



Producing across-breed EPD adjustment factors from the USMARC GPE program

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SIRE BREEDS USED IN THE GERMPLASM EVALUATION PROGRAM (GPE) AT THE USMARC

Cycle I '70-'72	Cycle II '73-'74	Cycle III '75-'76	Cycle IV '86-'90	Cycle V '92-'94	Cycle VI '97-'98	Cycle VII '99-'00	Cycle VIII '01-'02
F ₁ Crosses (Hereford or Angus dams) ^a							
Hereford Angus Jersey S. Devon Limousin Simmental Charolais	Hereford Angus Red Poll Braunvieh Gelbvieh Maine Anj. Chianina	Hereford Angus Brahman Sahiwal Pinzgauer Tarentaise	Hereford Angus Longhorn Salers Galloway Nellore Shorthorn Piedmontese Charolais Gelbvieh Pinzgauer	Hereford Angus Tuli Boran Belg. Blue Brahman Piedmontese	Hereford Angus Wagyu Norweg. Red Sw. Red&Wh. Friesian	Hereford Angus Red Angus Limousin Charolais Simmental Gelbvieh	Hereford Angus Beefmaster Brangus Bonsmara Romosinuano
<i>3-way crosses</i>							
Hereford Angus Brahman Devon Holstein	Hereford Angus Brangus Santa Gertrudis						

^a Sire breeds mated to Angus and Hereford females, and Composite MARC III (1/4 Angus, Hereford, Red Poll and Pinzgauer) cows in Cycles V, VI, VII and VIII.

**Evaluated 37 breeds
over 40 years!**



Current GPE Objectives

- Current Breed Differences
- Across-breed EPD Adjustment Factors
- Genomics
- Heritabilities and Genetic Correlations
- Breed-specific Heterosis
- Evaluation of Sampled Sires for Novel Traits
- Contribute to Decision Support System



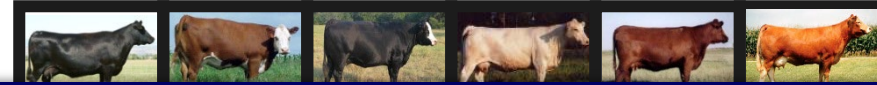
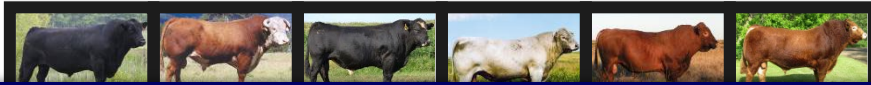
GPE population structure

AI Sires:

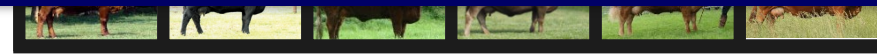
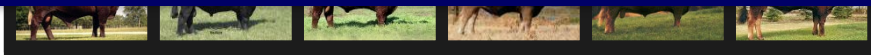
AN, HH, SM, CH, AR, LM, GV, SH, BN,
BM, MA, BR, CI, SG, SA, BV, SD, TA

Dams:

AN, HH, SM, CH, AR, LM, GV, SH, BN,
BM, MA, BR, CI, SG, SA, BV, SD, TA



About 3500 cows are allocated to this project



PB, BC & F₁ Steers



PB Bulls



PB, BC & F₁ Heifers



×

Natural Service PB, BC, & F₁ Steers & Heifers

Sire sampling process

- Sample each breed as fairly as possible
- High accuracy, influential sires
- Make sure lines are represented
- Balance EPD for bulls selected
 - Use projection of genetic trend
 - Adjust for EPD in any subsequent analysis
- Roughly 15–20 progeny per bull sampled



AI sires sampled since 2006



176 Angus



124 Hereford



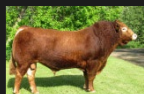
104 Simmental



81 Red Angus



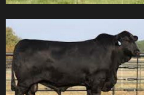
77 Charolais



74 Limousin



65 Gelbvieh



54 Brangus



53 Shorthorn



52 Beefmaster



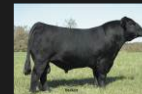
47 Brahman



45 Maine-Anjou



37 Santa Gertrudis



36 ChiAngus



36 Salers



33 Braunvieh



18 South Devon



18 Tarentaise

1130 Total

GPE structure and the ABEPD program

- Analysis overview
 - Need to estimate differences between breeds based on GPE data
 - Breeds are separated based on time
 - Old cycle (pre-VII) different breed effect from current GPE
 - Implemented because older cycles not affected by genomic advances
 - Use a standard genetic evaluation animal with breed effects
 - Resulting breed effects/differences are a function of the EPD of the bulls used in GPE
 - Need to be able to adjust EPD for sampling and for bull influence

Adjusting sample for current EPD

- Across-breed EPD program
 - Estimate breed differences (B_i) from GPE using animal model
 - Adjust records for bull EPD

$$B_i = USMARC_i / b + (EPD_{i,YY} - EPD_{i,USMARC})$$

- $EPD_{i,YY}$ is the breed average EPD (current – 2023 used last)
- $EPD_{i,USMARC}$ weighted average USMARC sire EPD
- b is a scaling factor to convert USMARC ($USMARC_i$) solution to an industry scale
 - Based on the regression of USMARC phenotypes on EPD

Across-breed EPD adjustment factors

- Calculated by scaling the 'current' breed difference (B_i) to Angus EPD base
 - Current breed difference is 2023 this year
 - Base difference calculated by subtracting the 2023 Angus average EPD from the 2013 breed average EPD
- For Breed i:
$$Factor_i = B_i - B_{Angus} - (EPD_i - EPD_{Angus})$$

TABLE 1: JANUARY 2025 ADJUSTMENT FACTORS TO ADD TO EPDs OF EIGHTEEN
DIFFERENT BREEDS TO ESTIMATE ACROSS BREED EPDs

Breed	Birth Wt. (lb)	Weaning Wt. (lb)	Yearling Wt. (lb)	Maternal Milk (lb)	Marbling Score ^a	Ribeye Area (in ²)	Fat (in)	Carcass Wt.(lb)
Angus	0.0	0.0	0.0	0.0	0.00	0.00	0.000	0.0
Hereford	0.8	-11.5	-22.3	-10.9	-0.29	0.04	-0.067	-61.6
Red Angus	2.2	-21.8	-26.9	1.4	-0.01	0.24	-0.038	-6.6
Shorthorn	4.4	-18.5	-22.0	0.2	-0.10	0.36	-0.040	5.9
South Devon	2.9	-24.6	-44.4	4.4	-0.07	0.56	-0.070	3.4
Beefmaster	3.5	25.1	16.4	7.1				
Brahman	8.3	63.1	29.5	7.6	-0.70	0.12	-0.132	-21.5
Brangus	3.3	29.7	22.8	12.0				
Santa Gertrudis	4.7	43.6	52.9	19.1	-0.39	0.26	-0.063	15.3
Braunvieh	1.9	-13.1	-33.1	17.3	-0.07	0.39	-0.071	6.0
Charolais	7.7	7.4	-9.1	-2.5	-0.28	0.91	-0.194	17.1
Chiangus	2.7	-12.4	-21.6	-0.5	-0.46	0.52	-0.116	-19.4
Gelbvieh	3.1	-4.9	-11.2	5.9	-0.45	0.65	-0.101	-8.7
Limousin	1.8	-1.2	-12.2	-7.4	-0.37	0.68	-0.078	1.8
Maine-Anjou	2.4	-23.7	-33.4	-4.8	-0.46	0.95	-0.164	-24.0
Salers	2.6	-6.0	-12.2	3.0	-0.22	0.57	-0.066	0.6
Simmental	2.4	-9.8	-11.9	0.8	-0.12	0.55	-0.058	7.8
Tarentaise	2.2	32.8	11.1	15.4				

^aMarbling score units: 4.00 = SI⁰⁰; 5.00 = Sm⁰⁰. Note that Brahman EPDs for marbling are reported on a scale where 400 = SI⁰⁰ and 500 = Sm⁰⁰. When converting sires from other breeds to a Brahman basis, the adjusted EPD should be multiplied by 100. Likewise, when Brahman EPDs are adjusted to other breeds, the EPD should be divided by 100 before adding the adjustment factor.

