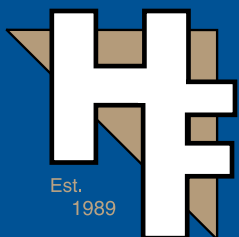
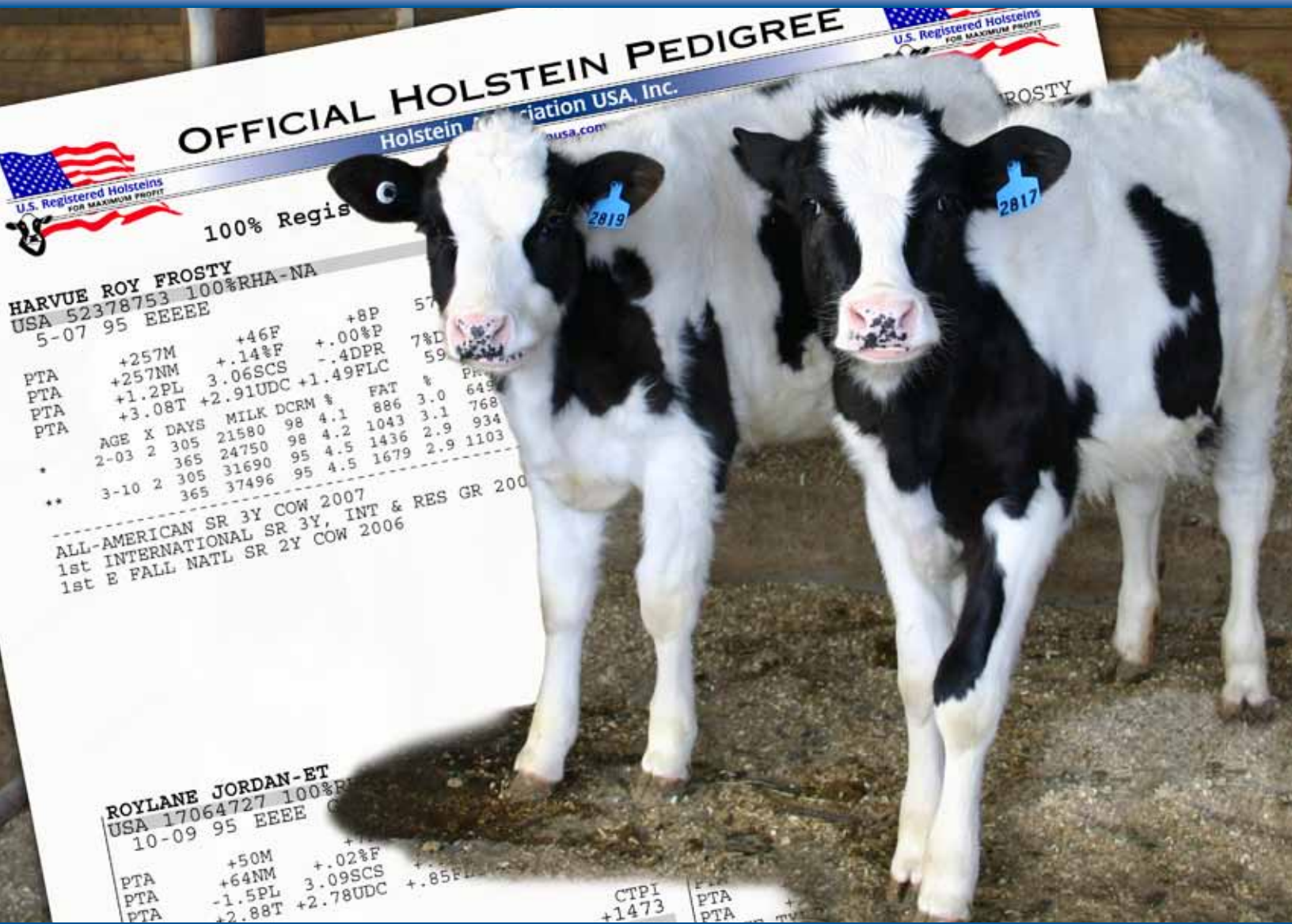


# Pedigree

## Questions & Answers



Est.  
1989

**HOLSTEIN  
 FOUNDATION**

*"Developing Dairy Leaders for Tomorrow"*

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This workbook, *“Pedigree Questions & Answers,”* was developed to present a basic explanation of official pedigree formats and to acquire basic skills in comparing and evaluating pedigrees. More comprehensive information on genetics, genetic measures and their calculations is available from each breed association.

The Holstein Foundation’s mission is to promote and support programs that develop leadership for the dairy industry. The Holstein Foundation offers a variety of programs to youth, young adult and farm families. Current programs targeting youth include the popular Dairy Bowl and Dairy Jeopardy competitions. The Foundation also focuses on youth education and outreach activities, offering free workbooks, and ribbons for local fairs.



P.O. Box 816, Brattleboro, Vermont 05302-0816  
Phone: 800.952.5200 ❖ Fax: 802.254.8251

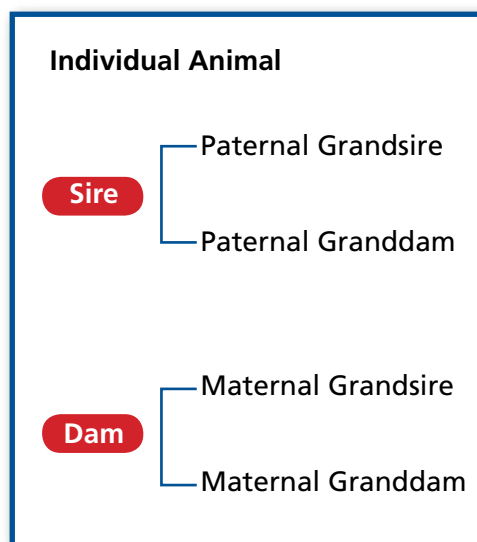
[www.holsteinfoundation.org](http://www.holsteinfoundation.org)

# What is a pedigree?

A pedigree is a record of an animal's ancestry, and is always set up in the same format. Information about the sire, or father, is shown on the top half of a pedigree, and is called paternal information. Maternal information, which refers to the dam or mother, is printed on the bottom half of a pedigree.

A three-generation pedigree includes the individual animal, the sire and dam, and the paternal and maternal grandparents. If information about the great-grandparents also was included, it would be a four-generation pedigree. A five-generation pedigree would show information for the great-great-grandparents.

## Three-Generation Pedigree Format



Pedigrees are useful because of the information they provide. Sire and dam information can help you predict how well a heifer will milk and classify as a mature cow. While all pedigrees basically show the same information and are arranged in a similar way, there are differences among them.

# What information does a pedigree provide?

A pedigree provides genetic and performance information on the individual animal and its ancestors. Genetic information is provided for each male relative on the pedigree. Estimates of his ability to transmit superior production and type traits to his daughters are printed. These genetic estimates are based upon the performance of the bull's daughters as compared to other cows in the same herd. The classification score and production records for each female ancestor are also shown on a pedigree, along with genetic estimates for production and type traits. The genetic value for an individual animal with no performance or progeny information is predicted from its ancestors' information and shown on the pedigree. For a mature animal, the pedigree contains genetic values for production and type traits based on the animal's own performance, performance of the animal's offspring and ancestor information.

# Parts of a Pedigree



## OFFICIAL HOLSTEIN PEDIGREE



U.S. Registered Holsteins  
FOR MAXIMUM PROFIT

Holstein Association USA, Inc.

U.S. Registered Holsteins  
FOR MAXIMUM PROFIT

www.holsteinusa.com

### A. 100% Registered Holstein Ancestry (RHA-NA)

B.

**BUDJON-JK MAC EXAULT-ET**  
USA 140273869 100%RHA-NA

P9 PTPI  
+1836

08/12/2009 E-45  
FEMALE

C.

PTA +659M# +34F# +27P# 45%R 8/2009  
PTA +2.8PL# 2.88SCS# +1.2DPR# 7%DCE#  
PTA +3.15T#+3.23UDC#+2.40FLC# 43%R 8/2009

D.

**REGANCREST-HHF MAC-ET**  
USA 60540164 100%RHA-NA TV TL  
6-01 92 EEEV GM 8/09

GTPI  
+1900 G

PTA +715M +35F +22P 98%R 8/2009  
PTA +501NM +.03%F +.00%P 100%US  
PTA +4.0PL 2.88SCS +2.0DPR 4%DCE  
PTA +2.94T +3.70UDC +2.23FLC 94%R 8/2009

F.

**BUDJON-JK LINJET EILEEN-ET**  
USA 125791216 100%RHA-NA  
6-07 96 EEEEE 2E GMD DOM 10/24/1998

CTPI  
+1769

PTA +602M +33F +32P 80%R 8/2009  
PTA +315NM +.04%F +.05%P  
PTA +1.5PL 2.88SCS +.4DPR 10%DCE  
PTA +3.35T +2.75UDC +2.56FLC 79%R 8/2009

H.

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
***	2-05	2	305	25510	94	3.8	961	3.2	828 94
			365	30430	94	3.7	1138	3.3	1019 94
***	3-07	2	305	35010	93	3.5	1234	3.1	1072 93
			365	40300	94	3.5	1428	3.1	1266 94
***	5-06	2	305	38550	94	3.6	1406	3.0	1167 94
			365	44700	94	3.7	1647	3.1	1383 94
	LIFE		1481	139720		3.6	5063	3.3	4557

J.

