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# About the Head-2-Head Bow Test

## *Introduction*

The 2007 H2H Bow Test is our 5<sup>th</sup>! The test is growing each year in the parameters tested and the number of people tuning in. The popularity of the test is due in large part to the fact that it is the only one of its kind – a totally unbiased review of nine top bows in a head to head competition.

**YOU** selected eight of the nine bows in the test in an open voting format here on Bowsite.com. Voter turnout again exceeded the previous year's vote, which is another indicator of reader interest. The top eight bows in the voting were:

- Fred Bear Truth
- APA Black Mamba X2
- Hoyt Vectrix
- Parker Pioneer XP
- Mathews Drenalin
- Elite Synergy
- Bowtech Guardian
- Ross Cardiac

Good friend and fellow outdoor writer Dave Conrad and I chose the ninth bow as this year's wild-card entry:

- PSE X Force

Each company was contacted sometime in February and told of their inclusion. The scope and parameters of the H2H Test were explained to each as well. It is here that I would like to point out the risk that each of these manufacturers takes in providing a bow for the test. They all are made aware that there will be a perceived “winner” and a perceived “loser” in the test along with seven bows somewhere in between. Like I said before, this is a one-of-a-kind test. I want to thank Pat Lefemine, Bowsite founder, for seeing the value of producing and presenting this format. In years past the companies that have not fared well have told me that they took the results as a challenge to adjust some parameters on their rigs for the next year and that they use it as a tool to better understand the market. Some bows make significant improvements from one year to the next – look at Hoyt's impressive showing this year in the subjective testing as compared to last. One thing that should be made very clear is that these are all TOP bows and that they are ALL quality designs that have many fans.

Thanks to the cooperation of all manufacturers and FoxPro Archery we were able to perform the testing almost a full month earlier this year, which will result in an earlier feature on the Bowsite. This has been one of the main requests over the years of doing the test – “get it to us earlier!”

The test was split into two days this year to make it more bearable for those so generously volunteering their time and effort. Last year was flat out brutal on everyone, as we completed the entire test in one day – never again! The whole atmosphere was much more relaxed this year and we all had a great time. Villa Roma Pizzeria in Lewistown Pennsylvania delivered 8 large delicious pizzas for the gang to feast on – thanks John!

One of the traditions of the test has been to provide a fun shoot area for everyone to enjoy while the test is in progress. It gives folks something to do while waiting on their turn to slip the blindfold on. The fun shoot range is made possible each year by **RINEHART** Targets and this year their contribution was compounded by their effort to make sure it all happened. A miscommunication kept the donated targets from arriving as scheduled. James, Rinehart's marketing leader, pulled out all the stops and had the targets shipped overnight for Saturday delivery to Dan Pierce Outdoor Shop in Lewistown. Do you know how much money it takes to ship three oversized 3-D targets overnight for a Saturday delivery? I guarantee your jaw would hit the floor! James – you are the man!!

As we have done most years, a new parameter was added to the test. This year you will be provided with a draw-force curve and corresponding technical data for each bow. The sound level meter test continues and our test support equipment just keeps getting better and better.

We hope you enjoy the 2007 H2H Bow Test!

Jon E. Silks and the H2H Bow Test Staff  
Hunt Hard and Be Safe!

## *Prologue*

2007's H2H Bow Test was a pleasure to coordinate. For me, the results are secondary to the great people I have met and the great time we all had performing the test. I am also proud that we continue to make improvements through technology (Easton's Bow Force Mapper System) and presentation (almost a full month earlier).

For those that are new to the H2H let me explain how bows are selected for the test. A thread is started here on the Bowsite's national forum in which everyone is encouraged to register their single vote for the bow they want to see entered into the test. The numbers of votes were higher this year than any other previous year. Only one vote per archer was accepted (as far as we know anyway) and only one bow per company was permitted entry into the test.

The most votes came in for the following rigs:

- Fred Bear Truth
- APA Black Mamba X2
- Hoyt Vectrix
- Parker Pioneer XP
- Mathews Drenalin
- Elite Synergy

- Bowtech Guardian
- Ross Cardiac

It has now become a tradition to enter one wild card into the H2H. It is my chance to select a bow that I believe would interest readers and provide some additional flavor to the test. This year my good friend Dave Conrad helped me select the following bow as our wild card:

- PSE X Force

The whole idea behind the H2H is to, as best we know how, evaluate the SUBJECTIVE qualities of eight bows (now 9) “mano a mano” – one on one – head to head. After all, many of us select a bow based on these very subjective traits. If we pick up a bow that fits our hands well, has a silky smooth draw and releases an arrow without biting us we are likely to buy it over a rig with a blocky handle, shoulder busting draw cycle and enough kick to rival 100-proof fire water. These are the real-life deal makers and deal breakers when deciding which bow to spend our hard earned money on.

The validity of the H2H results lies with the method of testing – blindfolded archers evaluating bows without regard to brand or looks. We followed last year’s strict rule in keeping the identity of the bows hidden. Where in years before 2006 we would let the evaluators see and handle the bows before the testing began, in 2007 not one evaluator was permitted to even see any of the bows until the test was completed. And it works! It almost makes me laugh when folks complain in the discussion of the bow test of how it isn’t unbiased, as they would know without a doubt which bow they are handling. From what is now years of experience in doing this I can say – yea, right! Other than the carbon riser High Country bows tested in the past almost nobody ever gets it right when they try to identify the bow they are handling. Throughout the test the H2H Bow Test staff and I share a snicker under our breath when guys say something like, “I can always tell when I have this Mathews in my hand” or “These Hoyt bows always feel the same”. The best part is when a guy has completed the test and we show him his own results – the reactions range from disbelief to outright anger when they see where they placed their bow of choice. Understand, these bows are being shuffled in and out of the testers hands very quickly and from their perspective it is pitch black under the blindfold. It is very easy to get confused and forget all that you thought you knew about a particular bow handle!

Again, I want to reiterate that we will not do an accuracy test until there is a good way to quantify and qualify such a test. To date, I am unconvinced that there is a fair way to evaluate that aspect of a bow’s performance.