A photograph of a herd of cattle in a green, grassy field. In the center, a large brown cow with a white face and a yellow ear tag is prominent. To its left is a smaller black cow, and to its right is a black cow. In the background, there are more cows, including a light brown one. The sky is overcast with grey clouds. The text "Using the AB-EPD annual reports" is overlaid in white, bold, sans-serif font across the middle of the image.

Using the AB-EPD annual reports

Across breed EPD comparison



2 JS SIR HERDBUILDER 4252	
DOB: 2/19/24	M1003979 Polled
SAT GRIDMAKER 6306 P ET	BW 94
SAT HERDBUILDER 1201 P	Adj WW 805
M961300 SAT MS ASHLEE 5314 P ET	Adj YW 1303
JS SIR LEDGER 6118 PLD	CE 10.9
JS MISS LEDGER 8224	BW -0.36
F1295202 JS MISS HOT WATER 4477 PLD	WW 74.75
	YW 133.42
	Milk 26.6
	MTL 63.975
	TSI

Nice fronted, thick topped bull loaded with muscle!



51 JSRK SIR CINCH 4101	
DOB: 1/17/24	ARA 5031313
STRA CINCH 904	BW 80
JBARW MR CINCH 111	Adj WW 783
4485857 STRA COLLEEN 607	Adj YW 1355
BIEBER CL ENERGIZE F121	CE 14
JSRK MISS ENERGIZE 2343	BW -2.8
5031301 BIEBER GALLEE 414H	WW 66
	YW 107
	Milk 28
	ME 4

He is out of a first calf Bieber Engerize daughter. He brings calving ease and a lot of performance. This Cinch son has one of the top WW and YW

EPD		Adjustment factor	Comparable EPD
BW	-0.36		
WW	74.75		
YW	133.42		
MILK	26.6		

BW	-2.8		
WW	66		
YW	107		
MILK	28		

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Angus	0.0	0.0	0.0	0.0	0.00	0.00	0.000	0.0
Hereford	0.8	-11.5	-22.3	-10.9	-0.29	0.04	-0.067	-61.6
Red Angus	2.2	-21.8	-26.9	1.4	-0.01	0.24	-0.038	-6.6
Shorthorn	4.4	-18.5	-22.0	0.2	-0.10	0.36	-0.040	5.9
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Maine-Anjou	2.4	-23.7	-33.4	-4.8	-0.46	0.95	-0.164	-24.0
Salers	2.6	-6.0	-12.2	3.0	-0.22	0.57	-0.066	0.6
Simmental	2.4	-9.8	-11.9	0.8	-0.12	0.55	-0.058	7.8
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Across breed EPD comparison



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BW	-0.36	7.7	
WW	74.75	7.4	
YW	133.42	-9.1	
MILK	26.6	-2.5	

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	YW 133.42
	Milk 26.6
	MTL 63.975
	TSI

Nice fronted, thick topped bull loaded with muscle!



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He is out of a first calf Bieber Engerize daughter. He brings calving ease and a lot of performance. This Cinch son has one of the top WW and YW

EPD		Adjustment factor	Comparable EPD
BW	-0.36	7.7	
WW	74.75	7.4	
YW	133.42	-9.1	
MILK	26.6	-2.5	

BW	-2.8	2.2	
WW	66	-21.8	
YW	107	-26.9	
MILK	28	1.4	

Across breed EPD comparison



2

JS SIR HERDBUILDER 4252
 DOB: 2/19/24 M1003979 Polled

SAT GRIDMAKER 6306 P ET
SAT HERDBUILDER 1201 P
 M961300 SAT MS ASHLEE 5314 P ET

JS SIR LEDGER 6118 PLD
JS MISS LEDGER 8224
 F1295202 JS MISS HOT WATER 4477 PLD

Nice fronted, thick topped bull loaded with muscle!

BW	94
Adj WW	805
Adj YW	1303
CE	10.9
BW	-0.36
WW	74.75
YW	133.42
Milk	26.6
MTL	63.975
TSI	



51

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 DOB: 1/17/24 ARA 5031313

STRA CINCH 904
JBARW MR CINCH 111
 4485857 STRA COLLEEN 607

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JSRK MISS ENERGIZE 2343
 5031301 BIEBER GALLEE 414H

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BW	80
Adj WW	783
Adj YW	1355
CE	14
BW	-2.8
WW	66
YW	107
Milk	28
ME	4

EPD	Adjustment factor	Comparable EPD
BW	-0.36	7.34
WW	74.75	82.15
YW	133.42	120.52
MILK	26.6	24.1

BW	-2.8	2.2	-0.6
WW	66	-21.8	44.2
YW	107	-26.9	80.1
MILK	28	1.4	29.4

Across breed EPD comparison



Santa Gertrudis EPD's								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
EPD	-0.8	34	34	0	10	0.18	0.30	0



Brahman EPD's								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
EPD	1.6	19	36	10	50	0.42	11	0.04

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Across breed EPD comparison



Santa Gertrudis EPD's								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
EPD	-0.8	34	34	0	10	0.18	0.30	0
AF	4.7	43.6	52.9	19.1	15.3	0.26	-0.39	-.063



Brahman EPD's								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
EPD	1.6	19	36	10	50	0.42	11	.04

Across breed EPD comparison



Santa Gertrudis EPD's								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
EPD	-0.8	34	34	0	10	0.18	0.30	0
AF	4.7	43.6	52.9	19.1	15.3	0.26	-0.39	-.063
→	3.9	77.6	86.9	19.1	25.3	0.44	-0.09	-.063



Brahman EPD's								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
EPD	1.6	19	36	10	50	0.42	11	0.04

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DIFFERENT BREEDS TO ESTIMATE ACROSS BREED EPDs

