

# THINKING OF CHANGING SHELLS?

MAKE SURE YOU  
SPEND TIME AT THE  
PATTERNING PLATE SAYS  
TIM WOODHOUSE

Thinking of changing your ammunition? Perhaps you're a club shooter planning to hit the competition trail this year and need to switch from reloads to manufactured loads. On the other hand, it may be that you're not happy with last year's form and feel changing your shell choice might help. You know that supreme confidence in your choice of shell is essential to achieve competition success and so perhaps you're thinking of switching to the same shell choice as some of our top shots. Whatever the reason, it's essential that you check out the impact point of your chosen shell with your *own* gun – this is as important as the shell's patterning potential.

## Fashion of the Moment

The whims of fashion wax and wane their way throughout the shooting grounds, with some shells being 'hot' and others not. Some of these 'hot' numbers may well justify the hype and enthusiasm that surrounds them, but either way it still has to be an individual choice. Just because Master class shooter 'A' hits the big numbers and swears by the 'hot' new Brand Y shells, it does

not necessarily mean that they will cut it for everyone else. The best way to find out is to check out a flat of these new 'hot' numbers and make your own objective decision, based solely on your own personal gun and shell combination, the perceived individual performance and comfort.

## Individual Gun Pattern

All shotguns are different in their patterning abilities, with some being very selective about their diet. So, if you're about to change your choice of shell, you should spend some time at the patterning plate before making the decision. Many factors can have an influence on the patterning abilities of a particular shot load – the actual bore diameter, the chamber length and its cone taper, the length of the fired hull, the effectiveness of the wad, the pressure development of the powder burn and the quality and hardness of the shot.

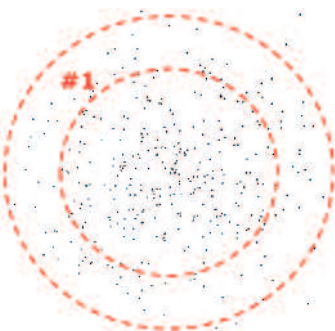
Loads that have hard magnum shot pellets and modest velocities will tend to produce tighter patterns in any gun as they are more resistant to pellet damage and excessive spread effects.

A far more realistic test of the individual effects of your gun, is

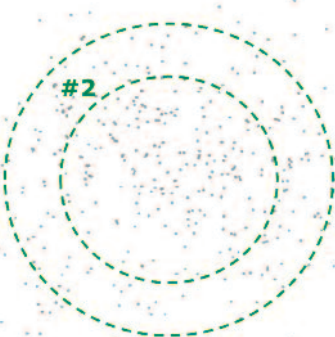
with softer shot pellets (chilled shot) and moderate velocities. As these pellets are more easily damaged, any advantage of boring beyond the open hull mouth will be apparent. The easier the path is for the pellets from the hull to the muzzle, the better their patterning potential will be.

Generally speaking, backbored barrels that also have gently tapered chamber cones tend to throw tighter, more evenly distributed patterns, as well as delivering a slightly higher muzzle velocity. Guns that are tight in the bore with short and relatively abrupt chamber cones can damage more pellets and clump short strings of pellets together, as well as producing a wider overall spread.

For comparison purposes, shells containing chilled and magnum shot were fired in two different 'test' guns with suitable Modified chokes at 30 yards.



#1 A LOOSELY BORED 'BACKBORED' GUN WITH GENTLY TAPERED CHAMBER CONES.

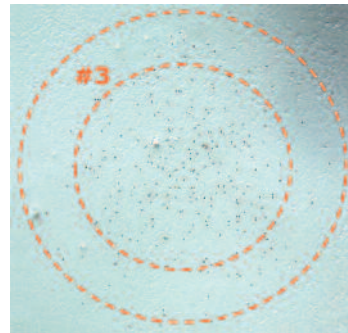


#2 A TIGHTLY BORED 12 GAUGE GUN WITH FAIRLY SHORT AND ABRUPT CHAMBER CONES.

Chilled shot pattern #1 is a typical example of the potential advantages of backbored barrels when using the softer chilled shot types. (Test Gun #1) The overall spread is reduced, with only faint evidence of any small strings of 'clumped' shot. (The shot pellets have a much easier time of it after leaving the confines of the hull casing.)

