

BY TIM WOODHOUSE

1970 BERETTA S04 COMPLETE WITH  
A FULL GAUGE SET OF CUSTOM  
BUILT BRILEY MULTI-CHOKE TUBES.  
(RICHARD PREECE)

# CHOKE AND SHELL CHOICES FOR .410 GAUGE

As part of most Big Blasts, small gauge sporting clays events are fun – illustrated by the growing number of entries at such events over recent years.

As regards the .410, the significantly lower shot payloads ( $\frac{1}{2}$ oz) compared with 12 gauge ( $1\frac{1}{8}$ oz), can and does put a lot of shooters off of the idea of attempting such a competition. It must be appreciated that the .410 (as used for sporting clays) is primarily a relatively short-range proposition. The reality is, that no amount of alteration to the chokes

or even massive payload increases will ever change that proposition. The trick for any gauge is to optimize the shotgun choke, pellet size and shell combination that works the best for both the individual shooter and the consistent breaking of the chosen target.

## What are the limitations?

If we take a look at the  $\frac{1}{2}$ oz payload of the .410 gauge from the viewpoint of the 12 gauge shooter,

there are immediate issues with pellet counts and pattern density. There are 390 #7.5 pellets in the 12 gauge  $1\frac{1}{8}$ oz load, but staying with #7.5 pellets, the  $\frac{1}{2}$ oz load has only 173 – just over 44 percent of the numbers in the 12 gauge payload. This does not look very encouraging.

However, the .410 gauge  $\frac{1}{2}$ oz loading will rarely require such large pellet sizes as the range is relatively modest (30 yards or so is generally considered to be a longish shot for a .410 gauge), so the vast majority of the targets

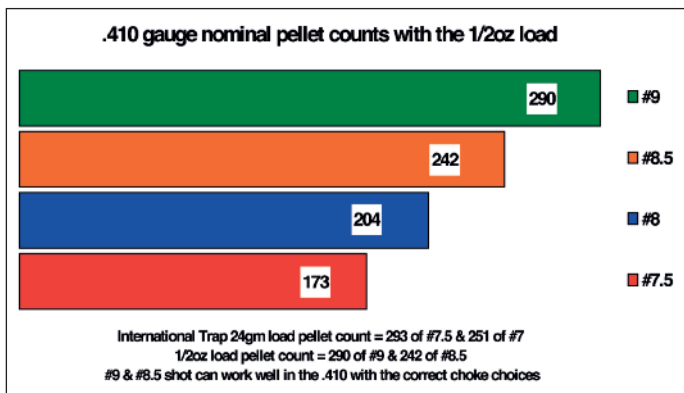


shown, will break consistently using the smaller pellet sizes.

To further qualify this, the .410 1/2 oz load with 173 good quality hard magnum grade #7.5 pellets and a regular 1200fps 3 foot velocity has an excess of striking energy. It will retain 1 foot pound of striking energy out to 41.7 yards, 0.75 foot pounds out to 52 yards and 0.5 foot pounds at 67 yards!

cannot be afforded with the .410 – as even a 100 percent pattern can only ever have 173 pellets within the 30 inch circle.

The pattern will most likely fail for ‘edge on’ and similarly tricky targets, well before the striking energy of the leading pellets has dropped to 1 foot pound (at 41.7 yards). The only likely exception to this general



As handy as the extra power of the #7.5 pellets undoubtedly is at the longer ranges (with the 12 gauge), the accompanying drastic reduction in pattern density simply

rule could be a trickily angled rabbit at 30 yards, where the extra striking energy of the #7.5 pellets might be useful. A great deal would depend on the angle of the

rabbit shown and its resultant visible area to the shooter, with the capabilities of all of the components in the equation – the gun, the load, the choke and the shooter – taken as a whole. Full choke would be required for adequate pattern density, making hitting the rabbit that much harder for the shooter.

A better solution (albeit for practice shooting) would be to utilize a slower 1/2 oz home load with an 1100fps @ 3ft velocity. #7.5s will still retain 1.31ft/lb of striking energy at 30 yards (#8s have 1.06ft/lb @ 30 yards). As long as the pressure peak is also significantly lowered with these loads, a tighter pattern will usually result, with the possibility of considerably reduced pellet damage caused by the set back forces of acceleration.