Breed	Birth Wt. (lb)	Weaning Wt. (lb)	Yearling Wt. (lb)	Maternal Milk (lb)	Marbling Score ^a	Ribeye Area (in ²)	Fat (in)	Carcass Wt.(lb)
Angus	0.0	0.0	0.0	0.0	0.00	0.00	0.000	0.0
Hereford	0.8	-11.5	-22.3	-10.9	-0.29	0.04	-0.067	-61.6
Red Angus	2.2	-21.8	-26.9	1.4	-0.01	0.24	-0.038	-6.6
Shorthorn	4.4	-18.5	-22.0	0.2	-0.10	0.36	-0.040	5.9
South Devon	2.9	-24.6	-44.4	4.4	-0.07	0.56	-0.070	3.4
Beefmaster	3.5	25.1	16.4	7.1				
Brahman	8.3	63.1	29.5	7.6	-0.70	0.12	-0.132	-21.5
Brangus	3.3	29.7	22.8	12.0				
Santa Gertrudis	4.7	43.6	52.9	19.1	-0.39	0.26	-0.063	15.3
Braunvieh	1.9	-13.1	-33.1	17.3	-0.07	0.39	-0.071	6.0
Charolais	7.7	7.4	-9.1	-2.5	-0.28	0.91	-0.194	17.1
Chiangus	2.7	-12.4	-21.6	-0.5	-0.46	0.52	-0.116	-19.4
Gelbvieh	3.1	-4.9	-11.2	5.9	-0.45	0.65	-0.101	-8.7
Limousin	1.8	-1.2	-12.2	-7.4	-0.37	0.68	-0.078	1.8
Maine-Anjou	2.4	-23.7	-33.4	-4.8	-0.46	0.95	-0.164	-24.0
Salers	2.6	-6.0	-12.2	3.0	-0.22	0.57	-0.066	0.6
Simmental	2.4	-9.8	-11.9	0.8	-0.12	0.55	-0.058	7.8
Tarentaise	2.2	32.8	11.1	15.4				

^aMarbling score units: 4.00 = SI⁰⁰; 5.00 = Sm⁰⁰. Note that Brahman EPDs for marbling are reported on a scale where 400 = SI⁰⁰ and 500 = Sm⁰⁰. When converting sires from other breeds to a Brahman basis, the adjusted EPD should be multiplied by 100. Likewise, when Brahman EPDs are adjusted to other breeds, the EPD should be divided by 100 before adding the adjustment factor.

Across breed EPD comparison



Santa Gertrudis EPD's								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
EPD	-0.8	34	34	0	10	0.18	0.30	0
+ AF	4.7	43.6	52.9	19.1	15.3	0.26	-0.39	-.063
→	3.9	77.6	86.9	19.1	25.3	0.44	-.009	-.063
- AF	8.3	63.1	29.5	7.6	-21.5	0.12		-.132



Brahman EPD's								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
EPD	1.6	19	36	10	50	0.42	11	0.04

TABLE 1: JANUARY 2025 ADJUSTMENT FACTORS TO ADD TO EPDs OF EIGHTEEN

DIFFERENT BREEDS TO ESTIMATE ACROSS BREED EPDs

Breed	Birth Wt. (lb)	Weaning Wt. (lb)	Yearling Wt. (lb)	Maternal Milk (lb)	Marbling Score ^a	Ribeye Area (in ²)	Fat (in)	Carcass Wt.(lb)
Angus	0.0	0.0	0.0	0.0	0.00	0.00	0.000	0.0
Hereford	0.8	-11.5	-22.3	-10.9	-0.29	0.04	-0.067	-61.6
Red Angus	2.2	-21.8	-26.9	1.4	-0.01	0.24	-0.038	-6.6
Shorthorn	4.4	-18.5	-22.0	0.2	-0.10	0.36	-0.040	5.9
South Devon	2.9	-24.6	-44.4	4.4	-0.07	0.56	-0.070	3.4
Beefmaster	3.5	25.1	16.4	7.1				
Brahman	8.3	63.1	29.5	7.6	-0.70	0.12	-0.132	-21.5
Brangus	3.3	29.7	22.8	12.0				
Santa Gertrudis	4.7	43.6	52.9	19.1	-0.39	0.26	-0.063	15.3
Braunvieh	1.9	-13.1	-33.1	17.3	-0.07	0.39	-0.071	6.0
Charolais	7.7	7.4	-9.1	-2.5	-0.28	0.91	-0.194	17.1
Chiangus	2.7	-12.4	-21.6	-0.5	-0.46	0.52	-0.116	-19.4
Gelbvieh	3.1	-4.9	-11.2	5.9	-0.45	0.65	-0.101	-8.7
Limousin	1.8	-1.2	-12.2	-7.4	-0.37	0.68	-0.078	1.8
Maine-Anjou	2.4	-23.7	-33.4	-4.8	-0.46	0.95	-0.164	-24.0
Salers	2.6	-6.0	-12.2	3.0	-0.22	0.57	-0.066	0.6
Simmental	2.4	-9.8	-11.9	0.8	-0.12	0.55	-0.058	7.8
Tarentaise	2.2	32.8	11.1	15.4				

^aMarbling score units: 4.00 = SI⁰⁰; 5.00 = Sm⁰⁰. Note that Brahman EPDs for marbling are reported on a scale where 400 = SI⁰⁰ and 500 = Sm⁰⁰. When converting sires from other breeds to a Brahman basis, the adjusted EPD should be multiplied by 100. Likewise, when Brahman EPDs are adjusted to other breeds, the EPD should be divided by 100 before adding the adjustment factor.

Across breed EPD comparison



Santa Gertrudis EPD's								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
EPD	-0.8	34	34	0	10	0.18	0.30	0
+ AF	4.7	43.6	52.9	19.1	15.3	0.26	-0.39	-.063
→	3.9	77.6	86.9	19.1	25.3	0.44	-0.09	-.063
- AF	8.3	63.1	29.5	7.6	-21.5	0.12	-0.70	-.132
→							61	



Brahman EPD's								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
EPD	1.6	19	36	10	50	0.42	11	0.04

Across breed EPD comparison



Santa Gertrudis EPD's								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
EPD	-0.8	34	34	0	10	0.18	0.30	0
+ AF	4.7	43.6	52.9	19.1	15.3	0.26	-0.39	-.063
→	3.9	77.6	86.9	19.1	25.3	0.44	-0.09	-.063
- AF	8.3	63.1	29.5	7.6	-21.5	0.12	-0.70	-.132
→	-4.4	14.5	57.4	11.5	46.8	0.32	61	0.069



Brahman EPD's								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
EPD	1.6	19	36	10	50	0.42	11	0.04

Across breed EPD comparison



Brahman EPD Scale								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
Santa Gertrudis	-4.4	14.5	57.4	11.5	46.8	0.32	61	0.069
Brahman	1.6	19	36	10	50	0.42	11	0.04
	6	4.5	21.4	1.5	3.2	0.1	50	0.029



Angus EPD Scale								
	BW	WW	YW	MILK	CW	REA	MARB	FAT
Santa Gertrudis	3.9	77.6	86.9	19.1	25.3	0.44	-0.09	-.063
Brahman	9.9	82.1	65.5	17.6	28.5	0.54	-0.59	-.092
	6	4.5	21.4	1.5	3.2	0.1	0.5	0.029