This year the subjective results were quite different in some aspects than in the past. Some of you may be surprised (both positively and negatively) at where your favorite bow ranks. For the second year in a row there was a blowout of sorts in the subjective categories.

One competitor dominated speed and it didn’t do too badly in the subjective ring either. Other speed bows didn’t fare as well. This year we will provide three sets of results, one for subjective, one for speed and a combined tally. Again, this was at the request of our readers to take into account the effects of the much-desired speed rating of a bow.

I hope you enjoy the 2007 H2H Bow Test. Remember; this is a mixed test that looks at both subjective and objective test parameters. It is aimed to please a wide range of readers including the “average Joe” and the archer looking for in-depth technical data. It is a tricky balance. This is a good tool for someone wanting an overall look at what each bow has to offer in terms of specs, speed and how it fares subjectively with a variety of shooters. Although I will include my personal opinion about the bows in their individual write-ups the official results are based solely on the eight evaluators (plus back ups) and their selections in each category. Approach the results with an open mind – you will find them more interesting that way!!

Jon E. Silks  
Silks Outdoors

## *Individual Categories*

### Noise Level:

One of the most sought after hunting bow characteristics is a low level of noise generated at the release. It has become a market obsession and the manufacturers have responded with parallel limbs, vibration dampening accessories of every sort and various machining features. Hunting rigs today are far quieter right out of the box than those just five years ago fully loaded.

For this portion of the evaluation each tester was asked to sit in a different location and orientation related to the shooter’s position. Their backs were turned to hide the identity of the bows.

### Kick/Vibration:

A special challenge exists with this category in that the evaluator has to concentrate extremely hard to separate the noise heard in their ears with the sensation felt in their hands. Many times when a bow produces a significant level of noise we mentally transfer that sound to our perception of the shock and vibration. The two do not always go hand in hand however. To help reduce the effects of this phenomenon the evaluators were asked to wear earplugs during the test.

### Draw Cycle:

The draw cycle of a bow plays a major role in our perceived enjoyment of shooting. It also keeps us going back to the practice range more often if we like shooting a particular bow.

### Balance/Feel:

The manner in which the grip of a bow naturally positions your hand and wrist is an important factor in attaining accuracy. Also, the feel of a bow in your hands can seriously affect your decision to buy a certain rig. A bow that meets your needs in some areas but feels like a block in your hand will likely be left on the shelf.

## *2007 Setup and Standards*

All bows were set-up with a 29” draw length (Actually 29.5” as measured by ATA standards); 65 lb draw weight (Speed and SLM tests were conducted at 70 lbs), string loop and Carolina Archery Whisker Biscuit QS Deluxe arrow rest. The Whisker Biscuit aided greatly in speeding up the test and assuring safety. Other than the rest and loop nothing else was added to or taken away from the bows. They were tested just as you would buy them – no modifications.

It should be noted that speed was tested using the New Archery Products QuikTune 3000 arrow rests. The Carolina rests were for carbon only and could not be setup for the larger aluminum shaft that was used for a second speed reference.

Tests were conducted using the following equipment:

- Spot-Hogg Hooter Shooter portable shooting machine
- CEL-490 Sound Level Meter and CEL-284/2 Acoustical Calibrator
- Easton Archery’s Complete Bow Force Mapper System including their Professional Chronograph with an infrared lighting system, Handheld unit, Processing unit, Digital Grain Scale
- Oehler M35 Chronograph (used to confirm the Easton numbers)
- Hornady GS-1000 electronic digital scale
- Hanson Scale
- Mitutoyo Digital Caliper – 6”
- Apple Super Pro Bow Press
- NAP QuikTune 3000 Arrow Rest
- Easton XX78 2315 Super Slam – 540 grain
- Radial X Weave Predator 300 – 422 grains
- CAE Phantom HTR – 350 grains

## *2007 Test Procedure*

In 2007 we continued with the method used in 2005 and 2006 and put in an incredible amount of time and effort to get a true 1 thru 9 rating. Each evaluator spent a significant amount of time working through the evaluation, choosing each place through a process of elimination – no shortcuts!

The poll conducted here on **Bowsite.Com** to choose the bows that would be included in the test was conducted in the same manner as last year – that is, voters not only chose the manufacturer but they also chose the model to be tested.

Once the bows were all received, the procedure was as follows:



Each evaluator worked separately through all four categories. A blindfold was used to keep brand loyalty at bay and was worn from the beginning to the end of each session (noise, kick, etc.). Evaluators were not permitted to see the bows until after they were done with their evaluation.

Example of the “draw cycle” category process: The evaluator is blindfolded. He is handed a bow to draw. The bow is handed back to the helper and he is given a second bow to draw. The evaluator chooses between the two. The one that is not chosen is set to the side. The one that is chosen is then put through the same process with the next bow in line. Each is drawn and one is chosen. Again, the one that is chosen is put up against the next bow in line. This process is continued until only a single bow remains. The bow that remains is the evaluator’s #1 pick for that category. That bow is taken out of the testing. The entire process is completed again for the remaining seven bows until only one remains – the evaluator’s #2 overall pick for that category. This process is repeated until all 8 bows (9 with the wild card) have been placed/ranked.

Each evaluator’s results are then scored. This was done by simply inverting the numbers of the rankings and rewarding points for each ranking. Just as an example we will rate the bows arbitrarily for draw cycle (this is just an example – not actual results):

1. PSE
2. Bowtech
3. Elite
4. Hoyt
5. Ross
6. Parker
7. APA
8. Mathews
9. Fred Bear

The bows would then be given the following scores for one evaluator for the draw category:

- PSE – 9 points
- Bowtech – 8 points
- Elite– 7 points
- Hoyt – 6 points
- Ross– 5 points
- Parker – 4 points
- APA – 3 points
- Mathews – 2 points
- Fred Bear – 1 point

The points were totaled for all evaluators in each category. The bow with the highest number of total points in that category was rated #1 and so on down the line to #9. In this way we were able to get a true ranking for each category based on the results from all evaluators.

