Pedigree

Questions & Answers
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This workbook was developed to present a basic explanation of official Holstein pedigree formats and give readers basic skills in comparing and evaluating pedigrees. More comprehensive information on genetic evaluations and their calculations are available from each breed association. Also, view the Holstein Foundation’s “Understanding Genetics and the Sire Summaries” workbook for a more detailed explanation.
What is a Pedigree?

A pedigree is a record of an animal’s ancestry, presented in a standard format. Information about the **sire**, the father of the animal, is listed on the top half of the pedigree, known as the “paternal side.” Information about the **dam**, the mother of the animal, is printed on the bottom half of the pedigree, known as the “maternal side.”

**Three-Generation Pedigree Format**

A three-generation pedigree includes the animal, sire and dam, and paternal and maternal grandparents. A four-generation pedigree would also include great-grandparents, and a five-generation pedigree would also include information about the great-great-grandparents.

Official Holstein pedigrees combine ancestry, performance and genetic information all into one easy-to-use document. Whether you’re making mating decisions or trying to decide which sale animal might have a place on your farm, pedigrees give you the information and details you need to know. Official pedigrees also serve as a verified source of production and ancestry information, essential for the comfort of any potential buyer.

What are Pedigrees Used For?

Pedigrees provide detailed performance and genetic information about an animal and its ancestors, which has many uses. The pedigree values that measure the ability of the sire and dam to transmit their traits can help you predict the calf’s future performance.

When selecting an animal to buy, different people will have different factors they look for on a pedigree, depending on what their goals are. Someone looking for a show calf will pay more attention to the calf’s birthdate, the dam and sire’s classification scores, any show winnings on the pedigree, along with Predicted Transmitting Abilities (PTAs) for Type, Udder and Feet and Leg composites. Someone looking for an exceptional milk cow will likely look at the TPI values on the pedigree, PTAs for Milk, Fat and Protein, as well as all production records on the pedigree. When investing a great deal of money in an animal, some might prefer the calf and her dam to be genomic tested so her PTAs have a higher reliability and are less likely to change with subsequent genetic evaluations. There are many examples, but all have one thing in common – analyzing a calf’s pedigree will help provide insight into future performance. When beginning the search for your ideal project animal, first decide what information is most important to you.

Pedigrees also come in handy when making mating decisions on your animals. They allow you to review the animal’s ancestry to avoid inbreeding, as well as get a total picture of the genetic strengths and weaknesses of the animal and her family. You can look for trends in milk production, classification score, TPI values, or other areas where you might want to improve the animal, then select a mate that will correct some of her weaknesses.
Pedigrees contain a wealth of important information on a single page. While each animal is different, their information is all presented in the same format, making it easy to evaluate and compare animals. Follow along with the pedigree below to learn about the information presented in each section of the pedigree. The following sections describe pedigrees issued by Holstein Association USA. For more specific information about other breeds, contact the breed association responsible for issuing the pedigree.

**Official Holstein Pedigree**

- 100% Registered Holstein Ancestry (RHA-NA)
- 50% GTPI
- 3K GTPI
- 3K GTPI
- 50K GTPI
- 50K GTPI
- 50K GTPI
- 50K GTPI
- 50K GTPI
- CTPI
- CTPI

**1. Protein reported is true protein.**

**2. Parts of an Official U.S. Registered Holstein Pedigree**

**3. A. Supreme All-American**

**4. B. Supreme International**

**5. C. Supreme Mid-Western**

**6. D. State and/or Regional**

**7. E. Honor**

**8. F. Milking Production**

**9. G. Life Production**

Protein reported is true protein. 004302831 2131027 8/2/2013
1. **100% Registered Holstein Ancestry (RHA-NA)**

The first line, centered on a pedigree, shows the percentage Registered Holstein ancestry (RHA) and whether the animal is of a North American (RHA-NA) bloodline or International (RHA-I) bloodline. RHA percentages can range from 0 to 100% RHA, depending on the animal’s lineage. Pride has 100% Registered Holstein Ancestry - North American, meaning that all of the animals in her pedigree are registered in North America; if any ancestor were registered in herdbooks outside North America, the animal will have the “-I” suffix after their %RHA. Animals may have less than 100% RHA if they have unidentified ancestors in their pedigree. If an animal has unidentified ancestors, the highest %RHA they could ever attain would be 99% RHA.

2. **07/12/2012 18478 FEMALE**

*Animal Barn Name*: This can be an animal’s short name or herd management number. Pride’s herd management number is 18478.

*Birthdate*: Pride was born on July 12, 2012 (7/12/2012).