TABLE 2: BREED OF SIRE MEANS FOR 2023 BORN ANIMALS
UNDER CONDITIONS SIMILAR TO USMARC

Breed	Birth Wt. (lb)	Weaning Wt. (lb)	Yearling Wt. (lb)	Maternal Milk (lb)	Marbling Score ^a	Ribeye Area (in ²)	Fat (in)	Carcass Wt. (lb)
Angus	84.9	541.4	984.2	520.7	6.29	13.78	0.671	926.6
Hereford	87.2	518.0	930.6	510.6	5.33	13.55	0.607	879.4
Red Angus	84.0	516.6	940.3	522.2	5.92	13.45	0.633	887.0
Shorthorn	89.5	499.9	906.2	516.9	5.39	13.74	0.531	875.5
South Devon	87.3	509.4	909.6	515.7	5.41	13.91	0.503	869.2
Beefmaster	87.5	525.5	917.6	510.8				
Brahman	94.1	554.9	925.7	508.1	4.80	13.49	0.529	869.1
Brangus	87.2	524.3	927.9	515.3				
Santa Gertrudis	88.5	528.3	930.1	513.7	5.15	13.36	0.586	884.3
Braunvieh	87.6	510.3	898.2	528.1	5.47	14.21	0.480	862.5
Charolais	90.2	543.5	967.3	516.6	5.33	14.68	0.473	911.9
Chiangus	88.2	512.0	916.6	509.2	5.34	14.00	0.515	880.2
Gelbvieh	86.5	539.6	961.0	523.6	5.33	14.26	0.530	894.9
Limousin	86.7	539.2	955.0	512.3	5.29	14.53	0.533	902.3
Maine-Anjou	87.3	491.6	886.4	509.9	5.15	14.33	0.461	860.3
Salers	85.9	525.5	936.3	516.2	5.32	14.22	0.525	882.7
Simmental	87.6	541.7	967.7	518.4	5.54	14.46	0.523	905.8
Tarentaise	86.4	520.4	899.0	511.5				

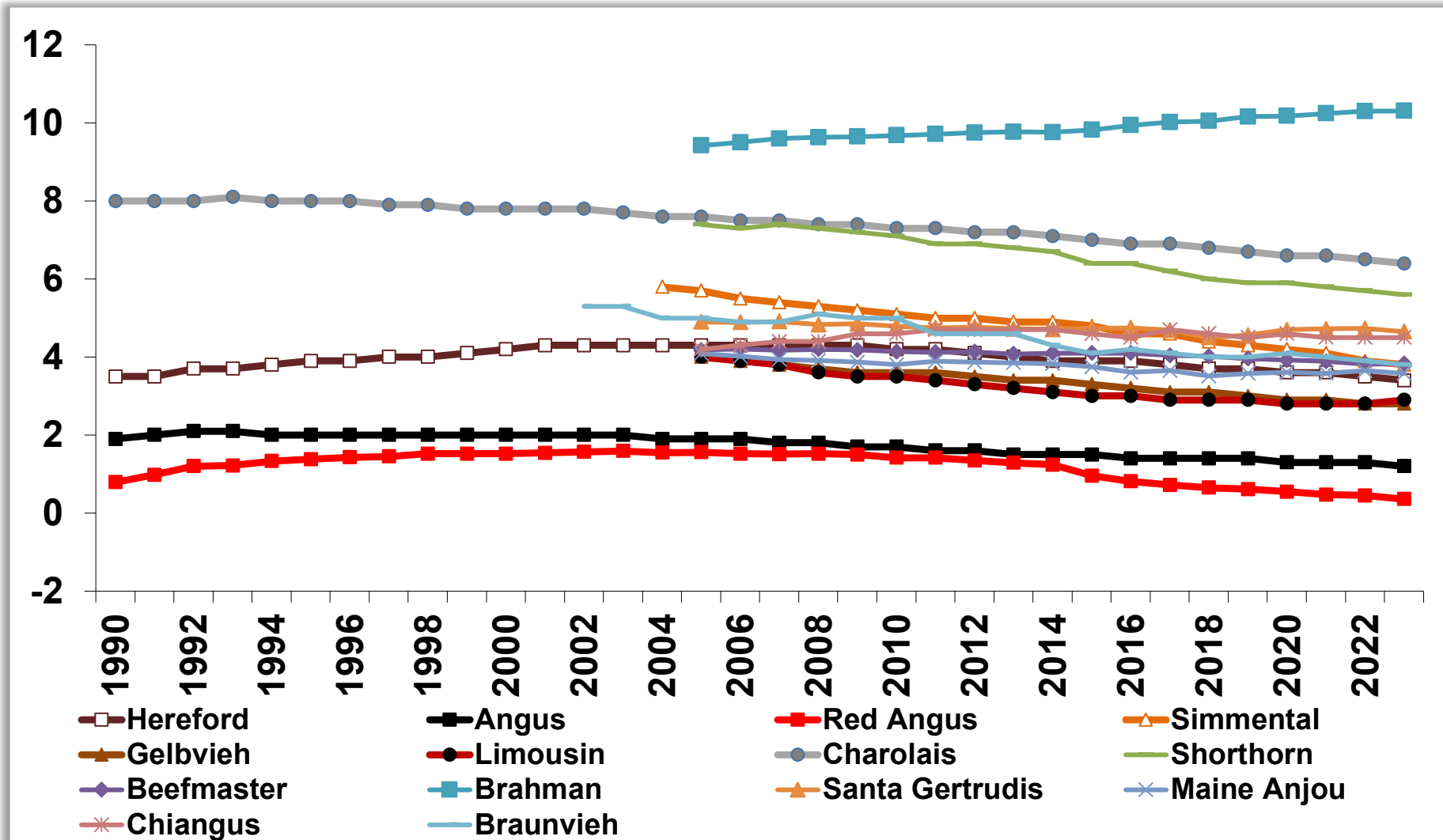
^aMarbling score units: 4.00 = SI⁰⁰; 5.00 = Sm⁰⁰

TABLE 2: BREED OF SIRE MEANS FOR 2023 BORN ANIMALS
UNDER CONDITIONS SIMILAR TO USMARC

Breed	Birth Wt. (lb)	Weaning Wt. (lb)	Yearling Wt. (lb)	Maternal Milk (lb)	Marbling Score ^a	Ribeye Area (in ²)	Fat (in)	Carcass Wt. (lb)
Angus	84.9	541.4	984.2	520.7	6.29	13.78	0.671	926.6
Hereford	87.2	518.0	930.6	510.6	5.33	13.55	0.607	879.4
Red Angus	84.0	516.6	940.3	522.2	5.92	13.45	0.633	887.0
Shorthorn	89.5	499.9	906.2	516.9	5.39	13.74	0.531	875.5
South Devon	87.3	509.4	909.6	515.7	5.41	13.91	0.503	869.2
Beefmaster	87.5	525.5	917.6	510.8				
Brahman	94.1	554.9	925.7	508.1	4.80	13.49	0.529	869.1
Brangus	87.2	524.3	927.9	515.3				
Santa Gertrudis	88.5	528.3	930.1	513.7	5.15	13.36	0.586	884.3
Braunvieh	87.6	510.3	898.2	528.1	5.47	14.21	0.480	862.5
Charolais	90.2	543.5	967.3	516.6	5.33	14.68	0.473	911.9
Chiangus	88.2	512.0	916.6	509.2	5.34	14.00	0.515	880.2
Gelbvieh	86.5	539.6	961.0	523.6	5.33	14.26	0.530	894.9
Limousin	86.7	539.2	955.0	512.3	5.29	14.53	0.533	902.3
Maine-Anjou	87.3	491.6	886.4	509.9	5.15	14.33	0.461	860.3
Salers	85.9	525.5	936.3	516.2	5.32	14.22	0.525	882.7
Simmental	87.6	541.7	967.7	518.4	5.54	14.46	0.523	905.8
Tarentaise	86.4	520.4	899.0	511.5				

