Dear Colleague

**Scoring a smallbore 8 on a fullbore target and grateful for it**

**The Problem:**  in a fullbore (TR) teams’ match, the group achieved by a shooter who was also experienced in smallbore, was only slightly larger than the 1.0 MOA V-bull. In the 15-shot match, the shooter scored 75.12. This was better than the scores of other members of the fullbore team who averaged 73.4. The groups produced by the fullbore shooters of this team were close to 2.0 MOA, i.e. scattered across the bullseye.

After the match, team members wondered whether the smallbore shooter possessed an advantage from smallbore. If this were true then fullbore shooters wanted to know about it.

Differences between these disciplines were known to exist. It was asserted that if a fullbore shooter scored a shot near the edge of the bullseye-inner line, the shooter would be grateful that it was not an inner. However, a shot on the edge of the fullbore bullseye would be equivalent to scoring an 8 on a smallbore target. Yet, in a smallbore match an 8 would seriously reduce a smallbore shooter’s aggregate. So why should fullbore shooters be grateful for a wide bullseye?

This article describes an investigation of this apparent anomaly. Clearly, no conclusion could be expected unless a systematic trial had been undertaken to reveal any advantages from each discipline. The investigation considered selected factors which might affect shooters differently in each discipline.

**Discussion:**  to search for a possible advantage gained by smallbore shooters participating in a fullbore match, several well-known techniques were considered. Each involved differences due to the methods employed by shooters from each discipline:

* body position to support the rifle dead still at the moment of discharge [alternative placements of sling around forearm and positions of forward hand on stock]
* sighting to produce the smallest group [differences in selection of foresight ring size]
* sizes of groups associated with timing of trigger pull to the moment of shot release.

**Body position to support rifle dead still**

Many shooters (Target Rifle) along a firing point competing in an important match, can be seen to support the rifle with the forward elbow out to the left of the rifle. The few shooters who position the elbow directly under the rifle stock will often be recognised as more highly skilled.  One of the reasons for this is that most shooters appear unaware how to position the forward elbow so that it is completely free of tension. Tension in muscles involved in supporting the rifle can be a serious handicap.

From the analysis of body positions of fullbore and smallbore shooters, it would appear there is little real difference between the two groups of shooters.

**Sighting to produce the smallest group**

Whereas fullbore shooters use a wide range of ring diameters (and thicknesses of annulus), often aided by an Eagle Eye lens at the foresight, smallbore shooters tend to use a much smaller range of ring diameters. Due to the relatively larger size of the smallbore aiming mark, it has become the practice to select a ring size where the width of the aiming mark appears to occupy about a half or one third of the diameter of the ring. By comparison, fullbore shooters aim at an aiming mark that appears to occupy as much as one third of the width of the ring. As well, many fullbore shooters find they are aiming at a dot. It remains for the fullbore shooter to position the dot in the centre of the foresight ring. Each group of shooters focusses upon the foresight ring with the aiming mark slightly defocussed.

There would appear to be no real difference between the two groups of shooters, when considering the difference in sighting techniques of smallbore and fullbore.

**Sizes of groups and timing of trigger pull to the point of shot release**

Smallbore was in earlier times considered to afford an opportunity for fullbore shooters to practise trigger release and as a result, was known as miniature rifle shooting. It was often conducted indoors, affording shooters no opportunity to practice in changing wind.

Shooting in a wind-sheltered environment at 20 or 50m does however require that a smallbore shooter should use a trigger-release technique to achieve a 0.5 MOA or 1.0 MOA group. On the other hand, until the appearance of the 1.0 MOA V-bull score for fullbore shooters (TR) and more recently, the 0.5 MOA X-ring (F Class), fullbore shooters used a 2 MOA bullseye for several decades.

It would appear that fullbore shooters were content for several decades to group within 2 MOA compared with the 0.5 MOA X-ring of smallbore shooters. Hence, when a wind change occurs, a fullbore shooter could feel grateful that the bullseye was not as small as in smallbore.

**Practical:**   from a consideration of the differences between smallbore and fullbore, a much greater degree of difficulty confronts smallbore shooters. This in turn requires a greater demand for the use of the trigger-release technique by smallbore shooters. Not surprisingly, fullbore shooters, preceding the introduction of the 1 MOA V-bull, were never faced with such a requirement in their use of the trigger-release technique.

The practical solution, adopted by a small proportion of fullbore shooters, was to ensure that the second stage of trigger pull was not shorter than the time for a tremor to be released by the body. The writer experimentally determined that he had a personal requirement for a 3 second time limit, beyond which, no tremor would occur and cause the muzzle to move. There were also indications that the 3 second time could be 4, 5 or even 6 seconds, depending upon whether the rifle was not still enough to avert momentary movements of the foresight (TR) or scope element (F Class).

It would appear that the vast majority of fullbore shooters have for decades ignored the need to trick the body into not releasing a tremor .They have been satisfied with a 2 MOA group. On the other hand, smallbore shooters continue to use a trigger-release technique which ensures that a group of 1.0 MOA or 0.5 MOA will be achieved.

**Conclusion:**   smallbore shooters use a trigger-release technique which ensures that their group forms within 1.0 or 0.5 MOA. Hence, they do not encounter tremors because their trigger-release technique ensures that a shot is not discharged within the 3 second time limit cited by the writer. On the other hand, fullbore shooters have used a larger bullseye, which generally enabled tremor shots to form a 2 MOA group within the bullseye ring. It was not until fullbore shooters began trying to produce groups smaller than 2 MOA, such as the 1.0 MOA V-bull or the 0.5 MOA X-ring, that the advantage possessed by smallbore shooters began to appear. Hence, a fullbore shooter could presently feel grateful for a bullseye which would score an 8 on a smallbore target.

Best regards

Geoff