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 BRED & OWNED 2005  
1st MID-W SPR NAT 4Y COW 2003

K.

GTPI indicates genomic data was supplied to USDA.  
Protein reported is true protein.

**MARA-THON BW MARSHALL-ET**  
USA 2290977 100%RHA-NA TV TL  
5-04 86 VEV+ GM 1/08 03/24/1995

GTPI  
+1569 G

PTA +1650M +34F +38P 99%R 8/2009  
PTA +219NM -.10%F -.04%P 95%US  
PTA -.6PL 2.94SCS -2.1DPR 7%DCE  
PTA +2.30T +2.16UDC +2.76FLC 99%R 8/2009

**REGANCREST RUDOLPH DENA-ET**  
USA 17391080 100%RHA-NA  
5-00 89 EVVVE DOM 06/19/1997

CTPI  
+1489

PTA -342M +22F +6P 91%R 8/2009  
PTA +233NM +.14%F +.06%P  
PTA +1.7PL 2.98SCS +1.6DPR 7%DCE  
PTA +2.03T +2.07UDC +.47FLC 89%R 8/2009

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
***	2-03	2	305	27530	100	3.8	1033	3.2	888 92
			365	33070	100	3.7	1234	3.2	1065 92
***	4-10	2	305	21810	102	4.5	978	3.1	676 94
			365	25910	102	4.5	1166	3.1	815 94

**SUNNYLODGE LINJET**  
CAN 5578386 100%RHA-NA TV TL  
CAN EX 04/01/1992

TPI  
+1266 M

PTA -1226M -13F -24P 99%R 8/2009  
PTA -28NM +.13%F +.05%P 100%US  
PTA +2.1PL 2.77SCS +.2DPR 12%DCE  
MACE TYPE EVALUATION  
PTA +2.50T +2.45UDC +1.65FLC 99%R 8/2009

**KRULL BROKER ELEGANCE**  
USA 15395294 100%RHA-NA TL  
9-00 96 EEEEE 3E GMD DOM 08/05/1993

GTPI  
+1375 G

PTA -24M +11F +13P 97%R 8/2009  
PTA +54NM +.05%F +.05%P  
PTA -1.1PL 3.12SCS +.7DPR 9%DCE  
PTA +2.47T +1.07UDC +2.20FLC 96%R 8/2009

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
DHR	2-00	2	305	21390		3.7	784	3.2	678
			360	23550		3.7	874	3.2	762
DHR	3-01	2	305	24640		3.6	879	3.1	761
			365	29320		3.5	1040	3.1	912
***	5-07	2	305	34600	93	3.8	1323	3.1	1063 93
			365	40950	94	3.7	1522	3.1	1272 94
***	8-07	2	305	29910	94	4.4	1320	3.0	907 94
			365	35240	94	4.4	1550	3.0	1069 94
	LIFE		2356	183710		3.7	6878	3.2	5919

1st INTERNATIONAL 125,000 LB COW 2000  
2nd MID-W SPR NAT 4Y COW 1997

003442565 1513540 12/23/2009

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# PARTS OF AN OFFICIAL U.S. REGISTERED HOLSTEIN PEDIGREE

An Official Holstein Pedigree contains a great deal of information about an animal. Sections that will be covered in the following pages are:

- A. Registered Ancestry
- B. Animal Identification Information
- C. Genetic Values
- D. Sire Information
- E. Sire's Genetic Values
- F. Dam Information
- G. Dam's Genetic Values
- H. Production Records
- I. Lifetime Production Records
- J. Show Records
- K. Footer Information

## A. REGISTERED ANCESTRY

**OFFICIAL HOLSTEIN PEDIGREE**  
 Holstein Association USA, Inc.  
 www.holsteinusa.com

**100% Registered Holstein Ancestry (RHA-NA)**  
 P9 PTPI +1836

**BUDJON-JK MAC EXAULT-ET**  
 USA 140273869 100%RHA-NA

08/12/2009 E-45  
 FEMALE

PTA	+659M#	+34F#	+27P#	45%R	8/2009
PTA	+2.8FL#	2.88SCS#	+1.2DPR#	7%DCE#	
PTA	+3.15T#+3.23UDC#	2.40FLC#	43%R	8/2009	

**Line 1:** The first line, centered on a pedigree, shows the percentage Registered Holstein Ancestry (RHA) and whether the animal is of North American (RHA-NA) or International (RHA-I) blood line.

**Line 2:** Percentile Ranking (P level), Total Performance Index (TPI), and barn identification.

The P level indicates the percentile ranking of the animal based on PTPI. The percentile ranking compares registered animals of the same sex born in the same year. This animal's P9 level indicates she is in the 90% percentile. In other words, her PTPI is among the highest 10% of the heifers born in 2009. You may find the following abbreviations on this line:

- TPI:** Total Performance Index – Bulls that have not been genomically tested, but have progeny information used in calculating their index will have TPI.
- PTPI:** Pedigree Total Performance Index – The animal's index is calculated based on parent averages. Most young animals will have a PTPI.
- GTPI:** Genomic Total Performance Index – A GTPI indicates that genomic information was used in the calculation of the individual PTAs and overall index. Genomics involves the sequencing of genetic material in cattle DNA, which helps to provide great accuracy and transmitting reliability. The genomic information does not appear on the animal's pedigree until after the USDA publishes the National Genetic Update in January, April and August of each year. Once a cow has been genomically tested, the information will be incorporated into the PTAs of her descendants. Animals of any age may have a GTPI.
- CTPI:** Cow Total Performance Index – The cow has received an official required classification score and has production information which figures into her index calculation.



## B. ANIMAL IDENTIFICATION INFORMATION

U.S. Registered Holsteins FOR MAXIMUM PROFIT		OFFICIAL HOLSTEIN PEDIGREE		U.S. Registered Holsteins FOR MAXIMUM PROFIT	
Holstein Association USA, Inc.		www.holsteinusa.com		Holstein Association USA, Inc.	
100% Registered Holstein Ancestry (RHA-NA)				P9	E-45
P TPI				+1836	
<b>B.</b>	BUDJON-JK MAC EXAULT-ET			08/12/2009	FEMALE
	USA 140273869 100%RHA-NA				
<b>C.</b>	PTA	+659M#	+34F#	+27P#	45%R 8/2009
	PTA	+2.8PL#	2.88SCS#	+1.2DPR#	7%DCE#
	PTA	+3.15T#+3.23UDC#	2.40FLC#	43%R	8/2009

**Line 1:** Registered Name, TPI Value, birth date, and sex.

The Registered Name includes the prefix of the breeder (owner of the dam at the time she was bred) and the individual animal's barn name. The Registered Name cannot exceed 27 characters. Suffixes such as -RED (red hair color), -ET (embryo transfer), and -TW (twin) must be included in the 27 character limit.

PTPI estimates the ability of the young animal to transmit superior traits. This value combines one half of the dam's CTPI and one-half of the sire's TPI.

Some animals may have an 'M' after their TPI value. The M refers to MACE (Multiple-trait Across Country Evaluation), and indicates that the sire has daughters in countries other than the United States that contributed genetic information to the bull's proof. INTERBULL (International Bull Evaluation Service) is a nonprofit organization based in Uppsala, Sweden, which calculates International Genetic Evaluations and is responsible for promoting the development and standardization of the international genetic evaluations for cattle.

**Line 2:** Nation Code, Registration Number, RHA, and any genetic codes\*.

\*To view a list of genetic codes and what they mean, see page 21.

**Line 3:** Age at Classification in years and months, Final Score, Major Classification Breakdowns, Recognitions (Gold Medal Dam or Dam of Merit) and the cow's birth date. *(If applicable)*

## C. GENETIC VALUES

**Line 1:** Predicted Transmitting Abilities (PTA) for Milk (M), Fat (F), Protein (P), Production Reliability (R) and date of the evaluation.

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

**Line 3:** PTA for Type (T), Udder Composite (UDC), Feet and Legs Composite (FLC), Type Reliability (R) and date of the evaluation.

For young animals, these PTA values are estimated by averaging the parents' PTA values. We know these values are parental averages when the # symbol is used. PTA expresses the level of genetic superiority that an animal transmits to its offspring for a given production or type trait. This value is used to rank animals based on their genetic merit.

Reliability measures the confidence you can place in the Predicted Transmitting Abilities. An animal's reliability is based on the information available in the evaluation, information from the animal, and its parents and progeny.

Four Composite Indexes are computed for each animal, but only the Udder Composite Index (UDC) and Feet and Legs Composite Index (FLC) are printed on the pedigree. These indexes combine the linear type information for several related traits into one number.

Here are the composites, with the traits that are included in the calculation:

**Udder Composite Index (UDC)** – Udder Depth, Rear Udder Width, Rear Teat Placement, Fore Udder Attachment, Udder Cleft, Rear Udder Height, and Front Teat Placement

**Feet and Legs Composite Index (FLC)** – Rear Legs-Side View, Rear Legs-Rear View, Foot Angle, and Feet & Legs Score

**Body Size Composite Index** – Stature, Strength, Body Depth, and Thurl Width

**Dairy Capacity Composite Index** – Dairy Form and Strength

## **D.** SIRE INFORMATION (SIRE, GRANDSIRE AND GREAT-GRANDSIRE)

<b>D.</b>	<b>REGANCREST-HHF MAC-ET</b>				GTPI	
	USA 60540164	100%RHA-NA	TV	TL	+1900 G	
	6-01 92	EEEE	GM	8/09	04/20/2001	
	PTA	+715M	+35F	+22P	98%R	8/2009
	PTA	+501NM	+ .03%F	+ .00%P	100%US	
	PTA	+4.0PL	2.88SCS	+2.0DPR	4%DCE	
	PTA	+2.94T	+3.70UDC	+2.23FLC	94%R	8/2009

**Line 1:** Registration Name, and Total Performance Index (TPI).

The TPI combines PTA Protein, PTA Fat, PTA Type, STA Dairy Form, Udder Composite, Feet & Legs Composite, PTA Productive Life, PTA Somatic Cell Score, PTA Daughter Pregnancy Rate, PTA Daughter Calving Ease, and PTA Daughter Stillbirth to rank sires on their ability to transmit a balance of these eleven traits.