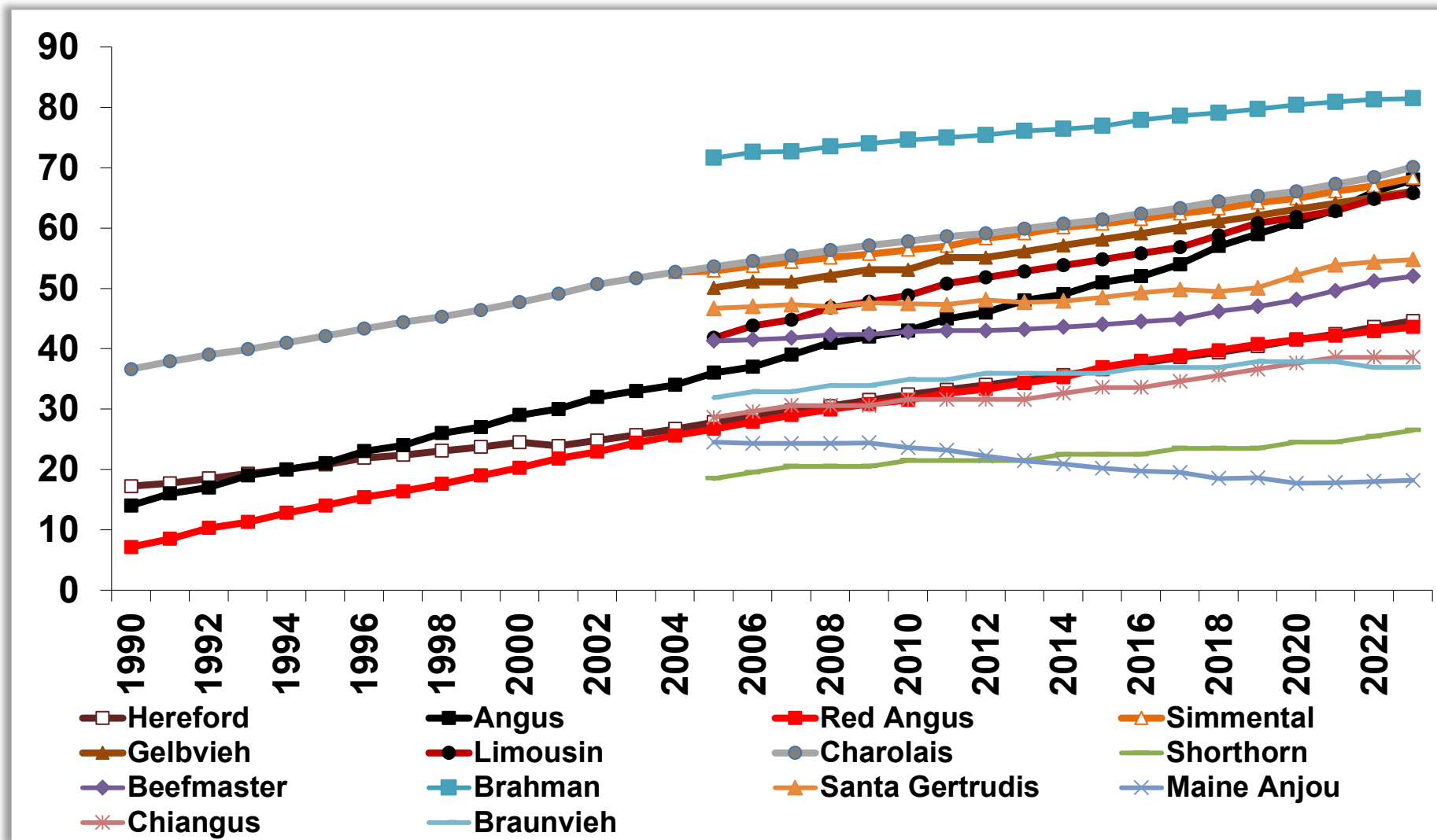
^aMarbling score units: 4.00 = SI⁰⁰; 5.00 = Sm⁰⁰

Genetic Trends for Birth Weight, lb



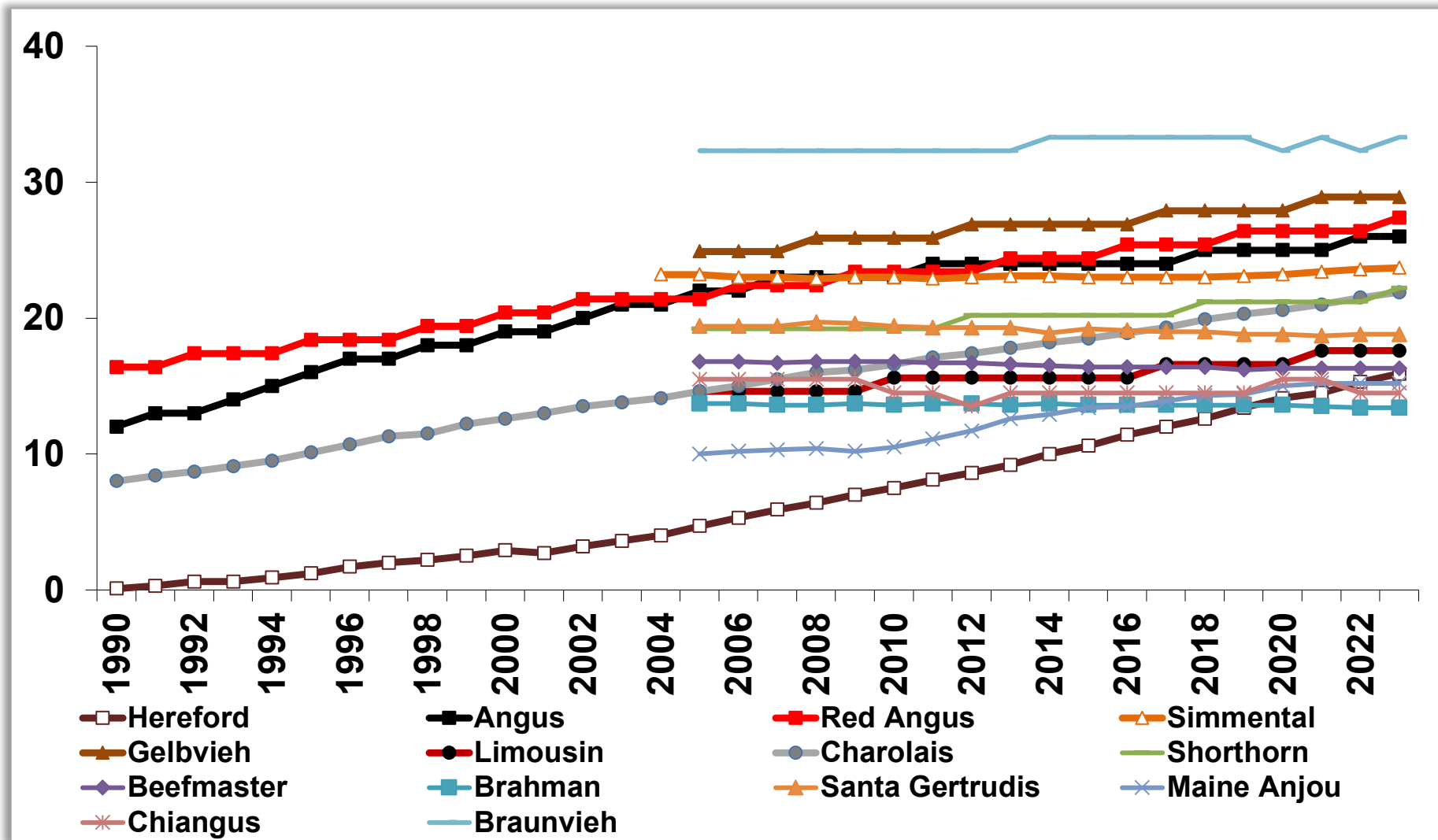
Adapted from Spring 2023 Genetic Trends from Breed Associations and 2024 AB-EPD factors