*Animal Gender*: Pride is a female.

3. **SIEMERS BRDNK AVAS-PRIDE-ET**

   
   USA 71360055 100%RHA-NA

   
   **P8 PTPI**

   +1880

*Line 1: Percentile Ranking (P-Level) and Total Performance Index (TPI) Type*

**P-Level**: Indicates the percentile ranking of the animal based on their TPI. The percentile ranking compares registered animals of the same gender born in the same year. P-values are assigned for the top 50% of animals born within a given year, labeled P5 through P9. Pride’s P8 level indicates she is in the 80th percentile, meaning her PTPI is among the top 20% of heifers born in 2012.

**TPI Type**: TPI may be described in a few different ways on a pedigree, depending on what type of information is included in the animal’s genetic evaluation. The following abbreviations indicate the type of TPI listed for an animal:

- **PTPI (Pedigree Total Performance Index)**: A heifer or cow that has not been genomic tested, and doesn’t have a required classification score and/or is not enrolled in an official milk production records testing program; for bulls, they would not have any daughter information included in their genetic evaluations. It is the average of the sire and dam’s TPI values.
- **CTPI (Cow Total Performance Index)**: A cow that has not been genomic tested, but has a required classification score and a milk record completed under an official testing program.
- **GTPI (Genomic Total Performance Index)**: A heifer, cow or bull that has been genomic tested; they may or may not have a required classification score and/or a milk record completed under an official testing program, or for bulls, may or may not have daughter information included in their genetic evaluations.
- **TPI (Total Performance Index)**: A bull that has not been genomic tested, but does have daughter information included in his genetic evaluation.
Line 2: Registered Name and TPI Value

Registered Name: Always includes the prefix of the breeder (the owner of the dam at the time she was bred), and may not exceed the 27-character limit, according to Holstein Association USA naming rules. Suffixes required on the animal's name must be included in the 27-character limit. Following are some suffixes you may see on pedigrees:

- **-RED:** Calf has red coat color
- **-TW:** Calf was a twin
- **-TRI:** Calf was part of a set of triplets
- **-ET:** Calf is the result of an embryo implanted into a recipient
- **-ETS:** Calf is the result of a split embryo
- **-ETN:** Calf is a clone

Total Performance Index (TPI®) value: An indicator of an animal's ability to transmit superior traits. TPI is a selection index calculated by Holstein Association USA. You can see Pride's TPI value is +1880. You may occasionally see different letters following a bull's TPI value. This indicates the source(s) of information used to calculate the genetic evaluation.

- **No label** = Domestic U.S. evaluation (no genomic data included)
- **G** = Genomic information is included in the evaluation
- **M** = The animal has a MACE (Multiple-trait Across Country Evaluation) evaluation. MACE evaluations are released by InterBull to estimate how sires from other countries would compare to sires with domestic U.S. proofs. InterBull (International Bull Evaluation Service) is a non-profit organization based in Uppsala, Sweden, responsible for calculating international genetic evaluations and promoting the development and standardization of the international dairy genetic evaluations.

MACE evaluations assist breeders by expressing information from other countries in the same format as U.S. animals are displayed. If a bull's evaluation contains information from both U.S. and foreign daughters (but no genomic information), it will be labeled with an M.

TPI Formula

\[
\text{PTAP} = \text{PTA Protein} \\
\text{PTAF} = \text{PTA Fat} \\
\text{FE} = \text{Feed Efficiency} \\
\text{BWC} = \text{Body Weight Composite} \\
\text{PL} = \text{PTA Productive Life} \\
\text{LIV} = \text{PTA Cow Livability} \\
\text{F} = \text{Fertility Index} \\
\text{DF} = \text{STA Dairy Form} \\
\text{SCS} = \text{PTA Somatic Cell Score} \\
\text{PTAT} = \text{PTA Type} \\
\text{UDC} = \text{Udder Composite} \\
\text{FLC} = \text{Feet & Legs Composite} \\
\text{DCE} = \text{PTA Daughter Calving Ease} \\
\text{DSB} = \text{PTA Daughter Stillbirth}
\]

\[
\frac{[19(\text{PTAP}) + 19(\text{PTAF}) + 8(\text{FE}) + 8(\text{BWC}) + 11(\text{UDC}) + 6(\text{FLC}) + 5(\text{PL}) + 2(\text{HT}) + 3(\text{LIV}) \cdot 4(\text{SCS}) + 13(\text{F}) \cdot 0.5(\text{DCE}) \cdot 1.5(\text{DSB})]}{38 + 2363}
\]

The value 2363 adjusts for our periodic base change, allowing TPI® values to be comparable across time.