## *2007 Individual Bow Specs*



### ***APA Black Mamba X2***

MSRP: Unknown

Finish: SkyLine Camo

Brace height: 7-1/16"

Axle-to-axle length: 33-7/8"

Let-off: 70%

Advertised AMO speed: N/A

Advertised IBO speed: 340 fps

Mass weight: 4.1 lbs

Available draw lengths: 25 to 30"

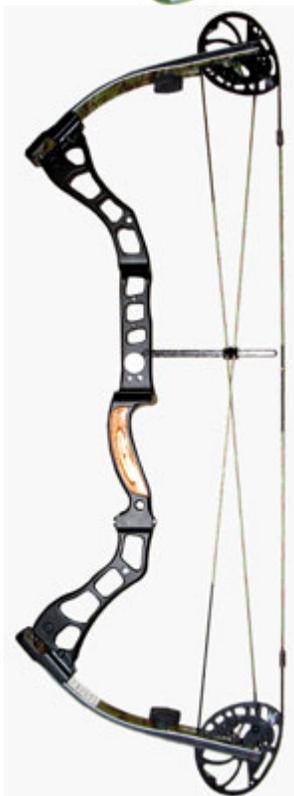
Available Draw weights (peak): 50, 60, 70, 80 lbs





***Fred Bear Truth***

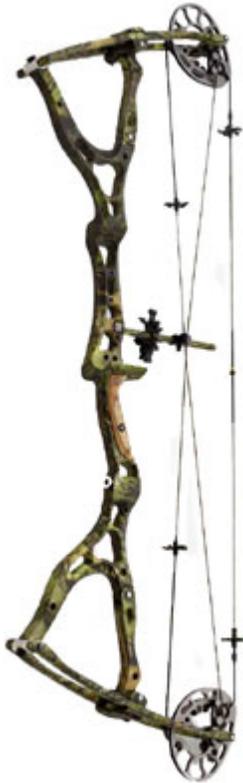
MSRP: \$549.00  
Finish: Mossy Oak's New BreakUp  
Brace height: 7.0"  
Axle-to-axle length: 33"  
Let-off: 80%  
Advertised AMO speed: N/A  
Advertised IBO speed: 310-314 fps  
Mass weight: 4.2 lbs  
Available draw lengths: 23 to 30"  
Available Draw weights (peak): 60, 70 lbs



***Elite Synergy***

MSRP: \$659.00  
Finish: Elite  
Brace height: 7.0"  
Axle-to-axle length: 33.25"  
Let-off: 65-80%  
Advertised AMO speed: N/A  
Advertised IBO speed: 336 fps with easy mods, 340 fps with speed mods  
Mass weight: 4.0 lbs  
Available draw lengths: 27 to 30"  
Available Draw weights (peak): 60, 70, 80 and 90 lbs





***Bowtech Guardian***

MSRP: \$749.00

Finish: Mossy Oak Obsession standard with other camo options available

Brace height: 7.125"

Axle-to-axle length: 33.75"

Let-off: 65 to 80%

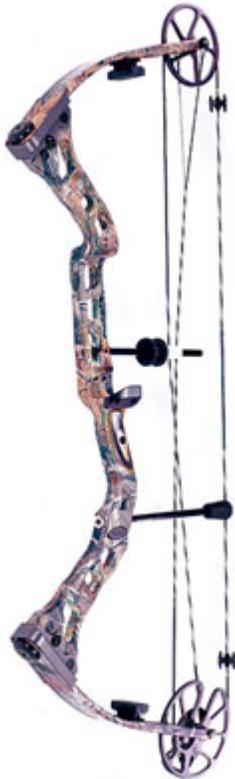
Advertised AMO speed: N/A

Advertised IBO speed: 321 – 329 fps

Mass weight: 4.2 lbs

Available draw lengths: 25 – 30.5"

Available Draw weights (peak): 50, 60, and 70



***Ross Cardiac***

MSRP: \$730.00

Finish: Realtree AP

Brace height: 7.0"

Axle-to-axle length: 33"

Let-off: 80% - 65% optional

Advertised AMO speed: N/A

Advertised IBO speed: 320 fps

Mass weight: 4.0 lbs

Available draw lengths: 26.5 to 30"

Available Draw weights (peak): 50, 60, 70 and 80 lbs



***Hoyt Vectrix***

MSRP: \$749.00

Finish: Realtree HD Green

Brace height: 7"

Axle-to-axle length: 33"

Let-off: 65 or 75%

Advertised AMO speed: N/A

Advertised IBO speed: 316 fps

Mass weight: 4 lbs 6 oz

Available draw lengths: 25 to 31"

Available Draw weights (peak): 40, 50, 60, 70 and 80 lbs

***Parker Pioneer XP***

MSRP: \$599.00

Finish: Mossy Oak's New Break-Up

Brace height: 7.75"

Axle-to-axle length: 33.25"

Let-off: 75%

Advertised AMO speed: 232 fps

Advertised IBO speed: 300 fps

Mass weight: 3.85 lbs

Available draw lengths: 26 – 31"

Available Draw weights (peak): 60, 70 lbs



***PSE Archery X Force***

MSRP: \$799.00

Finish: Mossy Oak's New Break-Up

Brace height: 6.0"

Axle-to-axle length: 33"

Let-off: 60 to 70%

Advertised AMO speed: N/A

Advertised IBO speed: 350 fps

Mass weight: 4.1"

Available draw lengths: 26 – 30"

Available Draw weights (peak): 60, 70 lbs



***Mathews Drenalin***

MSRP: \$849.00

Finish: Realtree AP Repeat

Brace height: 7.0"

Axle-to-axle length: 33"

Let-off: 65 or 80%

Advertised AMO speed: 238 fps

Advertised IBO speed: 320 fps

Mass weight: 3.85 lbs

Available draw lengths: 25 –30"

