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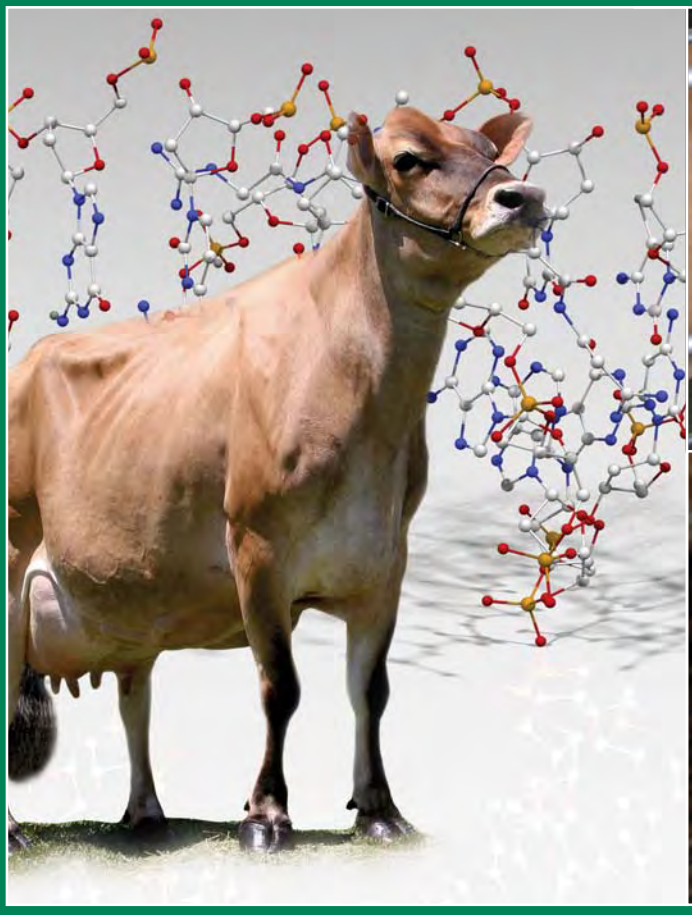
AMERICAN JERSEY CATTLE ASSOCIATION

JERSEY GENETIC SUMMARY



USJersey

For the past year, there have been two kinds of genetic evaluations for Jersey cows: one for those that have been genotyped, another for those that have not—making it impossible to accurately compare genomic PTAs against traditional PTAs.

A year ago in April, AIPL geneticists addressed the long-standing problem of over-evaluating cow genetic merit by applying what they had learned from the development of genomic evaluations to remove the bias in PTAs for yield traits, starting with genomic-tested cows and heifers. This was a significant advance. Reliability improved. Cow information was made available for further development of genomic predictions. The adjustments, however, put genotyped females on a different genetic scale. For the past 12 months, it has not been possible to fairly compare genomic PTAs against traditional PTAs.

Fast-forward 12 months, and the staff at AIPL has completed the task they set out to accomplish. Procedures were implemented for the April evaluations that **better measure true genetic merit for *all* Jersey cows** and **allow for fair comparisons of genotyped and non-genotyped cows**.

In an interview for "This Month in Jersey Genomics" aired March 16 *(available online at http://vimeo.com/21125569)*, Dr. Bennet Cassell of Virginia Tech talked about the steps in the new evaluation procedures and why they were needed.

"If you compare a cow and a bull that have similar information about their own merit, (research showed) we made more extreme estimates of cow merit from a similar kind or amount of information. So the first adjustment is based on the reliability of the individual performance information in a cow's PTA and it changes the variance of that PTA to be more like bulls that have similar information. The second step adjusts for differences between the pedigree merit of that cow and the pedigree merit of all cows born in the same birth year. Again, it's based on research. Cows that were much different from the year-of-birth average had more extreme estimates of genetic merit than bulls that had a similar deviation from the year-of-birth average in pedigree merit. (With these adjustments) we're bringing our extreme PTAs more toward the middle ground. We're less willing to declare cows exceptionally good or exceptionally bad with this new procedure."

Table 1. Comparison of December 2010 PTA milk of top 100 non-genotyped cows and top 100 genotyped cows with their April 2011 PTA milk using the new adjustment procedure.

	December 2010	April 2011	Change
Non-genotyped	1,718	1,507	–211
Genotyped	1,263	1,421	+158

Source: Animal Improvement Programs Laboratory, ARS-USDA. For background, see "Adjustments make all cow PTAs similar to those on genomically tested cows," http://aipl.arsusda.gov/publish/other/2011/ADJ_article.htm

"This is a change that is going to affect *all* the cows in the population," as shown in Table 1. "You will see changes in individual cows," Cassell continued. "There's simply no way to generalize what (owners) are going to see in all cases. There are just too many cows and too many circumstances."

"Cows that don't have genomic evaluations, that have pedigree merit that is typical at the time that cow was born, are not going to be adjusted very much in many cases," he observed. "Adjustments are not expected to be very large, except for animals that are more towards the extreme for pedigree merit within any given year of birth, or for animals that have unusually high or low estimates of Yield Deviations compared to the amount of information available. Keep in mind, these are the cows that are towards the extreme of the distribution and they are the ones that we tended to over-estimate their genetic merit based on our traditional systems."

Table 2. Comparison of April 2011 PTA averages of the Top 200 non-genotyped and genotyped cows and Top 500 non-genotyped and genotyped heifers.

	Milk	Fat	Protein	JPI™	Rel%
Top 200 GJPI Cows	1,098	56	43	187	65
Top 200 JPI Cows	1,019	55	40	165	53
Difference	79	1	3	23	12
Top 500 GJPI Heifers	1,058	55	40	184	50
Top 500 JPI Heifers	1,076	53	39	173	31
Difference	-18	2	1	11	19

Source: Research & Genetic Development, American Jersey Cattle Association

The overall effect is that it is now possible to compare genotyped and non-genotyped cows more fairly than was possible in 2010. This is well illustrated in Table 2, which compares the published traditional and genomic PTAs of the Top 200 Jersey cows and Top 500 Jersey heifers for April 2011.

Dr. Cassell tackles this subject in his column for the March 25 *Hoard's Dairyman*, and in a technical article co-authored with Dr. George Wiggans posted on the AIPL web site *(see Table 1 for link)*. "It's important that we remember the purpose of these adjustments," he concluded, "and that is to make the genetic evaluations of our females more accurate and more useful."

Oh, and another thing. "One of the by-products of doing this is that we are going to add value to elite animals—even more value than has been added in the last year."

