2017 ASA/UNIVERSITY OF ILLINOIS SIRE TEST

PERFORMANCE REVIEW

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A journey that has been several years in the making reached its destination just before Christmas when the first calf crop from the ASA National Sire Test (NST) at the University of Illinois were harvested. The process of cultivating the opportunity with Dr. Dan Shike at U of I from the day that the cattle were harvested, following this plan through to fruition has been no simple task for the Shorthorn breed. My hats off to all the breeders, ASA board members, and staff who were able to get this program initiated in 2016. I have enjoyed being able to work with this program since coming on board at ASA, but it would not have been such a seamless transition if not for all the groundwork and foresight in establishing the program.

With all this data and information collected, I'm sure one of the prevailing questions is "What did we learn from this test?" In my mind, that's a complex question with multiple solutions (which I'll try to answer later on). Depending on your perspective, there's several takeaways that can be gleaned from these test results. I will share some of my thoughts and perspective, but ultimately, I think that everyone should study this data and form their own opinions.

Timeline and Management

From conception to carcass, the ASA NST is a 2-year process. In mid-December 2016, mature SimAngus cows from the U of I herd at their Dixon Springs research farm near Simpson, IL were artificially bred to one of 15 Shorthorn sires nominated to the NST. Each sire was bred to 20 cows. From September 8 to October 4, 2017, 151 calves were born from this breeding project. Calves were not supplemented with creep feed prior to weaning, and the cows were asked to raise these calves on their own with minimal help from outside nutrition sources.

As U of I does with all their calves at Dixon Springs, the calves in the NST were weaned earlier than one in the purebred business might expect. Weaning day was February 14, 2018, and the calves ranged from 133 to 159 days old. After being preconditioned at Dixon Springs, the cattle were shipped to the U of I Beef Farm on campus to further their education and growth. Calves were grouped by sex and weight in the feedyard. The feeding facility at the U of I Beef Farm is all under roof, with slatted floor pens and rubber matting throughout to provide extra comfort to the cattle. Each pen is equipped with GrowSafe feed bunks. The cattle started their testing in the feedyard on May 23, collecting gain and intake data via the GrowSafe system. These data points were collected from the initial start date until the cattle went to the packing plant. Cattle were implanted at the beginning of this test, as well as again on August 15. The feedyard ration was described as approximately 30% dry rolled corn, 20% wet distillers grain, 20% high moisture corn, 20% silage, and 10% corn-based supplement. Energy density of the ration was approximately 0.65 Mcal/lb. The American Shorthorn Association sponsored the collection of a uLD DNA test on all calves in the program, adding a significant amount of genomic information to the ASA database.

About the time many of us were gathered in Kansas City for the ASA Annual Meeting, the cattle from the NST were headed to harvest. The University of Illinois sends their cattle to the Tyson plant at Joslin, IL for harvest and carcass data collection. Just in time for Christmas, we received the final pieces of data from the 2017 ASA NST calf crop: the carcass and feed intake reports.

The Data

For the sake of comparison, I have broken this data into sire groups by steers and heifers. In this section, I prefer to let you draw your own conclusions and lessons from studying the traits of importance to your operation. I will, however, provide a few "big picture" comments from my observations.

(See Heifer and Steer Data Summaries Below)

