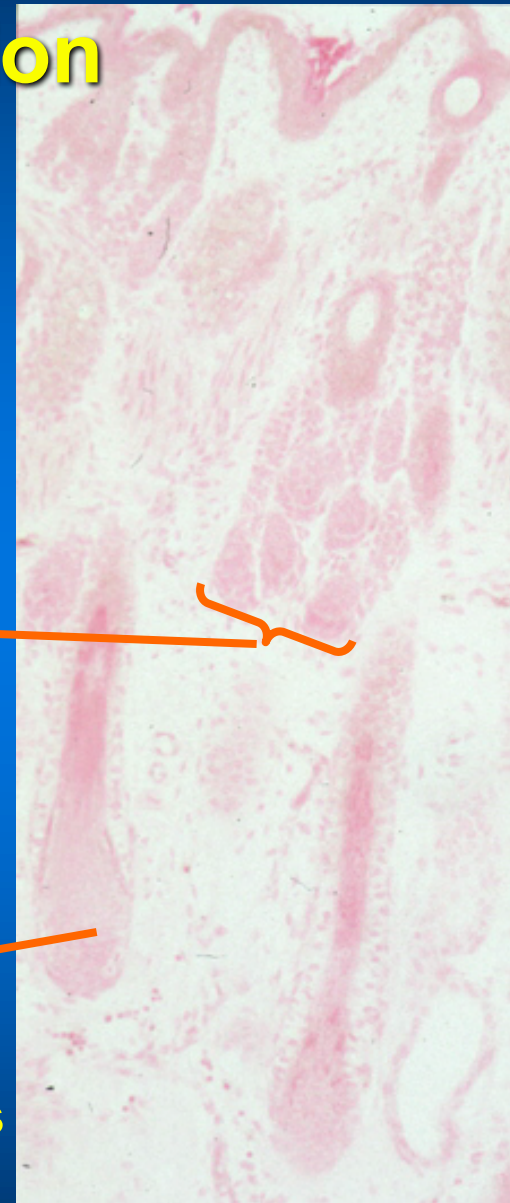
Immature S

Original

Branched

dermal fibroblast cluster

Mature P



132 days



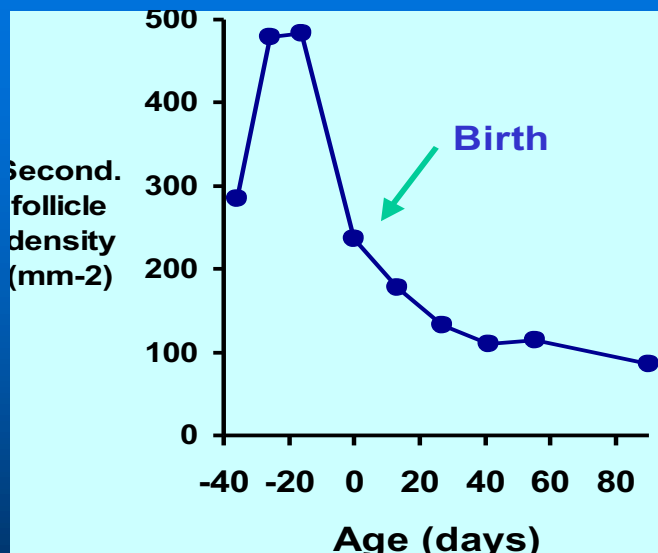
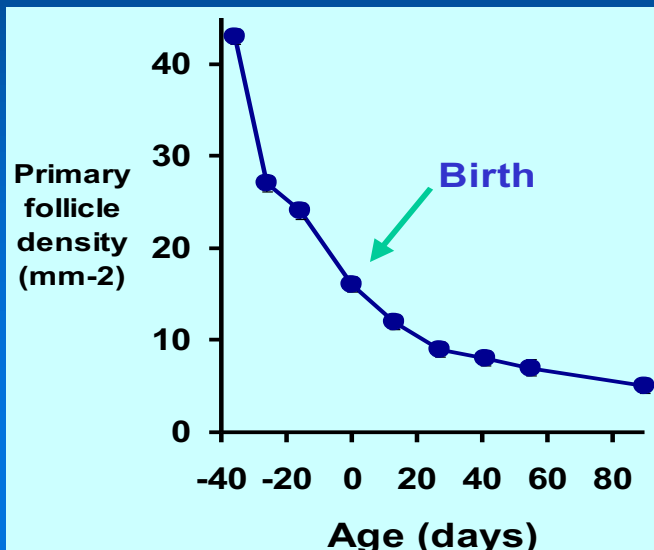