Some bulls may have a "G" or an "M" following their TPI value. An "M" following a bull's TPI stands for MACE, and means that foreign daughter information is included in his index, and it may or may not contain U.S. daughters. No genomic data is included in this case. If a "G" is following the bull's TPI, the index contains genomic data and the bull may have U.S. daughters, foreign daughters, or no daughters. If there is no label following the TPI, only U.S. daughter information is included and no genomic data.

**Line 2:** Nation Code, Registration Number, RHA, and any genetic codes\*.

\*To view a list of genetic codes and what they mean, see page 21.

**Line 3:** Age at Classification, Final Score, Major Classification Breakdowns, Recognitions (such as Gold Medal Sire) followed by the date recognized and the animal's birth date.

Age at classification is written as the year-months. For example, if an animal was classified at "4-11", that means that it was four years and eleven months old when they were given that classification score.

For a bull, the order of the Major Classification Breakdowns is Front End & Capacity (worth 40% of final score), Dairy Strength (25%), Rump (10%), and Feet and Legs (25%).

E = Excellent (90-97 points)

V = Very Good (85-89 points)

+ = Good Plus (80-84 points)

G = Good (75-89 points)

F = Fair (65-74 points)

P = Poor (50-64 points)

## E. SIRE'S GENETIC VALUES

REGANCREST-HHF MAC-ET										GTPI
USA	60540164	100	RHA-NA	TV	TL					+1900 G
6-01	92	EEEE	GM	8/09					04/20/2001	
PTA	+715M	+35F	+22P	98	R					8/2009
PTA	+501NM	+ .03F	+ .00P	100	US					
PTA	+4.0PL	2.88SCS	+2.0DPR	4	DCE					
PTA	+2.94T	+3.70UDC	+2.23FLC	94	R					8/2009

This section includes genetic information about production and type data for the animal's sire

**Line 1:** MACE Yield Evaluation (if applicable – not all animals will have this line)

**Line 2:** Predicted Transmitting Abilities (PTA) for Milk (M), Fat (F), Protein (P), Production Reliability (R) and date of the evaluation.

**Line 3:** Net Merit \$ Index (NM), PTA Percent (PTA%) for Fat (F) and Protein (P) percent and percentage US daughters. These values only appear for animals with their own PTAs for production.

**Line 4:** PTA for Productive Life (PL), Somatic Cell Score (SCS), Daughter Pregnancy Rate (DPR), and Daughter Calving Ease (DCE).

**Line 5:** Predicted Transmitting Ability of Type (T), Udder Composite (UDC), Feet and Legs Composite (FLC), Type Reliability (R) and the date of the evaluation.

## F. DAM INFORMATION (DAM, GRANDDAM AND GREAT-GRANDDAM)

BUDJON-JK LINJET EILEEN-ET										CTPI
USA	125791216	100	RHA-NA							+1769
6-07	96	EEEE	2E	GMD	DOM					10/24/1998
PTA	+602M	+33F	+32P	80	R					8/2009
PTA	+315NM	+ .04F	+ .05P							
PTA	+1.5PL	2.88SCS	+ .4DPR	10	DCE					
PTA	+3.35T	+2.75UDC	+2.56FLC	79	R					8/2009

**Line 1:** Registration Name, Cow Total Performance Index (CTPI).

CTPI combines PTA Protein, PTA Fat, PTA Type, STA Dairy Form, Udder Composite, Feet & Leg Composite, PTA Productive Life, PTA Somatic Cell Score, PTA Daughter Pregnancy Rate, PTA Daughter Calving Ease, and PTA Daughter Stillbirth. This value ranks the cow on her ability to transmit a balance of these traits. CTPI is similar to a sire's TPI.

**Line 2:** Nation Code, Registration Number, RHA, and any genetic codes.  
\*To view a list of genetic codes and what they mean, see page 21.

**Line 3:** Age at Classification in years and months, Final Score, Major Classification Breakdowns, Recognitions (Gold Medal Dam or Dam of Merit) and the cow's birth date.

The current classification breakdowns were introduced in December 2004. Classification scores from before this date are underlined on pedigrees. For cows, the major classification category breakdowns are: Front End/Capacity (worth 20% of the final score); Dairy Strength (20%); Rump (5%); Feet & Legs (15%) and Udder (40%).



E = Excellent (90-97 points)  
V = Very Good (85-89 points)  
+ = Good Plus (80-84 points)

G = Good (75-89 points)  
F = Fair (65-74 points)  
P = Poor (50-64 points)

Cows may receive Multiple "E" designation if classified Excellent in the following age brackets:

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

To be eligible for an additional "E", the cow must have calved within the last 36 months.

An "E" will appear on this line after the major breakdown designations. A 2, 3, 4, 5, or 6E shows the number of times the animal was classified Excellent in different age brackets.

GMD means the cow has received Gold Medal Dam recognition and DOM stands for the Dam of Merit recognition. Gold Medal Dam status is earned by a female when the cow and at least three of her daughters have been classified and the cow must be milking in a herd participating in the TriStar program. All cows over 87% RHA or higher born in the past 25 years are automatically screened twice a year to identify those that meet GMD requirements. Equal emphasis is placed on production and type on progeny performance. If the cow does not qualify on a mature equivalent basis, she will qualify with lifetime credits of 200,000 pounds milk or 7,200 pounds fat or 6,400 pounds protein. This is a permanent recognition.

The Dam of Merit recognition is also a permanent recognition for cows with over 87% RHA and higher. Eligible cows were born in the past 25 years and milking in a herd participating in the TriStar program. They must have CTPI values exceeding birth year cutoff and at least three offspring with a PTA for production and type. Twice each year Holstein Association USA automatically screens their database for qualifying cows.

## DAM'S GENETIC VALUES

This section includes information about production and type traits for the animal's dam.

**Line 1:** Predicted Transmitting Abilities (PTA) for Milk (M), Fat (F), Protein (P), Production Reliability (R) and the evaluation date.

Predicted Transmitting Ability estimates the genetic superiority the cow is expected to transmit to her offspring. This value for production traits is based on information about the cow, her sire, her dam and her progeny. Reliability for PTA Milk is based on the cow's number of production records and the accuracy of the information about her sire, dam and progeny.

**Line 2:** Net Merit \$ Index (NM), PTA Percent (PTA%) for Fat (F) and Protein (P) percent. These values only appear for animals with their own PTAs for production.

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

**Line 4:** Predicted Transmitting Ability of Type (T), Udder Composite (UDC), Feet and Legs Composite (FLC), Type Reliability (R) and the evaluation date. The cow's PTA for Type is based on the cow's final score and her parents' genetic merit.

## H. PRODUCTION RECORDS

H.	***	AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
		2-05	2	305	25510	94	3.8	961	3.2	828	94
				365	30430	94	3.7	1138	3.3	1019	94
	***	3-07	2	305	35010	93	3.5	1234	3.1	1072	93
				365	40300	94	3.5	1428	3.1	1266	94
	***	5-06	2	305	38550	94	3.6	1406	3.0	1167	94
				365	44700	94	3.7	1647	3.1	1383	94
		LIFE		1481	139720		3.6	5063	3.3	4557	

For females, production records follow the genetic information.

Each main line indicates the type of testing program (for production records starting prior to 1/1/1997) or TriStar Option (for production records starting after 1/1/1997); age at calving; number of times milked per day; length of record in days; pounds of milk; DCRM (Data Collection Rating for milk); fat percent; pounds of fat; protein percent; pounds of protein; and DCRC (Data Collection Rating for components) during that lactation up to 305 days. An "X" at the end of the line indicates that the record contains some extreme test-day data. A second line of data is only included if the cow's lactation is longer than 305 days (up to 365 days) for that lactation.

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 (the state abbreviation or NAT for National record), and category (MILK, FAT, PROTEIN). This recognition is based on DHIR and TriStar Premier records and are made in seven age categories.

## I. LIFETIME PRODUCTION RECORDS

Once a cow produces more than 100,000 pounds of milk in her lifetime, her total production information appears on the pedigree and is labeled 'LIFE'.

## J. SHOW RECORDS

J. 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 BRED & OWNED 2005  
 1st MID-W SPR NAT 4Y COW 2003

A female animal's placing at National Holstein Shows (if they placed in the top 3 in their class) and All-American recognitions may be included on the pedigree.

## K. FOOTER INFORMATION

K. GTPI indicates genomic data was supplied to USDA.  
 Protein reported is true protein. 003442565 1513540

**Line 1:** Protein Form, Holstein Processing Numbers, and date the pedigree was printed.

In May of 2000, Holstein Association USA started printing true protein as the default format. As of January 2010, Official U.S. Holstein Pedigrees will only have true protein printed on them, keeping with the U.S. standard.