Heifers

Reg	# Prog	BW	CE	205 WW	Temper	YW	PWG	REA	YG	Marb	HCW	Fat	DMI	F:G	Test ADG
Balmoral Oaks Eagle 9X	4215675	4	74.0	1	372.7	1.7	864.0	491.3	12.1	3.0	552.8	683.3	0.56	16.15	5.25	3.08
Byland Top Gun 2G8	4193721	5	75.2	1	424.2	1.2	989.4	565.2	13.8	3.0	573.0	809.8	0.64	18.99	5.63	3.40
JSF Compass 186A	4214585	5	85.4	1	416.2	1.6	926.0	509.8	13.2	2.3	519.9	739.4	0.44	17.55	5.51	3.21
KL Prime Time Teddy	4184970	8	79.4	1	439.8	1.4	987.8	548.0	13.4	3.0	522.0	798.3	0.66	19.01	5.45	3.49
Leveldale Ringo 337A	4206214	6	83.5	1	414.2	1.5	928.3	514.2	12.7	3.0	509.5	771.1	0.62	18.20	5.45	3.35
Muridale Bateman 27A	4233955	4	75.3	1	393.3	1.3	850.8	457.5	12.6	3.0	545.5	680.9	0.60	16.35	5.48	2.99
PVSF Leader 720Z ET	4192773	7	82.7	1	373.1	1.4	829.4	456.3	12.5	2.4	559.6	686.3	0.55	16.71	5.61	3.00
Saskvalley Imperative 33X	4190072	7	86.9	1	446.9	1.3	987.0	540.1	13.3	2.7	518.3	798.2	0.50	19.03	5.82	3.32
Saskvalley Outlaw 173Z	4210008	4	79.3	1	457.5	1.3	929.8	472.3	12.4	3.3	431.8	738.7	0.68	17.60	5.93	2.99
Shadybrook Hot Shot 88A	4200829	7	86.0	1	445.1	1.1	983.3	530.8	13.4	2.3	470.1	756.4	0.53	17.36	5.69	3.06
Shadybrook Qantas 2B	4210945	6	77.8	1	450.7	1.3	999.8	549.2	12.8	3.2	487.3	806.3	0.66	19.33	5.52	3.51
Studer's Taylor Made 7Y	4176051	5	76.8	1	374.4	1.6	864.2	489.8	12.4	2.6	495.2	713.1	0.55	16.87	5.40	3.13
Waukaru Optimus 4095	4209016	1	90.0	1	506.1	1.0	1110.2	604.1	12.5	3.0	540.5	840.4	0.57	22.41	6.90	3.25
Waukaru Orion 2047 ET	4189955	5	90.0	1	419.6	2.0	976.4	556.8	14.1	1.8	455.1	775.5	0.42	18.40	5.52	3.39
Waukaru Patent 8161	4144656	4	80.8	1	430.0	2.0	980.3	550.3	14.5	2.5	462.6	807.4	0.61	18.67	5.50	3.41
All Heifers		**78**	**81.5**	**1**	**421.8**	**1.4**	**942.3**	**520.1**	**13.1**	**2.7**	**509.0**	**761.4**	**0.57**	**18.06**	**5.60**	**3.25**

