

Understanding and Using EPD's

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What is a bull worth?





\$3,500



?



Does he look like this?



Or like this???



It Depends....

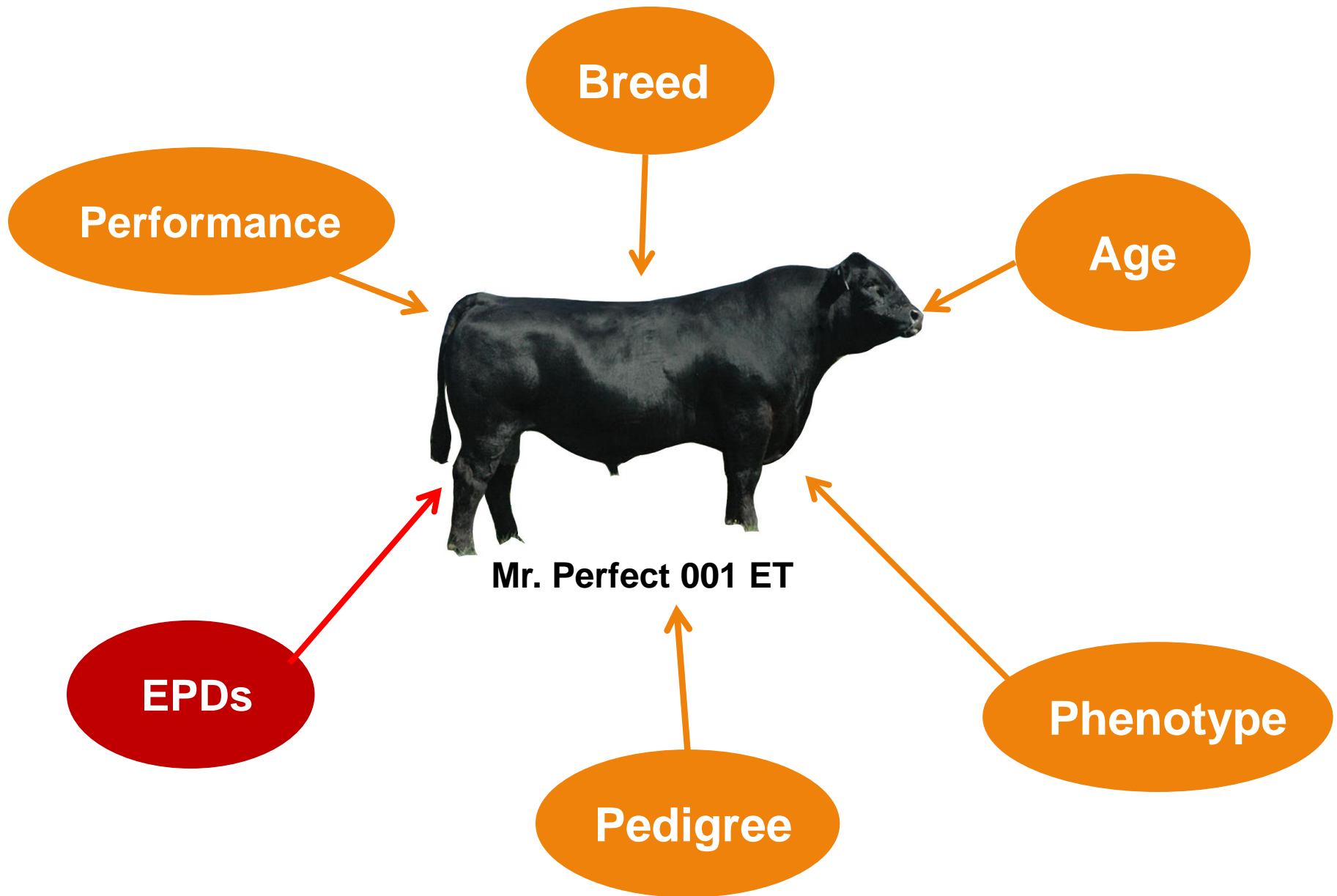
- **How Good is he really?**
 - How much information do you have and how accurate is it?
- **How will you market his calves?**
- **How good are the cows?**
- **How much genetic progress can be made?**