## Lower Pressures

Many years back, extensive .410 gauge testing took this lower pressure concept to the limit, with a slower than usual (in the .410) burning rate powder that was designed for rifle use. The patterns were extraordinarily tight, even through skeet chokes. Even when the velocity was up at a regular 1200fps @ 3ft, the breech pressure peaks were held down to an extremely low level. The down-barrel pressures were more sustained than with the regular

.410 powders, but the net effect was to accelerate the shot more gently from rest.

After a series of comparison pattern tests, it was proved that increases in pressure, with the resultant extra pellet damage it causes due to higher ‘set back forces’, have a greater effect on pattern quality, overall pellet location and spread than velocity alone.

## Smaller Shot Sizes

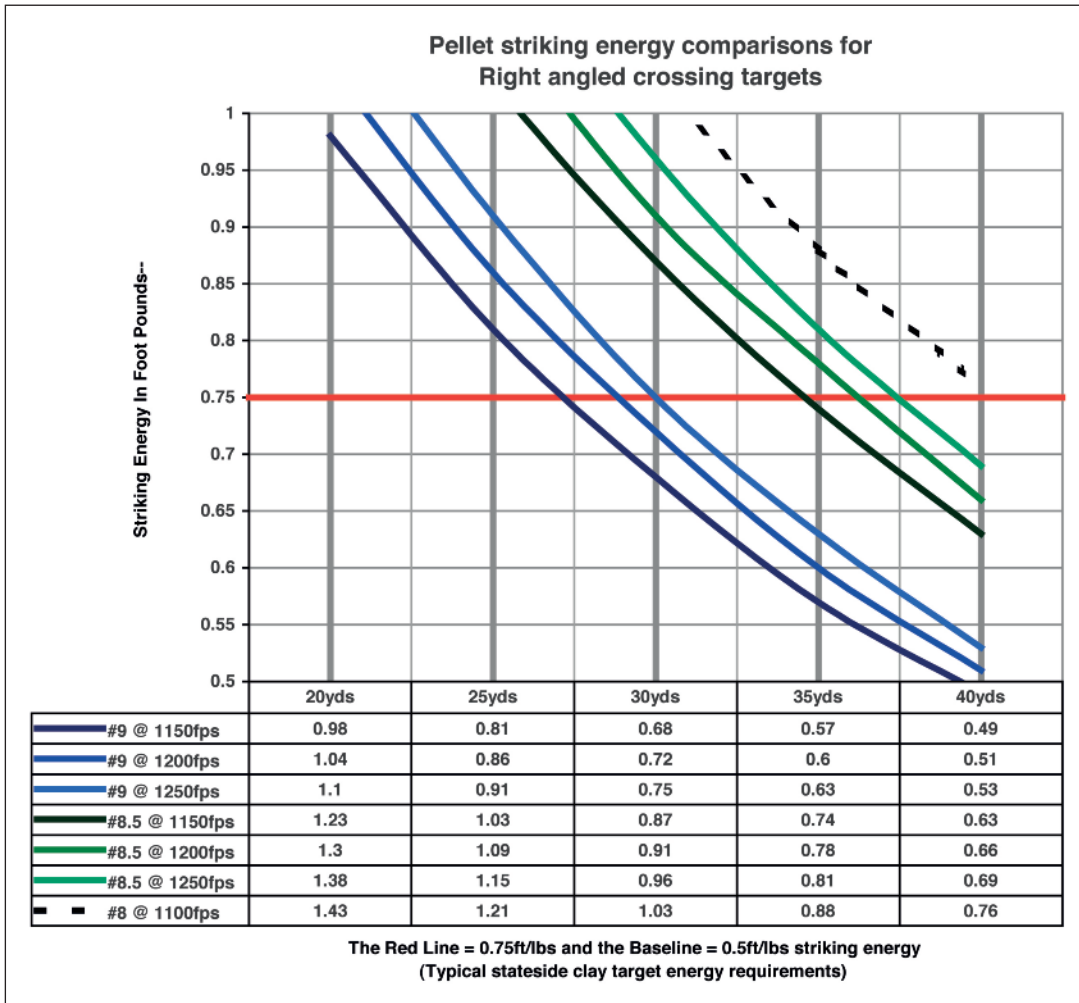
With factory loadings, going to smaller pellets is the way forward. It’s the only viable option for retained pattern density to cover all eventualities. The trick, as ever, is to balance the available pellet striking energy for any given target with the ability to hit it consistently within the pattern spread.