Steers

	Reg	# Prog	BW	CE	205 WW	Temper	YW	PWG	REA	YG	Marb	HCW	Fat	DMI	F:G	Test ADG
Balmoral Oaks Eagle 9X	4215675	3	79.0	1	491.5	1.0	1064.0	572.5	13.3	3.5	580.5	891.1	0.73	20.47	5.07	4.05
Byland Top Gun 2G8	4193721	4	95.8	1	529.0	1.0	1134.3	605.3	15.0	3.5	623.5	992.2	0.71	21.95	4.97	4.41
JSF Compass 186A	4214585	3	90.0	1	403.7	1.7	1011.7	608.0	15.4	1.7	517.3	860.9	0.38	18.23	4.57	3.99
KL Prime Time Teddy	4184970	2	90.0	1	484.0	1.0	1091.0	607.0	13.3	3.5	437.3	878.4	0.77	19.91	5.06	3.94
Leveldale Ringo 337A	4206214	8	83.8	1	390.9	1.4	948.3	557.4	13.4	2.5	458.8	806.3	0.49	17.44	4.89	3.60
Muridale Bateman 27A	4233955	4	87.5	1	394.0	1.0	914.5	520.5	13.1	2.3	502.3	722.0	0.53	17.46	4.88	3.58
PVSF Leader 720Z ET	4192773	5	94.2	1	460.6	1.0	980.8	520.2	12.7	3.4	465.0	803.0	0.67	19.84	5.45	3.68
Saskvalley Imperative 33X	4190072	9	94.6	1	456.3	1.4	1012.2	555.9	14.9	2.3	419.5	877.2	0.50	18.92	4.70	4.03
Saskvalley Outlaw 173Z	4210008	4	94.5	1	498.0	1.0	1061.7	563.7	14.0	2.7	438.8	881.5	0.63	17.86	4.41	4.03
Shadybrook Hot Shot 88A	4200829	7	92.5	1	452.0	1.1	1035.0	583.0	14.5	2.4	403.6	868.7	0.54	18.78	4.73	3.99
Shadybrook Qantas 2B	4210945	6	103.8	1	505.2	1.2	1120.2	615.0	13.1	3.4	414.6	906.7	0.72	20.46	5.16	3.99
Studer's Taylor Made 7Y	4176051	3	87.3	1	468.7	1.0	1026.0	557.3	14.0	3.3	446.8	852.8	0.70	19.00	5.01	3.80
Waukaru Optimus 4095	4209016	7	96.1	1	539.0	1.0	1111.3	572.3	13.6	2.8	497.8	876.6	0.54	20.92	5.77	3.65
Waukaru Orion 2047 ET	4189955	3	90.7	1	491.0	2.0	1088.0	597.0	15.3	3.0	431.0	902.9	0.61	21.22	5.16	4.11
Waukaru Patent 8161	4144656	5	82.6	1	481.2	1.6	1117.2	636.0	15.9	2.4	412.3	909.2	0.59	19.88	5.16	3.87
All Steers		**73**	**91.5**	**1**	**465.8**	**1.2**	**1040**	**574.6**	**14.1**	**2.7**	**456.0**	**860.1**	**0.58**	**19.29**	**5.00**	**3.87**

I found it interesting that there was a 100% success of unassisted calvings. It was nice to see that these cows could have Shorthorn-sired calves without any problems. Our industry has placed a lot of recent emphasis on calving ease, and our cattle shined in this category for the 2017 NST. Also of note was the very strong docility scores on the calves. Docility is another trait of growing emphasis in the commercial sector, and it is one that Shorthorn cattle excel.

For those of you that may not be familiar with the numerical marbling scoring system, a score of 400 is needed for a carcass to grade USDA Choice. In the ASA NST, approximately 85% of the cattle harvested were graded Choice, while 10 head actually graded USDA Prime. Yield Grade is on a 1 to 5 scale, with a score of 1 being a higher yielding carcass. The average YG of this set of cattle at 2.7 beats industry average, which is reported at around a 3.1.

In terms of dry matter intake (DMI), the data from the ASA NST is lower (less feed consumed per day) than the information already in the ASA database. However, the data isn't exactly an apples to apples comparison. What we currently have in the data bank are DMI records on breeding stock on shorter feeding periods than the cattle in this trial. One would expect that there would be some difference in feed consumption from an 8 month old steer (where the NST cattle started) and a yearling bull. I think if we dove into the information further, it would be interesting to compare DMI towards the end of the NST to the breeding stock records currently on file. Additionally, feed to gain conversion (5.32 lb. of feed per lb. of gain) on the NST cattle was strong. With the use of implant technology, as well as the longer feeding trial and lower DMI, it made sense to me that the NST cattle had an efficient conversion rate. In general, this group of feeder cattle did a good job of turning feed into product. The steer calves averaging 3.87 lb. of gain per day over the 6 month period is impressive. Even as these cattle neared the end of the trial, there were still plenty of animals gaining 4 lb. per day or more in the feedyard.