Formula updated April 2021.

Line 3: Nation Code, Registration Number, RHA, and Genetic Codes

Nation Code: Indicates the country an animal is registered in. Animals registered in the U.S. will have a country code of either “USA” or “840” (the International Organization for Standardization numeric code of the United States).
Registration Number: The animal’s registration number officially identifies them in the Holstein Association USA database.

Genetic Codes: Genetic codes indicate the results of any genetic tests that have been done on the animal, labeled so breeders can see if there are any traits or conditions they should be aware of. Pride has not had any genetic tests done, so she has no genetic codes, but if you look at her sire, you will see an example of how these codes are presented on a pedigree.

<table>
<thead>
<tr>
<th>Holstein Gene Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BL</td>
</tr>
<tr>
<td>BY</td>
</tr>
<tr>
<td>CD</td>
</tr>
<tr>
<td>CV</td>
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<td>DP</td>
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<td>PC</td>
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<td>PP</td>
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<td>RC</td>
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<tr>
<td>B/R</td>
</tr>
<tr>
<td>DR1</td>
</tr>
<tr>
<td>DR2</td>
</tr>
</tbody>
</table>

Note: This is not an exhaustive list. * denotes a recessive trait ** denotes a dominant trait

If an animal is tested free of a trait (meaning they do not carry any alleles for the trait), that result is also recorded and published on pedigrees and genetic evaluations. If the animal is not a carrier, they cannot pass those genes down to the next generation.

<table>
<thead>
<tr>
<th>Tested-Free Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>TL</td>
</tr>
<tr>
<td>TD</td>
</tr>
<tr>
<td>TY</td>
</tr>
<tr>
<td>TM</td>
</tr>
<tr>
<td>TC</td>
</tr>
<tr>
<td>TP</td>
</tr>
<tr>
<td>TV</td>
</tr>
<tr>
<td>TR</td>
</tr>
</tbody>
</table>

Line 4: Age at Classification, Final Score, Major Breakdowns, and Recognitions (if applicable)

Pride is just a heifer so she has not been classified or earned any Holstein Association USA recognitions yet, but if she had any of that information, it would be located in this space. For an example, look at Pride’s dam’s information (described here under Section 7).
This section of the pedigree contains genetic values for the animal, allowing the viewer to see important information about the animal's transmitting ability for several traits. PTA (Predicted Transmitting Ability) expresses the level of genetic superiority that an animal transmits to its offspring for a given production or type trait. PTA values are used to rank animals based on their genetic merit.

For young animals, PTA values are estimated by averaging the sire and dam's PTA values. When the genetic values listed are based on parental average, it is indicated by the “#” symbol, as you can see on Pride's pedigree.

**Line 1:** PTAs for Pounds of Milk (M), Pounds of Fat (F) and Pounds of Protein, along with the percent reliability for the production evaluation and the month and year the evaluation was calculated

**Line 2:** PTAs for Productive Life (PL), Somatic Cell Score (SCS), Daughter Pregnancy Rate (DPR), and Daughter Calving Ease (DCE)

**Line 3:** PTAs for Type (T), Udder Composite (UDC), and Feet & Leg Composite (FLC), along with the percent reliability for the type evaluation and the month and year the evaluation was calculated

Linear composite indexes such as UDC and FLC combine linear trait information on several related traits into one numerical value. Composite indexes can be used as a selection tool in breeding programs to identify animals which are predicted to transmit a desirable combination of the traits included in the composite, which can be more effective than simply selecting for individual traits. The values for each trait in a composite index are weighted according to their economic value and added together to arrive at the index value, then standardized.

Traits included in the **Udder Composite Index** are Fore Udder Attachment, Udder Cleft, Rear Teat Placement, Front Teat Placement, Rear Udder Height, Rear Udder Width, Udder Depth, Teat Length and Stature

The **Feet & Leg Composite** incorporates the traits Foot Angle, Rear Legs-Rear View, Feet & Leg Score and Stature.

Learn more about all of the composite indexes and how they are calculated in the Holstein Foundation’s free Understanding Genetics & the Sire Summaries workbook!

Sections 5 and 6 as labeled on this pedigree include information about the father of the animal, known as the sire.