Genetic Trends for Weaning Weight, lb



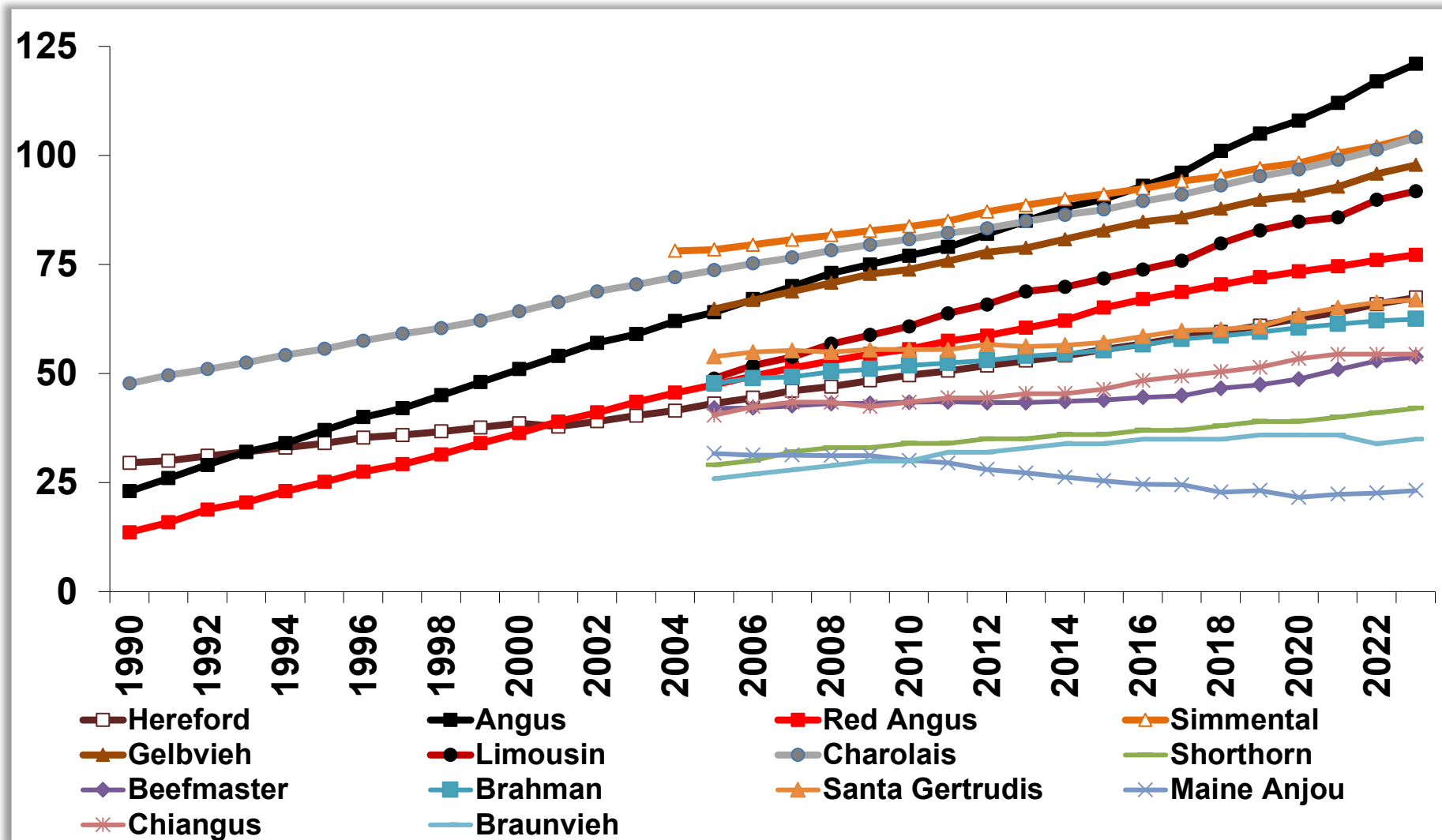
Adapted from Spring 2023 Genetic Trends from Breed Associations and 2024 AB-EPD factors

Genetic Trends for Maternal Milk, lb



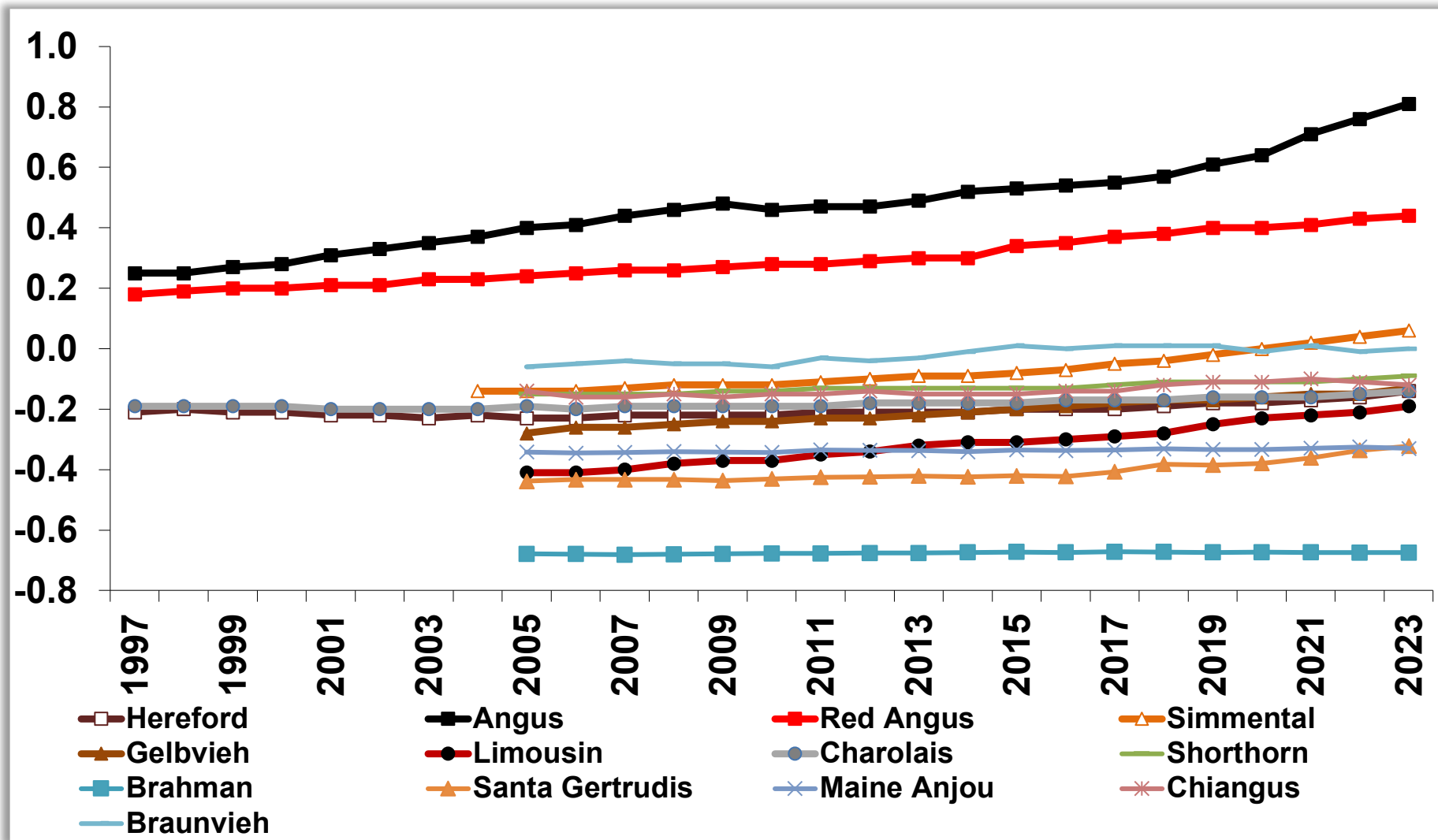
Adapted from Spring 2023 Genetic Trends from Breed Associations and 2024 AB-EPD factors