Available Draw weights (peak): 40, 50, 60, and 70 lbs

# Results

## *Subjective Individual Category Scores*

### **Kick/Vibration**

1. A tie! Bowtech Guardian/Hoyt Vectrix – Category Score: 63
2. N/A
3. Mathews Drenalin - Category Score: 57
4. Ross Cardiac – Category Score: 52
5. Parker Pioneer XP - Category Score: 43
6. APA Black Mamba X2 - Category Score: 25
7. PSE X Force - Category Score: 22
8. Elite Synergy - Category Score: 19
9. Fred Bear Truth - Category Score: 16

### **Noise Level**

1. Bowtech Guardian - Category Score: 70
2. Parker Pioneer XP - Category Score: 56
3. Ross Cardiac - Category Score: 45
4. PSE X Force - Category Score: 44
5. Hoyt Vectrix - Category Score: 42
6. Mathews Drenalin - Category Score: 36
7. Fred Bear Truth - Category Score: 32
8. Elite Synergy - Category Score: 18
9. APA Black Mamba X2 - Category Score: 11

### **Balance/Feel**

1. Bowtech Guardian - Category Score: 55
2. Hoyt Vectrix - Category Score: 52
3. Mathews Drenalin - Category Score: 46
4. Ross Cardiac - Category Score: 41
5. Parker Pioneer XP - Category Score: 38
6. Fred Bear Truth - Category Score: 35
7. APA Black Mamba X2 - Category Score: 34
8. Elite Synergy - Category Score: 33

9. PSE X Force - Category Score: 29

## Draw Cycle

1. Parker Pioneer XP - Category Score: 67
2. Mathews Drenalin - Category Score: 55
3. Ross Cardiac - Category Score: 54
4. Bowtech Guardian - Category Score: 51
5. Hoyt Vectrix - Category Score: 43
6. PSE X Force - Category Score: 39
7. Fred Bear Truth - Category Score: 36
8. Elite Synergy - Category Score: 25
9. APA Black Mamba X2 - Category Score: 11

## *Speed Results*

(Rounded to the nearest whole number)

Easton XX78 – 540-grain arrow

1. PSE X Force – 264 fps
2. Elite Synergy – 257 fps
3. APA Black Mamba X2 – 255 fps
4. Hoyt Vectrix – 254 fps
5. Mathews Drenalin – 252 fps
6. Bowtech Guardian – 249 fps
7. Ross Cardiac – 244 fps
8. Fred Bear Truth – 242 fps
9. Parker Pioneer XP – 240 fps

Radial X-Weave Predator 300 – 422-grain arrow

1. PSE X Force – 296 fps
2. Elite Synergy – 286 fps
3. APA Black Mamba X2 – 285 fps
4. Hoyt Vectrix – 283 fps
5. Mathews Drenalin – 282 fps
6. Bowtech Guardian – 275 fps
7. Ross Cardiac – 271 fps
8. Fred Bear Truth – 270 fps
9. Parker Pioneer XP – 266 fps

## CAE Phantom Carbon – 350-grain arrow

1. PSE X Force – 320 fps
2. Elite Synergy – 310 fps
3. APA Black Mamba X2 – 308 fps
4. Hoyt Vectrix – 306 fps
5. Mathews Drenalin – 305 fps
6. Bowtech Guardian – 298 fps
7. Ross Cardiac – 294 fps
8. Fred Bear Truth – 293 fps
9. Parker Pioneer XP – 288 fps

## *Sound Level Meter Results*

### Equipment:

- CEL-490 Sound Level Meter
- CEL 284/2 Acoustical Calibrator
- Tripod

We are continuing with the objective sound level testing with the use of a sound level meter. The CEL-490 SLM captures not only dB but also dB at two weighted ratings and seven frequencies. After much learning and discussion around the topic of perceived sound it was apparent to me that to test for dB only would be a mistake. A sound that rates low in dB but is concentrated at a frequency we hear more keenly may actually be more offensive/startling.

An A-weighted reading is one that automatically compensates for the frequency characteristics of the human ear. Since there is no weight rating for the ears of a deer I will refrain from ranking the bows from that perspective. We will, however, rank them according to the A-weighting so they can be compared to the subjective test results. The results are quite interesting!

### *Ranking*

SLM Meter set at 24” in front of the bow (A-Weighting only): 350-grain arrow

1. Parker Pioneer XP – 78.7 dB
2. Fred Bear Truth – 79.7 dB
3. Bowtech Guardian – 79.9 dB
4. PSE X Force – 81.5 dB
5. Mathews Drenalin – 82.0 dB
6. Ross Cardiac – 82.1 dB
7. Hoyt Vectrix – 83.8 dB
8. APA Black Mamba X2 – 85.1 dB

9. Elite Synergy – 85.3 dB

SLM Meter set at 15 yards in front of the bow (A-Weighting only): 350-grain arrow

1. Fred Bear Truth – 62.8 dB
2. PSE X Force – 65.5 dB
3. Hoyt Vectrix – 65.8 dB
4. Mathews Drenalin – 65.9 dB
5. Ross Cardiac – 66.2 dB
6. Bowtech Guardian – 66.7 dB
7. Parker Pioneer XP – 67.2 dB
8. Elite Synergy – 68.5 dB
9. APA Black Mamba X2 – 69.5 dB

If the highest decibel level is taken from across the different frequencies not including the weighted ratings the ranking would look like this:

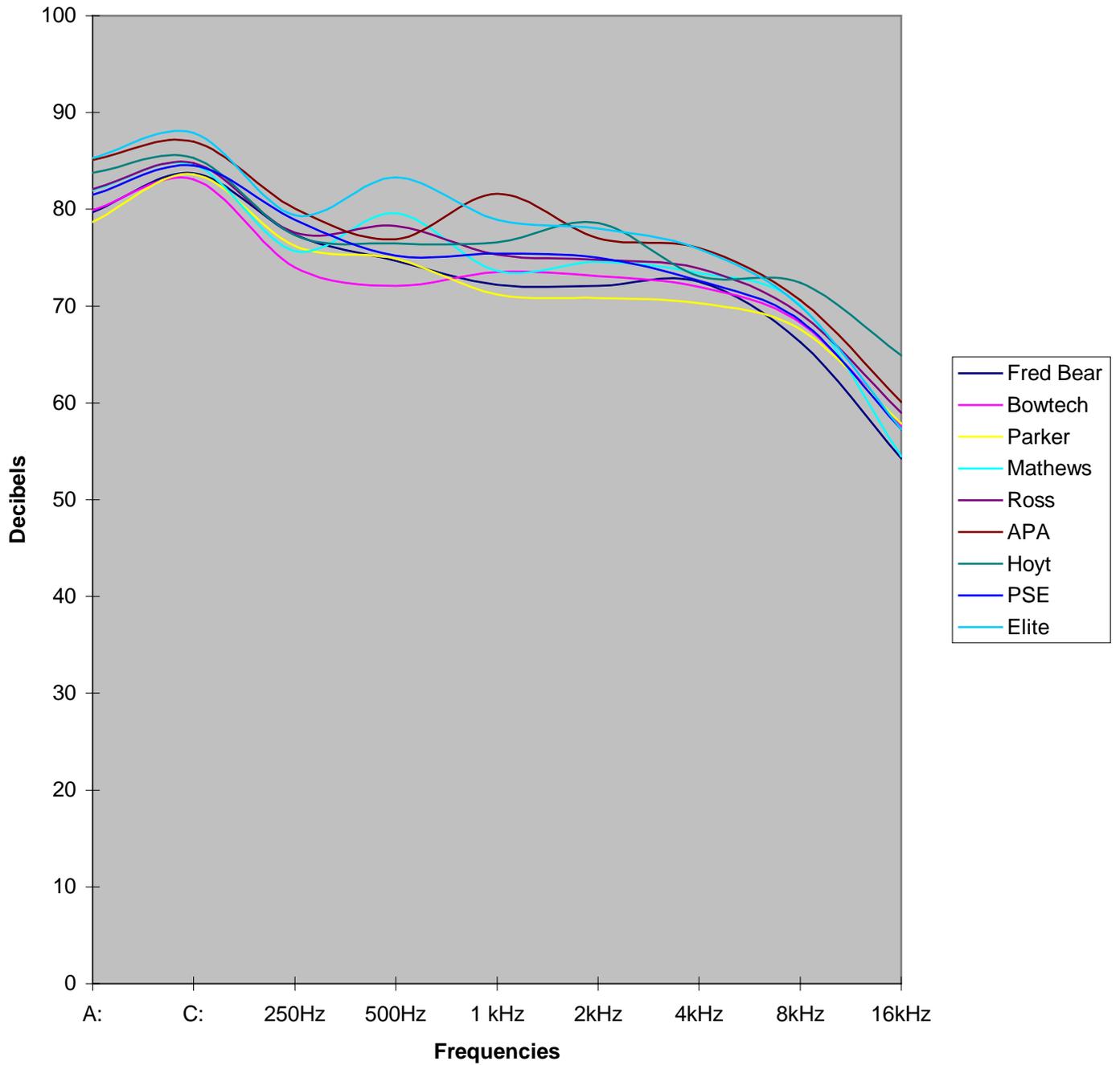
SLM Meter set at 24" in front of the bow: 350-grain arrow

1. Parker Pioneer XP – 69.8 dB
2. Fred Bear Truth – 69.9 dB
3. Bowtech Guardian – 70.1 dB
4. Mathews Drenalin – 71.6 dB
5. PSE X Force – 71.8 dB
6. Ross Cardiac – 72.6 dB
7. Hoyt Vectrix – 74.2 dB
8. APA Black Mamba X2 – 74.6 dB
9. Elite Synergy – 74.7 dB

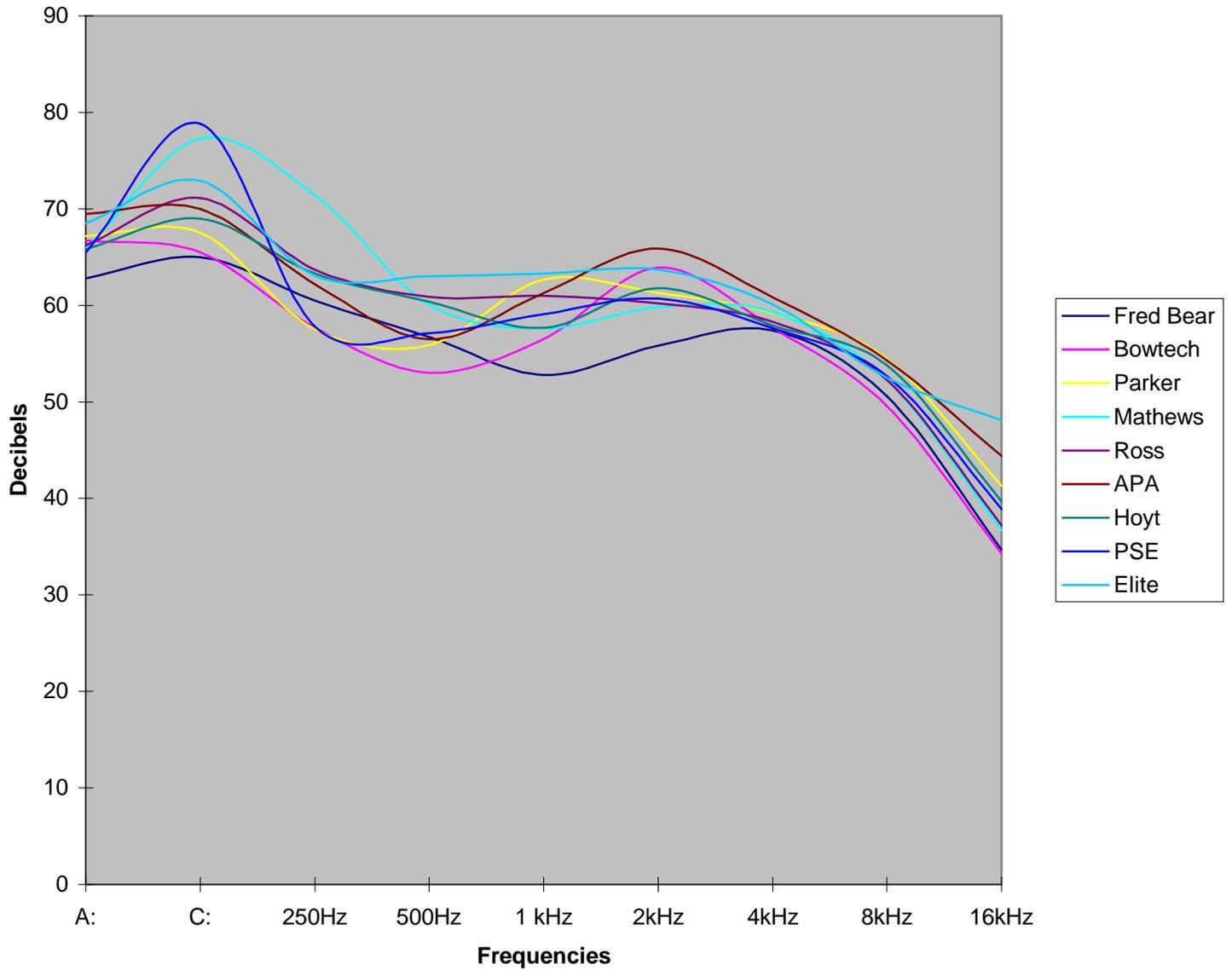
SLM Meter set at 15 yards in front of the bow: 350-grain arrow