JERSEY GENETIC SUMMARY

April 2011 The "Green Book" Online at http://greenbook.usjersey.com Volume 16, Number 1

Table 1. Average Predicted Transmitting Ability (PTA) of Jersey Bulls Evaluated April, 2011

Category	No. of Bulls	PREDICTED TRANSMITTING ABILITY Milk	% Fat	Fat	% Prot	Protein	SCS	PL	DPR	NM$	FM$	CM$
Active AI average	137	404	0.08	32	0.02	18	3.00	2.2	0.0	243	223	271
Genomic (G-Code Bulls) average	134	764	0.04	42	0.01	28	2.97	3.2	0.2	358	340	385
Non-AI average	439	-55	0.03	3	0.01	0	3.00	0.8	0.1	48	41	55
Active AI Difference from non-AI		459	0.05	29	0.01	18	0.00	1.4	-0.1	195	182	216
G Code Bull Difference from non-AI		819	0.01	39	0.00	28	-0.03	2.4	0.1	310	299	330
First-evaluation AI bulls	54	361	0.08	31	0.02	17	3.01	1.2	-0.2	190	172	215
First-evaluation non-AI	36	-26	0.02	3	0.01	0	3.00	1.0	0.1	53	49	58
Difference		387	0.06	28	0.01	17	0.01	0.2	-0.3	137	123	157

Table 2. Summary of Active A.I. Bull Averages, with Standard Deviations, April 2011

Trait	Average	SD
Jersey Performance Index™	92	65
JPI™ Reliability	82	9
Herds	224	709
Daughters	1,347	4222
Milk	404	671
Fat %	0.08	0.15
Fat	32	25
Protein %	0.02	0.06
Protein	18	19
Cheese Merit Dollars	$271	$190
Net Merit Dollars	$243	$174
Fluid Merit Dollars	$223	$167
Productive Life	2.2	1.78
Somatic Cell Score	3.00	0.13
Final Score (Type)	0.85	0.70
Stature	0.71	1.27
Strength	0.38	0.77
Dairy Form	0.64	0.72
Rump Angle	H0.10	0.83
Rump Width	0.35	0.73
Rear Legs	S0.08	0.54
Foot Angle	S0.57	0.39
Fore Udder Attachment	0.78	0.92
Rear Udder Height	0.91	0.82
Rear Udder Width	0.69	0.66
Udder Cleft	0.33	0.62
Udder Depth	S0.73	1.17
Front Teat Placement	C0.50	0.87
Front Teat Length	L0.26	0.69
Jersey Udder Index™ (JUI)	2.01	1.95
Expected Future Inbreeding (EFI/GFI)	7.1	2.7
Daughter Pregnancy Rate	0.02	0.98

Table 3. Heritability Estimates of Selected Traits

Trait	Heritability (h^2)
Milk	0.35
Fat	0.35
Protein	0.35
Productive Life	0.08
Somatic Cell Score	0.12
Daughter Pregnancy Rate	0.04

Glossary of Terms

Daughter Pregnancy Rate (DPR): Genetic evaluation of fertility based on the percentage of non-pregnant, eligible cows that become pregnant during each 21-day period. 1% DPR equals 4 less days open.

Expected Future Inbreeding (EFI): Estimate of future progeny inbreeding, assuming that an animal is mated randomly.

Genomic "G" Codes: GT, animal has been genotyped; GT3K, genotyped with 3K chip; GT50K, genotyped with 50K chip; GI for genotype through imputation from progeny; and GA for inclusion of genomic information from genotyped ancestors.

Genomic Estimate of Future Inbreeding (GFI): Estimate of inbreeding in future offspring, based upon DNA testing of parent's actual homozygosity and percentages of genes in common with the genotyped breed population.

Genomic Predicted Transmitting Abilities (GPTAs): Estimate of genetic merit calculated from (1) information from genotypes or imputed genotypes of ancestors DNA analysis of functional genes inherited by a particular animal; plus (2) individual performance and (3) pedigree information.

Heritability: The proportion of observed differences in a trait between individuals attributed to transmittable genetic factors in contrast with environmental factors. *(See Table 3)*

Jersey Performance Index™ (JPI): Combines PTA or GPTA Protein, Fat, Functional Trait Index (FTI), PL, DPR, and SCS with the emphasis of 42% Protein : 15% Fat : 15% FTI : 12% PL : 10% DPR and 6% SCS. Used to rank animals for combined genetic merit for production, type and fitness traits.

Jersey Udder Index™ (JUI): Based on the Functional Trait Index (FTI) weightings for udder traits *(refer to Table 2, page 5)*.

Net Merit dollars (NM$): Expected lifetime profit as compared with the breed base cows born in 2005. Described at http://aipl.arsusda.gov/reference/nmcalc.htm.

Parent Average: Estimate of an individual's eventual PTA based on the average of the parents' traditional PTAs.

Percentile: A ranking relative to the population. For example, a bull with a 90 percentile ranking or a heifer that is a P9 is ranked higher than 90 percent of the population.

Predicted Transmitting Ability (PTA): The best predictor of genetic merit; specifically what a bull or cow is expected to transmit for a particular trait to their offspring. *See also GPTA (above).*

Productive Life (PL): Time in the milking herd before removal by voluntary culling, involuntary culling, or death.

Sire Conception Rate (SCR): Phenotypic predictor of bull fertility, expressed as a relative conception rate, measured for the first seven (7) breedings of the cow (no heifer breedings).

Somatic Cell Score (SCS): Indicator trait for mastitis resistance based on the direct measure of somatic cells in milk samples.

2010 Jersey Performance Index™ (JPI)

Trait weightings for the AJCA Jersey Performance Index™ and a major component, the AJCA Functional Trait Index, were updated for the April 2010 bull and cow genetic evaluations.

In JPI_{10}, 57% of the index's value is placed on production traits (PTA protein and PTA fat). The remaining 43% is contributed by four fitness and longevity traits: the Functional Trait Index (FTI_{10}), and USDA PTAs for Productive Life (PL), Somatic Cell Score (SCS), and Daughter Pregnancy Rating (DPR).

Specific weights for each trait included in JPI_{10} *(changes from the previous version noted in parentheses)*, are 42% PTA protein *(+2%)*; 15% PTA fat *(-5%)*; 12% Productive Life *(no change)*; 6% Somatic Cell Score *(+3%)*; 10% Daughter Pregnancy Rate *(+3%)*; and 15% Functional Trait Index *(no change) (see also Table 1, below)*.

Regrouping traits by functional categories reveals a set of "Big Four" factors that determine whether cows put money into your pocket, and how much. Production gets 57% of the emphasis in the new formula. There's 19% on herd life, through Productive Life plus the body traits in the Functional Trait Index (FTI). Udder health at 14% combines direct selection for lower Somatic Cell Score (especially important to capture quality premiums) and the udder traits in FTI. Lastly, 10% is placed on fertility, using the trait of Daughter Pregnancy Rate.

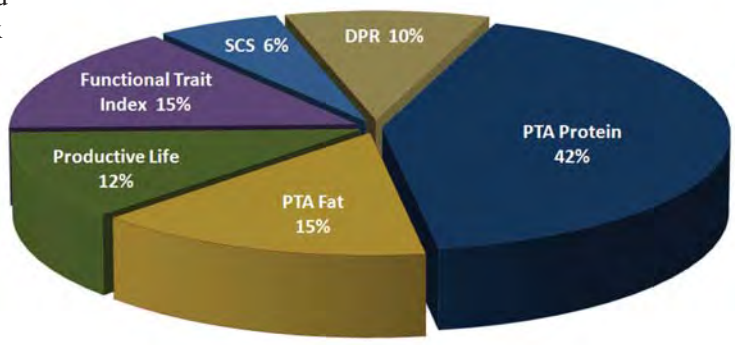
Calculation of the Jersey Performance Index™

Effective April 2010, bull and cow JPI™ are calculated as follows:

JPI_{2010} = (42 x PTA protein / 16.8) + (15 x PTA fat / 23.5) + (15 x (FTI_{10} / 2.0)
+ (12 x Productive Life / 1.9) + (10 x PTA Daughter Pregnancy Rate / 1.0)
+ (6 x (3.00 – PTA Somatic Cell Score) / 0.15)

where:

FTI_{10} (Functional Trait Index) = Sum of the bull/cow PTAs of linear type traits multiplied by the respective relative economic value, updated for 2010 *(see Table 2, next page)*



More About Component Traits

Functional Trait Index (15%) is designed to separate the impact of production and type traits on lifetime profitability. It is composed of the sum of the PTAs for the linear traits times their relative economic values. Udder Depth is set to 1.0, and all other traits are expressed relative to it. FTI is not published separately. The reason is, since estimates of trait economic importance are calculated holding production constant, FTI needs to be combined with the production traits to be interpreted correctly. Introduced in January of 1992, FTI weights were previously updated in 1998 and 2006. Study of changes in these weights reflects the change in Jersey type over time *(see Table 2, next page)*.