Genetic Trends for Yearling Weight, lb



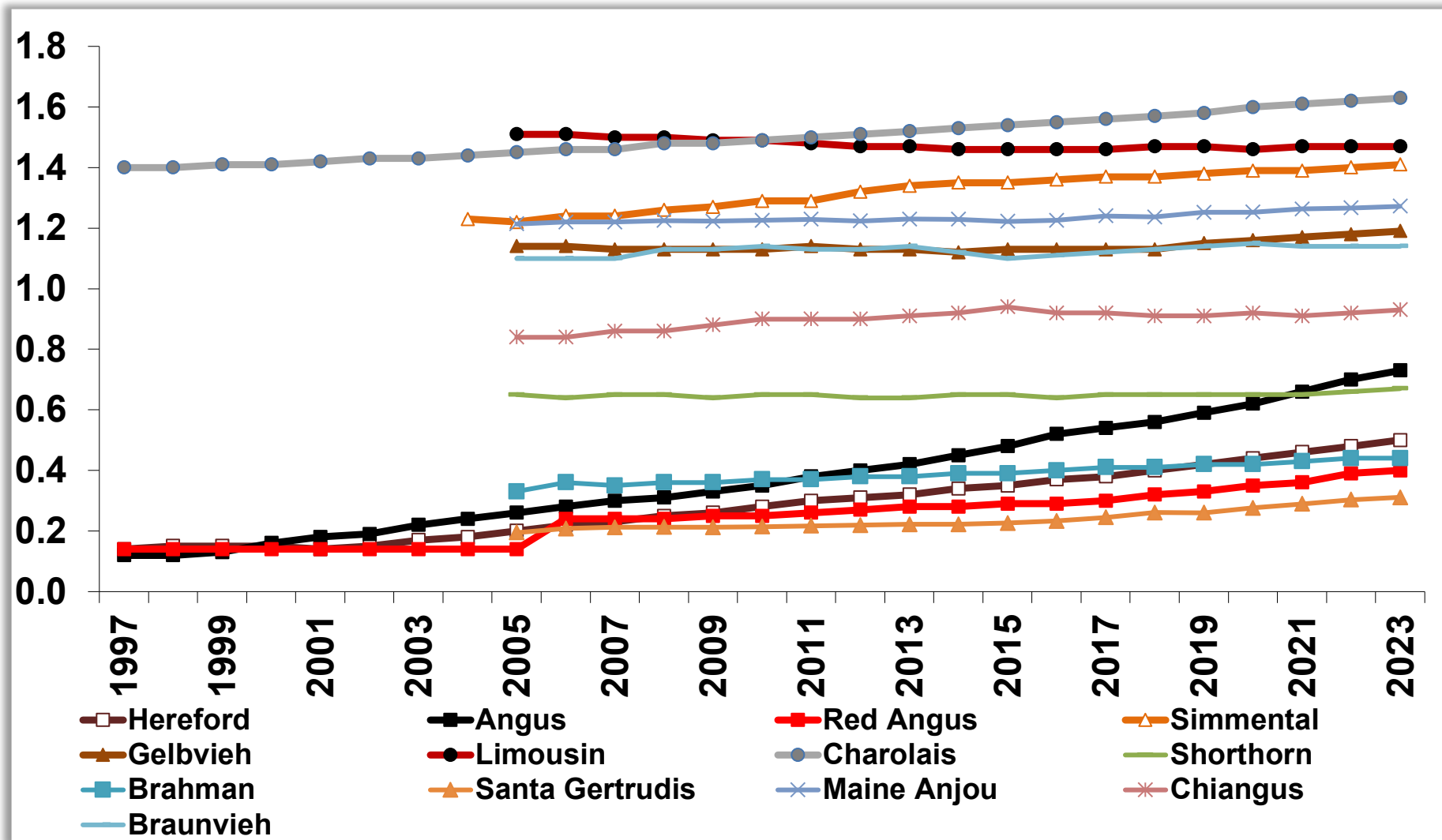
Adapted from Spring 2023 Genetic Trends from Breed Associations and 2024 AB-EPD factors

