

# SIL meat module update

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# Genetics of carcass merit

- Definition of merit depends on position in value chain
  - Commercial farmer sells a lamb at a live weight
  - Meat processor buys a carcass and sells cuts
  - Retailer buys primal cuts and sells further-processed cuts presented to attract consumer
  - Consumer buys a retail cut with expectations on price and quality
- Definition not perfectly aligned from start to end
- SIL definition covers farmer and some meat processor



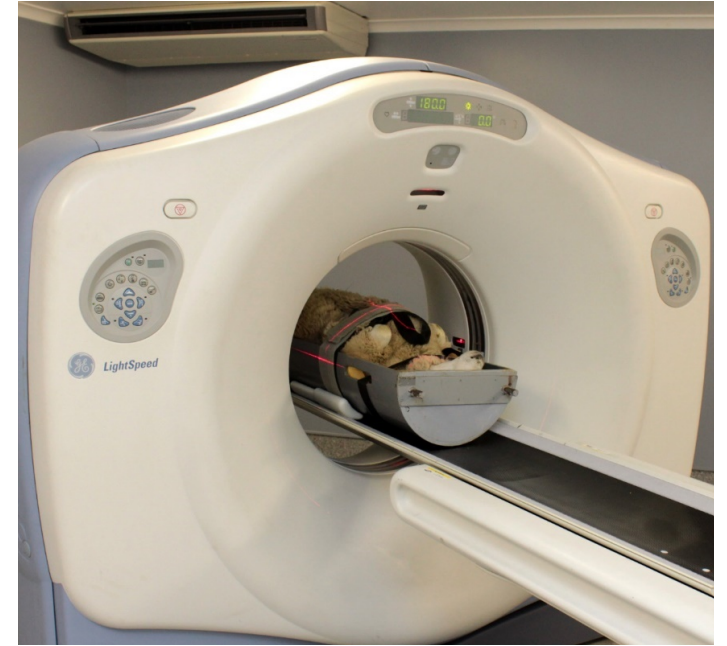
# Measurement technologies



Ultrasound



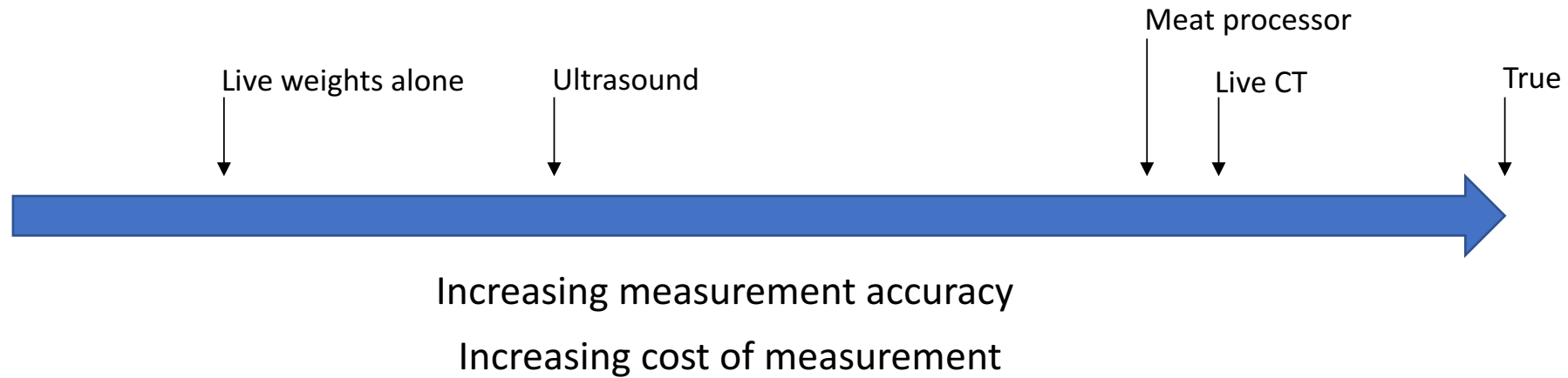
Meat processor, eg VIA Scan



CT scanner



# Carcass merit assessment



# Measurement of carcass quality in SIL



| 1999

| 2003

| 2006

| 2008

| 2010 to present

## 'MEAT'

Live weights and ultrasound eye muscle data (data from late 1980s)

## 'CT MEAT'

LWs, ultrasound and carcass CT scan data

## 'INNERVALUE'

LWs, US and CT primal cut data

## 'VIASCAN'

LWs, US and VIAscan

## 'MEAT (V2)'

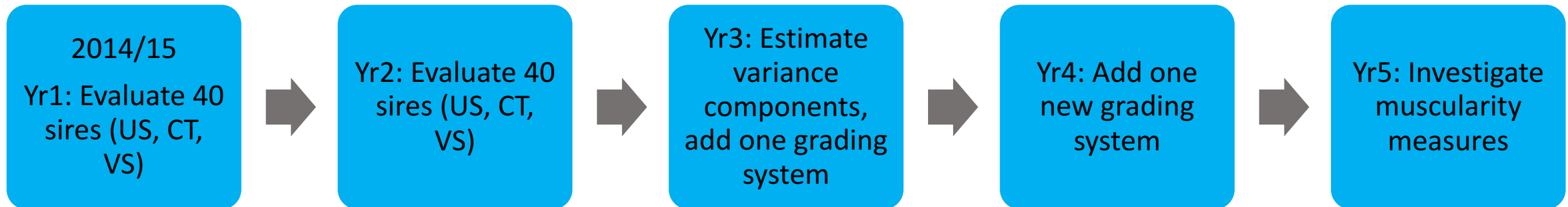
- Uses all available data with the ability to exclude VIAscan and/or CT data
- One index
- Still largely based on late 1980s data