Productive Life (12%) is defined as "time in the milking herd before removal by voluntary culling, involuntary culling, or death." An economic definition of PL has been in place since 2006. Credits are based on standard lactation curves, with highest credits at the peak of lactation and diminishing credits across the remainder of lactation. The standard is that a second-lactation cow with 305 days in milk gets 10 months credit. First lactations get less credit and later lactations slightly more credit in proportion to average production. Cows get credit for continuing in milk after 305 days of lactation and after 84 months of age. Lactation-curve credits ensure that cows with multiple lactations get more total credit than cows with just one long lactation.

Daughter Pregnancy Rate (10%) is defined as the percentage of non-pregnant cows that become pregnant during each 21-day period. A bull with a DPR of 1 indicates that his daughters are 1% more likely to become pregnant during an estrus cycle than a bull with an evaluation of 0. Each 1% *increase* in PTA DPR equals a *decrease* of four (4) days in days open. The heritability estimate for DPR is 4%. While modest, the economic impact of reproductive performance is significant and variation for DPR does exist. The April 2010 Active A.I. and Foreign Jersey bulls range from 2.6 to -2.7 DPR. That translates into a genetic difference of 21.2 days open among the daughters of these bulls.

Somatic Cell Score (6%) is an indicator trait for mastitis re-

(continued on next page)

Table 1. History of Weights Used to Calculate PTI (1998) and Jersey Performance Index™.

Year	Protein	Fat	FTI	PL	SCS	FUI	DPR
1998	55.5%	22.2%	16.7%	—	5.6%	—	—
2002	50.0	20.0	15.0	5.0%	5.0	5.0%	—
2005	50.0	20.0	15.0	3.75	3.75	3.75	3.75%
2006	40.0	20.0	15.0	12.0	3.0	3.0	7.0
2010	42.0	15.0	15.0	12.0	6.0	—	10.0

Table 2. Relative Economic Importance of Linear Traits for Calculating Functional Trait Index (FTI) *(see note).*

Year	Stature	Strength	Dairy Form	Foot Angle	Rear Legs	Rump Angle	Rump Width	Fore Udder	Rear Udder Height	Rear Udder Width	Udder Depth	Udder Cleft	Teat Placement	Teat Length
1998	-0.29	-0.22	-0.31	1.97	-0.83	-0.51	0.17	0.86	1.26	0.78	1.00	0.06	0.38	-1.37
2006	-0.31	-0.23	0.00	1.46	-0.51	0.37	0.18	0.32	1.33	0.82	1.00	0.06	0.19	0.21
2010	-0.50	-0.85	0.00	0.30	0.00	0.35	0.70	0.30	0.35	0.61	1.00	0.85	0.10	0.00

Note: Udder Depth is set to 1.0, and all other traits are expressed relative to Udder Depth.

sistance based on the direct measure of somatic cells in milk samples. The genetic correlation between Somatic Cell Score and clinical mastitis is about 0.6.

Method Used For 2010 Updates

The revisions implemented for JPI_{10} were based on extensive research conducted by Dr. Ronald E. Pearson of Virginia Tech, with recommendations based on simultaneous evaluation of multiple traits and their relationships to lifetime net income for nearly 117,000 Jersey cows.

Pearson used lactation records for Jersey cows born after 1995 and in herds that continued on production testing programs for eight years after the cow was born. All lactations started by cows' eighth birthday were included. Total milk yield of the cows ranged from 41 to 179,169 lbs., with a group average of 51,272 lbs. milk, 2,343 lbs. fat and 1,839 lbs. protein. Lifetime average days in milk was 956 and the average number of calvings was 3.05.

Relative lifetime net income (RNI) was estimated for each cow, calculated from DHI lactation data for total yield of fat and protein, multipled by the net price for each component; number of calvings, with net value calculated for each calf born; rearing cost for the cow plus net salvage value at culling; less the daily costs of feed for maintenance, labor and fixed and other operating costs across the cow's lifetime. RNI is relative because the same prices were used for all herds across the United States.

RNI was then adjusted for costs not directly measured in DHI records. For mastitis, these included treatments and added labor cost for mastitis, value of discarded milk and cost of lost premiums for lower somatic cell score. For fertility, the costs included were for increased heat detection, pregnancy exams and drugs for treatment. The additional costs of rearing and maintaining animals with larger body size was included, as was their increased salvage value. Adjustments were also included for costs incurred because of udder and feet and legs problems.

There were significant shifts from the previous update (2006) to the Functional Trait Index *(see Table 2, above).* For FTI_{10}, udder traits as a group receive the greatest emphasis, 54%, followed by 41% for body traits, and 5% on foot angle. Udder depth is the largest single contributor to FTI.

Based on milk prices over the past four years, and more specifically projections for the next five years, emphasis on protein relative to fat was increased in JPI_{2010}.

Other Considerations

In reporting his analysis and recommendations to the AJCA Board of Directors, Dr. Pearson commented, "With the economic approach we are using here, we must use data from a generation of cows that have completed a life to predict the future. You would much rather use the cows that are just coming into the herd and get information from them. But because we are interested in how the animal is going to perform over her lifetime, it is hard to get out of this bind. I appreciate that problem, but I can't change time frames."

Compared to previous JPI formulas, he noted, "We have a continuing decrease in the emphasis on the yield traits. There are people who are bothered by that and I understand their concern.

"We've been selecting for yield traits for a long time. Now people are starting to realize that if you don't keep some pressure on improvement of fertility, disease resistance and longevity traits, you're going to end up with a cow that is not as profitable and is more problematic. We need to reach balances on some of these traits: Productive Life, Daughter Pregnancy Rate and Somatic Cell Score.

"We're not going to make quick progress on any of them," Pearson continued, "because they do not have a high enough heritability to do that. However, if you do not have to work out of a big hole, you've got a much better situation. The decision the Board made [in 2006 to increase emphasis on] Daughter Pregnancy Rate turned out to be a superb decision from its timing and degree."