# How can you use pedigrees?

Pedigrees provide detailed performance and genetic information about an animal and their ancestors that has multiple 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 purchase, different people will have different areas they look for in a pedigree, depending on what their goals are. Someone looking for a show calf will pay close attention to the birth date, the dam and sire's classification scores, any show winnings in the pedigree and PTA Type. Someone looking for an exceptional milk cow will likely look at TPIs in the pedigree, PTAs for Milk, Fat, and Protein, as well as all production records in the pedigree. There are several examples, but they all have one thing in common – looking at a calf's pedigree will help give insight into future performance. When you begin your search for a project animal, first decide what information is important.

Pedigrees are also very important when making mating decisions on your animals. They allow you to view ancestry to prevent inbreeding, as well as get a total picture of the genetic strengths and weaknesses of your animal and her family. You can look for trends in milk production, classification score, TPI, or other areas to see where you might need to improve the animal.

## What are your goals?

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

- Age \_\_\_\_\_
- Heifer's PTPI or GTPI \_\_\_\_\_
- % RHA \_\_\_\_\_
- Dam's classification score \_\_\_\_\_
- Dam's milk production \_\_\_\_\_
- Dam's TPI \_\_\_\_\_
- Sire's TPI \_\_\_\_\_

List any other criteria that you will consider in your selection:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

# TEST YOUR PEDIGREE KNOWLEDGE

Use the pedigree for **Hol-Star Toystory Tiera** on the following page to complete the exercise.

1. What is the name of the granddam that has been tested and shown not to be a carrier of BLAD?
2. What is Tiera's P level?
3. What is the sire's TPI?
4. What does "PTA" stand for on a pedigree?
5. What is the dam's final score and age at classification?
6. What is Marshall's relationship to Tiera?
7. Which maternal female relative has the highest CTPI?
8. What is the sire's reliability for PTA Type?
9. What is the dam's PTA Protein?
10. What is the name of the granddam that is a Gold Medal Dam?
11. Of the three bulls shown on this pedigree, which has the highest PTA for milk?
12. What is the dam's Predicted Transmitting Ability for milk?
13. What is the country code, registration number and RHA of the maternal grandsire?
14. When was Tiera born?
15. How many pounds of milk did the dam produce in her first 305-day lactation?
16. What is Tiera's parent average PTA for Productive Life?
17. What is the sire's PTA for type?
18. Information about the (dam or sire) is always on the top half of a pedigree.
19. Which does maternal refer to, the sire or the dam?
20. What is the sire's PTA for protein percent?
21. Which animal in the pedigree has the lowest PTA for SCS?
22. What does "SCS" stand for?

*(Answers on page 23)*

# Tiera



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

**HOL-STAR TOYSTORY TIERA**  
USA 62825343 100%RHA-NA  
2-08 86 +VGVV

P9 PTPI  
+1855

1817  
03/14/2007 FEMALE

PTA +1378M# +47F# +44P# 39%R 8/2009  
PTA +2.6PL# 2.90SCS# -.2DPR# 7%DCE#  
PTA +2.77T#+2.58UDC#2.07FLC# 40%R 8/2009

**JENNY-LOU MRSHL TOYSTORY-ET**  
USA 60372887 100%RHA-NA TR TV TL  
GM 8/09 05/07/2001

GTPI  
+1919 G

PTA +1689M +62F +50P 99%R 8/2009  
PTA +477NM +.00%F +.00%P 68%US  
PTA +1.3PL 2.90SCS -.7DPR 5%DCE  
PTA +3.06T +2.98UDC +2.11FLC 99%R 8/2009

**HOL-STAR OUTSIDE TEERA-ET**  
USA 61695999 100%RHA-NA TV  
4-07 90 VEEVE 12/07/2004

CTPI  
+1798

PTA +1067M +31F +38P 55%R 8/2009  
PTA +453NM -.03%F +.02%P  
PTA +3.9PL 2.90SCS +.4DPR 8%DCE  
PTA +2.48T +2.18UDC +2.03FLC 59%R 8/2009

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
**	2-03	3	305	26090	92	3.4	893	3.2	834 80
			365	31080	92	3.5	1080	3.2	1008 80

**MARA-THON BW MARSHALL-ET**  
USA 2290977 100%RHA-NA TV TL  
5-04 86 VEV+ GM 1/08 03/24/1995

GTPI  
+1569 G

PTA +1650M +34F +38P 99%R 8/2009  
PTA +219NM -.10%F -.04%P 95%US  
PTA -.6PL 2.94SCS -2.1DPR 7%DCE  
PTA +2.30T +2.16UDC +2.76FLC 99%R 8/2009

**JENNY-LOU PATRON TOYANE**  
USA 17313307 100%RHA-NA TR TL TD  
6-06 89 VEEEV GMD DOM 03/29/1997

GTPI  
+1411 G

PTA +452M +46F +24P 91%R 8/2009  
PTA +209NM +.11%F +.04%P  
PTA -1.1PL 2.95SCS -.6DPR 9%DCE  
PTA +1.38T +1.05UDC +.88FLC 88%R 8/2009

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
***	1-10	2	285	25920	100	3.8	994	3.2	833 100
***	2-09	3	365	37830	97	4.0	1509	3.1	1186 96
***	4-05	3	365	45826	100	3.8	1749	3.1	1419 94
***	6-04	4	365	32260	102	4.3	1390	3.1	991 90
	LIFE		1704	160053		4.0	6329	3.2	5073

**COMESTAR OUTSIDE-ET**  
CAN 6026421 100%RHA-NA TV TL  
GM 1/08 02/27/1994

GTPI  
+1651 G

PTA +540M +43F +4P 99%R 8/2009  
PTA +365NM +.09%F -.05%P 17%US  
PTA +5.0PL 2.98SCS +1.5DPR 9%DCE  
PTA +2.04T +1.77UDC +2.21FLC 99%R 8/2009

**HOL-STAR TEARY DURHAM**  
USA 130258382 100%RHA-NA CV  
6-00 90 VEVVE DOM 08/22/2000

CTPI  
+1728

PTA +994M +11F +46P 70%R 8/2009  
PTA +381NM -.10%F +.06%P  
PTA +2.0PL 2.80SCS +.1DPR 7%DCE  
PTA +2.38T +2.23UDC +1.80FLC 72%R 8/2009

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
*	2-03	3	297	24760	90	3.1	762	3.2	796 77
**	3-02	3	305	31570	93	3.5	1107	3.2	1025 82
			365	36160	93	3.5	1266	3.3	1182 82
***	5-01	3	305	35560	93	4.1	1445	3.2	1129 83
			365	42310	93	4.0	1712	3.2	1368 83
	LIFE		1330	122630		3.6	4448	3.3	4025

GTPI indicates genomic data was supplied to USDA.  
Protein reported is true protein.

003442565 1513627 12/23/2009


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# Practicing Pedigree Comparisons


Now that you understand the terms used on a pedigree and the information that they include, let's practice comparing different pedigrees. Answer these questions using the following two pedigrees and by indicating either pedigree A or B.

1. Which heifer's maternal granddam has lifetime production records?
2. Which heifer is sired by the bull with the higher TPI?
3. Which heifer's dam has the higher Udder Composite Index?
4. Which heifer has the higher Total Performance Index?
5. Which heifer's grandsire was tested positive for CVM?