1. Fred Bear Truth – 52.6 dB
2. Bowtech Guardian – 53.2 dB
3. PSE X Force – 54.8 dB
4. Parker Pioneer XP – 56.1 dB
5. Ross Cardiac – 56.2 dB
6. Hoyt Vectrix – 56.4 dB
7. Mathews Drenalin – 56.7 dB
8. APA Black Mamba X2 – 57.9 dB
9. Elite Synergy – 59.1 dB

### 2007 SLM Composite @ 24"



### 2007 SLM Composite @ 15 yards



### **Overall Score for Subjective Categories**

- 1. Bowtech Guardian – Total Score: 239**
- 2. Parker Pioneer XP - Total Score: 204**
- 3. Hoyt Vectrix - Total Score: 200**
- 4. Mathews Drenalin - Total Score: 194**
- 5. Ross Cardiac - Total Score: 192**
- 6. PSE X Force - Total Score: 134**
- 7. Fred Bear Truth - Total Score: 119**
- 8. Elite Synergy - Total Score: 95**
- 9. APA Black Mamba X2 - Total Score: 81**

### **Overall Score for Subjective Categories + Speed**

- 1. Bowtech Guardian – Total Score: 271**
- 2. Hoyt Vectrix - Total Score: 248**
- 3. Mathews Drenalin - Total Score: 234**
- 4. Parker Pioneer XP - Total Score: 212**
- 5. Ross Cardiac - Total Score: 208**
- 6. PSE X Force - Total Score: 206**
- 7. Elite Synergy - Total Score: 159**
- 8. Fred Bear Truth - Total Score: 143**
- 9. APA Black Mamba X2 - Total Score: 137**

# Bow Evaluation Commentary

## *Jon Silks Personal Bow commentary*

### **Mathews Drenalin:**

Mathews has finally done the one thing I was hoping that they would do – reduce the weight of their flagship bow. The new Drenalin comes in at only 3.85 pounds and is great to handle. Unfortunately, this same improvement is what may be, at least in part, responsible for their drop in the ranking this year. Personally, I like this Mathews better than any other I have shot before. It is really quite incredible what they were able to maintain from previous models related to noise and shock while reducing the weight significantly. It is super smooth through the draw cycle and still produces great speeds.

### **Bowtech Guardian:**

This year's Bowtech was a solid performer in every category. While not as fast as some models it still came out on top even after the speed ratings were factored in. Many have been wondering how this new design would fare when compared to the other top models on the market and I think the results answer that question. The Guardian is as well balanced as any rig I have handled in recent years. It is stable throughout the draw cycle and sticks to the bulls-eye like a magnet. Shock, vibration and noise at the shot are almost non-existent. Bowtech's Guardian is truly an impressive rig!

### **Fred Bear Truth:**

The Truth's ranking was a shock to be sure after the showing from last year's Instinct. The shock, vibration and noise generated at the shot ultimately brought the Truth down in the rankings. Personally, I think the bow handles and shoots well. I am quite surprised that the Truth scored so low in the noise category as it proved to be quiet in the SLM test. Still, it struck a frequency that was singled out by the testers landing it at number seven in the category. The Truth's handle and balance gave it a boost in points. At only \$549.00 MSRP it is a great value!

### **Ross Cardiac:**

The Ross Cardiac is one very nice rig all around. In the subjective categories the Ross was only 2 points down from the Mathews and 4<sup>th</sup> place. By far it received the most compliments by evaluators and bystanders after the test was through. I like the feel and balance of the Cardiac and thought the draw cycle was extremely smooth. Also, the noise at the shot was very low. Speed results were not quite what I was expecting, however, they didn't bump the Cardiac from its number 5 position. This was one of my favorite all-around bows in this year's test.

### **PSE X Force:**

The X Force was my wild card for this year and also turned out to be a barn burner when it comes to speed! This thing is just plain fast! No other bow even came close to the X Force in terms of speed and in the end it

secured a very solid 6<sup>th</sup> position overall. The draw cycle is super aggressive as you might expect to get the speeds delivered, however, I think the absence of any perceivable valley is what kept it from doing much better in the draw cycle category. Still it placed sixth in that category. Now, if you want to be impressed look at how well the X Force did in the noise category! It smokes arrows and does it quietly. A change in the grip of the X Force would have most likely moved it up in the rankings by one or two places. I didn't mind the grip as much as some of the testers and think it would be an easy thing to overlook to get the other benefits this rig offers.

### **Hoyt Vectrix:**

The Vectrix saw a significant improvement in ranking over last year's Trykon and with good reason. It has a silky smooth draw, is well balanced and is absolutely dead in your hand at the shot. As soon as I handled the Vectrix at this year's ATA show in Atlanta I knew it was going to do better in the test than the Trykon and figured it would place in the top three. It did just that - #3 in the subjective categories alone and when its great speed was factored in it jumped to #2! For me it is the draw cycle and lack of noise that make this rig special. It is definitely one of the best the market has to offer.