Calculation of the Jersey Udder Index™

This index is the sum of sire PTAs for udder traits multiplied by their weights in the Functional Trait Index (see Table 2, above):

$$JUI_{10} = [(.30 \times FU) + (.35 \times RUH) + (.61 \times RUW) + (1.0 \times UD) + (.85 \times UC) + (.10 \times TP) + (0 \times TL)]$$

Summary

- Jersey Performance Index™ (JPI™) is a breed-specific selection tool that has been continually reviewed and updated based on sound science and relative to the economics of dairying.
- JPI_{10} includes six traits as follows: 42% Protein : 15% Fat : 15% FTI : 12% PL : 10% DPR : 6% SCS. Overall, 57% of its emphasis is on production, 14% on udder health, 19% on longevity, and 10% on fertility.

Explanation of Headings for Summarized Bulls: Left Page

Name of Bull	Registration Number	GT	NAAB Code	No. Hrds	No. Daus	% RIP	REL %	Milk	% Fat	Fat	% Prot	Prot	CM$	NM$	FM$
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)

Identification

1. Registered name of bull
2. Registration number with country code
3. Asterisk in this column indicates that animal's DNA genotype used in evaluations
4. A.I. stud code of bull: stud code, breed code, and stud's number for bull

USDA Production Information

5. Number of herds with bull's daughters on test, providing milk, fat and production information for the summary
6. Number of daughters that have production data included in the summary
7. % of first lactations that were in progress at the time the summary was completed
8. Reliability of production summary

9–13. PTA values for production, milk, fat percent, pounds of fat, protein percent and pounds of protein

14. Index for Cheese Merit Dollars
15. Index for Net Merit Dollars
16. Index for Fluid Merit Dollars

Explanation of Headings for Summarized Bulls: Right Page

SCS	PL	DPR	EFI	NM$ %ile	JPI	JPI REL	Type Hrds	Type Daus	Type REL	FS	ST	SR	DF	RA	RW	RL	FA	FU	RH	RUW	UC	UD	TP	TL	JUI
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)

USDA Production Information

1. PTA Somatic Cell Score
2. PTA for Productive Life
3. PTA for Daughter Pregnancy Rate
4. Expected Future Inbreeding
5. Percentile ranking of bull based on Net Merit dollars

JPI

6. Jersey Performance Index™
7. Reliability of JPI

Predicted Transmitting Ability for Type

8. Number of herds with daughters contributing information to the sire's type summary
9. Number of daughters in type summary
10. Reliability of PTA type (based on final score)
11. PTA for Final Score and Type

PTA Values for Linear Type Traits

12. Stature (ST)
13. Strength (SR)
14. Dairy Form (DF)
15. Rump Angle (RA): H=High Pins, L=Low Pins
16. Rump Width (RW)
17. Rear Leg Set (RL): P=Posty, S=Sickle
18. Foot Angle (FA): L=Low, S=Steep
19. Fore Udder Attachment (FU)
20. Rear Udder Height (RH)
21. Read Udder Width (RUW)
22. Udder Cleft (UC)
23. Udder Depth (UD): D=Deep, S=Shallow
24. Front Teat Placement (TP): W=Wide, C=Close
25. Teat Length (TL): L=Long, S=Short
26. Jersey Udder Index™

Heifer Percentile Ranking Levels (P-Level)

The P-level may be the most important guide on the pedigree when evaluating Jersey heifers' genetic merit. The P-level is a percentile ranking of the Parent Average (PA) Jersey Production Index™ (JPI), displayed as P0 through P9. When PA JPI is not available, percentile rankings are based on PA Protein.

The P-level indicates how one heifer ranks compared to all other Registered Jersey™ heifers born in the same year. To interpret, insert the P-level in the blank in the following statement: "This heifer has a higher PA JPI than __0 percent of the registered Jersey heifers born in the same year." Example: A P8 heifer born in 2008 has a higher PA JPI than 80 percent of the Registered Jersey heifers born in 2008.

The tables show means and minimum values for percentile ranking levels based on Parent Average JPI for the birth years 2006 to 2010 and projected for 2011 and 2012; and also for PA Protein for 2006 to 2010, with projections for 2011 and 2012.

Table 1. Parent Average JPI for P-Levels

Birth Year	Mean	P0	P1	P2	P3	P4	P5	P6	P7	P8	P9
2006	10	< -51	-51	-23	-8	4	15	25	36	49	67
2007	20	< -42	-42	-14	2	15	26	36	47	60	77
2008	30	< -33	-33	-5	11	24	36	47	58	72	90
2009	44	< -18	-18	11	27	39	49	60	71	84	102
2010	61	< 2	2	29	44	55	66	76	87	100	117
2011 *projected*	71	< 11	11	38	54	65	76	87	98	111	128
2012 *projected*	83	< 24	24	51	67	78	88	99	110	123	141

Table 2. Parent Average Protein at P-Levels

Birth Year	Mean	P0	P1	P2	P3	P4	P5	P6	P7	P8	P9
2006	0	< -21	-21	-10	-5	-1	2	5	9	12	17
2007	1	< -20	-20	-8	-3	1	5	7	10	14	19
2008	4	< -17	-17	-6	-1	3	7	10	13	17	22
2009	7	< -13	-13	-3	3	7	10	13	17	20	25
2010	11	< -8	-8	2	7	11	14	17	20	23	28
2011 *projected*	13	< -6	-6	4	9	13	16	19	23	26	31
2012 *projected*	16	< -3	-3	7	12	16	19	22	25	28	33

April 2011, Active AI 70% REL Bulls by JPI

REGISTRY STATUS CODES IN ANIMAL NAMES. Registry status codes PR and GR are an integral part of the AJCA registration name and NAAB short name (males only) for those animals recorded at the Provisional Register and Genetic Recovery levels, respectively. When animals are recorded in the AJCA Herd Register, the registry status code of HR is not included in the registration name. Refer to the inside back cover for more information about the AJCA animal recording systems.