# Fetal age and follicle development

Prenatal development											
Primary phase		Secondary Phase									
Pre trio	Trio	Post trio period									
									Post-trio period	Secondary Phase (neo phase)	
									Trio period	Primary phase (proto phase)	
									Pre-trio period		
70	80	90	100	110	120	130	140	150	Foetal age in days		



# Primary and secondary follicle densities change with time



- Primary follicle density reaches a maximum at about 85 days of gestation
- Secondary follicle density reaches a peak at about 125 days of gestation
- Follicle densities reach a peak and then decline due to skin expansion

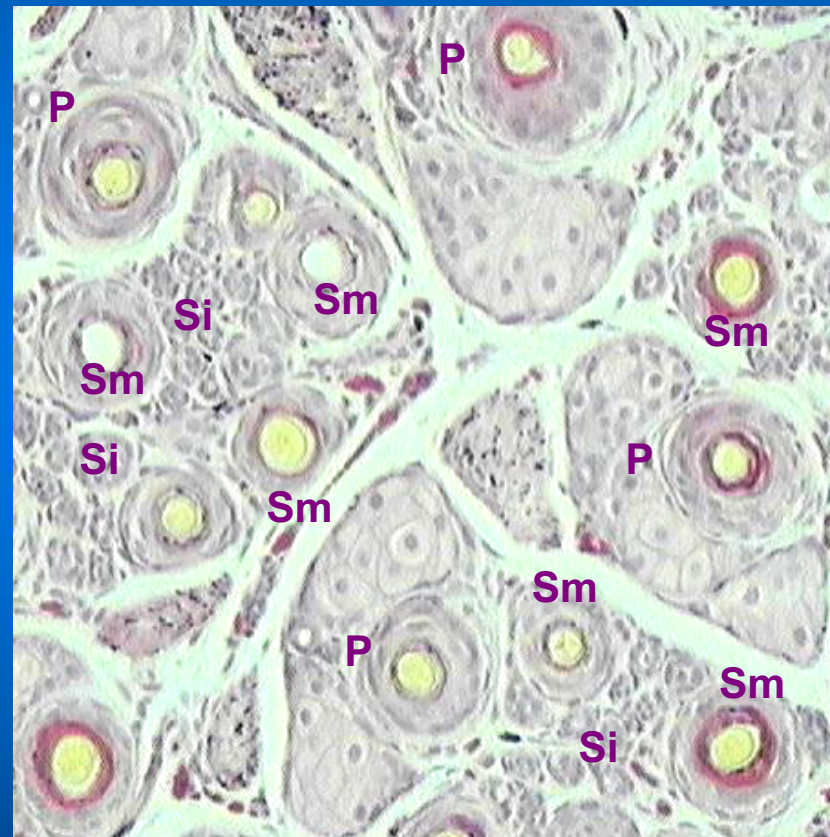
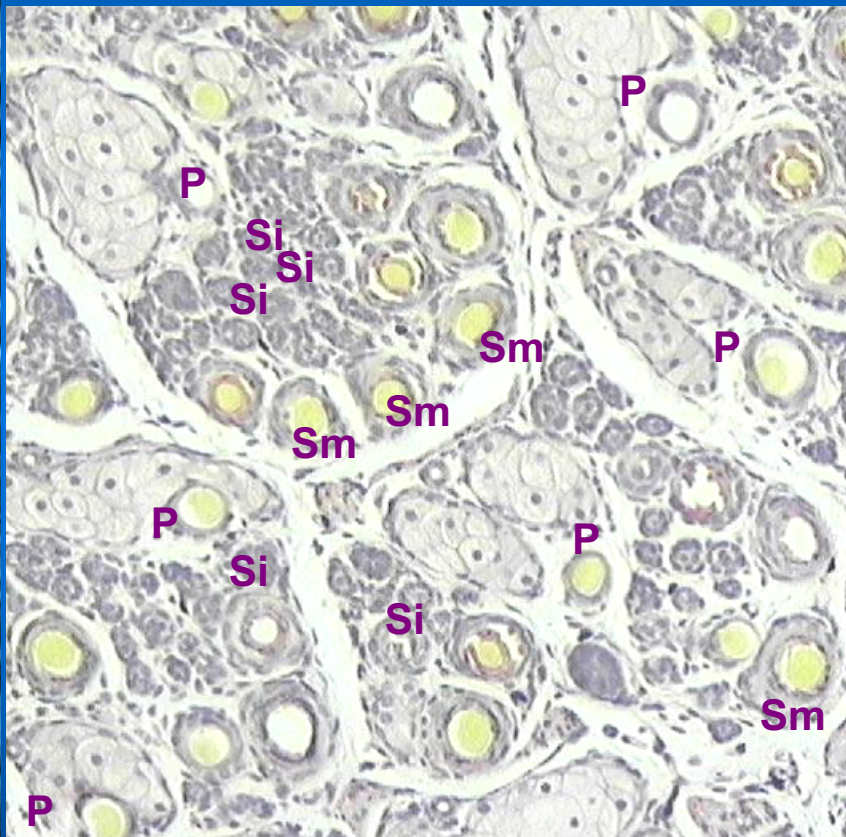