**Line 1:** P-Level and TPI Type

If an animal has been genomic tested, you will find the indicator on this line, after the P-level. Bradnick has been tested with the 50K SNP genomic test. Following are genomic test indicators you might find on a pedigree are:
• 3K: Tested with the 3K SNP Genomic Test
• 6K: Tested with the 6K SNP Genomic Test
• 9K: Tested with the 9K SNP Genomic Test
• 50K: Tested with the 50K SNP Genomic Test
• IMP: This animal has an imputed GTPI, meaning that they have enough offspring who have been tested that the genetic evaluation is able to estimate enough of their genotype to provide a comparable genomic evaluation. For more information about the different types of genomic tests available, visit www.holsteinusa.com.

Line 2: Sire’s Registered Name and TPI Value

Line 3: Sire’s Nation Code, Registration Number, %RHA and Genetic Codes

Line 4: Classification scores, recognition information and date of birth

• Many bulls have their physical conformation evaluated by Holstein Association USA classifiers and receive official classification scores. Three pieces of information are provided here about the classification score.
  o Age at classification is represented in years and months. Bradnick received the listed classification score when he was three years and five months of age (3-05).
  o Final Score: Bradnick is scored 94 points, putting him in the Excellent category.
  o Major Breakdowns: To arrive at a final score, each animal receives a score for several individual traits, which fall into categories known as major breakdowns. Bulls have four major breakdowns:
    ▪ Front End & Capacity = 40% of the final score
    ▪ Dairy Strength = 25%
    ▪ Rump = 10%
    ▪ Feet & Legs = 25%

Pedigrees show what category of score each major breakdown received:
  ▪ E = Excellent (90-100 points)
  ▪ V = Very Good (85-89 points)
  ▪ + = Good Plus (80-84 points)
  ▪ G = Good (75-79 points)
  ▪ F = Fair (65-74 points)
  ▪ P = Poor (50-64 points)

You can see that Bradnick has scored Excellent in all four major breakdowns.

• Some bulls will be recognized as Gold Medal Sires, such as Braedale Goldwyn on this Pedigree, indicated as “GM” with the month and year the recognition was given. To be recognized as a Gold Medal Sire, bulls must meet a minimum TPI requirement (updated semi-annually to recognize approximately 25 new bulls each year), have a minimum 90% reliability for PTA Fat and PTA Type, and be free of undesirable recessive traits. All bulls 87% RHA and higher are automatically evaluated twice a year, and Gold Medal Sire recognition is permanent.
• Date of Birth: Bradnick was born on December 16, 2009 (12/16/2009)
6. PTAs for Pounds of Milk (M), Pounds of Fat (F) and Pounds of Protein, along with the percent reliability for the production evaluation and the month and year the evaluation was calculated.

7. PTAs for Net Merit Dollars, a selection index calculated by USDA (NM), Percent Fat (%F), Percent Protein (%P), along with the percentage of the bull’s daughters that are in the United States (%US).

8. PTAs for Productive Life (PL), Somatic Cell Score (SCS), Daughter Pregnancy Rate (DPR) and Daughter Calving Ease (DCE).

9. PTAs for Type (T), Udder Composite (UDC), and Feet & Legs Composite (FLC), along with the percent reliability for the type evaluation and the month and year the evaluation was calculated.

10. Dam’s TPI Type

11. Dam’s Registered Name and TPI Value

12. Dam’s Nation Code, Registration Number, %RHA and Genetic Codes

13. Classification scores, recognition information and date of birth

   a. **Age at classification** is represented in years and months. Ava received the listed classification score when she was six years and six months of age.

   b. Final Score: Ava is scored 95, putting her in the Excellent category.

   c. Major Breakdowns: The current classification breakdowns were introduced in December 2004. Classification scores assigned before this date are underlined on pedigrees. Cows have five major breakdowns:

      - Front End & Capacity = 15% of the final score
      - Dairy Strength = 20%
      - Rump = 5%
      - Feet & Legs = 20%
      - Udder = 40%

   d. **Multiple E designation**: Cows may receive multiple E designation if classified Excellent subsequent times in the following age brackets (2E and higher designations are listed on the pedigree):

      - 1E: Up to 6 years old
      - 2E: 6 to 9 years old
      - 3E: 9 to 12 years old
      - 4E: 12 to 15 years old
      - 5E: 15 to 18 years
      - 6E: Any subsequent three year period

   e. Recognitions (if applicable): Holstein Association USA can designate cows with two major recognitions: Gold Medal Dam (GMD) and Dam of Merit (DOM). Bradnick’s dam, Breya, has received both of these honors.
• **Gold Medal Dam:** A cow must meet several strict criteria to be recognized as a GMD. She and at least three of her daughters must be classified. The cow herself must be milking in a herd participating in a Holstein TriStar service option (Custom, Deluxe or Premier). Equal emphasis is placed on both production and type, and on progeny and dam performance; the dam’s age adjusted final and Mature Equivalent (ME) production records are evaluated, along with the average of the daughters’ age adjusted classification scores and ME production records. Separate cutoffs are determined by the birth year of the dam. If the cow herself does not qualify on an ME production basis, she may qualify based on high lifetime production credits (200,000 pounds of milk OR 7,200 pounds of fat, OR 6,400 pounds of protein). Automatic evaluation is done twice a year for all cows 87% RHA or higher that were born in the past 25 years, and GMD is a permanent recognition.