**A.**



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

<p><b>KELLERCREST PLANET LIZZY-ET</b> <span style="float: right;">P9 GTPI +2050 G</span></p> <p>USA 65945415 100%RHA-NA <span style="float: right;">03/02/2009 FEMALE</span></p> <table style="width: 100%; font-size: x-small;"> <tr><td>PTA</td><td>+2310M</td><td>+67F</td><td>+59P</td><td>73%R</td><td>8/2009</td></tr> <tr><td>PTA</td><td>+649NM</td><td>-.06%F</td><td>-.04%P</td><td></td><td></td></tr> <tr><td>PTA</td><td>+5.2PL</td><td>2.77SCS</td><td>-.9DPR</td><td>6%DCE</td><td></td></tr> <tr><td>PTA</td><td>+2.52T</td><td>+2.88UDC</td><td>+1.12FLC</td><td>69%R</td><td>8/2009</td></tr> </table>	PTA	+2310M	+67F	+59P	73%R	8/2009	PTA	+649NM	-.06%F	-.04%P			PTA	+5.2PL	2.77SCS	-.9DPR	6%DCE		PTA	+2.52T	+2.88UDC	+1.12FLC	69%R	8/2009	<p><b>ROSE-BAUM TABOO-ET</b> <span style="float: right;">GTPI +1494 G</span></p> <p>USA 17121203 100%RHA-NA TV TL</p> <p>7-01 87 EVV+ GM 8/05 <span style="float: right;">07/16/1996</span></p> <table style="width: 100%; font-size: x-small;"> <tr><td>PTA</td><td>+804M</td><td>+36F</td><td>+29P</td><td>99%R</td><td>8/2009</td></tr> <tr><td>PTA</td><td>+318NM</td><td>+ .03%F</td><td>+ .02%P</td><td>71%US</td><td></td></tr> <tr><td>PTA</td><td>+2.3PL</td><td>2.85SCS</td><td>-1.1DPR</td><td>6%DCE</td><td></td></tr> <tr><td>PTA</td><td>+.96T</td><td>+1.16UDC</td><td>-.42FLC</td><td>98%R</td><td>8/2009</td></tr> </table>	PTA	+804M	+36F	+29P	99%R	8/2009	PTA	+318NM	+ .03%F	+ .02%P	71%US		PTA	+2.3PL	2.85SCS	-1.1DPR	6%DCE		PTA	+.96T	+1.16UDC	-.42FLC	98%R	8/2009
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<p><b>ENSENADA TABOO PLANET-ET</b> <span style="float: right;">GTPI +2154 G</span></p> <p>USA 60597003 100%RHA-NA TR TV TL TD</p> <p>4-11 90 EEVV <span style="float: right;">03/03/2003</span></p> <table style="width: 100%; font-size: x-small;"> <tr><td>PTA</td><td>+2581M</td><td>+86F</td><td>+77P</td><td>92%R</td><td>8/2009</td></tr> <tr><td>PTA</td><td>+763NM</td><td>-.03%F</td><td>+ .00%P</td><td>100%US</td><td></td></tr> <tr><td>PTA</td><td>+5.6PL</td><td>2.91SCS</td><td>+1.1DPR</td><td>5%DCE</td><td></td></tr> <tr><td>PTA</td><td>+2.24T</td><td>+2.29UDC</td><td>-.07FLC</td><td>88%R</td><td>8/2009</td></tr> </table>	PTA	+2581M	+86F	+77P	92%R	8/2009	PTA	+763NM	-.03%F	+ .00%P	100%US		PTA	+5.6PL	2.91SCS	+1.1DPR	5%DCE		PTA	+2.24T	+2.29UDC	-.07FLC	88%R	8/2009	<p><b>PICSTON SHOTTLE-ET</b> <span style="float: right;">GTPI +2232 G</span></p> <p>GBR 598172 100%RHA-NA TV TL</p> <p>GM 8/09 <span style="float: right;">07/23/1999</span></p> <table style="width: 100%; font-size: x-small;"> <tr><td>PTA</td><td>+2112M</td><td>+94F</td><td>+60P</td><td>99%R</td><td>8/2009</td></tr> <tr><td>PTA</td><td>+692NM</td><td>+ .06%F</td><td>-.01%P</td><td>8%US</td><td></td></tr> <tr><td>PTA</td><td>+4.0PL</td><td>2.65SCS</td><td>-2.1DPR</td><td>8%DCE</td><td></td></tr> <tr><td>PTA</td><td>+4.18T</td><td>+3.27UDC</td><td>+3.06FLC</td><td>99%R</td><td>8/2009</td></tr> </table>	PTA	+2112M	+94F	+60P	99%R	8/2009	PTA	+692NM	+ .06%F	-.01%P	8%US		PTA	+4.0PL	2.65SCS	-2.1DPR	8%DCE		PTA	+4.18T	+3.27UDC	+3.06FLC	99%R	8/2009
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<p><b>KELLERCREST SHOTTLE LONI-ET</b> <span style="float: right;">GTPI +2203 M</span></p> <p>USA 62424919 100%RHA-NA TV TL</p> <p>3-10 88 VV+VE DOM <span style="float: right;">09/29/2005</span></p> <p>MACE YIELD EVALUATION</p> <table style="width: 100%; font-size: x-small;"> <tr><td>PTA</td><td>+2115M</td><td>+78F</td><td>+59P</td><td>81%R</td><td>8/2009</td></tr> <tr><td>PTA</td><td>+721NM</td><td>+ .00%F</td><td>-.01%P</td><td></td><td></td></tr> <tr><td>PTA</td><td>+5.9PL</td><td>2.76SCS</td><td>-.7DPR</td><td>7%DCE</td><td></td></tr> <tr><td>PTA</td><td>+3.31T</td><td>+3.28UDC</td><td>+2.60FLC</td><td>75%R</td><td>8/2009</td></tr> </table> <table style="width: 100%; font-size: x-small; margin-top: 5px;"> <tr><td>AGE</td><td>X</td><td>DAYS</td><td>MILK</td><td>DCRM</td><td>%</td><td>FAT</td><td>%</td><td>PRT</td><td>DCRC</td></tr> <tr><td>***</td><td>2-00</td><td>2</td><td>305</td><td>28290</td><td>100</td><td>3.4</td><td>962</td><td>3.0</td><td>843</td><td>100</td></tr> <tr><td></td><td></td><td></td><td></td><td>365</td><td>34150</td><td>100</td><td>3.5</td><td>1180</td><td>3.0</td><td>1023</td><td>100</td></tr> </table>	PTA	+2115M	+78F	+59P	81%R	8/2009	PTA	+721NM	+ .00%F	-.01%P			PTA	+5.9PL	2.76SCS	-.7DPR	7%DCE		PTA	+3.31T	+3.28UDC	+2.60FLC	75%R	8/2009	AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC	***	2-00	2	305	28290	100	3.4	962	3.0	843	100					365	34150	100	3.5	1180	3.0	1023	100	<p><b>KELLERCREST RUDOLPH LONEY</b> <span style="float: right;">CTPI +1686</span></p> <p>USA 60101176 100%RHA-NA</p> <p>5-09 88 EVEVV GMD DOM <span style="float: right;">09/24/1999</span></p> <table style="width: 100%; font-size: x-small;"> <tr><td>PTA</td><td>+1667M</td><td>+48F</td><td>+40P</td><td>75%R</td><td>8/2009</td></tr> <tr><td>PTA</td><td>+370NM</td><td>-.05%F</td><td>-.04%P</td><td></td><td></td></tr> <tr><td>PTA</td><td>+1.4PL</td><td>3.00SCS</td><td>-.3DPR</td><td>7%DCE</td><td></td></tr> <tr><td>PTA</td><td>+2.39T</td><td>+1.23UDC</td><td>+1.59FLC</td><td>73%R</td><td>8/2009</td></tr> </table> <table style="width: 100%; font-size: x-small; margin-top: 5px;"> <tr><td>AGE</td><td>X</td><td>DAYS</td><td>MILK</td><td>DCRM</td><td>%</td><td>FAT</td><td>%</td><td>PRT</td><td>DCRC</td></tr> <tr><td>***</td><td>2-01</td><td>2</td><td>305</td><td>27860</td><td>100</td><td>3.4</td><td>940</td><td>2.9</td><td>818</td><td>100</td></tr> <tr><td></td><td></td><td></td><td></td><td>337</td><td>30100</td><td>100</td><td>3.4</td><td>1023</td><td>3.0</td><td>892</td><td>100</td></tr> </table>	PTA	+1667M	+48F	+40P	75%R	8/2009	PTA	+370NM	-.05%F	-.04%P			PTA	+1.4PL	3.00SCS	-.3DPR	7%DCE		PTA	+2.39T	+1.23UDC	+1.59FLC	73%R	8/2009	AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC	***	2-01	2	305	27860	100	3.4	940	2.9	818	100					337	30100	100	3.4	1023	3.0	892	100
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GTPI indicates genomic data was supplied to USDA.  
Protein reported is true protein.

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12/23/2009


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6. Which dam is predicted to transmit a higher level of overall type?
7. Which dam has the higher first lactation 305 day milk production record?
8. Which sire has the higher % Reliability for PTA Type?
9. Which sire has the higher PTA for Type?
10. Which heifer's maternal granddam has been Classified Excellent more than once?
11. Which heifer is the youngest?
12. Which heifer has an animal on the maternal side of her pedigree that was last classified before December 2004?
13. Which dam has the higher PTA% Protein?
14. Which sire has the higher PTA for Net Merit?
15. Which heifer has a granddam registered outside the U.S.?

(Answers on page 23)

**B.**



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

<b>ELM-SPRING SHTL CHASTITY-ET</b>	P9 PTPI +1805	2373 03/01/2009 FEMALE
USA 139976843 100%RHA-NA		

PTA +896M#	+33F#	+26P#	38%R	8/2009	
PTA +2.8PL#	2.80SCS#	-1.1DPR#	8%DCE#		
PTA +3.64T#	+3.05UDC#	-2.92FLC#	40%R	8/2009	

<b>CAROL PRELUDE MTOTO-ET</b>	GTPI +1645 G	
ITA 6001001962 100%RHA-NA TV TL		
GM 1/08		07/13/1993

PTA +1062M	+40F	+22P	99%R	8/2009	
PTA +465NM	+0.01%F	-0.04%P	3%US		
PTA +3.4PL	2.49SCS	+0.9DPR	5%DCE		
PTA +1.02T	+0.81UDC	+1.13FLC	99%R	8/2009	

<b>CONDON AERO SHARON</b>	CTPI +1260	
CAN 5373153 100%RHA-NA		01/20/1991

PTA +315M	+21F	+13P	51%R	8/2009	
PTA +80NM	+0.04%F	+0.01%P			
PTA -0.9PL	2.94SCS	-2.2DPR	10%DCE		
PTA +1.52T	+1.03UDC	+1.49FLC	45%R	8/2009	

<b>PICSTON SHOTTLE-ET</b>	GTPI +2232 G	
GBR 598172 100%RHA-NA TV TL		
GM 8/09		07/23/1999

PTA +2112M	+94F	+60P	99%R	8/2009	
PTA +692NM	+0.06%F	-0.01%P	8%US		
PTA +4.0PL	2.65SCS	-2.1DPR	8%DCE		
PTA +4.18T	+3.27UDC	+3.06FLC	99%R	8/2009	

<b>ELM-SPRING D LUCKY CHARM-ET</b>	CTPI +1380	
USA 136985260 100%RHA-NA		
3-11 90 VEVEE		10/24/2005

PTA -321M	-29F	-8P	54%R	8/2009	
PTA +33NM	-0.07%F	+0.01%P			
PTA +1.6PL	2.94SCS	+0.0DPR	8%DCE		
PTA +3.10T	+2.83UDC	+2.77FLC	59%R	8/2009	

	AGE X DAYS	MILK	DCRM %	FAT %	PRT	DCRC
** 2-02	2 305	18740	95 3.6	679	3.4	632 95
		365	21540	95 3.7	793	3.4 736 95

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<b>REGANCREST ELTON DURHAM-ET</b>	GTPI +1555 G	
USA 2250783 100%RHA-NA TR CV TL		
7-06 90 EEEV GM 8/01		03/13/1994

PTA +38M	-23F	+16P	99%R	8/2009	
PTA +166NM	-0.10%F	+0.06%P	83%US		
PTA +1.1PL	2.88SCS	+0.6DPR	6%DCE		
PTA +3.11T	+3.06UDC	+2.55FLC	99%R	8/2009	

<b>ELM-SPRING ASTRE LUCKY-ET</b>	CTPI +995	
USA 120089237 100%RHA-NA		
12-00 91 EEEEE 3E		09/16/1997

PTA -371M	-39F	-28P	70%R	8/2009	
PTA -129NM	-0.10%F	-0.07%P			
PTA +1.5PL	2.94SCS	+0.0DPR	9%DCE		
PTA +1.32T	+0.76UDC	+1.44FLC	71%R	8/2009	

	AGE X DAYS	MILK	DCRM %	FAT %	PRT	DCRC
** 2-06	2 305	24730	93 3.1	766	2.7	675 93
		365	28270	93 3.1	878	2.8 782 93
** 3-09	2 305	22550	93 2.9	658	2.9	665 93
		308	22680	93 2.9	664	2.9 669 93
** 4-09	2 305	27590	94 2.9	791	2.6	723 94
		328	28900	94 2.9	835	2.6 765 94
** 5-09	2 305	24370	93 2.9	707	2.7	650 93
		365	26920	93 2.9	791	2.7 727 93
** 7-00	2 365	20530	95 3.3	685	2.7	547 95
** 8-09	2 294	16120	93 3.0	490	2.5	402 93
** 9-08	2 305	20190	91 2.7	555	2.9	577 91
		356	21940	91 2.8	623	2.9 637 91
** 10-10	2 305	25710	95 3.4	866	2.9	743 95
		365	28830	95 3.4	973	2.9 840 95
		LIFE	2956 200920	3.1	6190	2.8 5587

GTPI indicates genomic data was supplied to USDA. Protein reported is true protein.

003443278      1514389      12/28/2009

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# Rank These Heifers

It is time to put your pedigree knowledge and evaluation skills to work. Assume that you have your choice of 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?

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## 2. List the pedigree information and criteria that you plan to consider in 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?

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# Shottle 1782



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

RJR **SHOTTLE 1782-ET** P9 PTPI 1782  
 USA 65671934 100%RHA-NA +2063 03/01/2009 FEMALE

PTA +1686M# +85F# +47P# 42%R 8/2009  
 PTA +4.6PL# 2.81SCS# -.8DPR# 9%DCE#  
 PTA +3.18T#+2.79UDC#2.51FLC# 42%R 8/2009

GTPI  
+1645 G

**CAROL PRELUDE MTOTO-ET**  
 ITA 6001001962 100%RHA-NA TV TL  
 GM 1/08 07/13/1993

PTA +1062M +40F +22P 99%R 8/2009  
 PTA +465NM +.01%F -.04%P 3%US  
 PTA +3.4PL 2.49SCS +.9DPR 5%DCE  
 PTA +1.02T +.81UDC +1.13FLC 99%R 8/2009

CTPI  
+1260

**CONDON AERO SHARON**  
 CAN 5373153 100%RHA-NA  
 01/20/1991

PTA +315M +21F +13P 51%R 8/2009  
 PTA +80NM +.04%F +.01%P  
 PTA -.9PL 2.94SCS -2.2DPR 10%DCE  
 PTA +1.52T +1.03UDC +1.49FLC 45%R 8/2009

GTPI  
+2232 G

**PICSTON SHOTTLE-ET**  
 GBR 598172 100%RHA-NA TV TL  
 GM 8/09 07/23/1999

PTA +2112M +94F +60P 99%R 8/2009  
 PTA +692NM +.06%F -.01%P 8%US  
 PTA +4.0PL 2.65SCS -2.1DPR 8%DCE  
 PTA +4.18T +3.27UDC +3.06FLC 99%R 8/2009

CTPI  
+1902

**DREAM&DO OUTSIDE CASSIDY-ET**  
 USA 61240685 100%RHA-NA  
 5-03 91 EVVEE DOM 12/02/2002

PTA +1260M +75F +34P 70%R 8/2009  
 PTA +589NM +.11%F -.01%P  
 PTA +5.2PL 2.96SCS +.6DPR 9%DCE  
 PTA +2.18T +2.30UDC +1.96FLC 70%R 8/2009

	AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
*	2-05	2	305	26817	95	4.6	1238	3.1	819	95
				365	30760	95	4.6	1423	3.1	953
***	4-06	2	305	35700	95	4.4	1565	3.0	1071	95
				365	40450	95	4.4	1783	3.1	1235

GTPI  
+1651 G

**COMESTAR OUTSIDE-ET**  
 CAN 6026421 100%RHA-NA TV TL  
 GM 1/08 02/27/1994

PTA +540M +43F +4P 99%R 8/2009  
 PTA +365NM +.09%F -.05%P 17%US  
 PTA +5.0PL 2.98SCS +1.5DPR 9%DCE  
 PTA +2.04T +1.77UDC +2.21FLC 99%R 8/2009

CTPI  
+1452

**WHITTIER-FARMS CINDY-ET**  
 USA 17382879 100%RHA-NA  
 7-01 90 VEVVE 06/26/1997

PTA +443M +22F +16P 80%R 8/2009  
 PTA +295NM +.02%F +.01%P  
 PTA +3.2PL 2.86SCS -.1DPR 9%DCE  
 PTA +.99T +1.38UDC +1.05FLC 76%R 8/2009

	AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
***	2-01	2	305	20770	100	3.4	696	3.2	671	100
				365	24590	100	3.4	841	3.2	798
***	3-11	2	305	24970	100	3.9	985	3.2	797	100
				365	29030	100	4.0	1149	3.2	937
***	6-00	2	305	30210	100	3.9	1172	3.1	944	100
				365	34520	100	3.9	1345	3.2	1091
***	7-10	2	245	22140		4.3	959	3.1	679	
	LIFE			1547	122360		3.9	4804	3.2	3925

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# Early Bird



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

**BUDJON-JK DD EARLY BIRD** P7 PTPI +1613 M  
USA 139866221 100%RHA-NA

04/02/2009 H264 FEMALE

MACE YIELD EVALUATION  
PTA +430M# +16F# +17P# 37%R 8/2009  
PTA +.4PL# 2.92SCS# -.6DPR# 8%DCE#  
PTA +3.44T#+3.20UDC#+2.19FLC# 35%R 8/2009

GTPI +1053 M

**MARCREST ENCORE**  
USA 2048702 100%RHA-NA TV TL  
9-04 96 EEEE GM 2/99 06/20/1987

PTA -471M -9F -13P 99%R 8/2009  
PTA -166NM +.03%F +.00%P 100%US  
PTA -1.5PL 3.21SCS -.3DPR 12%DCE  
MACE TYPE EVALUATION  
PTA +1.88T +1.57UDC +.37FLC 99%R 8/2009

CTPI +1345

**SNOW-N DENISES DELLIA**  
USA 12895802 100%RHA-NA TV TL  
7-08 95 EEEEE 2E GMD DOM 12/20/1986

PTA -236M -4F +5P 97%R 8/2009  
PTA +32NM +.02%F +.05%P  
PTA -1.2PL 2.93SCS -.2DPR 9%DCE  
PTA +2.58T +2.33UDC +2.18FLC 96%R 8/2009

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
DHR	2-01	2	365	23550	3.6	855	3.2	755	
DHR	4-00	2	365	31590	3.6	1153	3.1	968	
DHR	6-00	2	365	35230	4.0	1425	3.0	1049	
APS	7-06	2	365	35610	4.0	1431	2.9	1035	
LIFE			2558	180240	3.9	7108	3.2	5723	

GTPI +1371 G

**REGANCREST DUNDEE-ET**  
USA 127640114 100%RHA-NA TV TL  
6-08 95 EEEV 06/03/1999

PTA -32M -9F +4P 99%R 8/2009  
PTA +9NM -.03%F +.02%P 39%US  
PTA -1.6PL 3.01SCS +.0DPR 8%DCE  
PTA +2.99T +2.97UDC +1.57FLC 99%R 8/2009

P9 PTPI +1861 M

**BUDJON-JK GOLDWYN EIRENE-ET**  
USA 138367439 100%RHA-NA  
2-08 85 VVV+V 04/01/2007

MACE YIELD EVALUATION  
PTA +892M +41F +30P 50%R 8/2009  
PTA +409NM +.03%F +.01%P  
PTA +2.3PL 2.82SCS -1.2DPR 7%DCE  
PTA +3.88T#+3.43UDC#+2.81FLC# 42%R 8/2009