The Cow Should Fit Her Environment



The Bull Should Fit the Market

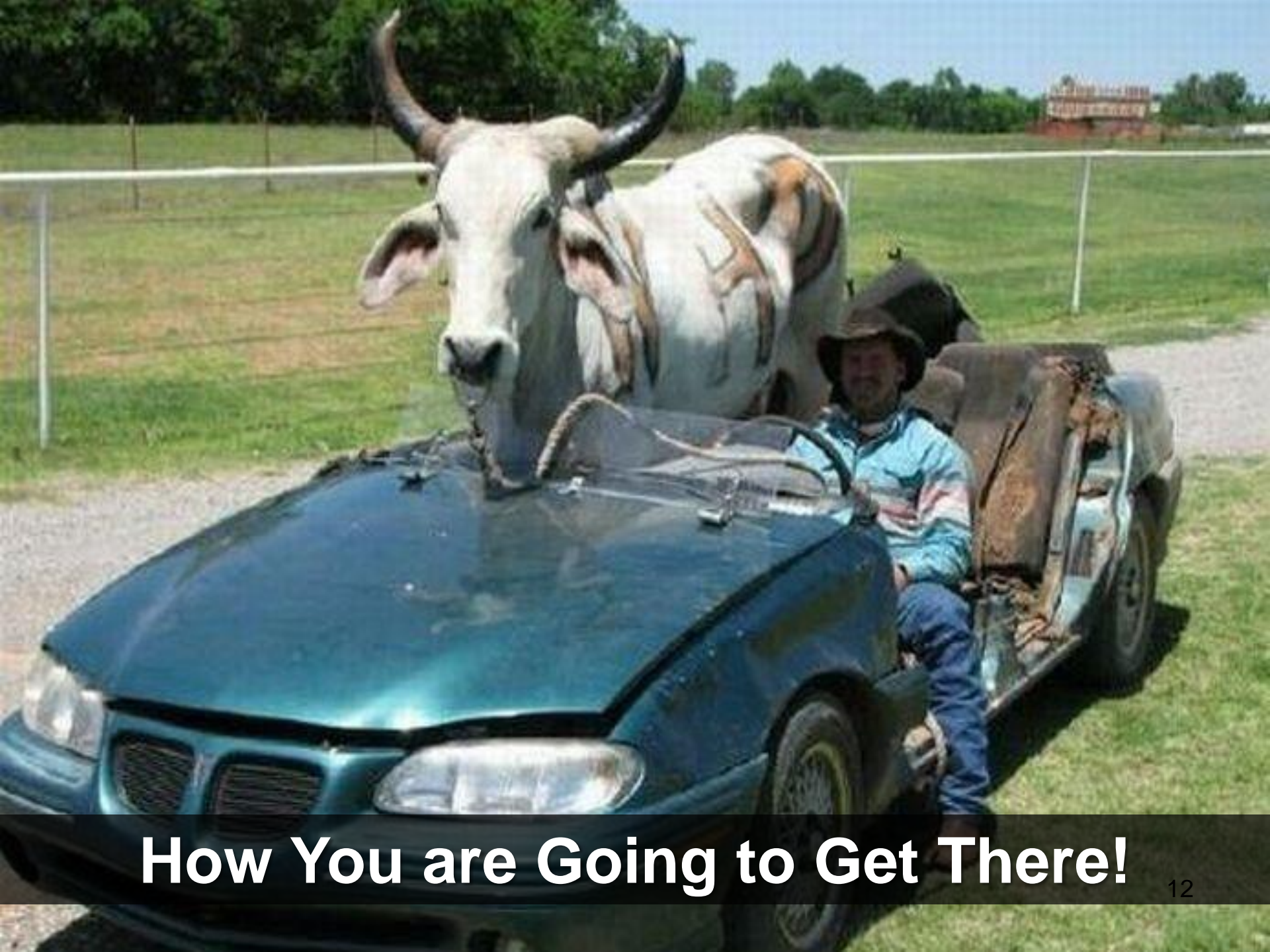


**Before you
Jump...**



Develop a Plan



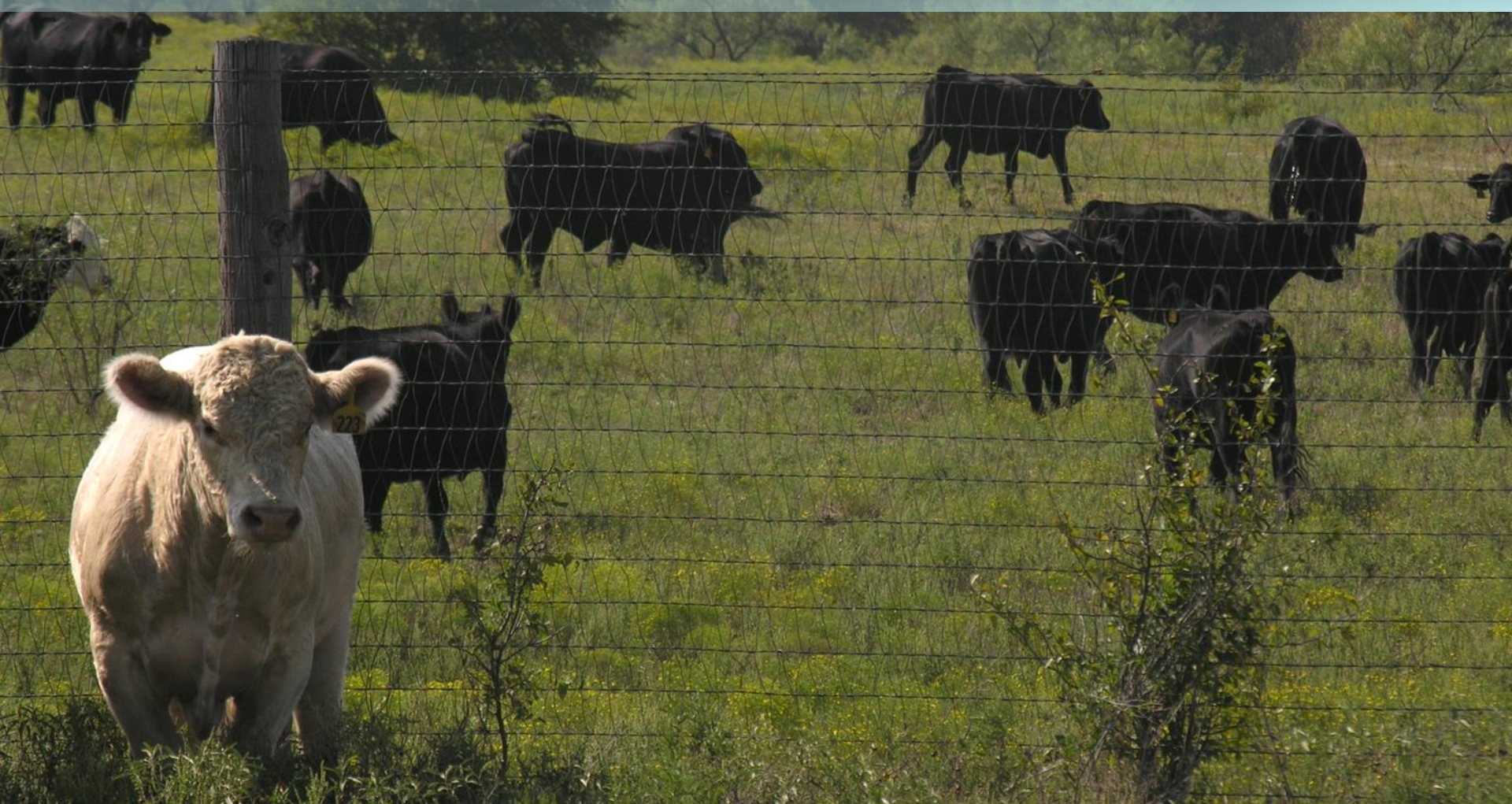


How You are Going to Get There!

Know Your Cow Herd



What Kind of Bull Will You Need?



One to Compliment the Cow Herd!

Black Calves?



Smoky Calves?



Know Where You Want to Go...



And How You are Going to Get There!

Sell at Weaning...



