

Lesson 7.2 Glossary

B

Balanced EPDs – EPDs of an animal that are near to or above breed average for all listed traits.

BF EPD – Swine EPD that estimates genetic contribution to back fat measurement of offspring.

Breed Average EPD – Mean value of all animals in a given breed for a selected trait.

BW EPD – Beef EPD that estimates genetic contribution to birth weight of offspring.

C

Chromosome – A microscopic, dark-staining body, visible in the nucleus of the cell at the time of nuclear division, which carries the genes, arranged in linear order.

Co-dominance – A kind of gene action where one allele does not exhibit complete dominance over the other.

Complete dominance – Pairing of genes where one gene completely masks the other's existence.

Contemporary group – A group of animals that are of the same breed and sex and have been raised in the same management group; e.g., same location in the same feed and pasture. Individual animals can then be accurately compared to others in the group.

D

DAYS EPD – Swine EPD that estimates genetic contribution to growth rate of offspring.

Dominant gene – A gene that prevents its allele from having a phenotypic effect.

E

Economic index – Number that expresses both genetic and economic factors to select animals for economic merit.

Environment – Non-genetic factors that influence quantitative genetic trait expression.

Expected Progeny Difference (EPD) – Estimate difference in offspring performance for quantitative traits.

F

Frequency – Proportion of times a given genotype occurs or can occur.

G

Gene – The simplest unit of inheritance. Physically, each gene is apparently a nucleic acid with a unique structure. It influences certain traits.

Genomics – Study of exact genes that control quantitative genetic traits.

Genotype – The genetic constitution, or genetic makeup, expressed and latent of an organism. Individuals of the same genotype breed alike.

H

Heritability – The proportion of the differences among animals, measured or observed, that is transmitted to the offspring. Heritability varies from zero to one. The higher the heritability of a trait, the more accurately does the individual performance predict breeding value and the more rapid should be the response due to selection for that trait.

Heterozygous – An animal that carries genes for two different characteristics.

Homozygous – Possessing identical genes with respect to any given pair or series of alleles.

I

Index – A system for comparing animals within a herd, or area, based on the average of the group; usually the figure 100 is used for an average index; animals receiving an index of 100 or over are the top end while those indexing less than 100 are the bottom end.

Inheritance – The transmission of genetic factors from parent to offspring.

L

Lethal gene – A gene that can cause the death of an individual when it is allowed to express itself.

LW 21 EPD – Swine EPD that estimates genetic contribution to sow milk production measured by litter weight at 21 days of age.

M

MM EPD – Beef EPD that estimates genetic contribution from a cow's milk production on calf weaning weight of offspring.

N

NBA EPD – Swine EPD that estimates genetic contribution to litter size of offspring.

P

Phenotype – The observed character of an individual without reference to its genetic nature. Individuals of the same phenotype look alike but may not breed alike.

Polled – Designating animals that normally do not develop horns.

Probability – The likelihood or chance that a given event will occur.

Progeny – The offspring of animals or plants.

Punnett Square – A model used to establish the probabilities of the results of a genetic cross.

Q

Qualitative trait – Traits having a sharp distinction between phenotypes, and which are usually controlled by only a few genes; e.g., various coat colors and the horned trait in domestic animals.

Quantitative trait – Traits that do not have a sharp distinction between phenotypes, and usually require some kind of measuring tools to make the distinctions. These traits are normally controlled by many pairs of genes; e.g., growth rate, milk production, and carcass quality.

R

Ratio – Performance of an animal compared with its contemporaries with 100 being average. Ratios greater than 100 are above average, and less than 100 are below average.

Recessive – In genetics, a gene or trait that is masked by a dominant gene.

T

Trait – Any observable feature or characteristic of an animal.

W

WW EPD – Beef EPD that estimates genetic contribution to growth on calf weaning weight of offspring.

Y

YW EPD – Beef EPD that estimates genetic contribution to growth on yearling weight of offspring.