GTPI +2054 G

**BRAEDALE GOLDWYN**  
CAN 10705608 100%RHA-NA TV TL  
GM 8/09 01/03/2000

PTA +788M +68F +39P 99%R 8/2009  
PTA +581NM +.15%F +.06%P 8%US  
PTA +3.8PL 2.70SCS -1.8DPR 6%DCE  
PTA +3.93T +3.56UDC +3.23FLC 99%R 8/2009

CTPI +1781

**BUDJON-JK DUR ESQUISITE-ET**  
USA 134568221 100%RHA-NA TV  
4-02 92 EEEEE GMD DOM 09/04/2003

PTA +1035M +24F +32P 69%R 8/2009  
PTA +303NM -.05%F +.00%P  
PTA +.8PL 2.90SCS +.0DPR 8%DCE  
PTA +3.82T +3.30UDC +2.38FLC 68%R 8/2009

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
***	2-06	2	305	26490	94	3.5	914	3.1	813 94
			365	30940	94	3.5	1079	3.1	971 94
**	3-07	2	305	33930	91	3.9	1308	2.9	992 91
			365	40300	91	3.9	1555	3.0	1199 91

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# Shauna



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100% Registered Holstein Ancestry (RHA-NA)

**AMMON-PEACHEY SHAUNA-ET**  
USA 66228178 100%RHA-NA

P9 GTPI  
+2476 G

04/16/2009 665  
FEMALE

PTA	+2735M	+111F	+87P	71%R	8/2009
PTA	+916NM	+04%F	+02%P		
PTA	+6.2PL	2.76SCS	+5DPR	6%DCE	
PTA	+3.71T	+2.63UDC	+2.14FLC	69%R	8/2009

**ROSE-BAUM TABOO-ET** GTPI +1494 G  
USA 17121203 100%RHA-NA TV TL  
7-01 87 EVV+ GM 8/05 07/16/1996

PTA	+804M	+36F	+29P	99%R	8/2009
PTA	+318NM	+03%F	+02%P	71%US	
PTA	+2.3PL	2.85SCS	-1.1DPR	6%DCE	
PTA	+0.96T	+1.16UDC	-0.42FLC	98%R	8/2009

**PLUSHANSKI AMEL PATTY-ET** CTPI +1853  
USA 130161039 100%RHA-NA TV  
9-05 93 EEEEE 3E GMD DOM 11/20/1998

PTA	+2695M	+62F	+68P	89%R	8/2009
PTA	+583NM	-0.13%F	-0.04%P		
PTA	+4.1PL	2.88SCS	-1.3DPR	8%DCE	
PTA	+1.59T	+1.07UDC	+0.70FLC	88%R	8/2009

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
**	2-03	2	365	38133	100	3.5	1340	2.9	1095 100
**	4-09	2	365	44880	99	3.3	1468	2.9	1295 99
***	6-10	2	365	46120	100	3.2	1494	2.7	1239 100
***	8-11	2	365	49670	100	3.1	1555	2.6	1299 100
	LIFE		2614	256020		3.3	8356	2.9	7325

**ENSENADA TABOO PLANET-ET** GTPI +2154 G  
USA 60597003 100%RHA-NA TR TV TL TD  
4-11 90 EEVV 03/03/2003

PTA	+2581M	+86F	+77P	92%R	8/2009
PTA	+763NM	-0.03%F	+0.00%P	100%US	
PTA	+5.6PL	2.91SCS	+1DPR	5%DCE	
PTA	+2.24T	+2.29UDC	-0.07FLC	88%R	8/2009

**PINE-TREE MARTHA SHEEN-ET** CTPI +2291 M  
USA 62443682 100%RHA-NA  
3-04 86 VV+VV DOM 01/01/2006

MACE YIELD EVALUATION

PTA	+2033M	+96F	+69P	48%R	8/2009
PTA	+803NM	+08%F	+03%P		
PTA	+5.1PL	2.74SCS	-0.2DPR	7%DCE	
PTA	+3.31T	+2.82UDC	+3.08FLC	54%R	8/2009

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
**	1-11	3	305	26750	95	4.0	1075	3.0	813 92
			365	31210	95	4.2	1305	3.1	968 92

**PICSTON SHOTTLE-ET** GTPI +2232 G  
GBR 598172 100%RHA-NA TV TL  
GM 8/09 07/23/1999

PTA	+2112M	+94F	+60P	99%R	8/2009
PTA	+692NM	+06%F	-0.01%P	8%US	
PTA	+4.0PL	2.65SCS	-2.1DPR	8%DCE	
PTA	+4.18T	+3.27UDC	+3.06FLC	99%R	8/2009

**PINE-TREE MISSY MARTHA-ET** CTPI +2063  
USA 61733086 100%RHA-NA  
4-08 86 VVV+V DOM 03/24/2004

PTA	+1329M	+75F	+58P	62%R	8/2009
PTA	+725NM	+10%F	+07%P		
PTA	+5.6PL	2.84SCS	+1.6DPR	6%DCE	
PTA	+1.95T	+1.49UDC	+2.02FLC	60%R	8/2009

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
***	2-02	3	305	28810	95	3.5	1010	3.1	893 87
			365	34730	95	3.6	1266	3.1	1070 87
***	3-05	3	305	28280	96	3.9	1097	3.3	923 88
			361	32220	96	3.9	1242	3.3	1050 88
***	4-06	3	182	21060		3.7	785	3.1	652

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# Tralee



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

**KINGSMILL DUNDEE TRALEE-ET** PTPI +1396  
USA 66605361 100%RHA-NA

03/10/2009 7633  
FEMALE

PTA -35M# +11F# +8P# 39%R 8/2009  
PTA -.4PL# 3.08SCS# -.4DPR# 9%DCE#  
PTA +2.66T#+2.36UDC#1.52FLC# 39%R 8/2009

GTPI +1053 M

**MARCREST ENCORE**  
USA 2048702 100%RHA-NA TV TL  
9-04 96 EEEE GM 2/99 06/20/1987

PTA -471M -9F -13P 99%R 8/2009  
PTA -166NM +.03%F +.00%P 100%US  
PTA -1.5PL 3.21SCS -.3DPR 12%DCE  
MACE TYPE EVALUATION  
PTA +1.88T +1.57UDC +.37FLC 99%R 8/2009

CTPI +1345

**SNOW-N DENISES DELLIA**  
USA 12895802 100%RHA-NA TV TL  
7-08 95 EEEEE 2E GMD DOM 12/20/1986

PTA -236M -4F +5P 97%R 8/2009  
PTA +32NM +.02%F +.05%P  
PTA -1.2PL 2.93SCS -.2DPR 9%DCE  
PTA +2.58T +2.33UDC +2.18FLC 96%R 8/2009

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
DHR	2-01	2	365	23550	3.6	855	3.2	755	
DHR	4-00	2	365	31590	3.6	1153	3.1	968	
DHR	6-00	2	365	35230	4.0	1425	3.0	1049	
APS	7-06	2	365	35610	4.0	1431	2.9	1035	
LIFE			2558	180240	3.9	7108	3.2	5723	

GTPI +1371 G

**REGANCREST DUNDEE-ET**  
USA 127640114 100%RHA-NA TV TL  
6-08 95 EEEV 06/03/1999

PTA -32M -9F +4P 99%R 8/2009  
PTA +9NM -.03%F +.02%P 39%US  
PTA -1.6PL 3.01SCS +.0DPR 8%DCE  
PTA +2.99T +2.97UDC +1.57FLC 99%R 8/2009

CTPI +1429

**ERNEST-ANTHONY LEE TESS-ET**  
USA 134224996 100%RHA-NA  
3-11 91 EEEVE 03/03/2003

PTA -37M +30F +12P 58%R 8/2009  
PTA +153NM +.12%F +.05%P  
PTA +.9PL 3.14SCS -.8DPR 9%DCE  
PTA +2.32T +1.75UDC +1.46FLC 55%R 8/2009

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
***	2-02	2	305	19790	94	4.1	804	3.4	680 94
			310	20040	94	4.1	815	3.4	691 94
***	3-03	2	305	31630	95	4.4	1396	3.1	984 95

GTPI +1387 G

**COMESTAR LEE-ET**  
CAN 5757117 100%RHA-NA TV TL  
CAN EX GM 8/03 10/26/1992

PTA -131M +32F +6P 99%R 8/2009  
PTA +164NM +.15%F +.04%P 7%US  
PTA +2.2PL 2.96SCS -2.4DPR 8%DCE  
PTA +1.97T +1.32UDC +1.67FLC 99%R 8/2009

CTPI +1493

**ERNEST-ANTHONY TYRA-ET**  
USA 126146756 100%RHA-NA  
5-10 94 EEEEE GMD 09/02/1998

PTA +283M +35F +22P 75%R 8/2009  
PTA +231NM +.10%F +.05%P  
PTA +.7PL 3.02SCS +.5DPR 10%DCE  
PTA +1.82T +1.56UDC +.89FLC 67%R 8/2009

AGE	X	DAYS	MILK	DCRM	%	FAT	%	PRT	DCRC
**	2-06	2	305	25140	92	4.4	1112	3.4	858 92
			364	28160	92	4.5	1267	3.5	982 92
***	3-09	2	305	33870	94	4.3	1444	3.3	1133 94
			365	38650	94	4.2	1622	3.3	1293 94
***	5-08	2	305	37010	94	4.5	1678	3.3	1222 94
			365	42180	93	4.6	1931	3.4	1432 94
LIFE			1281	119220	4.4	5258	3.4	4085	

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Protein reported is true protein.