• **Dam of Merit:** To be recognized as a DOM, a cow must have a GTPI or CTPI exceeding a cutoff based on their year of birth. The cow must have at least three offspring with a PTA for production and type, and the animal’s GTPI or CTPI must be calculated using a required classification score. Automatic evaluation is done twice a year for all cows 87% RHA or higher that were born in the past 25 years and milking in a herd enrolled in a Holstein TriStar service option. Like the others, DOM is permanent recognition.

• **Date of Birth:** Ava was born on March 3, 2006 (3/3/2006)

8. Line 1: PTAs for Pounds of Milk (M), Pounds of Fat (F) and Pounds of Protein, along with the percent reliability for the production evaluation and the month and year the evaluation was calculated

Line 2: PTAs for Net Merit Dollars, a selection index calculated by USDA (NM), Percent Fat (%F), Percent Protein (%P)

Line 3: PTAs for Productive Life (PL), Somatic Cell Score (SCS), Daughter Pregnancy Rate (DPR) and Daughter Calving Ease (DCE)

Line 4: PTAs for Type (T), Udder Composite (UDC), and Feet & Legs Composite (FLC), along with the percent reliability for the type evaluation and the month and year the evaluation was calculated

9. This portion of the pedigree contains information about the cow’s milk production records, and can be listed for any female on the pedigree (when available), always found beneath the PTA information. In this instance, it is for Pride’s dam, Ava. Pride doesn’t have any milk production information herself as she is just a heifer. Herds must be enrolled in an option of Holstein Association USA’s TriStar program in order to have production records printed on pedigrees.
Several columns of information provide key data about a cow’s lactations:

- The first column includes an indicator for the level of the TriStar program the herd was enrolled in when the cow made the record, either Custom (*), Deluxe (**) or Premier (***) for all records made after January 1997. Records started before January 1997 will have an indicator of which type of testing program the cow was enrolled in.
- Age of the cow when the record was started (AGE), listed as years and months, like the classification score.
- Number of times per day the cow was milked (X)
- Number of days included in the listed lactation (DAYS)
- Pounds of milk (MILK)
- Data Collection Rating for pounds of Milk (DCRM)
- Percent fat for the lactation (%)
- Pounds of fat for the lactation (FAT)
- Percent protein for the lactation (%)
- Pounds of protein for the lactation (PRT)
- Data Collection Rating for Components (DCRC)

Any “X” at the end of a row of production information indicates that the record contains some extreme test-day data. A second row of production information for a lactation is only listed if the cow’s lactation lasted longer than 305 days (up to 365 days) for that lactation. One a cow produces more than 100,000 pounds of milk, her total production information appears on the pedigree and is labeled “LIFE.”

State and national leader records for Milk, Fat and Protein production are labeled on the line below the outstanding record. The designation indicates the placing (1st, 2nd or 3rd), where the record was made (either the state abbreviation or NAT for a National record), and category (MILK, FAT, or PROTEIN). This recognition is based on TriStar Premier records and awarded in seven age categories.

H.M. ALL-AMERICAN SPR HFR CALF 2006
3rd INTERNATIONAL 125,000 LB COW 2012
3rd INTERNATIONAL SPR HFR CALF 2006
5th INTERNATIONAL 5Y COW 2011
2nd MID-W SPR NAT 6Y+ COW 2012
3rd MID-W FALL NATL SPR YR HFR 2007

If a female on the pedigree placed in the top five in a class at a National Holstein Show, her placing will be listed beneath all milk production information. All-American recognitions may also be included on the pedigree.

11. Protein reported is true protein. 004302831 2131027 8/2/2013

Included here is a label for the type of protein listed on the pedigree (true or crude), along with two Holstein USA Processing Numbers, and the date the pedigree was issued.

In May 2000, Holstein Association USA began printing True Protein as the default format. Crude protein is still available as an option when ordering internet pedigrees for international marketing purposes.
PRACTICE ACTIVITIES

What Are Your Goals?

Imagine that you have won a $2,500 calf scholarship to purchase a heifer as your dairy project. What are some minimum criteria you would like to set for animals you will consider purchasing?

