

## Update of weight adjustment factors for fat and lean depths in the Canadian Swine Improvement Program

Among the traits evaluated in the Canadian Swine Improvement Program, real-time scan backfat and loin depth have been recorded on pigs for several decades. Prior to genetic evaluation, these traits are adjusted to a 100 kg live weight standard. There is a need to update the formulas used for these adjustments on a regular basis, in order to take into account changes in pigs due to selection over time.

Based on recent scan data recorded on farms enrolled in the national program, as well as during the most recent station test on purebred pigs at Deschambault, new adjustment factors have been computed for males, females and castrates in Yorkshire, Landrace and Duroc breeds. There are provided on page 2 of this document for information.

The changes in adjustment factors are consistent with recent genetic trends, reflecting pigs leaner on average at the standard weight, a slower deposition of fat and faster deposition of lean as weight increases. Some of the changes in factors might look large, however the consequences on adjusted values are quite small. To illustrate this, the example below shows a group of 10 Landrace females for which adjusted values are provided with the current formulas, and what they would be with the new formulas. This combination of breed and sex has some of the largest observed changes in adjustment factors.

	Performances			Current factors		New factors	
	Probe Weight (kg)t	Fat depth (mm)	Lean depth (mm)	Adjusted fat (mm)	Adjusted lean (mm)	Adjusted fat (mm)	Adjusted lean (mm)
Gilts							
ABC 1T	77.4	7.4	52.4	8.00	59.50	7.95	60.52
ABC 2T	81.6	9.5	54.9	9.87	61.35	9.82	62.19
ABC 3T	90.0	9.9	49.9	9.46	54.06	9.43	54.44
ABC 4T	92.0	12.4	58.1	11.81	62.48	11.78	62.84
ABC 5T	97.0	8.1	62.4	8.03	65.91	8.03	66.05
ABC 6T	110.0	11.3	63.1	9.98	63.71	10.00	63.29
ABC 7T	104.0	12.0	58.8	10.67	60.60	10.68	60.44
ABC 8T	116.0	10.2	56.6	8.73	56.00	8.75	55.43
ABC 9T	119.0	15.0	52.0	11.76	50.94	11.81	50.33
ABC 10T	125.0	14.0	61.0	11.11	58.60	11.15	57.69
Average				9.94	59.32	9.94	59.32

There are some changes in adjusted values (up to .05 mm of fat and 1.02 mm of lean) especially for lighter and heavier pigs, and minor differences on animal ranking on either adjusted fat or lean in this example. The impact will be fairly small on EBVs. With the new factors, adjusted performances and EBVs will be more accurate. The new factors are not applied to historical data, but only to animals probed after July 19, 2007, so there won't be any change in adjusted values of animals probed in the past.

**Recommended weight adjustment factors  
for live-animal scan measurements  
to a 100kg live weight standard**

**Adjustment factors for backfat (3<sup>rd</sup> / 4<sup>th</sup> ribs)**

Breed	Sex	New*		Current	
		A <sub>100</sub>	B	A <sub>100</sub>	B
Yorkshire	Male	11.15	0.1105	12.40	0.1065
	Female	11.89	0.1107	13.71	0.1196
	Castrate	14.97	0.1480	15.71	0.1130
Landrace	Male	10.73	0.0978	12.83	0.1144
	Female	11.49	0.0990	13.98	0.1260
	Castrate	14.68	0.1469	15.98	0.1202
Duroc	Male	10.70	0.0870	13.47	0.1115
	Female	11.44	0.0954	15.65	0.1566
	Castrate	13.92	0.1254	17.65	0.1340
$\text{Backfat adjusted to 100 kg} = \text{Backfat} \times \frac{A_{100}}{A_{100} + B (\text{Weight} - 100)}$					

\* Based on pigs probed between January 1, 2005 and March 31, 2007 (males and females) on CCSI program, and castrates probed at Deschambault station (tests 17-18)

**Adjustment factors for lean depth (3<sup>rd</sup> / 4<sup>th</sup> ribs)**

Breed	Sex	New*		Current	
		A <sub>100</sub>	B	A <sub>100</sub>	B
Yorkshire	Male	59.83	0.2876	51.42	0.260
	Female	62.13	0.2997	53.03	0.260
	Castrate	59.51	0.2851	49.92	0.260
Landrace	Male	60.37	0.2652	49.45	0.177
	Female	61.99	0.2607	50.31	0.177
	Castrate	59.83	0.2747	47.95	0.177
Duroc	Male	62.27	0.2817	50.52	0.228
	Female	64.32	0.2514	52.01	0.228
	Castrate	62.59	0.2951	49.02	0.228
$\text{Lean depth adjusted to 100 kg} = \text{Lean depth} \times \frac{A_{100}}{A_{100} + B (\text{Weight} - 100)}$					

\* Based on pigs probed between January 1, 2005 and March 31, 2007 (males and females) on CCSI program, and castrates probed at Deschambault station (tests 17-18)