# Data requirements

- 75 to 80 sires that are representative of the industry at current carcass weights, and up to 10 progeny per sire
- Where possible, all progeny measured for all traits (live weight, ultrasound, CT and VIAscan)
- Additional measures of carcass merit (e.g. shape)



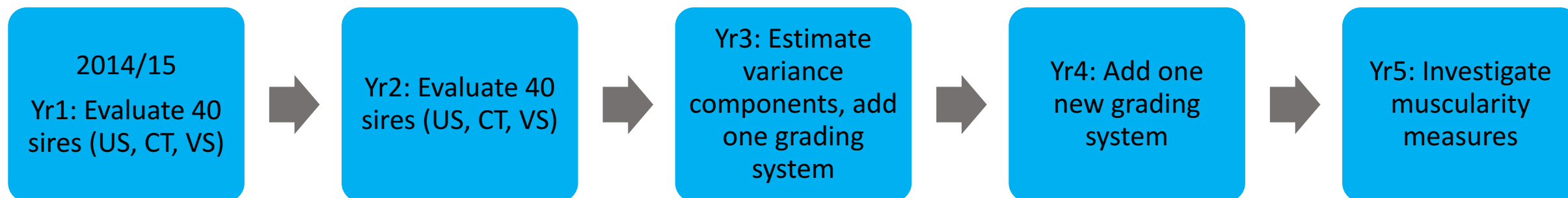
# Intended work programme



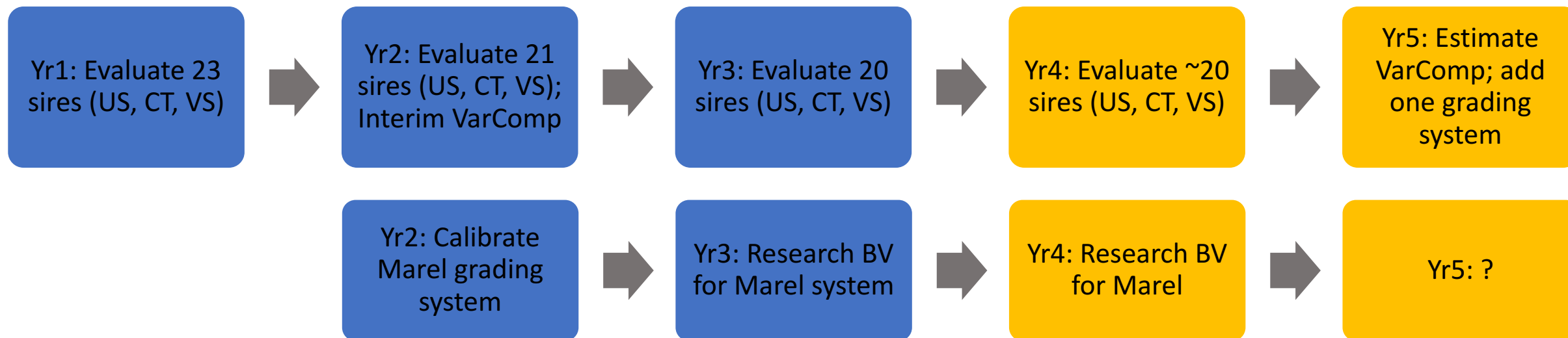
# Actual work programme



## Intended:



## Actual:





# Where are we at?



SHEEP  
BREEDER  
FORUM



Year	Sires	Progeny	Average CWT (kg)	Source
2014/15	23	217 (9.4)	15.9	3 industry flocks
2015/16	21	192 (9.1)	18.8	3 industry flocks
2016/17	20	100 (5.0)	21.6	Invermay CPT
<i>Totals</i>	<i>64</i>	<i>509 (8.0)</i>	<i>18.2</i>	

# Interim analysis - data



Trait	<i>n</i>		Trait	<i>n</i>
WWT	124,967		VIAscan traits	18,112
LW8	98,947		InnerValue CT	1,661
FD	52,501		Spiral CT (true)	312
EMD	50,868			
EMW	49,021			