Genetic Trends for Marbling Score



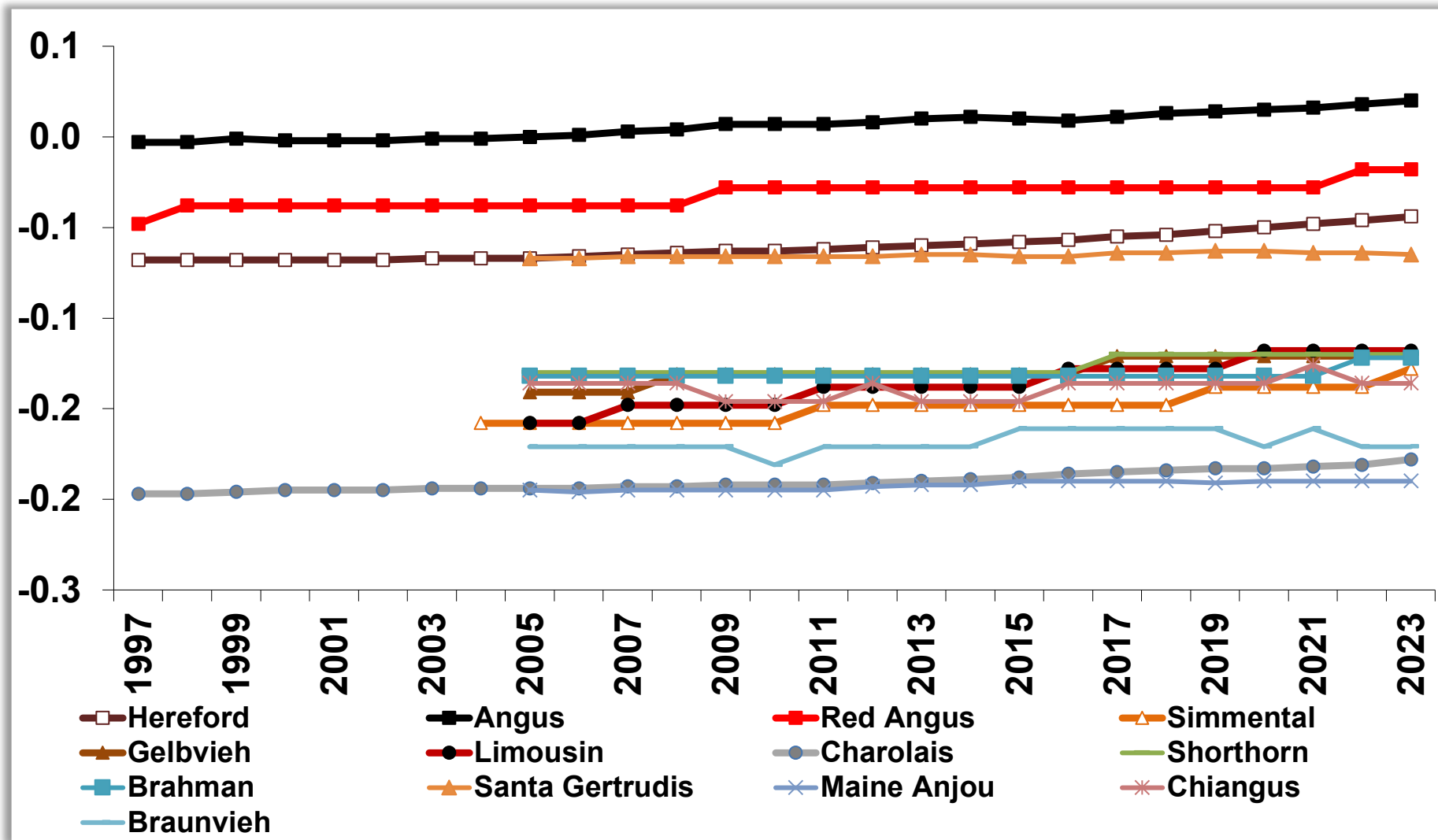
Adapted from Spring 2023 Genetic Trends from Breed Associations and 2024 AB-EPD factors

Genetic Trends for Ribeye Area, in²



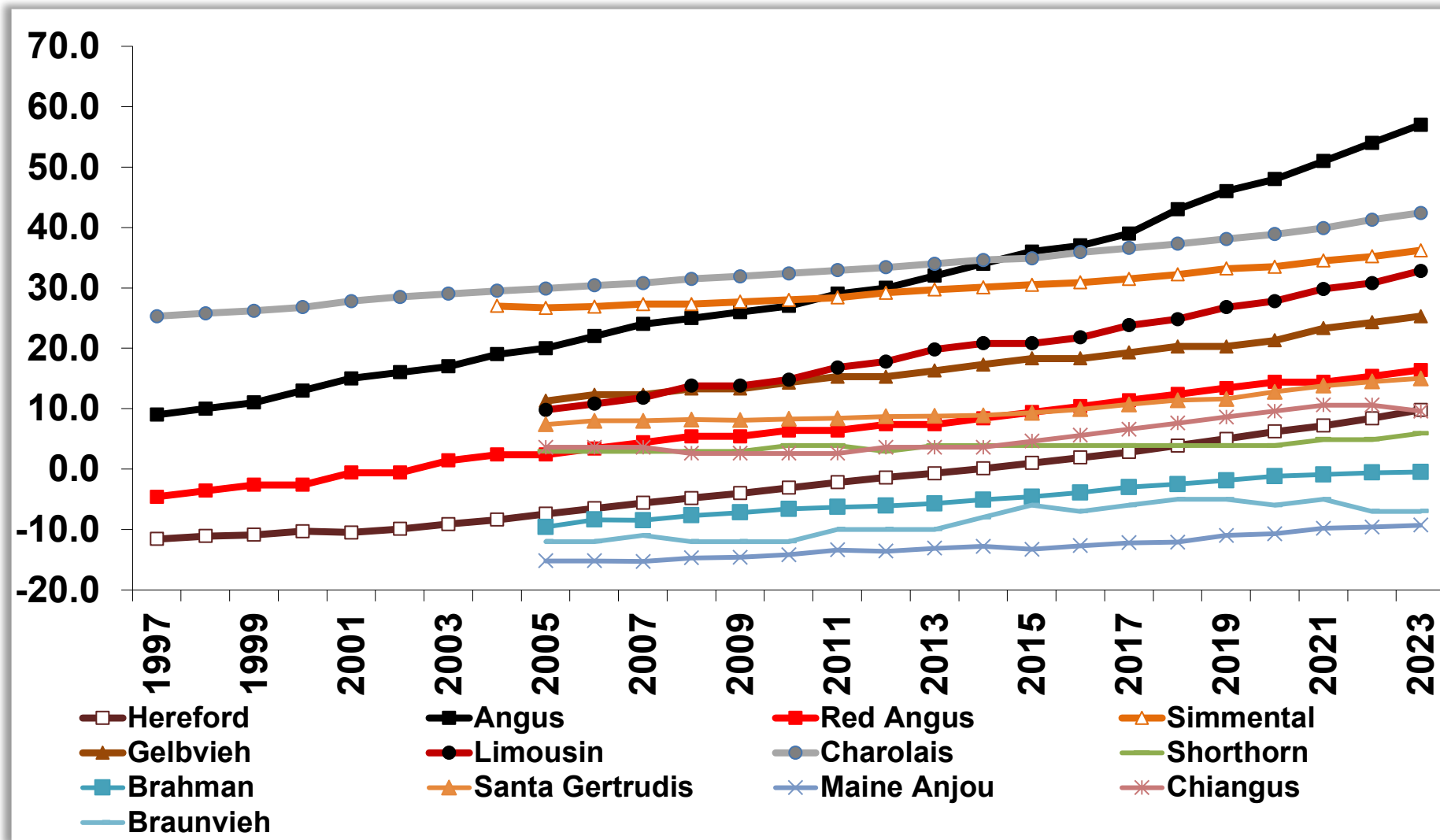
Adapted from Spring 2023 Genetic Trends from Breed Associations and 2024 AB-EPD factors

Genetic Trends for Backfat Depth, in



Adapted from Spring 2023 Genetic Trends from Breed Associations and 2024 AB-EPD factors

Genetic Trends for Carcass Weight, lb



Adapted from Spring 2023 Genetic Trends from Breed Associations and 2024 AB-EPD factors

Meet the team



Larry Kuehn



Warren Snelling



Bailey Engle

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- Mark Thallman (USDA emeritus), Matthew Spangler (UNL)
- Steven Shackelford, Andy King, Tommy Wheeler (USMARC)
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- All breeds and producers involved in supporting the GPE program

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Across-breed tables:

