

SHELLS AND SHOT STRING

BY LARRY NAILON

Just like women's shoes, shotgun shells come in all sizes, shapes and colors. The internal components have even more different volumes, shapes and colors than the finished product! So, choosing the right shell is subject to a lot of speculation, normally based on free advice and not much else – except perhaps the price.

Most any shot shell will break a target with great authority at close range – you simply overcome the target with a multitude of pellets and velocity before the pattern opens up and the shot string begins to lengthen. So, make your shell quality judgment on longer targets.

A little homework will add to the validity of choosing the best shell for you and your gun. One of the best ways to get a good feel of your gun and load combination is a series of patterns. Starting at 20

yards with the choke you would use on a target of that distance, fire a pattern. Then, increase the target distance in 10-yard increments firing a pattern at each distance up to 50 yards. Then reverse the pattern series – starting at 50 yards with the choke you would use for a target of that distance, firing the four patterns back to the 20-yard target. Record the patterns with choke and range information. This demonstrates the effects of the choke and how gun performance changes around the 40-yard distance.

This simple pattern test can be as involved as you wish, by using different loads and chokes. Naturally, the more patterns you run the more valuable the information gained. Having the knowledge of how your gun/load combination works at different ranges is a powerful target-breaking tool. Confidence in your combination is a positive factor.

ABOVE AVERAGE

The majority of target loads will perform very close to the same. What you must look for is a particular gun/load combination that produces above the average. Target guns and target loads have a high plateau of performance when compared with field loads and guns. But even at this plateau, there are combinations that perform above the norm. The internal barrel configurations of forcing cones, barrel bores and choke designs combined with certain loads can perform well above the normal good performance of target guns. Many times these high performance combinations center on the quality of the shot in a particular load. The variations of shot quality in loads from the same manufacturer would surprise most any target shooter. The assumption that all loads of the same designation from a manufacturer are the same can be very deceiving.

Muzzle velocities, chamber pressures and shot sizes vary from 10 to 15 per cent. Each of these

factors directly affects the performance down range. A 10 per cent variation in muzzle velocity amounts to over 100 fps at the muzzle. The same percentage variation in chamber pressures amounts to over 1,000 pounds of pressure pushing the shot. To a large extent, the peak of chamber pressure combined with the muzzle velocity determines shot deformation. High chamber pressures and high muzzle velocities generate increased pellet deformation.

The measurement of chamber pressures requires some very special equipment. Muzzle velocities can be measured with a chronograph, which is a low cost item when compared to the cost of target shooting. The value of testing shot shells is in direct proportion to the precision used with the equipment involved. The Sporting Arms and Ammunition Manufacturers Institute (SAAMI) uses a standard of centering the chronograph pick-up register three feet from the muzzle with 30 inch barrel choked .005 (skeet) or less. This is an important standard in that it allows an accurate comparison of shell performances.

A barrel with additional choke

constriction will elongate the shot column between the pick-up registers, giving a higher velocity reading than the main body of the shot charge. Also, choke constriction effects on the shot column are not the same with different makes of shot shells. A cylinder bore is the best for velocity testing.

The shot pattern produced by shot shells has a two-fold value. As the pellet placement becomes more uniform and consistent, the shot string becomes shorter and denser. This short shot string allows the shooter to use less choke and break the target with the same authority with a larger diameter pattern. Plus, as you use

less choke constriction you reduce the amount of shot deformation that occurs in the choke. It's a compounding factor, but we still have to use enough choke to get the job done with authority. The amount of choke constriction required to break a particular target presentation comes down to two things. Are you content to break the target or do you have to crush it to feel good about the shot? If you feel the need to crush the target, be aware that the additional choke required to do that also produces a smaller diameter effective pattern, meaning that the shooter must be more accurate in executing the shot. Large

diameter patterns can make more Xs than Os, especially in the game of sporting clays.

TARGET TYPE

The type of target presentation should determine the amount of choke used as much as target distance. A slow-moving target requires more choke than a fast target to break it with the same authority because of the shot string's effect on that target. Shots where you see the full face of the target require a lot less choke than a shot where you see only a side view. To witness the effects of the shot string, shoot some 16-yard trap targets with .010 or Imp

cylinder choke. You will break the straightaway targets with little or no authority, but the hard crossing targets will break with authority because they are being hit with additional pellets as the shot string is delivered during target movement.

Open your choke when you see a lot of the target and tighten up when you only see a side view. The same applies for target movement – fast targets take a lot less choke than slower moving targets. It will take a little time to learn how to adjust your chokes to target view and movement rather than just distance alone, but it will put Xs in place of Os on your scorecard more times than not. ■