With reference to the 1/2 oz pellet count chart, the immediate pellet size of choice would appear to be #9 shot.

This is an excellent choice for a remarkably wide range of crossing target types and visual profiles, as long as the ranges are kept relatively short. This is especially the case with minis and battues, both of which can offer precious little visual profile to the shooter. Maximum pattern density is the only game in town if the target is to be hit with any degree of consistency.



THE AUTHOR'S CHAMPIONSHIP WINNING REMINGTON 1100 SPECIAL SPORTING .410.



choking – Modified, Improved Modified, or even Full in extreme cases, depending on the actual distance and profile shown by the target.

### Edge On

#9 pellets (remaining in good condition), with a 1200fps velocity have 0.75ft/lbs of striking energy available at just under 29 yards for a right angled crossing ‘edge on’ target. With Improved Cylinder/Light Modified choke performance, we can expect somewhere around 80 percent of the pellets within the 30 inch pattern circle. Extensive experience has shown that this combination is sufficiently dense for a multiple strike and a consistent ‘edge on’ target break at this range – although at the limit of the useful range of #9 shot. For some, a faster sporting clays load with #8.5 shot might be a better choice, where even a single pellet

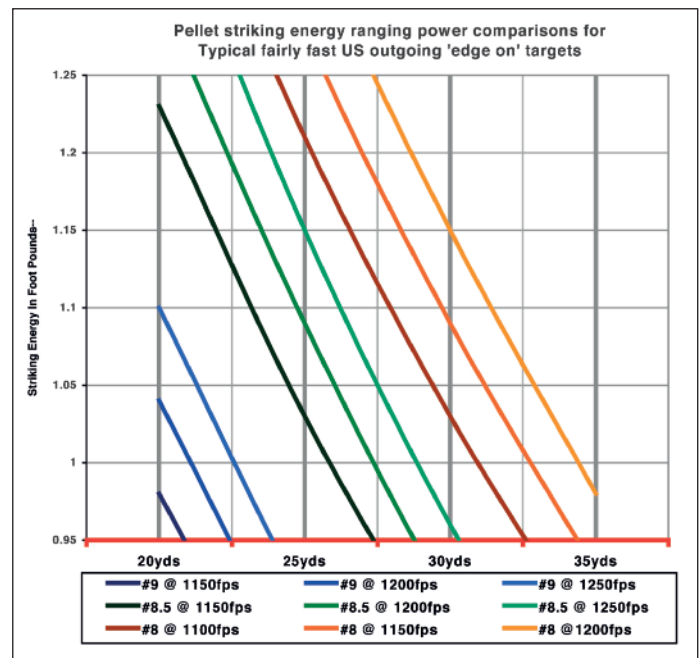
Factory 1/2 oz shot loads vary in their 3 foot velocity, from 1150fps and 1200fps for skeet legal loadings of #9s and 1250fps with the faster sporting clays loading.

### Choke, Load and Target Angles

It is important to appreciate that clay targets do vary in their manufacture and their ultimate breakability.

However, for typical US situations, a face on standard sized target such as a looper, thrown in the same plane across the shooter, will usually require considerably less striking energy to break it when struck at its weakest point. The potential pellet range of #9

shot can be increased for these target types beyond 35 yards with sufficient pattern density. As the target area shown to the shooter is considerably larger, (than when shown ‘edge on’), a multiple strike is still needed to avoid isolated pellet ‘pin holes’ (found in targets recovered from the ground that were not visibly broken when in flight). For this duty, Light Modified performance has always been the top choice, delivering good scores for these target scenarios out to 35 yards with #9s. Battues can also be dealt with in a similar manner – when they are still showing a full circle area. Any type of Mini and the slimmer profile of the twisted Battue still require #9s, but with tighter



strike at this distance (#8.5 = 0.99ft/lbs @ 29 yards) would be decisive. But the issue can only be decided after pattern testing with your chosen gun and ammo combinations.