003444083 1515482 12/30/2009



# Glossary of Terms:

## DAM OF MERIT (DOM)

The Dam of Merit recognition is a permanent recognition for cows with over 87% RHA and higher. Eligible cows were born in the past 25 years and milking in a herd participating in the TriStar program. They must have CTPI values exceeding birth year cutoff and at least three offspring with a PTA for production and type. Twice each year Holstein Association USA automatically screens their database for qualifying cows.

## GENETIC CODES

<sup>1</sup>Recessive gene carrier

<sup>2</sup>Dominant gene carrier

BD Bulldog<sup>1</sup>  
BL Bovine Leukocyte Adhesion Deficiency (BLAD)<sup>1</sup>  
TL Tested free of BLAD  
TV Tested free of CVM  
DF Dwarfism<sup>1</sup>  
DP Deficiency of Uridine Monophosphate Synthase (DUMPS)<sup>1</sup>  
TD Tested free of DUMPS  
HL Hairless<sup>1</sup>  
IS Imperfect Skin<sup>1</sup>  
MF Mule-Foot<sup>1</sup>  
TM Tested free of Mule-Foot  
PO Polled<sup>2</sup>  
PG Prolonged Gestation<sup>1</sup>  
PT Pink Tooth (Porphyria)<sup>1</sup>  
RC Red hair color<sup>1</sup>  
B/R Black/Red<sup>1</sup>  
TR Tested free of red hair color  
CV Complex Vertebral Malformation (CVM)

## GOLD MEDAL DAM (GMD)

A cow and at least three of her daughters must have been classified. The cow herself must also be milking in a herd participating in the TriStar program. TriStar published records are used in the evaluation. Automatic evaluation twice a year of all cows of 87% RHA or higher born in the past 25 years.

## GOLD MEDAL SIRE (GM)

Automatic evaluation twice a year of all sires 87% RHA and higher. Minimum TPI level, updated semi-annually, to recognize approximately 25 new bulls per year. Minimum reliability of 90% for PTA Fat and PTA Type. Bulls must be free of undesirable recessives and enzyme deficiencies.

## LINEAR COMPOSITE INDEXES

Linear composite indexes combine trait information on several related traits into one numerical value. This composite index can be used as a selection tool in breeding programs to identify those bulls which are predicted to transmit a desirable combination of the traits in the composite index. The four indexes are: Udder Composite, Body Size, Feet and Legs, and Dairy Capacity.

**UDDER COMPOSITE INDEX** Fore Udder Attachment, Rear Udder Height, Rear Udder Width, Udder Depth, Udder Cleft, Front Teat Placement, and Rear Teat Placement.

**BODY SIZE COMPOSITE INDEX** Stature, Strength, Body Depth, and Thurl Width.

**FEET AND LEGS COMPOSITE INDEX** Rear Legs - Side View, Rear Legs - Rear View, Foot Angle, Feet & Legs Score.

**DAIRY CAPACITY COMPOSITE INDEX** Dairy Form and Strength.

**MULTIPLE-TRAIT ACROSS COUNTRY EVALUATION (MACE)** This process combines genetic evaluations from around the world. The data contributing to these evaluations comes from either one single country or from several countries (which may include the U.S.).

**PRODUCTIVE LIFE (PTA)** Productive Life (PL) helps to predict an animal's ability to transmit longevity in the milking string. PL is defined as the number of months in milk (with a maximum of 10 months per lactation) until the cow is 84 months old. PL evaluations for cows and bulls are computed using multi-trait methods which also include evaluations for milk, fat, protein, somatic cell score and three type composites.

**PREDICTED TRANSMITTING ABILITY** Estimate of genetic superiority (inferiority) that an animal will transmit to offspring; PTA used for both males and females; cows born in 2005 average 0 (milk, fat, protein and type).

**RELIABILITY** Measure of amount of information in the evaluation; information from the animal, parents and progeny are considered.

**SOMATIC CELL SCORE** Somatic cell score (SCS) evaluations are based on transformed somatic cell counts, so that each increase of 1 SCS represents a doubling of the somatic cell count. Lower SCS is related to less mastitis and, in some cases, premiums are paid for low SCS. As a result, unlike many other traits, lower SCS is better. SCS evaluations are centered around the Holstein breed average of 3.10.

**TOTAL PERFORMANCE INDEX (TPI) - As of January 2010**

$$\left[ \frac{26(\text{PTAP})}{19.4} + \frac{16(\text{PTAF})}{23.0} + \frac{10(\text{PTAT})}{.73} - \frac{1(\text{DF})}{1.0} + \frac{10(\text{UDC})}{.8} + \frac{5(\text{FLC})}{.85} + \frac{14(\text{PL})}{1.26} - \frac{5(\text{SCS})}{.13} + \frac{10(\text{DPR})}{1.0} - \frac{2(\text{DCE})}{1.0} - \frac{1(\text{DSB})}{0.9} \right] 3.7 + 1815$$

**TRISTAR LABELS***For production records starting after 1/1/1997*

Premier ★★★

Deluxe ★★

Custom ★

Non-Pedigree Qualified (NON)

**TYPE OF TEST***For production records starting after 1/1/1997*DHIRDHIA

Alternating AM/PM with a time monitor

APT

APM

Alternating AM/PM component sampling

APS

APC

Alternating AM/PM without a time monitor

APR

APD

Weights and component samples at  
monthly test milkings

DHR

DHI

# Answers

## Test Your Pedigree Knowledge Correct Answers

- |                                       |                                               |
|---------------------------------------|-----------------------------------------------|
| 1. Jenny-Lou Patron Toyane            | 12. +1067                                     |
| 2. 9                                  | 13. CAN6026421 100%RHA-NA                     |
| 3. +1919                              | 14. 3/14/2007                                 |
| 4. Predicted Transmitting Ability     | 15. 26,090 pounds                             |
| 5. EX-90, 4 years and 7 months of age | 16. +2.6                                      |
| 6. Paternal grandsire                 | 17. +3.06                                     |
| 7. Hol-Star Outside Teera-ET (dam)    | 18. Sire                                      |
| 8. 99%                                | 19. Dam                                       |
| 9. +38                                | 20. +.00%                                     |
| 10. Jenny-Lou Patron Toyane           | 21. Hol-Star Teary Durham (maternal granddam) |
| 11. Jenny-Lou Mrshl Toystory-ET       | 22. Somatic Cell Score                        |

## Practicing Pedigree Comparisons Answers

- |      |       |       |
|------|-------|-------|
| 1. B | 6. A  | 11. A |
| 2. B | 7. A  | 12. B |
| 3. A | 8. B  | 13. B |
| 4. A | 9. B  | 14. A |
| 5. B | 10. B | 15. B |



## Holstein Foundation Workbook Contribution Form

Our series of Holstein Foundation workbooks are provided free of charge as an educational resource for dairy youth and adults around the world. The development of these workbooks is supported by contributions from generous individuals who believe in the Holstein Foundation's mission of promoting and supporting programs that provide leadership for the dairy industry. If you would like to make a gift to help ensure we can continue providing these resources, please complete this form and return it to the address below. Donations may also be made with a credit card online at [www.holsteinfoundation.org](http://www.holsteinfoundation.org).

Full name, as you would like to be recognized for your gift:

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City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

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Preferred Email Address \_\_\_\_\_

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I would like to make a one-time / monthly (circle one) donation to the Holstein Foundation, in the amount of \$ \_\_\_\_\_ for a period of \_\_\_\_\_ months.

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Instructions \_\_\_\_\_

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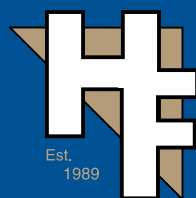
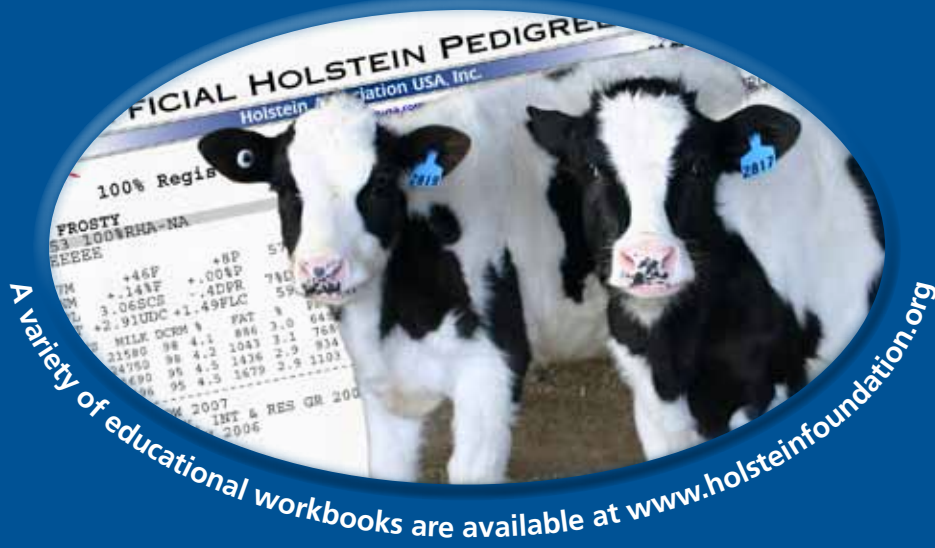
Holstein Foundation

PO Box 816

Brattleboro, VT 05302-0816

With questions, contact Jodi Hoynoski at 800.952.5200, ext. 4261 or [jhoynoski@holstein.com](mailto:jhoynoski@holstein.com).

# Educational Workbooks



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