Name of Bull	Registration Number	GT	NAAB Code	No. Hrds	No. Daus	% RIP	REL %	Milk	% Fat	Fat	% Prot	Prot	CM$	NM$	FM$
TOLLENAARS IMPULS LOUIE 260-ET	USA 061929276	*	14JE473	69	124	6	93	1643	-0.01	73	-0.05	48	520	524	538
ISDK Q IMPULS	DNK 000301592	*	236JE3	1,906	18,775	30	99	604	0.19	63	0.12	44	590	487	411
PR OOMSDALE ROCKET GOOSE-ET	USA 067027311	*	1JE672	24	32	62	78	1333	-0.02	58	0.00	48	462	421	391
CAVE CREEK KANOO-ET	USA 114118219	*	7JE1100	10	75	9	86	958	0.07	58	0.01	36	566	532	510
TOLLENAARS IMPULS LEGAL 233-ET	USA 061929249	*	29JE3506	32	53	17	85	822	-0.01	36	0.05	38	494	434	390
RICHIES JACE TBONE A364	USA 113672851	*	7JE1000	82	3,264	43	97	560	0.20	63	0.09	37	490	408	345
VICTOR KIRK OF ALL LYNNS	USA 115255083	*	11JE943	5	13	100	71	1364	-0.04	54	-0.02	44	380	372	382
ABBOTT OF D&E	USA 114756406	*	11JE928	25	63	33	86	815	0.07	50	0.05	38	487	426	379
SR IMPULS STONE-ET	USA 114332783	*	1JE634	19	33	9	82	1029	0.05	56	0.05	47	441	369	312
GABYS BALLARD-ET	USA 114826570	*	29JE3542	28	65	25	86	912	-0.02	37	-0.01	30	434	423	422
PR OOMSDALE JACE GRATUDE GANNON-ET	USA 067010225	*	1JE604	99	234	59	95	1958	-0.14	62	-0.12	46	306	346	387
BW VENERABLE-ET	USA 114901730	*	200JE986	4	14	64	70	864	0.26	90	0.04	39	478	422	382
CAVE CREEK VERMEER-ET	USA 114849531	*	1JE666	13	57	96	80	786	0.13	62	0.01	29	509	483	463
SF IMPULS 8916	USA 114635185	*	1JE648	20	68	47	84	600	0.12	50	0.03	28	557	499	439
FAIRWAY KLASSIC KILOWATT-ET	USA 114656667	*	11JE921	31	76	42	88	478	0.09	39	0.04	25	523	469	420
AHLEM JACE SENTRY-ET	USA 113978377	*	147JE6173	1	20	25	76	782	0.01	37	0.02	31	471	424	379
D&E PAUL-ET	USA 115181456	*	11JE944	11	32	94	81	1233	-0.07	43	-0.02	40	356	335	323
SCHULTZ RESCUE HEADLINE	USA 114114336	*	29JE3510	33	62	6	88	1293	-0.19	21	-0.08	30	388	418	449
AHLEM LEMVIG ABE-ET	USA 111334898	*	122JE5198	430	5,512	18	99	834	0.13	63	0.05	40	501	435	385
PR OOMSDALE BRAZO GRATITUDE GHENT-ET	USA 067027314	*	11JE930	24	84	81	86	1242	-0.08	42	-0.02	41	377	358	350
SUNSET CANYON ANTHEMS ALLSTAR-ET	USA 114581918	*	1JE654	34	114	18	92	16	0.45	83	0.13	24	534	436	352
TOLLENAARS ARTIST LYNDON-ET	USA 061929278	*	29JE3508	32	60	10	86	952	0.00	44	-0.03	28	404	406	416
DUTCH HOLLOW ABEL-ET	USA 115149241	*	7JE935	31	43	93	82	169	0.22	48	0.10	24	517	432	355
WILSONVIEW ARTISTIC ROMEO	USA 114630694	*	1JE655	21	53	77	83	537	0.09	42	0.04	27	483	431	385
SUNSET CANYON KYROS-ET	USA 114704155	*	7JE865	60	86	58	88	953	0.09	59	0.02	38	387	346	318
SUNSET CANYON MAXIMUM-ET	USA 111950696	*	203JE607	206	3,986	39	98	206	0.43	91	0.09	25	565	484	415
FOREST GLEN ARTIST ALEXANDER	USA 067037158	*	14JE472	62	115	5	93	451	0.13	46	0.03	22	490	451	419
FOREST GLEN MECCAS JEVON-ET	USA 112797481	*	29JE3346	327	2,693	67	99	1159	0.05	63	-0.04	34	455	446	439
BUTTERCREST FORBES	USA 114896953	*	29JE3563	23	34	88	80	472	0.33	85	0.11	37	458	367	296
AHLEM COUNTRY CLEM-ET	USA 114911764	*	11JE946	23	68	97	85	925	0.02	47	0.02	36	360	317	285
PR OOMSDALE GRATITUDE COUNTRY CARL-ET	USA 067010255	*	11JE885	47	131	13	92	1559	-0.15	41	-0.05	46	251	251	264
ISDK JAS BUNGY	DNK 000301617		228JE105	818	8,148	14	92	108	0.18	38	0.09	20	554	483	425
SUNSET CANYON RP MILITIA-ET	USA 111953541	*	200JE990	536	3,600	33	99	370	0.18	51	0.08	29	480	420	384
CAL-MART IMPULS NESTOR 3831	USA 114118901	*	1JE631	66	133	4	89	341	0.28	67	0.14	38	484	373	286
SUNSET CANYON MATINEE-ET	USA 111981214	*	7JE714	367	2,610	37	99	892	0.26	91	0.00	32	476	451	434
SUNSET CANYON SCF MAGNIFICENT-ET	USA 114891529	*	203JE722	10	63	83	81	785	0.02	39	0.04	36	329	272	228