- Age _______________________
- Heifers PTPI or GTPI ____________
- %RHA _______________________
- Dam’s classification score ____________
- Dam’s milk production ____________

List any other criteria you will consider:

- ______________________________________________________________________
- ______________________________________________________________________
- ______________________________________________________________________
- ______________________________________________________________________
Test Your Pedigree Knowledge

Use the pedigree for Wormont Observer Alexis on the following page to complete the exercise

1. What is Alexis’ p-level?

2. What is her sire’s TPI?

3. What does “PTA” stand for on a pedigree?

4. What is her dam’s final score and age at classification?

5. What is Planet’s relationship to Alexis?

6. Which maternal female relative has the highest CTPI?

7. What is her sire’s reliability for PTA Type?

8. What is the dam’s PTA for pounds of protein?

9. What is the name of the granddam that is a Gold Medal Dam?

10. Of the three bulls listed on the pedigree, which has the highest PTA for milk?

11. What is Alexis’ herd management number?

12. What is the country code, registration number and %RHA of her maternal grandsire?

13. When was Alexis born?

14. How many pounds of milk did her dam produce in her first 305-day lactation?

15. What is Alexis’ PTA for Productive Life?

16. What is her sire’s PTA for Udder Composite?

17. Which version of genomic test was Alexis tested with?

18. What is her maternal grand dam’s percent Registered Holstein Ancestry?

19. What is her sire’s PTA for Protein Percent?

20. Which animal on the pedigree has been tested and found to be a carrier for the red coat color gene?

21. What does “SCS” stand for on a pedigree?

(Answers on page 23)
Alexis

98% Registered Holstein Ancestry (RHA-NA)

WORMONT OBSERVER ALEXIS
P9 9K GTPI +2266 G
USA 70850909 98% RHA-NA RC

- PTA: +141T +68F +40P 73% 4/2013
- PTA: +800NM +.06F -.01P
- PTA: +7.5PL 2.72SCS +1.4DPR 58%DC
- PTA: +1.82T +2.13UDC +1.05FLC 72% 4/2013

WORMONT BAXTER ALEXA
CTPI
USA 65975302 96% RHA-NA TL

- PTA: +1602M +61F +52P 96% 4/2013
- PTA: +792NM -.023F +.02P 100%US
- PTA: +7.2PL 2.76SCS +.6DPR 68%DC
- PTA: +2.70T +.02UDC +.89FLC 91% 4/2013

DE-SU OBSERVER-ET
P9 50K GTPI +2312 G
USA 65975481 100% RHA-NA TR TV TL TY TD
4-06 90 EVEV 11/07/2008

- PTA: +1560M +61F +52P 96% 4/2013
- PTA: +792NM -.023F +.02P 100%US
- PTA: +7.2PL 2.76SCS +.6DPR 68%DC
- PTA: +2.70T +.02UDC +.89FLC 91% 4/2013

DE-SU OMAN 6121-ET
IMP GTPI +1870 G
USA 61851442 100% RHA-NA TL

- PTA: +1602M +61F +52P 96% 4/2013
- PTA: +792NM -.023F +.02P 100%US
- PTA: +7.2PL 2.76SCS +.6DPR 68%DC
- PTA: +2.70T +.02UDC +.89FLC 91% 4/2013

EMERALD-ACR-SA T-BAXTER
CTPI
USA 152973942 100% RHA-NA TR TV TL TY TD

- PTA: +1560M +61F +52P 96% 4/2013
- PTA: +792NM -.023F +.02P 100%US
- PTA: +7.2PL 2.76SCS +.6DPR 68%DC
- PTA: +2.70T +.02UDC +.89FLC 91% 4/2013

WORMONT POTTER ALLY
CTPI
USA 62801415 93% RHA-NA TL

- PTA: +1560M +61F +52P 96% 4/2013
- PTA: +792NM -.023F +.02P 100%US
- PTA: +7.2PL 2.76SCS +.6DPR 68%DC
- PTA: +2.70T +.02UDC +.89FLC 91% 4/2013

Protein reported is true protein.
043040205 2132410 8/7/2013
Practicing Pedigree Comparisons

Answer these questions using the following two pedigrees.

