

# *Genomic Projects Update*

WSFF Council Meeting  
September 21, 2012



# ***Genomic Innovations***

*To develop genomic and genetic prediction tools designed to improve fertility, feed efficiency, carcass and meat quality of beef cattle*

**Timelines:** April 1, 2011 to December 31, 2013

**Project Partners:** Garth Sweet Foundation, U of G, GenServe, BIO, Simmental breeders & cooperator herds

**Total Budget:** \$2.5 million



# ***Genomic Innovations***

- Feed efficiency & meat quality data collected
- 3<sup>rd</sup> group of Cattle on Feed – End of July
- Fertility and Stayability Evaluation
- 1248 samples genotyped in Year 1
  - Affymetrix 770K Chip



# ***Genomic Innovations***

- Second year genotyping plan being designed
  - Current plan is to conduct sequencing on ~ 40 bulls with this budget allocation
- 4<sup>th</sup> group – Nov 2012 – 750 lb calves
- Total of 1500 head with individual feed intake and meat quality data genotyped



# U of G – 1<sup>st</sup> Group - Results

Nov-11	Feed			Carcass							Tenderness				Cutout		
	ADG		F:G	CW		REA		FAT		MS	7 day	14 day	21 day	28 day	Lean	Fat	Bone
	kg	lb	DM	kg	lb	cm2	in2	mm	in	MSU	kg	kg	kg	kg	%	%	%
Avg	2.03	4.6	6.20	441	994	98	15.2	15.3	0.60	432	4.92	3.69	3.44	3.09	49.41	31.20	19.31
Min	1.24	2.8	4.28	349	787	74	11.4	5.1	0.20	282	2.56	2.29	2.19	1.75	41.64	19.73	15.02
Max	2.74	6.2	9.95	509	1146	130	20.1	27.4	1.08	686	9.39	7.32	6.12	4.98	59.20	41.38	25.96
Std	0.31	0.7	0.88	31	70	11	1.7	4.5	0.18	70	1.39	0.96	0.73	0.57	3.69	4.43	1.97
Num	139	139	139	139	139	139	139	139	139	139	137	137	137	137	135	135	135
											Num tough	49	7	4	0		
											% Tough	35.8%	5.1%	2.9%	0.0%		

U of G	AAAA	AAA	AA	A	Tot
YG1	0	53	1	0	54
YG2	0	50	0	0	50
YG3	3	32	0	0	35
Tot	3	135	1	0	139

U of G	AAAA	AAA	AA	A	Tot
YG1	0.0%	38.1%	0.7%	0.0%	38.8%
YG2	0.0%	36.0%	0.0%	0.0%	36.0%
YG3	2.2%	23.0%	0.0%	0.0%	25.2%
Tot	2.2%	97.1%	0.7%	0.0%	100%

Canfax	AAAA	AAA	AA	A	Tot
YG1	0.1%	18.9%	28.0%	1.9%	48.9%
YG2	0.3%	22.8%	11.3%	0.1%	34.5%
YG3	0.4%	12.5%	3.6%	0.1%	16.6%
Tot	0.8%	54.2%	42.9%	2.1%	100%

# ***Meat Quality***

*Develop genomic and genetic prediction tools that accurately predict meat quality*

**Timelines:** January, 2012 to October 31, 2014

**Project Partners:** CSA, Garth Sweet Foundation, Livestock Gentec, GenServe, SK Food Development Centre

**Budget:** \$1.0 Million

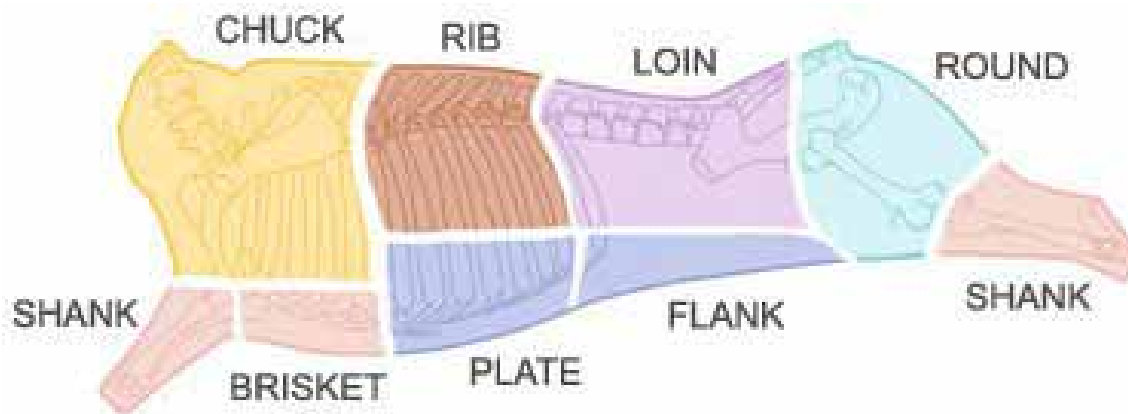


# *Meat Quality*

- Working on sourcing cattle
  - Total of 1000 head
- 91 rib samples collected to date
  - 40 – XL Lakeside, Brooks
  - 51 – Cargill Meats, High River
- Samples shipped to SK Food Development Centre
- Cattle sourced from Lewis Farms & Western Feedlots to date