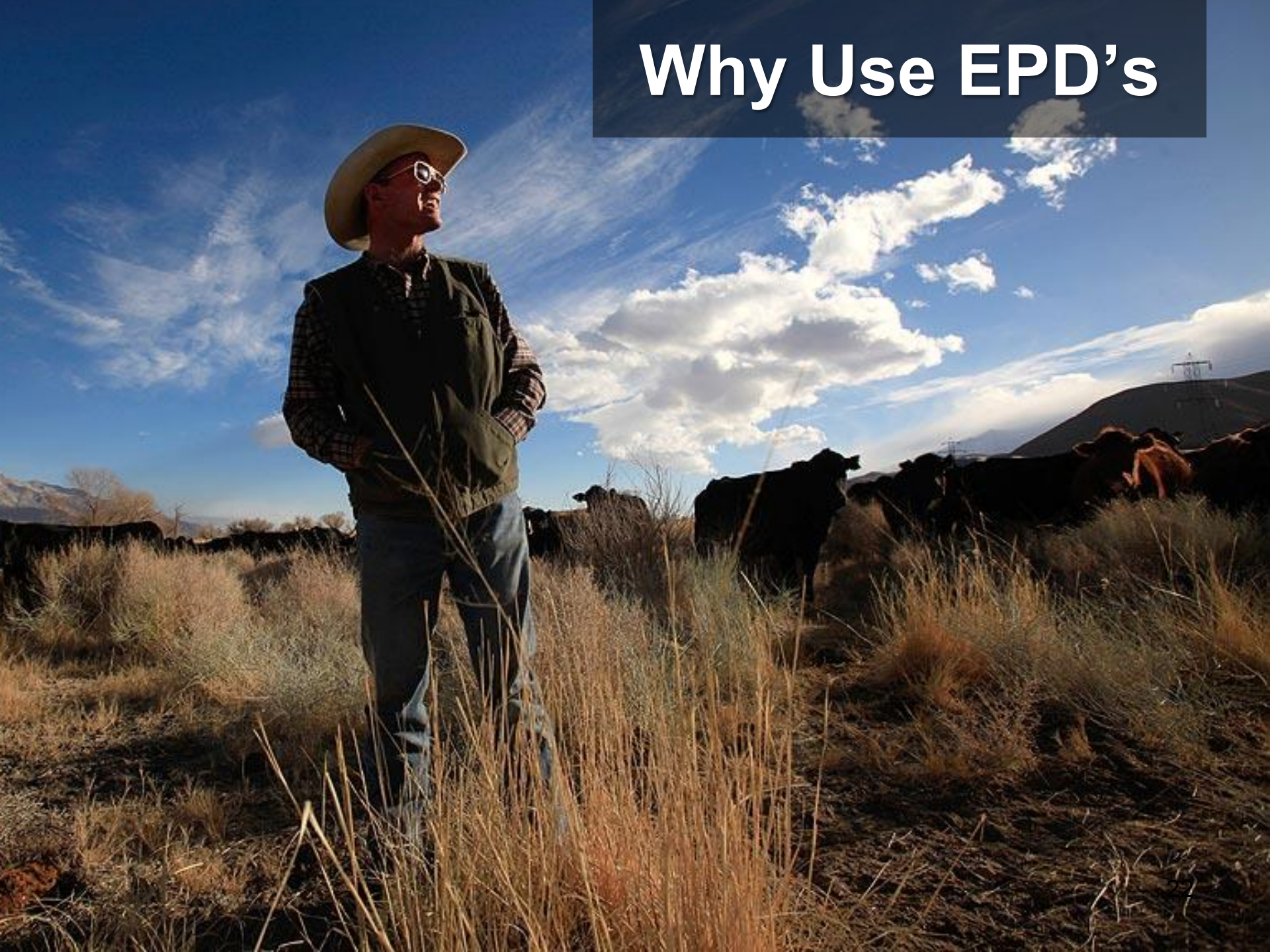




Expected Progeny Difference (EPD)



Why Use EPD's



**Things are not
always what it
appears to be**

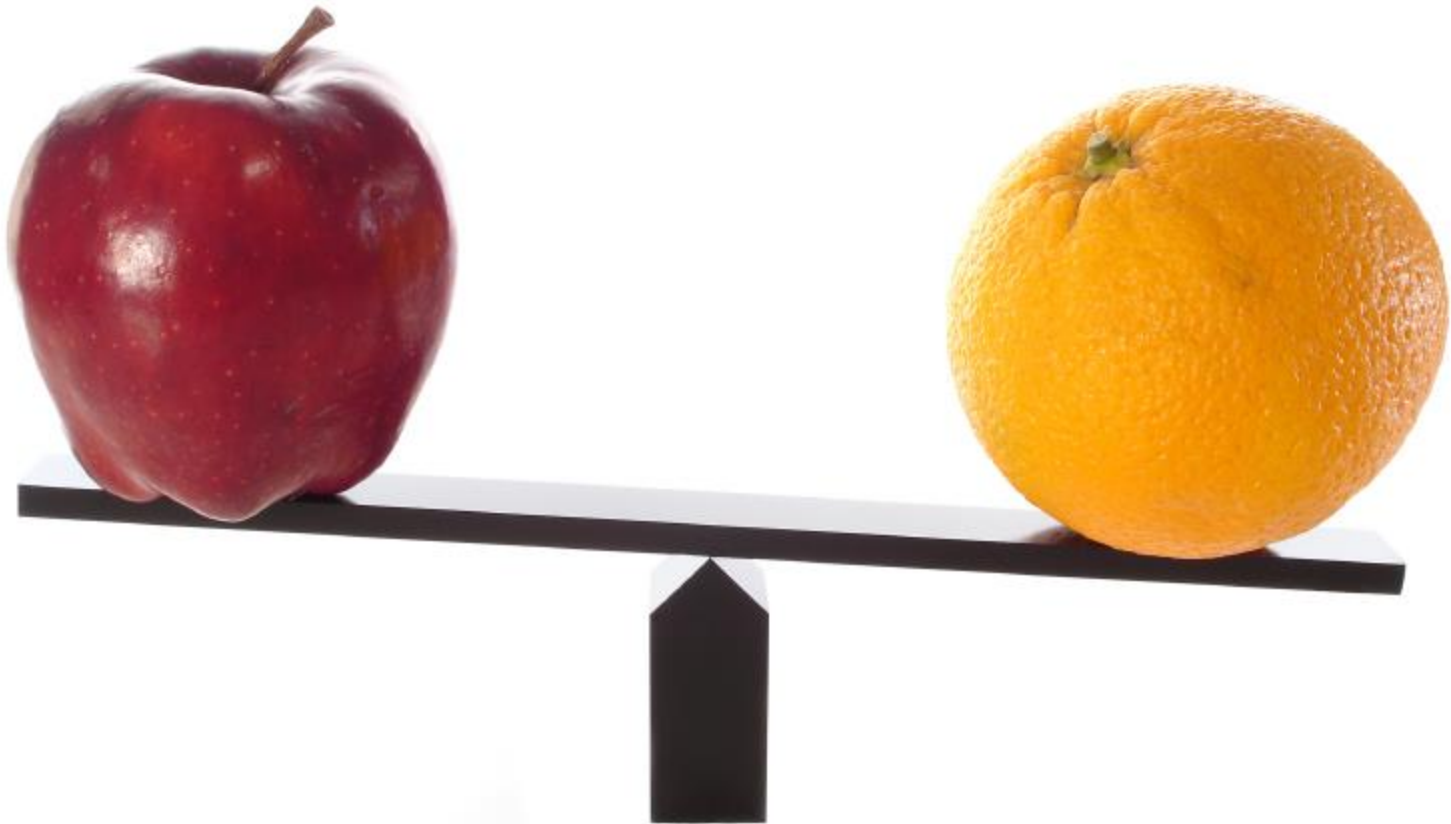


Expected Progeny Difference (EPD)



An Estimate of how future progeny of each sire are expected to perform relative to the progeny of other sires listed in the database.

EPD's are Breed Specific



A Judging Class on Paper!



Contemporary Group

A set of animals that have had an equal opportunity to perform: same sex, managed alike, and exposed to the same environmental conditions and feed resources in the same location.



Contemporary Group

It must contain Reference Sires and have a minimum number of progeny to be valid.



Accuracy: Possible Change



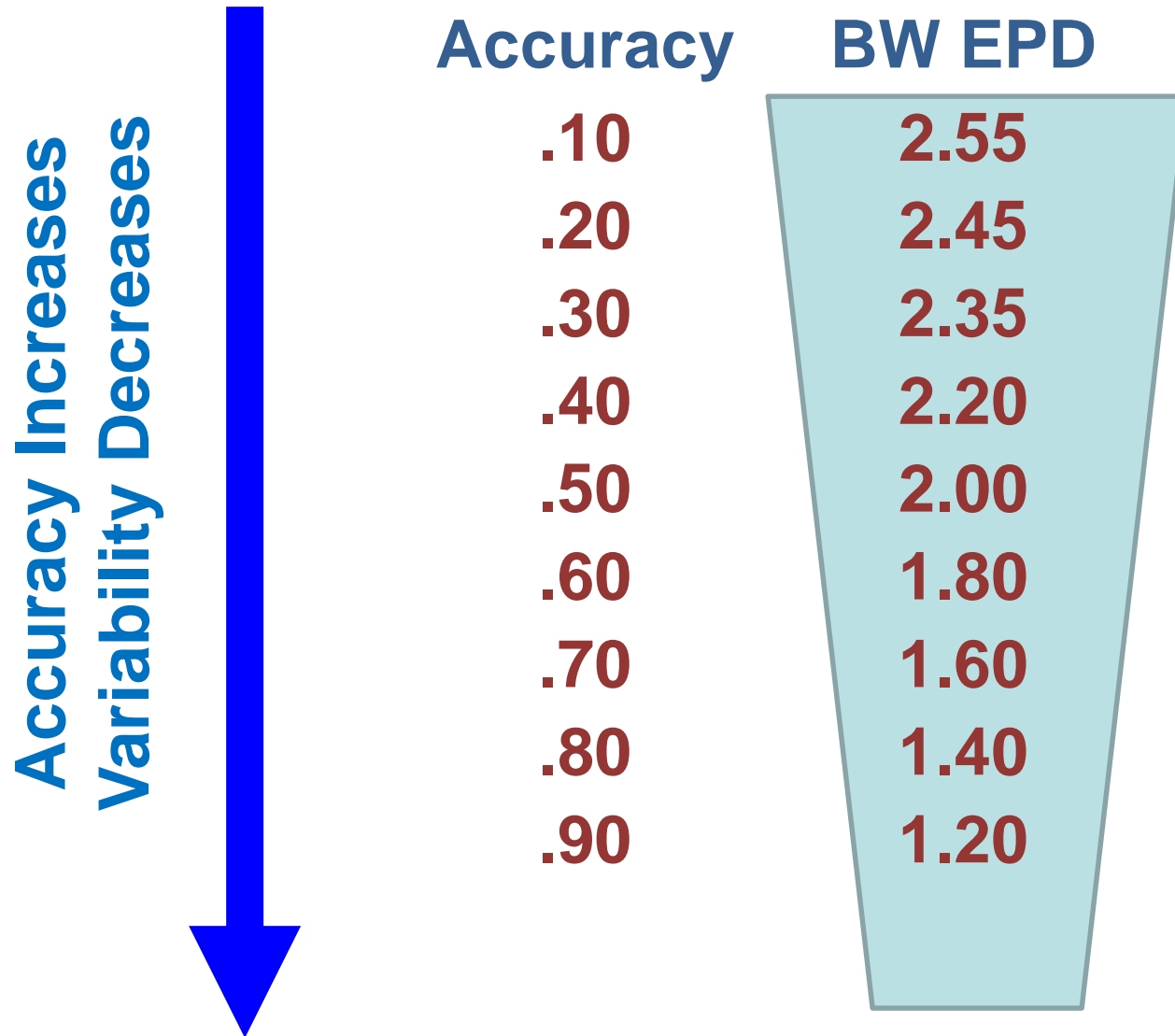
0 = very low

1 = very high

Increase in Accuracy



EPD Accuracy: Variability



EPD Accuracy

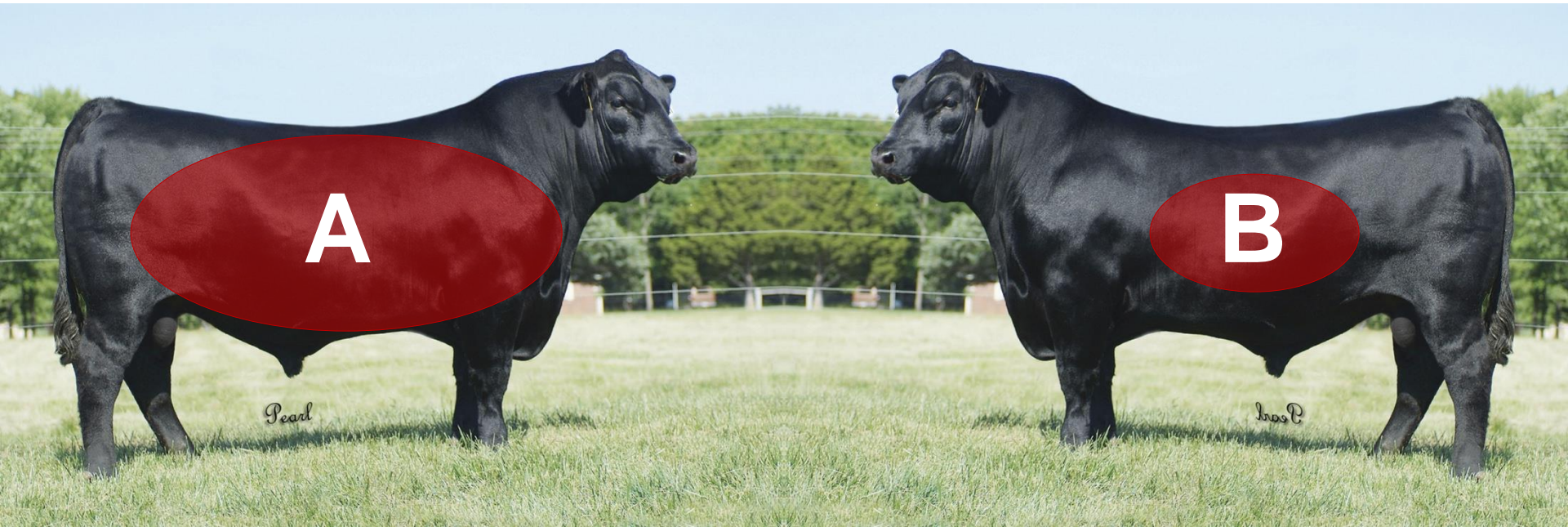
	EPD (Accuracy)	
	BW	Accuracy
Bull A	2.0	(0.20)
Bull B	2.0	(0.90)

EPD Accuracy: Variability

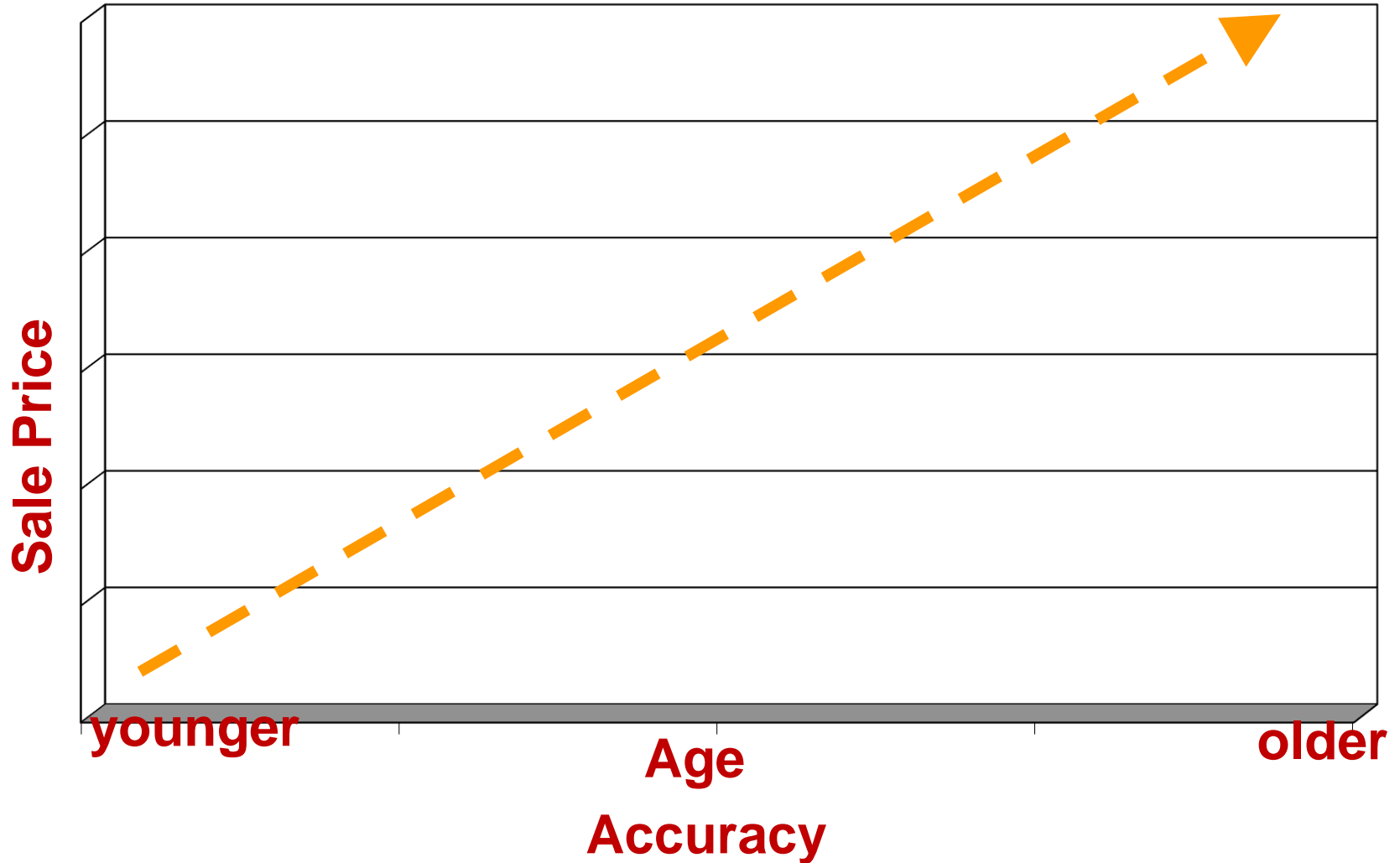
	Accuracy	BW EPD
	.10	2.36
Bull A	.20	2.10
	.30	1.85
	.40	1.58
	.50	1.31
	.60	1.05
	.70	0.79
Bull B	.80	0.53
	.90	0.26

Take Home Message

	BW EPD (Acc.)	Acc. Change	BW EPD Range
Bull A	2.0 (.20)	± 2.1	+4.10 to + 0.10
Bull B	2.0 (.90)	± 0.26	+2.26 to + 1.74



Age/Accuracy vs. Your Back Pocket





2017 Across Breed EPD Table (Selected Breeds)

Breed	BW	WW	YW	MM	Marb	REA	Fat	Carc wt
Angus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Charolais	7.7	34.0	34.0	7.0	-0.35	1.17	-0.21	13.0
Simmental	3.0	-10.0	-17.0	3.0	-0.34	0.48	-0.12	4.4
Hereford	2.1	-9.0	-34.0	-18.0	-0.30	-0.08	-0.06	
Limousin	2.3	-15.0	-42.0	-14.0	-0.39	1.01	-0.12	-12.0
Gelbvieh	2.8	-23.0	-35.0	4.0	-0.29	0.76	-0.11	-15.0

Compare Hereford vs. Charolais



Hereford Bull



Charolais Bull

Compare Hereford vs. Charolais

50% for Breed for BW and 20% for WW and YW

		BW
Hereford Bull	EPD (Registration Papers)	3.2
	Across Breed Adjustment (table)	2.1
	Adjusted EPD	5.3

		BW
Charolais Bull	EPD (Registration Papers)	0.5
	Across Breed Adjustment (table)	7.7
	Adjusted EPD	8.2

	BW
Charolais Difference	2.9

When mating bulls to cows of a third, unrelated breed

Compare Hereford vs. Charolais

50% for Breed for BW and 20% for WW and YW

		BW	WW
Hereford Bull	EPD (Registration Papers)	3.2	58
	Across Breed Adjustment (table)	2.1	-34.0
	Adjusted EPD	5.3	24.0

		BW	WW
Charolais Bull	EPD (Registration Papers)	0.5	34.2
	Across Breed Adjustment (table)	7.7	34.0
	Adjusted EPD	8.2	68.2

	BW	WW
Charolais Difference	2.9	44.2

When mating bulls to cows of a third, unrelated breed

Compare Hereford vs. Charolais

50% for Breed for BW and 20% for WW and YW

		BW	WW	YW
Hereford Bull	EPD (Registration Papers)	3.2	58	95
	Across Breed Adjustment (table)	2.1	-34.0	-18.0
	Adjusted EPD	5.3	24.0	77.0

		BW	WW	YW
Charolais Bull	EPD (Registration Papers)	0.5	34.2	62.1
	Across Breed Adjustment (table)	7.7	34.0	34.0
	Adjusted EPD	8.2	68.2	96.1

	BW	WW	YW
Charolais Difference	2.9	44.2	19.1

When mating bulls to cows of a third, unrelated breed

Comparing Angus vs. Charolais



Angus Bull



Charolais Bull

Comparing Angus vs. Hereford

50% for Breed for BW and 20% for WW and YW

		BW
Angus Bull	EPD (Registration Papers)	1.3
	Across Breed Adjustment (table)	0.0
	Adjusted EPD	1.3

		BW
Hereford Bull	EPD (Registration Papers)	3.2
	Across Breed Adjustment (table)	2.1
	Adjusted EPD	5.3

	BW
Hereford Difference	4.0

Hybrid Vigor will increase the spread.