# Spiral CT traits (Goal traits)



SHEEP  
BREEDER  
FORUM

	FATHL	se	LEANHL	se	BONEHL	se	FATLN	se	LEANLN	se	BONELN	se	FATSH	se	LEANSH	se	BONESH	se	FATFP	se	LEANFP	se	BONEFP	se
FATHL			<b>0.58</b>	0.045	<b>0.45</b>	0.056	<b>0.90</b>	0.013	<b>0.55</b>	0.047	<b>0.44</b>	0.055	ne		<b>0.52</b>	0.052	<b>0.38</b>	0.062	<b>0.88</b>	0.014	<b>0.33</b>	0.061	<b>0.37</b>	0.058
LEANHL	<b>0.56</b>	0.199			<b>0.79</b>	0.024	<b>0.52</b>	0.050	<b>0.86</b>	0.017	<b>0.63</b>	0.041	<b>0.56</b>	0.048	<b>0.85</b>	0.019	<b>0.69</b>	0.036	<b>0.53</b>	0.047	<b>0.67</b>	0.036	<b>0.52</b>	0.048
BONEHL	<b>0.40</b>	0.251	<b>0.89</b>	0.077			<b>0.37</b>	0.060	<b>0.60</b>	0.042	<b>0.67</b>	0.036	<b>0.39</b>	0.061	<b>0.61</b>	0.042	<b>0.75</b>	0.029	<b>0.40</b>	0.056	<b>0.41</b>	0.055	<b>0.54</b>	0.046
FATLN	<b>0.95</b>	0.035	<b>0.56</b>	0.201	<b>0.36</b>	0.255			<b>0.60</b>	0.043	<b>0.45</b>	0.055	ne		<b>0.52</b>	0.052	<b>0.36</b>	0.063	<b>0.92</b>	0.010	<b>0.32</b>	0.061	<b>0.33</b>	0.060
LEANLN	<b>0.61</b>	0.204	<b>0.90</b>	0.070	<b>0.78</b>	0.154	<b>0.69</b>	0.173			<b>0.74</b>	0.031	ne		<b>0.85</b>	0.018	ne		<b>0.58</b>	0.043	<b>0.72</b>	0.031	<b>0.52</b>	0.049
BONELN	<b>0.38</b>	0.267	<b>0.49</b>	0.232	<b>0.95</b>	0.090	<b>0.25</b>	0.288	<b>0.47</b>	0.242			<b>0.43</b>	0.058	<b>0.65</b>	0.040	<b>0.83</b>	0.021	<b>0.50</b>	0.050	<b>0.49</b>	0.052	<b>0.73</b>	0.030
FATSH	ne		<b>0.67</b>	0.154	<b>0.38</b>	0.236	ne		ne		<b>0.32</b>	0.258			ne		<b>0.46</b>	0.059	ne		ne		ne	
LEANSH	<b>0.36</b>	0.251	<b>0.90</b>	0.069	<b>0.78</b>	0.146	<b>0.43</b>	0.231	<b>0.90</b>	0.068	<b>0.47</b>	0.235	ne				<b>0.79</b>	0.027	<b>0.54</b>	0.048	<b>0.73</b>	0.030	<b>0.52</b>	0.049
BONESH	<b>0.26</b>	0.260	<b>0.81</b>	0.113	<b>1.00</b>	0.047	<b>0.23</b>	0.259	ne		<b>0.90</b>	0.070	<b>0.37</b>	0.218	<b>0.81</b>	0.100			ne		ne		ne	
FATFP	<b>0.98</b>	0.029	<b>0.64</b>	0.208	<b>0.55</b>	0.245	<b>0.97</b>	0.033	<b>0.71</b>	0.198	<b>0.41</b>	0.283	ne		<b>0.45</b>	0.253	ne				<b>0.37</b>	0.057	<b>0.46</b>	0.051
LEANFP	<b>0.35</b>	0.293	<b>0.85</b>	0.136	<b>0.73</b>	0.225	<b>0.32</b>	0.290	<b>0.90</b>	0.117	<b>0.32</b>	0.304	ne		<b>1.12</b>	0.076	ne		<b>0.37</b>	0.314			<b>0.52</b>	0.049
BONEFP	<b>0.35</b>	0.315	<b>0.45</b>	0.285	<b>0.87</b>	0.167	<b>0.14</b>	0.343	<b>0.20</b>	0.361	<b>0.86</b>	0.137	ne		<b>0.31</b>	0.313	ne		<b>0.35</b>	0.335	<b>0.20</b>	0.361		

$r_G$  below,  $r_P$  above. Based on 44 programme sires

# Meat processor systems

- Systems produce yield data (definition important)
- Convert to a set of standard traits
  - hindleg lean
  - loin lean
  - shoulder lean
  - carcass fat
  - carcass weight
- Calibrate each system relative to spiral CT
- Scale data for the accuracy of the system



# PML's Marel system



# Breeding values for Marel system

- Horizon Farms Next Generation progeny test
  - Young terminal sire rams evaluated on HFL Maraetotara property
  - ~800 progeny slaughtered through PML for born-2016 animals
  - Expectation of SIL meat yield eBVs
- Don't have the ability yet to give SIL meat yield eBV (now in Year 5 of the programme)
- Research breeding values provided to ram breeding contributors this year and next year



# Muscularity

- European countries use the EUROP conformation grade
- Some believe that current grading systems do not capture all carcass value and that some measures of shape may be important
- Selection can change the 'shape' of animals
- Substantial data to investigate, but needs some meat processor input regarding what is desirable





**Thank you.**