### **Parker Pioneer XP:**

Everyone loved this bow all through the test. It placed number one in the draw cycle category and number two in noise! I was somewhat surprised at the number 5 ranking it received in the balance/feel category, as it was one of my top three in that area. Usually, my personal results run a little closer to the category scores than they did in this instance. In the overall subjective ratings the Parker Pioneer XP placed a very impressive 2<sup>nd</sup>! The main drawback for this bow turned out to be its speed and when that parameter was factored in the Pioneer XP dropped to number four. Still very impressive though and the speeds are certainly adequate for hunting. Remember, last year's Parker placed number seven in the subjective categories and this year jumped all the way to number two - A great bow!

### **APA Black Mamba X2:**

Over the past couple of years I have gotten to know APA's owner Nibal Achkar. He is a great guy with a great product. This is where the test can appear to be too hard on the competitors. There is no doubt in my mind that anyone who buys an APA Black Mamba X2 will be absolutely thrilled with it. All nine bows in this competition are the top in this industry and that is why it is tough to see a particular bow come in at the bottom. I like how this bow has a design that shows there was truly some "thinking outside of the box" that went into it. The carrying handle and blade sharpener are terrific! I like the APA and think it handles well and is relatively shock free for a bow that fires arrows at blistering speeds. Its brother the X1 has the same characteristics and is one of the two fastest bows on the market. I expect to see more great things from APA in the future. Keep up the good work Nibal!

### **Elite Synergy:**

Elite was a surprise for me as I am sure it will be for many people. Quite frankly I wouldn't rank it where it ended up as I thought it was the best-balanced bow in the group. That, of course, proves that the bow you choose still has to be a personal decision. Some bows tend to work against you when aiming and others work for you. The Synergy is super solid at full draw and definitely works for you. String silencers alone would have significantly improved the Synergy's standing in the noise category and overall as well. It has significant string noise. After the test was all said and done I put a pair of Sims String Leaches on the Synergy and was not surprised that they made a huge difference in noise. My Stealth Stabilizer put the finishing touches on the

package and reduced the shock and vibration significantly as well. The Elite Synergy is a quality bow with much to offer!

# People and Companies who made this possible

## *2007 Evaluation Team*

The folks that volunteer their time and hard work to make the H2H possible are very much appreciated! This test takes many hours and a ton of involvement on everyone's part. This year we split the test into two days to make it more bearable for the gang. On Saturday, April 21<sup>st</sup> the first group of four testers spent a little over 4-1/2 hours completing the test and on the 22<sup>nd</sup> the remaining four testers spent nearly 6 hours evaluating the competitors. They all worked very hard at staying focused on the task and giving each bow their full consideration in each and every category.

To all those listed below – **THANK YOU!**

- Bryan Fultz – Bryan has become a great friend over the past year, He is one of the most selfless people I know – ready to drop everything and lend a hand in a moment's notice. He also graciously hosted my son on his property last fall for a deer hunt. Tyler took his second deer that day with a bow! Bryan is "good people"!
- Todd Jodon – The test is the first I had ever met Todd. He was very thorough drawing and re-drawing bows just to make sure he had it right. Todd is a good friend of Bryan and I'm sure we will share some good hunts together in the future.
- Mike Dillon – Mike's generosity cannot be overstated. He gladly donated the use of his facility for the test, participated in the test and donated his gift certificate and items he won in the prize drawing to other people from FoxPro. Great guy! Thanks Mike.
- Dylan Shoop – Passion for archery – that is the first thing that came to mind when thinking of Dylan. He lives, eats and breathes the stuff! I could tell he shoots often as he, at age 15, was as strong pulling the bows back countless times as anyone else there.
- Andrew Foor and Travis Homan – Andrew and Travis are good friends and die-hard bowhunters. When they arrived at FoxPro Archery they were a little quiet. This was the first time I had met either of them. I soon learned the best way to get these guys talking was to bring up bowhunting! From there it was like hanging out with old hunting buddies. They both did a great job with the test as well. Thanks Guys!
- John Everly – Very analytical in his assessments. He thought through each and every decision and was very focused on the job at hand. John also took one for the team as one the short brace height speed-bows caught him hard on the forearm.

- Tom Steel – Pulling back the bows a bazillion times was obviously not going to be a problem for the guy we nicknamed “tank”. I think he could draw a 120 lb bow with no problem! Tom was a tremendous help getting things coordinated at FoxPro and recruited two other testers as well. Thanks Tank!!
- Adam Young – Adam stepped right in for an injured John Everly in the shock and vibration category. He did a wonderful job. Thanks Adam!
- Rachel Silks – That’s right – my 13-year-old daughter is one of this year’s evaluators! She filled in for Mike Dillon in the noise category when Mike needed to leave early to attend to an illness in his family.

### **2007 H2H Support Team:**

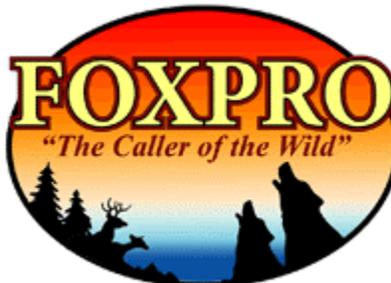
Behind the scenes there is a firestorm of activity that brings the whole event together. If I had to do this myself it would never see the light of day. For starters, three of my children (Tyler, Rachel and Michael) helped shuffle bows, record results, set up, tear down and retrieve arrows. These three worked their tails off! Thanks guys! Keith Dunlap was a lifesaver on Saturday helping with the shuffling of bows and keeping things running smoothly all day long (He is the reason the test was quicker on Saturday than Sunday). He hung in there even though he had a 2+ hour drive ahead of him. Thanks Keith! I can’t mention a support team without another special mention of Mike Dillon and Tom Steel of FoxPro Archery – they donated the use of their huge indoor 3-D range and both participated in the test. Guys, I can’t thank you enough!