LYON IMPULS AMITY	USA 114523824	*	29JE3527	31	67	6	87	720	0.01	34	0.04	33	387	333	291
MAACK DAIRY SPECTACULAR-ET	USA 114245720	*	7JE821	49	73	12	88	261	0.16	42	0.07	23	435	367	311
VANTAGE MONROE-ET	USA 114899330	*	200JE337	19	27	93	79	693	0.14	58	0.02	28	406	365	329
RALAINE PARAMOUNT PETER	USA 113012583	*	14JE415	76	210	60	94	974	-0.09	27	-0.04	27	295	302	314
FOREST GLEN ARTIST KARL	USA 067037285	*	29JE3509	33	57	5	87	723	0.14	60	0.05	35	369	318	288
AHLEM ACTION ACCESS	USA 114725963	*	14JE483	41	73	21	89	1146	-0.15	23	-0.06	29	260	277	299
CAVE CREEK KOKOMOO-ET	USA 114118200	*	11JE869	30	94	12	89	86	0.21	42	0.09	20	457	382	317
FAIRWAY KLIPPER-ET	USA 114656658	*	29JE3541	24	49	27	84	873	-0.01	39	-0.02	27	334	317	300
FOREST GLEN JACE ADDISON	USA 067037421	*	506JE172	18	101	8	87	740	0.01	36	0.01	29	353	321	300
BHF-SSF PARADE LOUIE-ET	USA 113486117	*	7JE738	155	420	70	96	1407	-0.18	29	-0.02	47	203	186	187
THREE VALLEYS COUNTRY MILES-ET	USA 115089482	*	7JE886	33	54	83	84	774	0.10	55	0.00	28	336	312	296
MAACK DAIRY ECLIPES-P-ET	USA 114845461	*	7JE860	53	91	47	89	551	0.11	47	0.03	26	309	263	224
BW MAGICIAN-ET	USA 114903433	*	11JE931	26	61	74	85	290	0.24	58	0.07	24	381	320	272
FOREST GLEN JACE JESTER-ET	USA 067006748	*	11JE834	23	46	9	87	632	0.05	39	0.00	22	393	371	349
CHASIN-RAINBOWS ACT RILEY-ET	USA 067029404	*	7JE859	36	87	45	88	389	-0.07	5	-0.02	11	332	330	325
SR MANHATTEN BRUT-ET	USA 115010532	*	29JE3552	35	71	44	87	990	0.08	61	0.02	39	279	247	237
DUTCH HOLLOW ABRAM-ET	USA 115348079	*	14JE503	19	35	100	79	424	0.08	35	0.06	27	392	327	274
AHLEM HALLMARKS HERO-ET	USA 112821168	*	147JE6067	19	98	5	87	926	-0.06	31	-0.04	26	317	312	307
BW ARON-ET	USA 114202925	*	11JE877	32	89	30	89	835	-0.04	31	-0.07	17	295	321	343
AVI-LANCHE REBEL KAYLAR	USA 115021969	*	11JE934	19	49	71	84	527	0.06	36	0.04	27	350	300	261
JENKS PARAMOUNT SUMMIT-ET	USA 112505219	*	147JE6063	42	157	35	92	527	0.10	43	-0.01	16	381	376	373
IMPULSE VETERAN OF SHAN-MAR	USA 067003433	*	1JE644	48	150	7	89	101	0.20	42	0.07	18	420	360	314
SUN VALLEY NATHAN A ONE	USA 114960414	*	14JE488	19	42	31	82	554	0.00	26	0.02	24	320	289	269
ALTAMONT MH FANTOM	USA 113636848	*	7JE762	52	80	11	90	194	0.04	17	0.03	13	369	336	307
BW SEVILLE	USA 112984032	*	200JE985	27	156	55	89	671	-0.16	1	0.03	30	283	231	184
GALAXIES CELEBRITY-ET	USA 113586152	*	11JE826	32	73	11	90	537	0.02	29	0.01	21	299	273	252
DUTCH HOLLOW IMPACT-ET	USA 114698591	*	76JE158	20	43	56	81	1278	-0.11	36	-0.05	36	240	248	265
CALAMITYS ACTION CAMPBELL-ET	USA 114644163	*	14JE484	79	148	18	94	815	-0.03	31	-0.05	19	263	274	280
MAACKDAIRY REGION-ET	USA 114011567	*	200JE944	37	80	6	90	419	0.16	50	0.03	20	311	279	254
DEERVIEW RUBEX-ET	USA 067001519	*	11JE814	35	177	56	92	1443	-0.06	55	-0.04	43	189	194	215
THREE VALLEYS MAGNUM-ET	USA 115089512	*	200JE40	10	29	97	77	666	0.04	38	0.01	25	322	301	290
AHLEM JACE EPIC-ET	USA 113978283	*	14JE460	51	112	5	92	544	0.12	47	0.03	25	299	259	226
BW BLAISE-ET	USA 114203029	*	200JE988	21	134	51	89	644	-0.02	26	-0.01	21	281	271	265
ASPEN GROVE PARAMOUNT DUKE-ET	USA 113521285	*	11JE819	52	208	69	94	63	0.06	14	0.09	18	349	279	218
SUNSET CANYON BELVEDERE-ET	USA 114495974	*	7JE840	32	83	31	90	470	0.05	31	0.00	16	257	248	242
FANPER TACO TUESDAY F2961	USA 112287238	*	11JE771	74	1,375	26	96	129	0.13	31	0.05	14	411	369	336
FOREST GLEN VD JADES JIMMIE-ET	USA 112894928	*	14JE408	166	573	72	97	339	-0.07	2	0.08	27	277	206	150
AHLEM COUNTRY CYRUS	USA 114975265	*	11JE926	24	70	84	86	767	-0.10	16	-0.07	13	243	281	315
O.F. MANNIX REBEL-ET	USA 111080315	*	14JE365	962	6,593	8	99	620	0.10	47	0.03	28	275	234	201