# Meat Quality



## RIB



### Rib

#### Common Names:

Over Ready Rib, Bone-in Lip-on Rib, FCO Rib (fat cap off)

#### Points Requiring Specifications:

- Removal or retention of cap (trapezius and latissimus dorsi)
- Tail length from the eye muscle (longissimus dorsi)
- Removal or retention of rib finger meat (intercostal)
- Fat cover
- Weight range



### Blade Meat

#### Common Names:

Liver Meat, Fats Lean, Wedge Meat, Cap Meat

#### Points Requiring Specification:

- Removal or retention of fat and membrane (derused)
- Fat cover



### Back Ribs

#### Points Requiring Specification:

- Removal or retention of the serous membrane (peritoneum)
- Removal or retention of button bones (cartilage of spinous processes)



### Short Ribs

#### Points Requiring Specification:

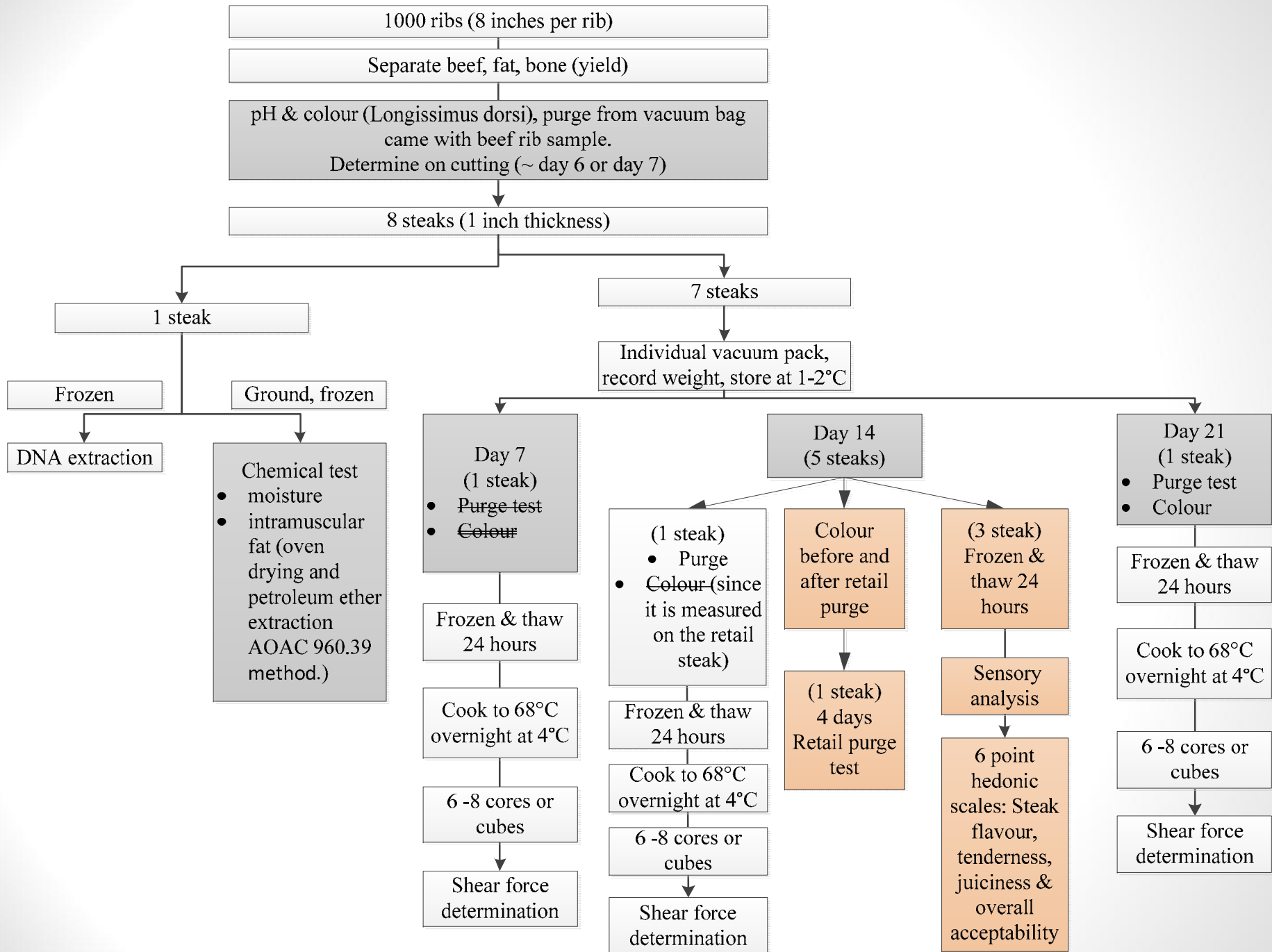
- Rib number requirement
- Rib length requirement
- Fat cover





# *Meat Quality*





# *Other Projects*

- Genome Canada project
  - 8 bulls – sequencing underway
  - Total of 30 bulls sequenced
    - 25 historic sires
    - 5 young sires
  - 794 animals HD currently being genotyped
  - Total of 1500 head to be done
- MBV/AIP Parentage Project
  - ~5000 animals being genotyped





*Canadian Simmental is rapidly becoming a genomic powerhouse.*