

By Larry Wise

Recommending Target Shafts

There are more shaft manufacturers today courting competitive shooters than there were ten years ago so the playing field has changed. Carbon has taken over as the dominant material for making shafts that are lighter, more precise in wall thickness, more consistent in spine and also lighter in weight. Speed seems to be on every archer's mind but you've got to look beyond that to get arrow shafts that will group the best for a given setup. You really have to look closely at arrow shaft spine, straightness and weight precisions and be willing to pay for those characteristics if you want groups.

For me it's all about spine uniformity. Uniformity from end to end and around each shaft as well as among all shafts in a given arrow set make for the tightest arrow groups. Weight and straightness come after spine consistency in importance so the following list will help you understand more about shaft selection.

SELECTING CHARACTERISTICS:

1) LENGTH: Almost every archer that comes into your shop knows that the arrows he or she selects have to be long enough to safely do the job. Many of them don't know what their proper full draw position should be but they'll still know that the arrow has to be long enough once you get them into that position with their drawing forearm in line with the arrow shaft.

We all know that shaft length is a safety issue. The arrow has to be long enough to stay on the arrow rest so the point doesn't pull off the front or to the side, and drop onto your bow

hand. Therefore, safety comes first when selecting and building an arrow shaft and your job, as a dealer, is to remind every customer you have about safety.

2) SPINE: The spine or "bendability" of the shaft is the single most important characteristic relative to an arrow's grouping ability. The amount the shaft bends, how often it bends in a given time unit and how quickly it recovers from this bending determine how well this particular shaft flies out of a given bow setup and how well it will group with arrows of similar spine.

Remember that spine is the distance a shaft bends when a 1.94 pound (880 gram) weight is suspended from the middle of a 28 inch length. A spine of 440 indicates that a

shaft bends .440 inches at its middle when the weight is attached.

To achieve tight groups all arrows in a set should have the same spine value and each shaft should have the same spine at every 90 degrees around the shaft. Also, this spine value must react well with the given arrow rest, draw weight and draw length of the bow setup. For more information about spine see the article "Dynamic Spine" in the June, 2006, issue of Arrow Trade.

The serious target archer should look for arrow shafts that are spine matched. I prefer to have my arrow sets matched to within +/- .003 inches of spine value. Simply stated, if a set of shafts are spine matched then they have the best chance of bending and recovering the same when shot



New from Easton is this group of aluminum shafts. The 2712 is the largest in a long line of big shafts and recently made a big splash at Vegas and the Lancaster Archery Classic. The X-10 long distance shaft pictured on the cover has been around for some time and is widely used in FITA events around the world, as are the Navigator and ACC shafts.

and, therefore, of hitting the same mark.

3) **STRAIGHTNESS:** A set of straight shafts groups better. I think most target archers are aware of this but most place more value on it than they need to. Most target archers I know want arrow sets that are all straight to within +/- .001 inch when +/- .005 is sufficient to achieve tight groups to 80 yards. If you plan to shoot the longer FITA Round to 90 meters then insist on the .001 inch standard.

4) **WEIGHT:** It stands to reason that if all your arrows weigh the same then they should all fall into a distant target at the same level. Once again, some archers obsess over this, insisting that their arrow sets weigh within +/- .1 grain of each other. I have found over the years that +/- 2 grains of weight tolerance is all you need for best groups. I'm not sure there's an archer alive who can aim well enough to see the difference 1 grain can make at 90 meters (99 yards).

5) **POINT WEIGHT:** The arrow



Carbon Tech of Sacramento, California produces the McKinney II shaft for use in field and FITA events. It is available in spine values from 450 to 850 to match both recurves and compounds. The Hippo is a good fat shaft for 3-D, indoor archery and for hunting. The Chetah will serve well for field archery and any other shooting you wish to do.

point changes the dynamic spine of the arrow. In other words, it affects how much the shaft bends when the string begins pushing the arrow toward the target; the heavier the point the more the shaft behind it bends as the arrow is first given a propelling force by the string. An adjustable point system is essential for attaining the optimum dynamic shaft spine match for a given arrow rest, draw length and peak weight.

Shoot testing for groups will determine the shaft size and spine that groups best for a given bow setup but further testing of that size with various point weights will fine

tune that grouping. This fine-tuning should be done in ten-grain increments, which usually range from 70 grains to 125 grains. In my own case I find that 90, 100 or 110 give the best results with one of those being better than the others. Seventy grains is usually too light and allows the arrow to "dance" while in free flight beyond 60 yards. The heavier points seem to cause arrows to drop out of the air too quickly beyond 60 yards.

6) **FLETCHING:** The fletching style, length and angle affect both the arrow's dynamic spine and it's long range flight characteristics. Heavier weight at the arrow's nock-end will cause the shaft to bend less when pushed by the string resulting in an arrow that acts with a stiffer dynamic spine. A fine line then must be followed when selecting the fletching and nock weight: You have to have enough square inches of fletch surface area to stabilize the shaft but not so much as to negatively affect the dynamic spine.

My experience has shown that three vanes, 1.75 to 2 inches long, installed with a helical fletching clamp will create enough wind resistance to stabilize the arrow but not radically alter the dynamic spine. You have to tell your customers,

An advertisement for America's Best Bowstrings LLC. The background features a red and white checkered pattern with several colorful bowstrings (red, blue, green, orange) draped across it. At the bottom, there is a photo of a man in a red cap aiming a bow. Text on the ad includes: 'Undeniably Unequivocally Undoubtably Unquestionably', 'The Best Bowstrings', 'You will ever put on a bow.', 'A little overconfident? Not a Chance.', '2007 Vegas Champion Chance Barbouf', 'America's Best BOWSTRINGS LLC', 'Where Quality, Durability, and Performance Meet', and 'See your local dealer or call: 330-231-1613'.



These shafts are available from the Carbon Express line by Eastman Outdoors. Designed for speed and long-range accuracy the Nano XR and Nano Pro are at the top. Next is the Maxima which is great for any distance while the bottom three shafts, the CXL-Spine Select, the Line Jammer and the X Jammer are more for 3-D and indoor archery. All of these shafts are graded for spine, weight and straightness.

including the bowhunters, that fletching must be installed at an angle if it is to do its job. If it's attached in line with the shaft then it will create minimal wind resistance and be unable to stabilize the arrow in flight. One side of each fletch must face into the wind so always fletch with an angled helical clamp!

Editor's Note: Larry Wise conducts one and two-day Core Archery shooting schools on site at archery

clubs and archery shops. Call toll-free to (877) 464-9997 to check on pricing and the dates he is available. This is a great way to jump start a league program, to grow participation among your customer base in competitive archery and to help position your pro shop as the place where people can learn to shoot better. You can find more information and order books by Larry Wise at the web site www.larrywise.com.

Gold Tip of Orem, Utah, makes this group of target shafts. The CAA carbon-aluminum shaft is great for long distance, while the Ultralights are a great all-purpose shaft. The 30-X shaft is better suited to 3-D and indoor shooting.



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