When mating bulls to cows of a third, unrelated breed

Comparing Angus vs. Hereford

50% for Breed for BW and 20% for WW and YW

		BW	WW
Angus Bull	EPD (Registration Papers)	1.3	56
	Across Breed Adjustment (table)	0.0	0
	Adjusted EPD	1.3	56

		BW	WW
Hereford Bull	EPD (Registration Papers)	3.2	58
	Across Breed Adjustment (table)	2.1	-9.0
	Adjusted EPD	5.3	49.0

	BW	WW
Hereford Difference	4.0	-7.0

Hybrid Vigor will increase the spread.

When mating bulls to cows of a third, unrelated breed

Comparing Angus vs. Hereford

50% for Breed for BW and 20% for WW and YW

		BW	WW	YW
Angus Bull	EPD (Registration Papers)	1.3	56	100
	Across Breed Adjustment (table)	0.0	0	0
	Adjusted EPD	1.3	56	100

		BW	WW	YW
Hereford Bull	EPD (Registration Papers)	3.2	58	95
	Across Breed Adjustment (table)	2.1	-9.0	-34.0
	Adjusted EPD	5.3	49.0	61.0

	BW	WW	YW
Hereford Difference	4.0	-7.0	-39.0

Hybrid Vigor will increase the spread.

When mating bulls to cows of a third, unrelated breed

Comparing Angus vs. Charolais

50% for Breed for BW and 20% for WW and YW

		BW	WW	YW
Angus Bull	EPD (Registration Papers)	1.3	56	100
	Across Breed Adjustment (table)	0.0	0	0
	Adjusted EPD	1.3	56	100

		BW	WW	YW
Charolais Bull	EPD (Registration Papers)	.5	34.2	62.1
	Across Breed Adjustment (table)	7.7	34.0	34.0
	Adjusted EPD	8.2	68.2	96.1

	BW	WW	YW
Charolais Difference	6.9	12.2	-3.9

Hybrid Vigor will increase the spread.

When mating bulls to cows of a third, unrelated breed

Comparison of several breeds using Across Breed EPD Adjustments

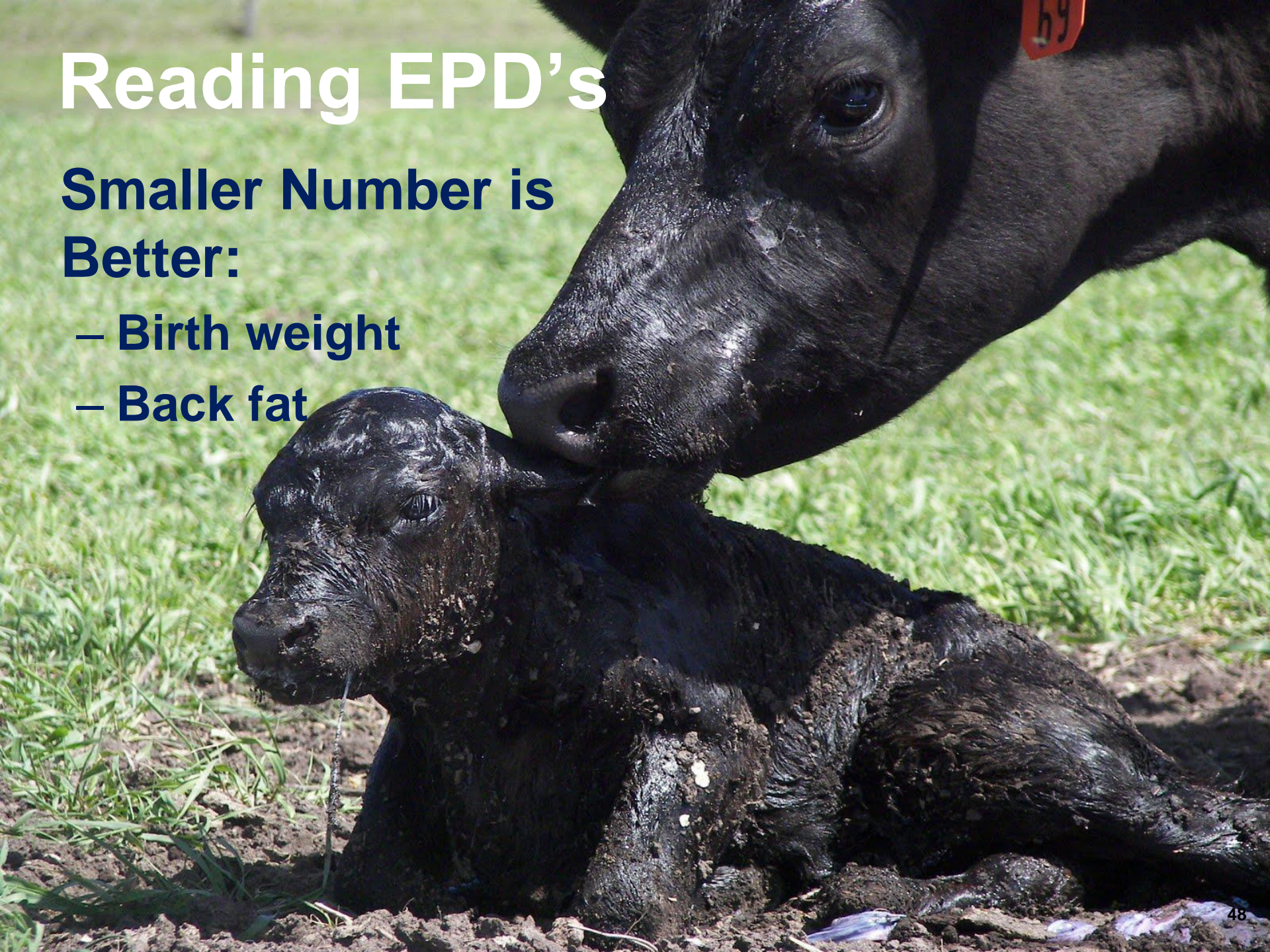
50% for Breed for BW and 20% for WW and YW