1. Which calf's maternal granddam has lifetime production records?
2. Which calf is a bull?
3. Which calf is sired by the bull with a higher TPI?
4. Which calf's dam has the higher Udder Composite index?
5. Which calf has direct family members that are carriers of brachyspina?
6. Which dam is predicted to transmit a higher level of overall type?
7. Which maternal granddam has the higher first lactation 305-day milk production record?
8. Which calf has the younger dam?
9. Which calf has been genomic tested with results reported to Holstein Association USA?
10. Which calf has a grand dam that has been classified Excellent multiple times?
11. Which calf is the youngest?
12. Which dam has the higher PTA % Protein?
13. Which sire has the higher PTA for Net Merit?
14. Which calf has genetic values based on parent average printed on their pedigree?
Rank These Heifers

It is time to put your pedigree knowledge and evaluation skills to work! Assume you have your choice of these four heifers for your next project animal. Which one would you choose? Before looking at the pedigrees, first answer the following questions.

1. What are your goals for this heifer?

_______________________________________________________________________________________________
_______________________________________________________________________________________________
_______________________________________________________________________________________________
_______________________________________________________________________________________________
_______________________________________________________________________________________________

2. List the pedigree information and criteria you plan to consider when making your decision.

_______________________________________________________________________________________________
_______________________________________________________________________________________________
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Now look at the four pedigrees on the following pages and rank them in the order that you would like to own the animals.

Rank the heifers in the order you would purchase them.

_______________________________________________________________________________________________
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Which heifer would be your first choice and why?

_______________________________________________________________________________________________
_______________________________________________________________________________________________
_______________________________________________________________________________________________
_______________________________________________________________________________________________
100% Registered Holstein Ancestry (RHA-NA)

**ERNEST-ANTHONY MS TANYA**
P6 PTPI
USA 7269731 100% RHA-NA
PTA +284M +35F +17P 37%R 4/2013
PTA +1.4PL +2.62SCS - 9DPRR 8DCE#
PTA +2.82TL+1.98UDC+2.10FLC# 36%R 4/2013

**GILLETTE BRILEA F B I-ET**
PTA +1556M +42F +37P 99%R 4/2013
PTA +268NM - .05F - .04P 178US
PTA -1.3PL 2.76SCS -1.0DPR 9DCE
PTA +1.91T +1.30UDC +1.66FLC 99%R 4/2013

**GILLETTE WINDBROOK-ETS**
PTA +787M +52F +29P 91%R 4/2013
PTA +29NM +.09F +.02P 0US
PTA +2.2PL 2.95SCS -1.7DPR 7DCE
PTA +2.7ST +2.08UDC +2.84FLC 86%R 4/2013

**ERNEST-ANTHONY TAHITI-ET**
P6 CTPI
USA 68672191 100% RHA-NA
3-02 87 VEVVV
PTA -219M +17F +5P 55%R 4/2013
PTA +263NM +.10F +.04P
PTA +2.5PL 2.68SCS -1.1DPR 9DCE
PTA +2.89T +1.87UDC +1.36FLC 56%R 4/2013

**BRAEDEALE GOLDWYN**
PTA +68M +35F +15P 99%R 4/2013
PTA +371NM +.12F +.05P 8US
PTA +1.7PL 2.61SCS -2.7DPR 8DCE
PTA +3.00T +2.57UDC +2.46FLC 99%R 4/2013

**ERNEST-ANTHONY TARA-ET**
P6 CTPI
USA 134816717 100% RHA-NA
9-06 92 EEVVV 3E
PTA -85M +13F +5P 74%R 4/2013
PTA +89NM +.06F +.03P
PTA +1.2PL 2.80SCS -2.7DPR 12DCE
PTA +2.04T +1.32UDC +.70FLC 73%R 4/2013

Protein reported is true protein.
**Emily**

**Official Holstein Pedigree**

100% Registered Holstein Ancestry (RHA-NA)

**HILROSE HERO EMILY**
USA 71480250 100%RHA-NA

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**JENNY-LOU MRSHL TOYSTORY-ET**
USA 60372887 100%RHA-NA TR TL TY TD4-04 92 EEVE GM 8/10

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**SIEMERS TOYS HERO 9701-ET**
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**DAN-K MARSHALL LL LAURIN**
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USA 125791216 100%RHA-NA TR TV TL TY TD

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Protein reported is true protein.

**ALL-AMERICAN 5Y COW 2004**
**RESERVE ALL-AMERICAN 6Y+ COW 2005**
**1st MID-W SPR NAT 6Y+, SR & GR CH 2005**
**1st MID-W SPR NAT CHAMP BRSD & OWNED 2005**
**1st MID-W SPR NAT 4Y COW 2003**

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**DEN-K MARSHALL LL LAURIN**
USA 132480026 100%RHA-NA TR TV TL TY TD5-07 94 EEEE 12/02/2001

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**DEN-K LINJET EILEEN-ET**
USA 125791216 100%RHA-NA TR TV TL TY TD

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**DEN-K LINJET EILEEN-ET**
USA 125791216 100%RHA-NA TR TV TL TY TD

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Protein reported is true protein.