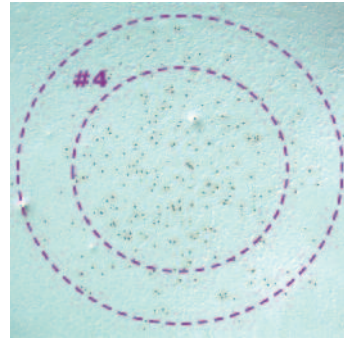
Chilled shot pattern #2 by contrast, has many pockets of clumped shot, together with a greater overall pattern spread. The tighter bore and abrupt chamber cone of Test Gun #2 are contributing to greater degrees of transitory pellet damage, before the pellets are able to reach the choke. It is this increased level of damage that contributes to the wider overall spread and more erratic pellet distribution.

Magnum shot pattern #3 from Test Gun #1 shows a tight 30 yard spread with a greater degree of central concentration and good overall pellet distribution from the backbored barrel and Modified choke.



Magnum shot pattern #4 shows the pattern produced by hard magnum shot at the same velocity rating fired through the tighter .719 inch barrel with Modified choke of Test Gun #2.

There is an undeniable increase in central pellet concentration over that shown in pattern #2 with chilled shot, but it is not significantly better than the



chilled shot in pattern #1 with the backbored barrel. However, there is still evidence of some shot clumping and the wider spread of 'fliers' at the periphery indicates some pellet damage but less than the chilled shot number. The pellet location throughout is also more erratic than with the backbored barrel.

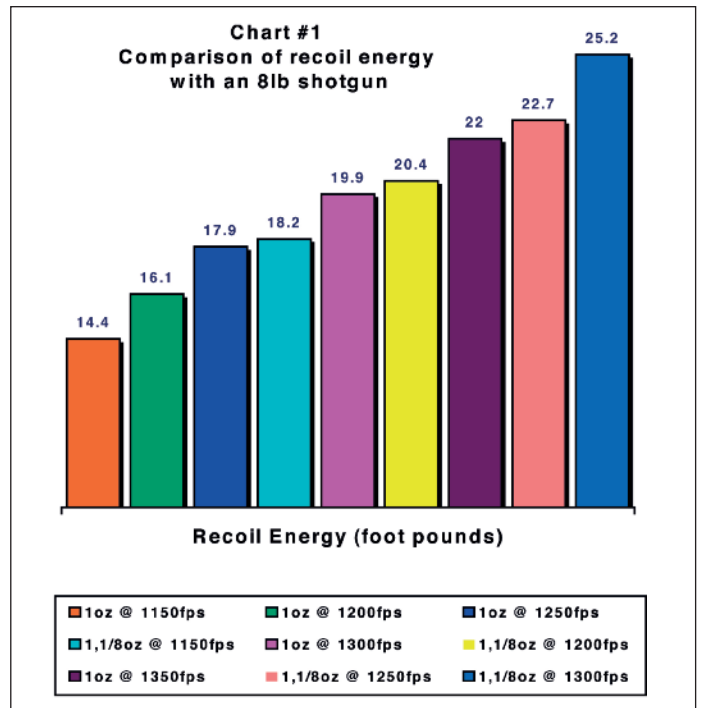
## Recoil

Another reason for considering a shell change may be perceived recoil. Over time, your long familiar shell and gun combination has now started to bite at the shoulder to an unacceptable degree. Time for change.

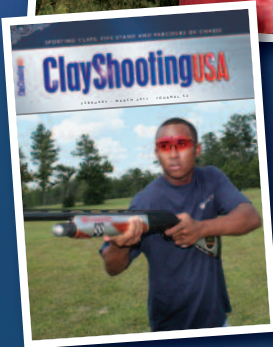
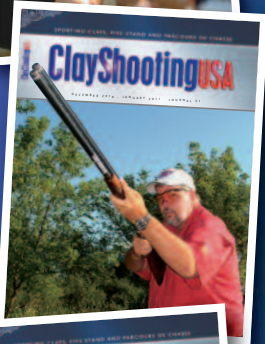
As a fellow sufferer in the recoil department, personal choices have shown conclusively that my 12 gauge shooting is noticeable better with softer shells. The actual mechanical recoil levels of various loads can be surprising, as it is not just the shot payload that lifts recoil, but also the velocity.

With a selection of typical loads for sporting clays the actual 'kick' potential can be visually demonstrated. In chart #1 the recoil energy generated with an 8lb shotgun by an additional 100 feet per second with an International 1oz FITASC load with a 1300fps @ three feet US rating (19.9 foot pounds) is only very slightly less than a regular 1 1/8 oz 1200fps @ three feet target load (20.4 foot pounds).

