"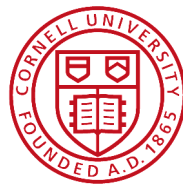Using genomics, a heifer's genetic potential is revealed early in life, genetic progress can be accelerated with confidence and profitability is enhanced by capitalizing on higher production potential." - Zoetis

For more information refer to additional handouts.

Understanding Genetic Indexes

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ANSC 3310 Applied Dairy Cattle Genetics Cornell University

TPI—HOLSTEIN

Total performance index is a method of ranking cows according to a formula. It seeks to identify cows who excel in three categories: production, health and conformation. The formula focuses 43% on production, 28% on health and 29% on confirmation.

TPI =

$$\frac{[27(PTAP)}{19} + \frac{16(PTAF)}{22.5} + \frac{3(FE)}{44} + \frac{8(PTAT)}{.73} - \frac{1(DF)}{1} + \frac{11(UDC)}{.8}$$

$$\frac{)+6(FLC)}{.85} + \frac{7(PL)}{1.51} - \frac{5(SCS)}{.12} + \frac{13(FI)}{1.25} - \frac{2(DCE)}{1} - \frac{1(DSB)]\,3.9}{.9} + 2187$$

PTAP = PTA Protein

PTAF = PTA Fat

FE = Feed Efficiency

PTAT = PTA Type

DF = STA Dairy Form

UDC = Udder Composite

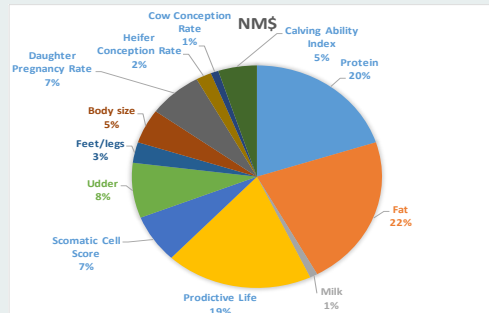FLC = Feet & Legs Composite

PL = Productive Life

SCS = PTA Somatic Cell Score

FI= Fertility Index

DSB = Daughter Stillbirth

LIFETIME NET MERIT

Lifetime net merit is a measure of expected lifetime profit as compared to breed base cows. It is the sum of 12 selected PTA traits multiplied by their determined economic value minus 3 points for somatic cell score. There is a high emphasis on yield traits along with fertility, productive life and somatic cell score. Cows and bulls are ranked on the same scale. The relative values of the traits were last updated in 2014.

NM$

- Cow Conception Rate 1%
- Calving Ability Index 5%
- Protein 20%
- Heifer Conception Rate 2%
- Daughter Pregnancy Rate 7%
- Body size 5%
- Feet/legs 3%
- Udder 8%
- Scomatic Cell Score 7%
- Prodictive Life 19%
- Fat 22%
- Milk 1%

CHEESE MERIT, FLUID MERIT, GRAZING MERIT

These specialized indexes are a great tool for operations that are targeting different milk markets. They are specially designed spin-offs of net merit that help select the best cow to produce for specific markets.

GM$

- Cow Conception Rate 5%
- Calving Ability Index 5%
- Heifer Conception Rate 3%
- Protein 18%
- Daughter Pregnancy Rate 18%
- Body size 4%
- Feet/legs 3%
- Udder 8%
- Somatic Cell Score 6%
- Productive Life 10%
- Milk 1%
- Fat 19%

CM$

- Heifer Conception Rate 1%
- Cow Conception Rate 1%
- Calving Ability Index 4%
- Daughter Pregnancy Rate 6%
- Body size 4%
- Feet/legs 2%
- Udder 6%
- Protein 25%
- Somatic Cell Score 7%
- Productive Life 16%
- Milk 9%
- Fat 19%

FM$

- Cow Conception Rate 2%
- Calving Ability Index 5%
- Protein 0%
- Heifer Conception Rate 2%
- Daughter Pregnancy Rate 7%
- Body size 5%
- Fat 22%
- Feet/legs 3%
- Udder 8%
- Somatic Cell Score 3%
- Productive Life 20%
- Milk 23%