### Outgoing Targets

The down side is that individual pellet strikes with #9s start to lack breaking power on fairly fast outgoing targets (when shown 'edge on') past 22.5 yards.

Unless they can be shot while they are still relatively close to the shooting stand, outgoing edge on targets need larger pellets.

The outgoing targets' velocity has to be subtracted from the pellets' velocity, which establishes the relative impact velocity of the pellet upon its arrival at the target. This reduces the actual striking energy on the target, which effectively lowers the range of #9 shot with a 1200fps velocity by a little over 6 yards for a typical outgoing, straightaway, 'edge on' target. The pellets need to be faster with greater energy (at least 0.95ft/lbs) to compensate sufficiently.

Quartering outgoing targets will reduce this drop off in striking energy effect in direct proportion

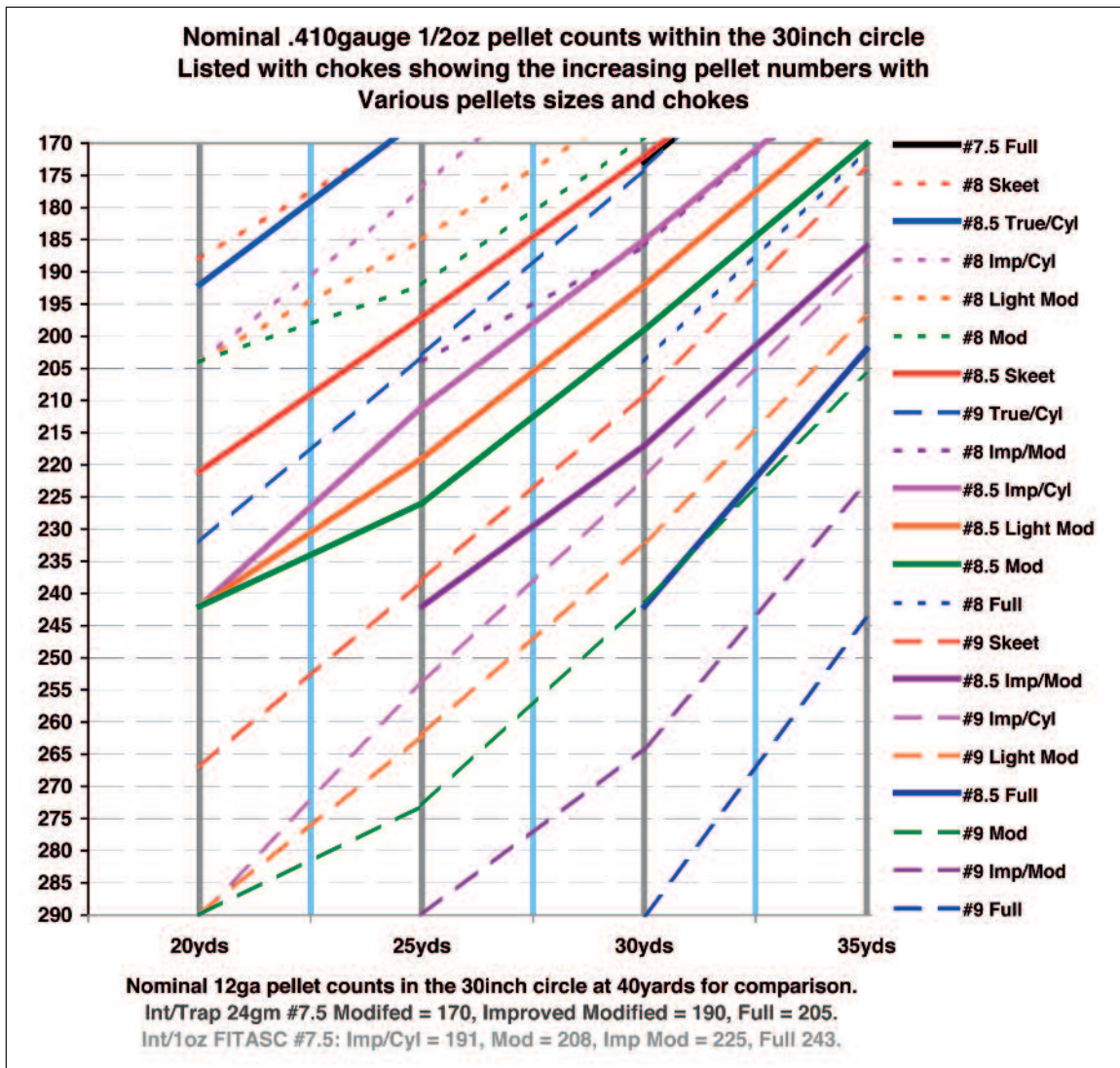
to their angle of flight in relation to the shooter. (A 45 degree angle will halve the striking energy losses [about 3 yards range] when compared to a straightaway target). The adequate pattern density enjoyed with #9s has to be mitigated with sufficient striking energy if any type, speed, or angle of clay target is to be broken consistently. To redress the imbalance and increase the breaking power for this fast outgoing target out to 30 yards, #8.5 shot with a 1250fps velocity is needed. An increased control of the pattern spread using a tighter choke may also be required.