Breed		BW	WW	YW
Hereford vs Angus		4.2	-5.8	-33.6
Charolais vs Angus		7.2	12.8	2.5
Charolais vs Hereford		3.0	18.6	36.1
Red Angus vs Angus		0.7	-19.4	-27.6
Red Angus vs Charolais		-6.5	-32.2	-30.1
Red Angus vs Hereford		-3.5	-13.6	6

Reading EPD's

**Smaller Number is
Better:**

- Birth weight
- Back fat



Reading EPD's

Larger Number is Better:

- Weaning Weights
- Yearling Weights



Reading EPD's

Larger Number is Better:

- Calving Ease
- Maternal traits
- Milk
- Calving Ease Maternal

Reading EPD's

Larger Number is Better:

- Carcass weight
- Rib Eye Area
- Marbling



Unintended consequences if we don't look at the big picture



Which EPD's should I use????

- **IT DEPENDS.....**
 - When do you market your cattle?
 - Do you retain heifers as replacements?
 - Do you have an interest in retaining ownership?
 - The good of the industry?
 - How much can you afford to spend?

**After
weaning or
graze out**

**Birth
Weight**

**Weaning
Weight**

**Yearling
Weight**



**Retained
ownership
selling live**

**Feed
Efficiency**

ADG

**\$W, \$F,
\$G, \$B
Values**



**Retained
ownership
sell on grid**

Carcass Weight	Quality Grade	Yield Grade	IMF	Back Fat	REA
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A group of black heifers standing in a grassy field. The image is overlaid with text at the top: 'Heifers' in large orange letters, and 'Milking Ability', 'Scrotal Circumference', and 'Calving Ease' in white letters. The heifers have yellow ear tags with numbers like 810, 766, and 776. A red feed trough is visible on the left, and a yellow bucket is in the background.

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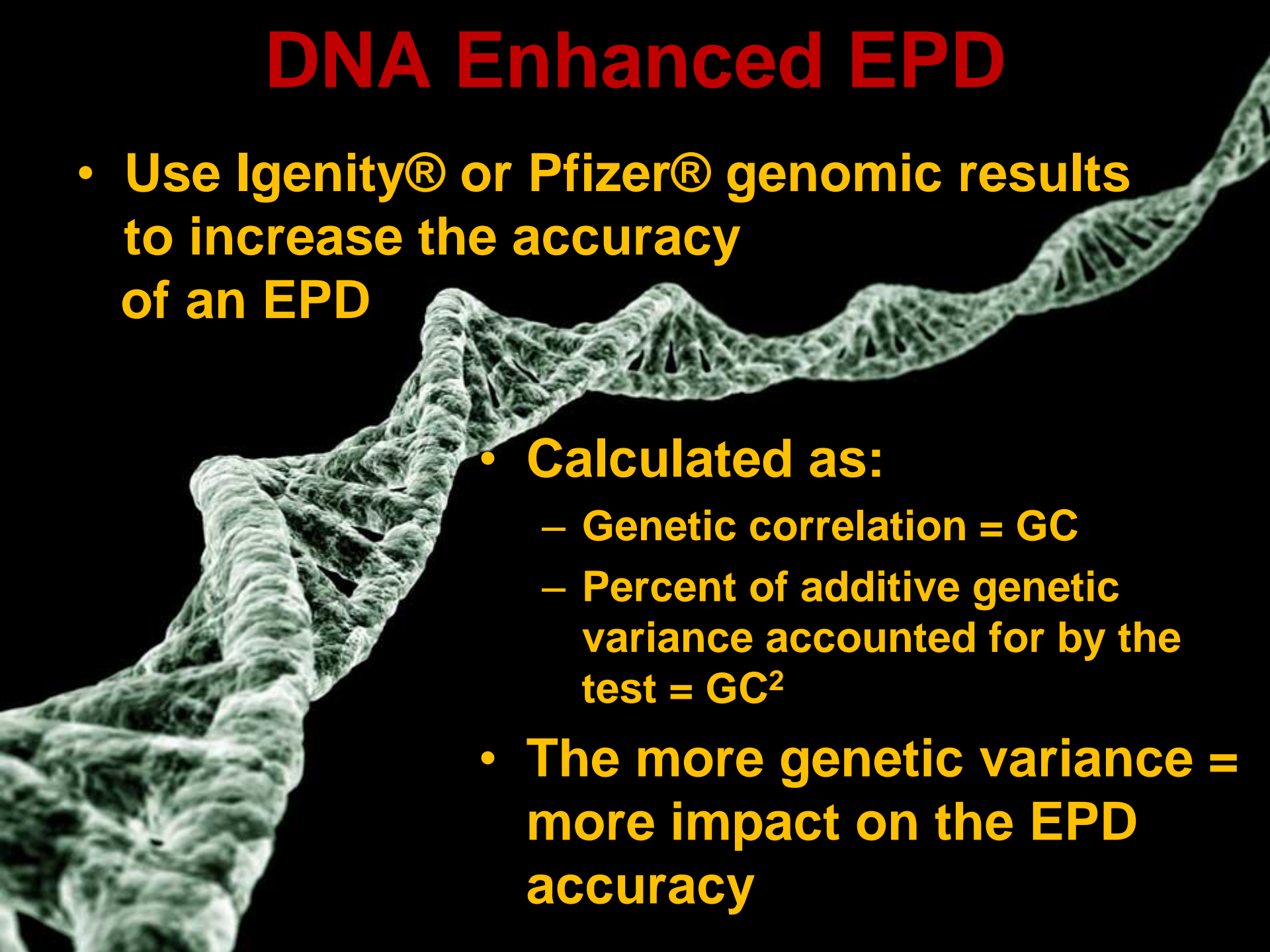
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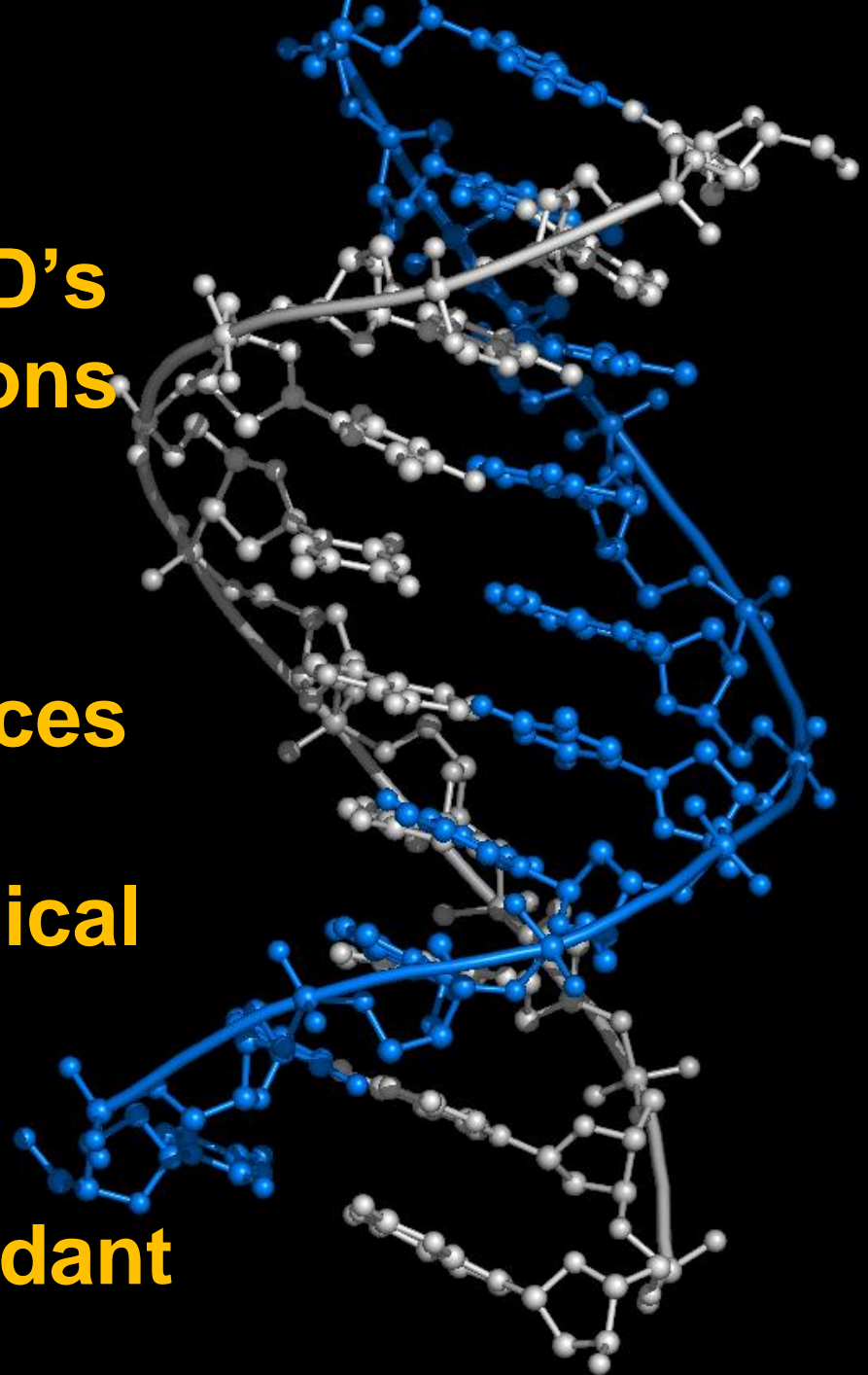
DNA?