SCS	PL	DPR	EFI	NM$ %ile	JPI	JPI REL	Type Hrds	Type Daus	Type REL	FS	ST	SR	DF	RA	RW	RL	FA	FU	RH	RUW	UC	UD	TP	TL	JUI
3.03	3.6	1.2	5.7	98	207	87	47	76	87	0.9	1.9	0.9	1.1	L0.7	0.7	P0.1	S0.8	0.1	0.8	0.6	0.9	S0.3	W0.2	0.0	1.72
3.10	3.8	1.2	2.4	97	189	99	851	9,783	99	0.6	1.5	0.7	0.5	L0.6	0.6	P0.6	S0.8	0.3	0.7	0.5	-0.1	S0.8	W0.1	L0.2	1.35
2.90	2.2	0.9	-1.0	85	188	72	21	26	71	1.8	3.5	2.8	1.2	H0.8	2.7	P0.3	S0.6	1.1	1.6	1.2	0.8	S0.6	W0.2	L1.7	2.88
2.99	5.3	1.5	3.6	99	187	81	8	72	88	0.6	-0.2	-0.2	0.5	H0.6	0.0	0.0	S0.3	0.3	0.0	0.0	0.7	S0.6	C0.3	S0.1	1.32
2.98	4.5	0.4	5.1	89	175	77	17	26	74	1.3	0.3	0.7	0.4	H0.5	0.5	P0.2	S1.1	1.5	0.6	0.5	0.6	S1.8	C1.8	S0.4	3.46
3.04	2.5	-0.3	10.0	83	173	95	51	1,977	99	1.6	1.0	0.1	1.4	L0.5	0.5	S0.9	S0.9	1.6	1.1	0.8	0.8	S1.4	C2.8	L0.8	3.71
3.16	2.8	-0.8	8.5	80	166	64	0	0	56	1.1	1.3	0.0	1.1	L1.3	0.3	S0.2	S0.4	0.5	1.5	1.2	0.5	S0.4	C0.6	L1.0	2.29
2.95	3.8	0.0	7.7	88	166	78	20	40	78	0.7	0.5	0.8	0.0	L0.6	0.3	S0.3	S0.2	1.3	1.0	0.8	-0.8	S1.6	C0.2	S1.0	2.17
2.92	1.9	-0.8	6.5	78	162	76	16	30	77	0.8	2.3	0.9	1.5	L0.8	0.8	S0.2	S0.5	0.1	0.9	0.7	-0.2	S0.5	C0.9	S0.9	1.19
3.04	5.1	0.3	8.8	86	162	80	18	49	81	1.3	-0.3	-0.1	1.1	L0.4	-0.2	S0.7	S0.6	1.1	1.6	1.3	1.1	S0.9	C0.4	L0.2	3.56
2.90	1.5	-0.6	3.2	74	161	89	58	120	90	1.4	3.9	2.1	1.4	L0.9	1.9	S0.7	S0.1	0.2	1.7	1.3	1.1	D0.5	W0.2	L1.9	1.86
3.04	1.5	-1.1	5.8	86	161	64	3	6	60	1.0	1.5	0.9	1.8	L0.3	0.7	S0.2	S0.4	1.1	2.0	1.6	-0.3	S0.3	C0.2	L0.3	2.07
2.93	4.4	0.8	5.5	94	161	71	3	15	64	1.0	-0.1	0.5	0.6	L0.8	0.4	P0.2	S0.6	0.7	0.8	0.6	0.0	S0.2	C0.1	L0.5	1.07
2.68	4.3	0.1	5.4	97	161	76	8	33	74	0.6	-1.6	-0.6	-0.1	L0.5	-0.7	P0.6	S0.6	0.9	0.4	0.3	-0.1	S0.7	C0.7	0.0	1.28
2.84	4.6	1.7	9.1	94	161	81	23	45	80	0.6	-0.4	-0.7	0.4	L0.3	-0.9	S0.1	L0.3	0.3	1.6	1.2	0.5	S0.9	W0.1	S0.5	2.70
2.77	4.0	-0.7	11.5	87	160	72	1	15	75	1.7	1.4	0.2	1.0	H0.8	0.4	P0.7	S1.6	1.4	1.4	1.1	1.4	S1.7	C1.4	L0.7	4.61
2.94	2.0	-1.0	10.0	71	159	74	9	15	70	1.4	1.9	0.1	0.9	H0.4	0.1	S0.4	S0.3	0.8	1.7	1.3	1.5	S1.6	C0.7	L0.4	4.57
2.95	5.6	0.9	8.8	84	159	81	17	31	78	1.4	1.0	0.3	1.3	L1.7	0.1	S0.4	S0.1	1.5	2.1	1.6	0.2	S0.9	C1.2	L0.2	3.35
2.98	4.0	-0.7	4.8	90	157	98	252	3,873	99	0.1	-0.5	0.6	0.5	L1.8	0.2	S0.5	S0.1	0.2	0.1	0.0	-0.8	D0.3	C0.9	S0.9	-0.80
3.02	3.3	0.0	3.5	75	156	79	21	54	81	1.2	2.5	1.6	0.6	0.0	1.6	P0.2	0.0	0.9	1.6	1.2	0.1	S0.7	C0.1	L0.2	2.36
2.96	2.5	-0.6	5.9	91	152	86	28	89	89	0.9	0.9	0.2	0.8	L0.4	0.2	P0.1	S0.5	1.1	1.9	1.5	0.2	S1.9	W0.8	L0.7	3.90
3.06	3.9	0.5	6.0	82	149	77	8	9	64	1.1	-0.5	0.0	0.7	H0.6	0.1	P0.1	S0.9	1.3	1.1	0.9	0.4	S1.0	C0.5	L0.1	2.71
2.84	5.1	-1.0	7.9	89	148	73	9	11	65	1.4	0.3	0.6	0.5	L0.9	0.6	S0.2	S0.6	1.6	1.7	1.3	0.1	S1.5	C0.8	L0.5	3.53
2.86	4.5	0.2	5.8	88	147	75	11	30	73	0.6	-0.7	-0.9	0.2	L0.1	-0.6	S0.3	L0.4	0.6	0.9	0.7	-0.3	S1.0	W1.0	L1.3	1.57
3.01	2.1	-1.1	7.0	74	145	78	35	50	67	1.7	2.2	1.2	2.1	L0.3	0.7	S0.6	S0.6	0.9	2.1	1.6	-0.1	S0.9	W0.6	L1.0	2.74
2.93	3.9	-0.4	3.8	96	144	96	86	873	98	0.7	0.5	0.9	0.4	L0.6	0.4	S0.2	S0.8	0.8	0.1	0.1	-0.3	S0.1	C0.5	L0.6	0.23
2.94	4.6	1.7	6.3	92	144	87	50	78	87	0.5	-0.3	-0.3	0.2	H1.4	-0.1	S0.1	S0.6	0.7	-0.1	-0.1	-0.3	S1.6	C0.1	S0.3	1.47
2.85	3.9	0.3	8.0	91	143	96	171	1,279	99	0.3	-0.7	0.5	0.8	H0.4	0.0	S1.0	L1.2	-0.6	0.8	0.6	0.3	D2.2	W0.4	L1.4	-1.52
3.05	0.8	-1.1	6.5	77	142	71	11	17	66	0.9	1.4	0.6	1.3	L0.6	0.5	S0.1	S0.9	0.2	0.8	0.7	-0.1	S0.1	C0.6	L0.3	0.84
2.93	1.8	-0.5	8.1	65	142	78	18	36	77	1.3	0.8	0.9	1.0	H0.5	0.5	S0.9	L0.5	0.6	1.4	1.1	1.2	S0.3	C2.0	L0.4	2.86
3.04	1.4	-0.3	0.5	45	140	87	44	111	89	1.1	2.6	3.3	0.4	H0.5	2.6	S0.6	L0.3	0.7	1.6	1.2	1.0	D0.6	C0.2	L1.6	1.77
2.79	5.7	2.0	2.0	94	140	87	367	4,448	82	0.1	-0.8	0.8	-0.9	H1.1	0.4	P0.3	S0.9	0.2	0.0	-0.4	0.0	S0.6	W0.7	S0.7	0.35
3.24	4.8	2.3	5.9	85	139	98	318	1,565	99	-0.1	2.6	0.4	0.4	L0.6	0.2	P0.7	S1.1	-1.4	0.0	0.0	0.7	D0.3	W2.1	L1.2	-0.34
3.08	1.9	0.3	2.5	80	138	82	30	65	77	-0.1	0.8	1.1	0.1	H0.1	0.6	P0.8	S0.8	0.1	-0.2	-0.1	-0.6	D0.2	W0.4	S0.2	-0.85
2.97	2.5	0.7	3.8	92	135	97	196	948	98	-0.2	0.6	0.8	0.6	L0.2	0.7	S0.1	S0.3	-0.8	-0.2	-0.2	-0.8	D2.2	C0.2	L0.1	-3.29
2.94	0.8	-1.0	7.8	51	133	73	6	6	62	1.5	1.6	1.3	0.8	L0.1	1.1	P0.6	S0.8	2.1	2.2	1.7	0.1	S1.1	W0.2	L1.4	3.60
2.95	2.6	1.2	5.2	71	133	79	15	29	75	0.5	0.6	1.1	0.9	L0.6	1.0	P0.4	0.0	0.2	0.7	0.6	-0.2	D0.4	C0.4	S0.4	0.14