Although not an exact comparison, the extra recoil with a 1oz load at plus 100fps velocity is similar to gaining 1/8 oz of shot. So, if a shooter switches from 1 1/8 oz to 1oz loads thinking that all of the lighter loads will have a reduced



**WE KNOW  
WHAT IT TAKES  
TO PRODUCE  
A REALLY  
GREAT CLAY  
MAGAZINE!**



**ORDER YOUR  
REGULAR  
SUBSCRIPTION  
TODAY**

**www.  
clayshootingusa  
.com**

kick, disappointment is likely result – unless the velocities are matched for both payloads.

Sticking with a 1200fps @ three feet velocity, the 1oz shell does indeed make a significant difference (16.1 foot pounds) with 21% less recoil. A 1oz load at this velocity has the capability to produce excellent quality patterns, so if recoil has become an issue, this would be a worthwhile change. However, the slower 1150fps 1oz shell is the most efficient in both of these areas.

## Changing Velocity

Getting hung up on velocity issues with any given shell isn't worth it – it's the downrange patterning potential that is the real deal. It is pointless having high-speed downrange pellets that are maxed out on striking energy if they cannot be relied upon to actually hit the target. This is not to say that high-speed International FITASC shells do not have their place, but their performance capabilities must be known in each individual gun.

There has always been confusion with the image of an impressively shattered, downrange target. Some shooters are left believing that this spectacular hit has occurred because of the sheer speed of the striking pellets. In fact, an increased multiple strike by slower pellets, that are part of a dense well distributed pattern, will produce the most visually destructive clay target hit.

Regular target shells have long been loaded with 1200 feet per second at three feet velocities with good reason. It is a winning combination, well appreciated by Skeet and Trap shooters who expend large quantities of these types of shells at 'edge on' targets with great success. It is also no accident that Handicap 1<sup>1</sup>/<sub>8</sub>oz trap

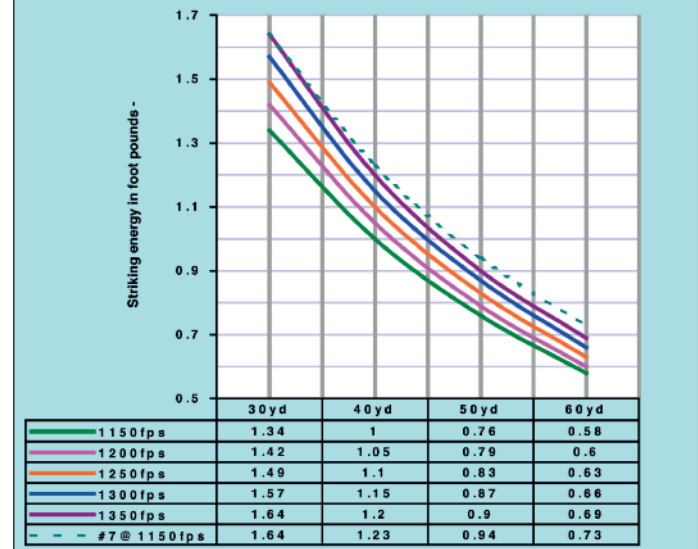
loads are often loaded to only 1150 feet per second three-foot velocities, because this can tighten up the pattern still further.

Given the same treatment, a 1oz load at 1150fps is not only very forgiving at the shoulder, but also makes some of the best quality and most evenly distributed patterns. (A slower loading with less recoil at the shoulder does not mean significantly reduced downrange performance.)

the shotgun used. This has no bearing on what might be achievable with the same shell in other guns and choke combinations.

- Before changing shells, it is always a good idea to test them for pattern. This may demonstrate that other things may be amiss that had not been considered, such as the point of impact in relation to the shooter's aiming point.

**Chart #2. Comparison of velocity and down range pellet striking energy with #7.5 shot**



It will be noted from chart #2 that by going from 1150fps to 1250fps, the extra 100 feet per second is worth just 3 yards of extra range, (1150fps has 0.63ft/lbs of striking energy at 57 yards). But perhaps more interesting is the potential of the soft shooting and humble 1150fps 1oz loading with the larger #7 pellets (that are legal for FITASC competitions). The downrange striking energy of the slower #7s easily outclasses the blisteringly quick #7.5 1350fps loading (with its heavy attendant recoil) after 30 yards.

## Conclusion

- All patterns are the result of

- Fresh confidence can result after patterning, once exemplary shell performance is established.

- For those shooters that are recoil sensitive, lighter 1oz loads are more than capable of delivering consistent target breaking patterns at full ranges – especially those with more modest velocities.

- So, don't just wonder if your shells are performing. This will allow unwanted negative thoughts to creep in and affect your game. The way forward is to get real and check them out for pattern, eliminate any uncertainty and restore your shooting confidence and performance. ■