DNA Enhanced EPD

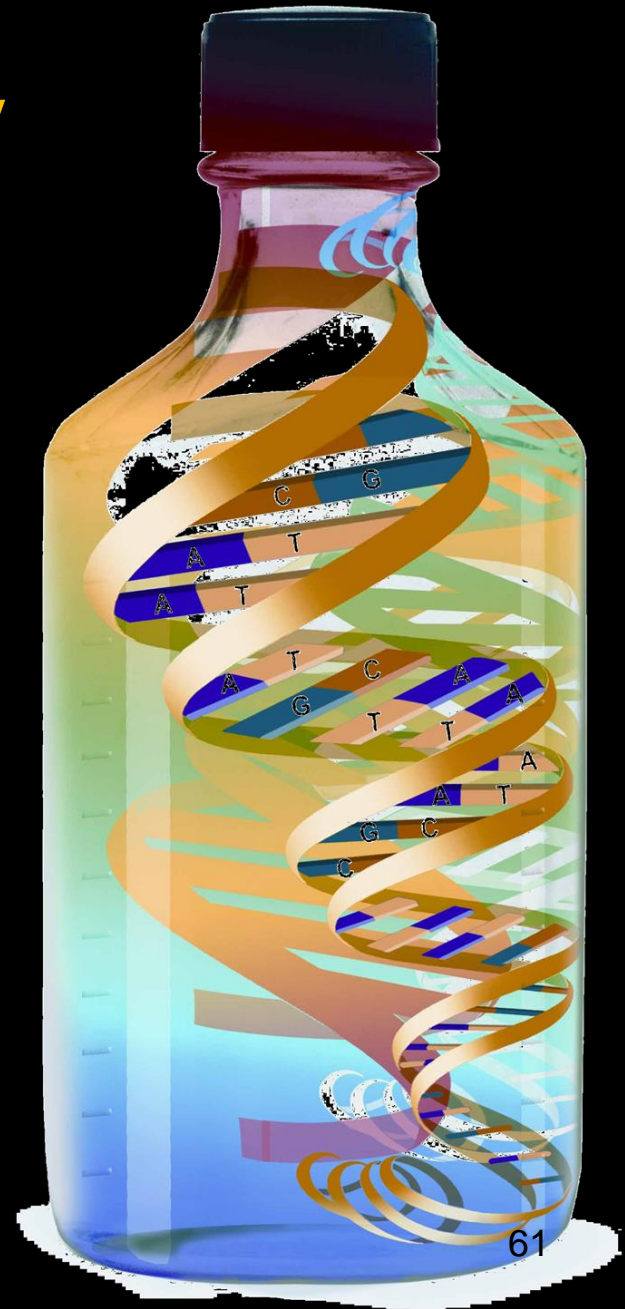
- Use Igenity® or Pfizer® genomic results to increase the accuracy of an EPD
 - Calculated as:
 - Genetic correlation = GC
 - Percent of additive genetic variance accounted for by the test = GC^2
 - The more genetic variance = more impact on the EPD accuracy
- 

- **Continue to use EPD's for selection decisions**
- **EPD & accuracies account for all sources of information – pedigree, physiological or genomic**
- **Using both is redundant**



Genomic results are a way to enhance current selection tools to achieve more accuracy on predictions for younger animals, and to characterize genetics for traits where it's difficult to measure phenotype.

--Sally Northcutt, AAA/AGI



Summary

- **Use EPD's as a tool and in conjunction with other information**
- **Familiarize yourself with terms that are breed specific**
- **Extremes may not be the answer**

Summary

- EPDs are not static, keep up to date
- Use accuracies accordingly
- Don't forget about visual appraisal, disposition, etc.
- Too much of one thing can be hazardous

**Quality is NEVER an
accident but a result
of intelligent and
endless efforts...**



Questions?



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