**ALL-AMERICAN 5Y COW 2004**
**RESERVE ALL-AMERICAN 6Y+ COW 2005**
**1st MID-W SPR NAT 6Y+, SR & GR CH 2005**
**1st MID-W SPR NAT CHAMP BRSD & OWNED 2005**
**1st MID-W SPR NAT 4Y COW 2003**
Riely

98% Registered Holstein Ancestry (RHA-NA)

MS TIGER-LEA BRST RIELY-RED +1710 M

PTPI

USA 71708870 98% RHA-NA

MACE YIELD EVALUATION
PTA -226NM +7P +11# 28%R 4/2013
PTA +1.3PLH 3.02SCS# -.8DPR# 74DCE#
PTA +2.79# +2.49UDC# +1.89FLC# 26%R 4/2013

SCIENTIFIC DESTROY-ET

USA 138122625 100% RHA-NA RC TV TL TY

4/2013 28% R+11P#+7F#-226M#PTA

72% DCE#-.8DPR#3.02SCS#+1.3PL#PTA

LOOKOUT P REDBURST-RED-ET P8 50K GTPI

CAN 106030980 100% RHA-NA TV TL TY TD

4/2013 26% R+1.89FLC#+2.49UDC#+2.79T#PTA

PTPI

TIGER-LILY AMERY RHONDA-RED M

USA 65658187 93% RHA-NA

-2-07 87 E+E+E 12/21/2010

MACE YIELD EVALUATION
PTA -637NM +2F -1P# 37%R 4/2013
PTA +.2PLH 3.15SCS# -1.8DPR# 8%DCE#
PTA +2.34# +2.04UDC# +1.50FLC# 31%R 4/2013

APPLES ABSOLUTE-RED-ET P8 50K GTPI

USA 139358472 100% RHA-NA CV TL TY TD

5-08 85 E+E+E 09/04/2007

PTA +585M +6F +15P 84% R 4/2013
PTA -22NM -.06%F -.01%P 100%US
PTA -2.7FL 3.12SCS# -2.0DPR 94%DCE
PTA +2.72# +2.20UDC# +2.03FLC# 78%R 4/2013

TIGER-LILY ABSOL RONNI-RED +1479 M

USA 63606863 100% RHA-NA

2-07 87 E+E+E 12/03/2007

MACE YIELD EVALUATION
PTA +185M +12F +22P 75%R 4/2013
PTA +305NM +.02%F +.07%P 100%US
PTA +2.4PL 2.88SCS# +.3DPR 6%DCE
PTA +3.23# +2.93UDC# +2.28FLC# 74%R 4/2013

Regancrest MB BREYELL-ET 50K GTPI

USA 69862959 96% RHA-NA 3-05 87 VVF+V 12/21/2008

MACE YIELD EVALUATION
PTA +94M -19F -1P 53%R 4/2013
PTA -10NM -.09%F -.01%P 100%US
PTA +.2PL 2.91SCS# +.0DPR 74%DCE
PTA +.83T# +.42UDC# +.28FLC# 31%R 4/2013

Protein reported is true protein.

©2001 HOLSTEIN ASSOCIATION USA, INC. BRATTLEBORO, VERMONT 05302-0800 TELEPHONE 802-254-4551 TOLL-FREE WITHIN USA AND CANADA 800-562-5200

21/2/2013
**Acorn**

**Official Holstein Pedigree**

100% Registered Holstein Ancestry (RHA-NA)

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Protein reported is true protein.
Answers

Test Your Pedigree Knowledge

1. P9
2. +2332
3. Predicted Transmitting Ability
4. 86 and 3 years and 11 months
5. Paternal grandsire
6. Dam – Wormont Baxter Alexa
7. 91%
8. +23
9. De-Su Oman 6121-ET
10. Ensenada Taboo Planet-ET (paternal grandsire)
11. 1141
12. USA 132973942 100% RHA
14. 20,780
15. +7.5
16. +3.02
17. 9K
18. 93% RHA
19. +.02%
20. Wormont Observer Alexis
21. Somatic Cell Score

Practicing Pedigree Comparisons

1. A
2. B
3. A
4. A
5. A
6. A
7. B
8. B
9. A
10. A
11. B
12. B
13. A
14. B
Educational Workbooks

A variety of educational workbooks are available at www.holsteinfoundation.org

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