# Transverse section of skin at 135 days of gestation and at birth

135 days of gestation: S:P = 19

Birth: S:P = 14



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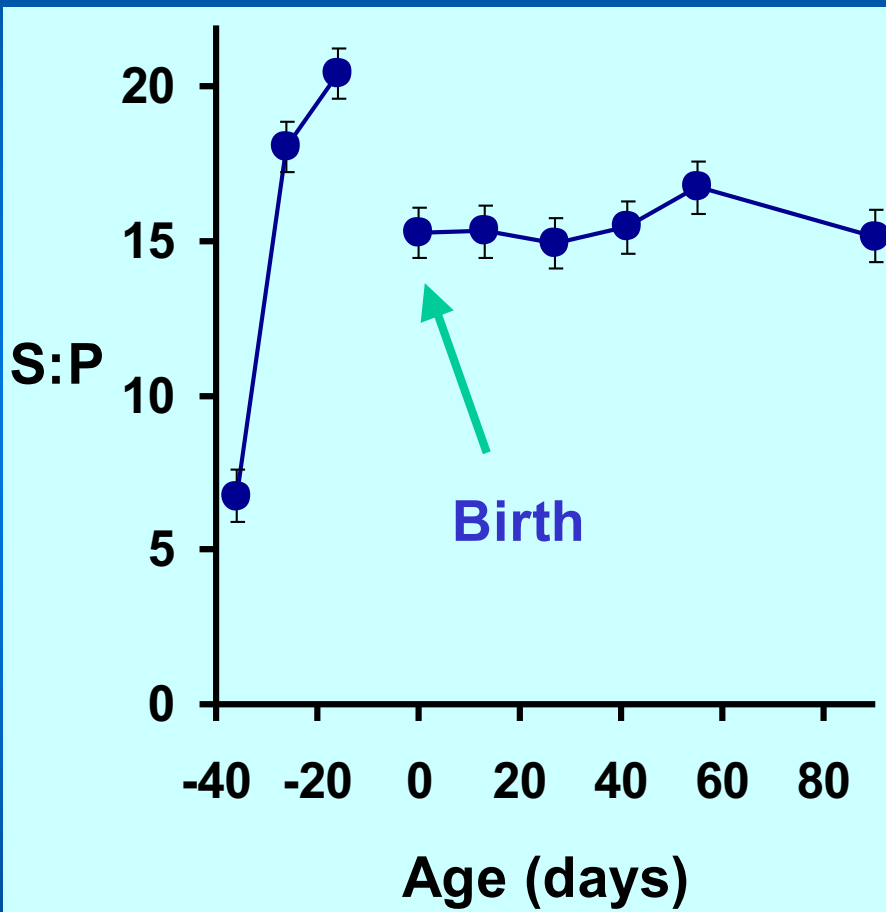
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# Secondary follicles regress after 135 days of gestation until birth



- S:P peaks at 135 days of gestation
- S:P declines during the final fortnight of gestation
- No effect of age on S:P after birth



# Implications of secondary follicle regression in the fetal Merino

- Approximately 20% of secondary follicles that are initiated in the fetus regress prior to birth
  - This represents a lost resource that could ultimately lead to a decrease in income to the farmer from depressed wool production and quality
- Net secondary follicle initiation is complete at least 15 days prior to birth
  - This has implications on manipulation of the follicle population

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