### ***Test Sponsors and Friends***

**A very special thank-you is in order for these sponsors and friends!!**



**Rinehart Targets** for their amazing effort to get us the 3-D targets on time for our fun-shoot!!! Thanks James. The easy arrow pulling foam made it enjoyable for everyone.



**FoxPro Archery** for their incredible generosity in donating the use of their huge indoor 3-D range. Thanks Mike and Tom!!

Lewistown's **Villa Roma Pizzeria** for delivering some of the best tasting pizza on earth!! Thanks John.

The experts at **Dan Pierce Outdoor Shop** in Lewistown, PA for all of their set-up assistance.

**Carolina Archery (Now owned by Bear Archery)** for supplying our biggest timesaver and safety related product – the Whisker Biscuit QS Deluxe Arrow Rest. It was a big help to not have arrows falling off the rest and the safety concerns that go with that. Thanks!

**American Whitetail Targets** for providing the huge bag target – it made it much easier for me to guide the blindfolded archer's shot and saved a lot of time!!

**Easton Archery** for providing their Bow Force Mapper System, Chronograph, Grain Scales and test-arrows – thanks Josh!

**New Archery Products** for providing QuikTune 3000 Arrow Rests for speed testing!

**Yoder's Archery and Video Shoot** for helping me out with some technical info and recruiting evaluators – thanks Bill!!

**G5, Elimitrax, BowJax, LimbSaver, Quality Archery Designs, and ProRelease** for donating products for our gear giveaway drawings.

**And of course, all of the manufacturers who provided the bows for testing!!!**

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# Appendix I - 2007 H2H Technical Extras

For those that are interested in the technical side of each bow's performance we have added this section. Here you will find a force-draw curve for each rig along with the kinetic energy, stored energy and efficiency. The force-draw plot for the Elite Synergy had to be done manually due to a break down with my Mapper System. Following is a brief description of the information to be given.

Kinetic Energy: (foot-pounds)

(This is the energy that actually goes into propelling the arrow. Basically it is the energy that is left over from the stored energy after all of the bow system friction is accounted for.)

Stored Energy: (foot-pounds)

(When you draw the bow you supply power/energy into the limbs. The amount of energy that the limbs can hold is known as the stored energy.)

Efficiency Rating:

(This is the amount of the stored energy (in %) that can be successfully transferred into propelling the arrow upon release. The bow design, including limbs, limb pockets, cam systems, and axle types play into the bow's efficiency. An example would be a sealed ball bearing in the idler wheel verses a simple unsealed rod bearing. It takes more energy to rotate the unsealed rod bearing (more friction) verses the sealed ball bearing (less friction) so more of the bow's potential energy is used. The end result is a lower efficiency rating because less stored energy is left over to propel the arrow.)

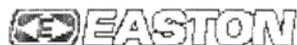
***Fred Bear Truth***

Kinetic Energy: 66.7 foot-pounds

Stored Energy: 84.5 foot-pounds

Efficiency: 78.9%

Truth - 2007



\*\* Force Draw Curve \*\*

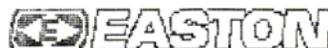


Peak Draw Force: 70.0  
Holding Weight: 20.8  
Power Stroke: 20.3  
Stored Energy: 84.5

***PSE X Force***

Kinetic Energy: 79.6 foot-pounds  
Stored Energy: 95.5 foot-pounds  
Efficiency: 83.4%

PSE



\*\* Force Draw Curve \*\*



Peak Draw Force: 70.0  
Holding Weight: 18.1  
Power Stroke: 20.9  
Stored Energy: 95.5

***APA Black Mamba X2***

Kinetic Energy: 73.7 foot-pounds  
Stored Energy: 92.4 foot-pounds  
Efficiency: 79.8%





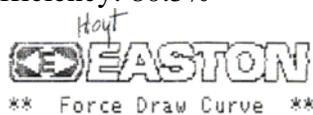
Peak Draw Force: 70.0  
Holding Weight: 19.5  
Power Stroke: 20.7  
Stored Energy: 92.4

***Hoyt Vectrix***

Kinetic Energy: 72.8 foot-pounds

Stored Energy: 90.4 foot-pounds

Efficiency: 80.5%



Peak Draw Force: 70.3  
Holding Weight: 15.6  
Power Stroke: 19.3  
Stored Energy: 90.4

***Ross Cardiac***

Kinetic Energy: 67.2 foot-pounds

Stored Energy: 83.6 foot-pounds

Efficiency: 80.4%



\*\* Force Draw Curve \*\*



Peak Draw Force: 70.0  
Holding Weight: 15.7  
Power Stroke: 19.9  
Stored Energy: 83.6

***Mathews Drenalin***

Kinetic Energy: 72.3 foot-pounds

Stored Energy: 86.8 foot-pounds

Efficiency: 83.3%



\*\* Force Draw Curve \*\*



Peak Draw Force: 70.0  
Holding Weight: 14.0  
Power Stroke: 20.0  
Stored Energy: 86.8

***Parker Pioneer XP***

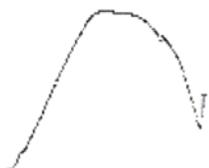
Kinetic Energy: 64.5 foot-pounds

Stored Energy: 80.7 foot-pounds

Efficiency: 79.9%



\*\* Force Draw Curve \*\*



Peak Draw Force: 69.5  
Holding Weight: 16.3  
Power Stroke: 28.6  
Stored Energy: 88.7

***Bowtech Guardian***

Kinetic Energy: 69.0 foot-pounds

Stored Energy: 93.7 foot-pounds

Efficiency: 73.6%



\*\* Force Draw Curve \*\*



Peak Draw Force: 70.6  
Holding Weight: 16.5  
Power Stroke: 28.5  
Stored Energy: 93.7

***Elite Synergy***

Kinetic Energy: 74.7 foot-pounds

Stored Energy: 95.93 foot-pounds  
Efficiency: 77.9%

Force-Draw Curve  
Elite Synergy