2.95	3.0	0.5	3.1	77	133	81	29	42	79	1.0	0.8	0.8	0.0	L0.1	0.4	P0.5	S1.2	1.8	1.0	0.8	-0.5	S2.5	W0.2	S0.5	3.43
2.85	2.7	-0.1	9.1	77	130	72	11	14	68	0.4	0.6	0.8	0.1	0.0	0.3	S0.6	S0.1	0.2	0.2	0.1	0.9	D0.1	C0.1	L0.5	0.87
3.02	3.2	0.0	8.6	63	130	89	50	85	88	1.2	0.6	-0.5	1.2	L0.1	-0.3	S0.3	L0.2	0.7	1.3	1.0	1.4	S1.1	C0.5	0.0	3.62
3.14	1.5	-0.6	4.9	67	128	77	12	15	66	0.2	0.1	0.1	0.7	L1.0	0.0	S0.1	S0.6	0.1	0.5	0.4	-0.5	S0.2	W0.2	L0.6	0.20
3.01	1.7	1.0	10.2	54	127	83	29	49	83	1.4	0.7	-0.2	1.5	L0.8	-0.4	S0.3	S0.5	0.6	1.4	1.1	1.3	0.0	C1.2	L0.2	2.57
2.91	4.1	0.6	3.4	82	127	83	21	68	86	0.4	-0.7	-0.1	0.1	H0.1	0.2	P0.1	S0.1	0.4	0.3	0.3	0.3	S0.7	C0.5	S0.1	1.41
2.82	1.9	0.3	9.5	65	125	78	13	32	77	0.9	1.1	0.2	1.3	L1.1	-0.2	S0.3	0.0	0.2	1.2	0.9	0.9	0.0	C1.1	S0.1	1.90
3.00	2.7	-0.1	11.0	68	124	82	9	61	86	0.9	0.0	-0.3	1.3	H0.2	-0.3	P0.1	S0.5	0.5	0.9	0.7	0.8	D0.3	C2.0	L0.4	1.47
3.11	-0.3	-1.0	8.3	25	123	91	70	125	91	1.3	0.4	0.7	1.8	H0.1	0.4	S0.2	S0.2	0.5	1.3	1.0	0.9	D1.3	C2.0	S0.9	0.88
2.99	1.7	-0.8	6.7	64	123	75	10	16	69	1.5	1.0	0.6	1.1	H0.3	0.3	S0.4	S0.3	1.3	1.7	1.3	0.6	S0.4	C1.2	L1.3	2.81
2.91	1.5	-1.3	8.6	47	123	81	18	35	78	1.6	1.5	0.9	1.7	L0.5	0.8	S1.0	0.0	1.6	1.7	1.4	1.6	S1.0	C1.8	L0.5	4.47
3.03	2.6	-0.8	5.3	68	123	77	18	34	75	0.5	1.2	0.9	0.2	L1.0	0.8	S0.2	0.0	1.1	1.3	1.0	-0.3	S1.8	W0.5	L0.3	2.89
2.85	3.9	0.4	11.8	80	123	81	14	25	79	0.9	-0.4	0.1	1.3	H0.6	0.1	S0.5	L0.2	0.2	1.1	0.8	0.8	D0.5	C0.9	L1.0	1.20
2.89	4.8	1.9	8.7	69	123	80	20	29	75	1.6	1.1	0.2	0.6	L0.2	0.1	S0.2	S0.7	1.7	1.5	1.2	1.7	S2.1	C2.0	L0.5	5.51
3.19	0.5	-0.6	6.4	42	122	79	20	41	78	0.5	1.9	1.8	0.5	L0.7	1.3	0.0	S0.6	0.2	-0.2	-0.2	0.5	S0.3	C0.4	L0.5	0.63
2.95	3.6	-0.3	7.7	69	122	72	11	23	71	0.7	0.3	0.4	0.5	L2.1	0.2	S0.4	0.0	0.3	0.9	0.7	0.3	D0.1	C0.4	L1.3	1.03
2.85	2.6	0.0	9.5	64	122	83	11	68	87	0.8	0.7	-0.6	1.1	L0.4	-0.6	S0.4	L0.3	0.0	0.8	0.7	0.6	S0.8	C1.4	S0.2	2.16
2.90	3.4	0.6	8.7	68	121	84	20	50	84	1.5	2.1	0.2	1.0	L1.7	0.3	S0.1	S0.3	1.7	1.4	1.1	0.2	S1.9	C1.5	L0.2	3.89
2.96	2.9	0.0	9.7	62	120	77	13	26	75	0.1	0.9	-0.1	0.0	L0.7	0.2	S0.3	L0.3	-0.1	0.8	0.6	0.5	S0.4	W0.7	S0.3	1.37
2.95	4.1	1.1	9.0	81	118	87	20	86	90	0.4	0.1	-0.2	0.7	H0.8	-0.3	S0.6	L0.1	0.0	0.9	0.7	1.2	S0.2	W0.2	L0.8	1.94
3.04	3.6	2.1	2.6	76	117	82	25	83	78	0.1	0.0	0.8	0.0	L0.3	0.4	P0.2	S0.4	0.4	0.5	0.4	-0.2	S0.2	W0.1	S0.5	0.56
3.04	3.2	0.0	7.5	60	116	75	11	26	73	0.8	0.2	0.4	0.4	L0.7	-0.1	S0.5	S0.4	1.0	1.5	1.1	0.0	S1.5	W0.3	L0.2	2.97
2.93	4.9	0.7	7.1	71	115	84	28	37	81	1.2	1.6	0.6	-0.4	L1.1	0.2	P1.0	S1.5	1.4	0.9	0.7	0.7	S2.6	C1.1	L0.5	4.47
2.84	1.9	-0.2	8.6	37	114	83	13	82	88	0.9	0.4	-0.5	1.0	H0.3	-0.4	S0.5	L0.1	1.0	2.2	1.7	0.6	S0.6	W0.6	S0.1	3.16
2.94	2.8	-0.3	10.8	51	113	85	26	64	87	1.7	1.9	0.7	1.5	H0.3	0.7	0.0	S0.3	1.4	1.9	1.5	1.2	S1.3	C1.2	L0.3	4.44
3.04	0.9	-0.2	5.7	43	111	74	13	33	76	0.7	0.1	-0.1	1.2	L0.7	-0.1	P0.1	0.0	0.2	0.3	0.2	-0.6	D0.6	C0.6	S0.3	-0.76
2.84	1.8	0.8	8.6	53	110	88	51	100	89	1.1	2.3	0.3	1.1	L0.8	0.4	S0.5	S0.3	1.2	1.3	1.0	0.1	S1.5	W0.2	0.0	2.99
2.97	2.4	-1.4	8.2	55	109	84	33	61	85	1.7	1.1	1.3	1.2	H0.2	1.0	S0.7	S0.8	2.2	1.5	1.2	0.6	S1.5	C1.2	L0.4	4.05
3.16	-0.5	-2.5	8.9	27	107	87	29	76	88	0.7	-0.1	0.2	2.0	H0.6	0.3	S0.1	S0.1	-0.9	1.0	0.8	0.4	D1.0	C0.5	S1.0	-0.04
3.05	3.0	-0.1	7.4	63	107	70	6	13	67	0.9	-0.4	0.3	0.8	H0.2	-0.1	S0.5	S0.1	0.8	1.5	1.2	0.3	D1.0	C0.4	L0.6	0.79
2.95	1.4	-1.4	9.8	46	107	87	35	71	86	0.9	1.1	-0.1	0.9	L0.1	0.1	S0.4	S0.3	0.5	1.1	0.8	0.6	S1.1	C0.5	L0.5	2.68
2.96	2.7	1.4	8.4	49	106	84	9	60	86	0.9	1.9	0.9	0.5	0.0	0.7	S0.2	S0.2	0.8	0.4	0.3	0.2	S0.9	C0.9	S0.3	1.72
2.92	3.6	1.3	8.7	55	105	88	34	66	86	0.8	0.4	0.7	0.2	L0.7	0.7	P0.4	S0.7	0.0	0.2	0.2	1.7	D0.2	C0.7	S0.1	1.51
2.97	2.3	-0.8	9.8	43	105	84	27	60	84	1.7	2.1	0.3	0.6	H0.7	0.8	P0.1	S0.7	2.2	2.1	1.6	0.3	S3.2	C0.1	L0.5	5.84
3.02	4.6	1.4	9.5	78	105	94	36	803	98	0.5	-1.8	-0.6	0.2	H1.5	-0.4	S0.1	S0.3	0.8	0.6	0.5	-0.6	S0.2	W0.4	S0.1	0.41
3.02	1.4	-0.3	10.0	31	104	93	121	343	96	1.4	-1.1	-1.1	1.2	H0.1	-1.1	P0.8	S0.2	0.8	2.1	1.6	0.4	S1.0	0.0	S0.1	3.29
2.95	3.4	1.2	8.3	57	104	79	20	56	81	1.6	0.9	0.2	1.0	L0.1	0.0	S0.4	S0.4	1.0	2.1	1.7	1.0	S0.9	C1.5	L0.6	3.97
2.95	1.2	-1.0	9.6	39	103	99	502	2,982	99	0.1	0.2	-0.2	0.2	H0.1	-0.3	S0.9	L1.0	-0.6	0.4	0.3	1.6	D0.6	W0.3	S0.7	0.87