EPDs vs The Data

With a large data set like this, it's interesting to compare how the cattle performed to how the genetic evaluation tools predicted they might perform. In order to do that, I compiled the EPDs for several traits of interest on the sires in the ASA NST, while comparing their calves' performance in this 2017 calf crop. *(See the EPD Table Below)*

EPDs

	BW EPD	BW Avg	YW EPD	YW Avg	YG EPD	YG Avg	REA EPD	REA Avg	Marb EPD	Marb Avg
Balmoral Oaks Eagle 9X	0.2	76	55	944	-0.23	3.2	-0.36	12.6	0.17	564
Byland Top Gun 2G8	-0.3	84	93	1054	-0.25	3.1	0.08	14.1	0.34	587
JSF Compass 186A	1.5	87	73	958	-0.4	2	0.24	14.1	-0.1	519
KL Prime Time Teddy	-2.5	82	97	1008	-0.2	3.1	-0.26	13.4	0.04	505
Leveldale Ringo 337A	-0.1	84	76	940	-0.41	2.7	0.14	13.1	-0.19	481
Muridale Bateman 27A	-3.3	81	44	883	-0.24	2.6	-0.23	12.9	-0.04	521
PVSF Leader 720Z ET	-0.4	88	32	893	-0.35	2.8	-0.43	12.6	0.12	518
Saskvalley Imperative 33X	2.8	91	98	1001	-0.24	2.5	-0.12	14.1	-0.25	466
Saskvalley Outlaw 173Z	-0.1	87	74	986	-0.36	3	0.12	13.1	-0.04	435
Shadybrook Hot Shot 88A	1.9	91	71	1011	-0.44	2.4	0.18	14	-0.21	434
Shadybrook Qantas 2B	5.7	91	106	1054	-0.27	3.3	-0.03	12.9	0.11	454
Studer's Taylor Made 7Y	-1.4	81	78	925	-0.29	2.9	0.17	13	-0.15	477
Waukaru Optimus 4095	3.1	95	117	1111	-0.43	2.9	0.25	13.4	0.1	504
Waukaru Orion 2047 ET	5.7	90	119	1008	-0.43	2.1	0.45	14.4	-0.33	448
Waukaru Patent 8161	2.2	82	135	1056	-0.39	2.4	0.54	15.3	-0.35	435

I think you will notice a trend when analyzing this chart. The performance of offspring in the ASA NST pretty well follows the EPDs of the sires. I admit that the trend is not perfect, but if you analyze the data, the lower BW EPD bulls sired the lower birth weight sire groups. The sires with higher YW EPDs tended to have offspring that averaged a heavier yearling weight than those bulls with lowers YW EPDs. Similar trends are noticed when looking at yield grade, ribeye area, and marbling. It's refreshing to see that our tools for genetic evaluation are doing a satisfactory job of determining differences in progeny performance for specific traits of interest.

What Did We Learn?

I conclude this report with a question that has no singular correct answer. Depending on how you analyze it, there are several takeaway messages from the data on the first NST calf crop. From a breeder perspective, I think you can look at this information and potentially identify bulls that could improve your breeding program in some capacity. Whatever trait you may be emphasizing as you plan matings for 2019, every bull in the NST excelled in multiple traits. Combining this information, EPDs, pedigree, and visual appraisal might lead you to your next AI sire.

From an industry standpoint, I think the results of the trial, in particular the carcass data, show that Shorthorn-influenced cattle can certainly meet the needs of our commercial beef industry. There are certainly some things that can be improved upon, as is the case with any breed of cattle. These cattle were put through a trial that is conducted like a commercial cattleman would run his cow herd, and the calves are fed out with the goal of U of I making a profit on the end product. The management is driven with the goal of operating in the black, and I think this set of cattle performed well enough to achieve that goal.

Finally, from an ASA perspective, I think it is exciting that we have so many breeders that have been interested in the results of the ASA NST. It was the surprising amount of interest in the results of the program that prompted me to compile this report for the Shorthorn Country. Interest in performance testing is exciting, and the commitment of breeders to participate in programs such as this one is a great starting point to move the breed forward.

Wrap Up

With the 2018 NST calves already on the ground and the breeding for the 2019 crop completed, this program is just getting started. With new bulls and some various bloodlines involved in future crops, I am intrigued to continue to collect data with the University of Illinois and see how well the breed stacks up in commercial production settings. With an association slogan like "Performance with Purpose", we need data to back up the claim that Shorthorn cattle do perform and they do have a purpose in our country's beef industry. The results of the ASA National Sire Test will go a long way in helping us complete that mission.