### Selecting a Choke/Shell Combination

Looking at the comprehensive pellet count chart, we can readily establish the optimum choking and pellet size for any given type of target at any .410 gauge distance. These are nominal figures, but at least they provide a starting point, before any actual pattern testing can take place to establish the precise capabilities of any particular load, gun and choke combination.

It is most important to appreciate the fact that over

choking the .410 gauge is undesirable, for two very good reasons. If the chosen shot size is simply larger than optimum, the extra striking energy just isn't needed, but heavy degrees of choke (such as Full) most certainly will be – even at 25 yards or so. This just makes consistent hitting very much harder than it needs to be. Less choke with a wider spread with a smaller shot size is the way to go. (The 12 gauge pellet counts for both the International trap 24gm and FITASC 1oz loadings of #7.5 shot at 40 yards are stated at the bottom of the chart for reference purposes. Both the pellet count chart and the crossing and/or outgoing target striking energy charts need to be consulted to arrive at the best pellet size, velocity and choke combination).





**MOST STATESIDE COMPANIES HAVE OFFERED SPORTING CLAYS 1/2 oz .410 GAUGE LOADS WITH #8.5 SHOT AT ONE TIME OR ANOTHER.**

1250fps #9s with a Skeet choke have the minimum level of striking energy and sufficient pattern density with 209 pellets. 1250fps #8.5s with an Improved Modified choke will also work, as the pellet

count is a little higher (217) and the striking energy is considerably greater. This latter combination would probably be effective for an outgoing target at this distance. For a variety of 'face on' crossing targets at 30 yards, Skeet choke and #9s is good (210 pellets), but for a greater pattern density (if preferred), Light Modified puts 232 pellets into the pattern circle.

Maximum pattern density at 30 yards for minis and awkwardly shown battues is achieved with #9s and either Improved Modified (264 pellets) or Full choke (290 pellets). It must be stated that full choke is rarely needed with the smaller pellet sizes unless the situation is extremely unusual.

#8.5s at 30 yards with Full choke still have a 100 percent pattern (242 pellets), but #9s with a Modified

choke have 241 pellets. Unless the extra hitting power of the #8.5 pellets is really needed, the wider spread of the Modified pattern with #9s will make hitting very much easier.

## Conclusion

- The perceived need to tighten up the chokes unduly for the .410 gauge must be resisted. Using less choke and smaller pellet sizes, that are more suitable for the distances involved, makes for better consistency and winning scores.
- #9 shot is undeniably useful in the .410 gauge, but the #8.5 hard 'magnum' shot sporting clays loads, with a 1250fps 3 foot velocity, are great performers. They considerably enhance the ranging power of the .410 gauge over regular #9 shot loadings, especially

for the harder to break 'edge on' targets, while generally throwing both wider and denser patterns than 1/2 oz loads of #8 shot.

- Although #8s have greater hitting power at longer ranges, they require much tighter chokes, which just makes hitting targets that much harder.
- #7.5 shot is really too big and too few pellets for comfortable and effective shooting for the vast majority of shooters.
- The compromise with #8.5 shot is a good one and together with #9s, they fulfill just about all of the requirements for a .410 gauge course of targets. ■

*For more information email Tim at: [lightgauges@btopenworld.com](mailto:lightgauges@btopenworld.com)  
Also check out Tim's small gauge shotgun book at: [www.fourten.org.uk](http://www.fourten.org.uk)*