The top rifle and pistol shooters have known for years that certain lots or types of ammo shoot better than others in a given firearm. Air rifle shooters understand how critical it is to select the pellets best suited for the magic one-hole group (see my article in the Nov/Dec 2008 issue).

Selecting the right pellet requires the proper testing equipment and procedures. If you don’t have an adequate setup that ensures your barrel is pointing in the exact same place during testing, your results will be flawed, your groups will be ragged, and your frustration will mount!

Air rifle recoil may seem insignificant, but there is enough gun movement to force you to take measures to ensure consistency from shot to shot during testing. There are two methods you can use to achieve this consistency. The first method holds the gun so tightly with such a great mass that the recoil movement of the gun is null. The second method allows the recoil to move the gun rearward along a rail or track; after each shot, the rifle can be pushed forward to a stop in the same position.

First, let’s talk about solid vises, since they may be more readily available. While any large bench vise might suffice, you may need to construct special jaws to grip the rifle stock or action solidly, yet does not harm the rifle. To this end, coaches around the country use a variety of methods. Three-quarter inch plywood with a thick leather or rubber face is effective. I know some coaches have used the tread from a car tire to act as grabbing material; this set-up grips quite well. Depending on the shape of the stock, or the shape of the action with the stock removed, you must decide which surface will provide the most stable rig. If you clamp to the stock alone choose solid points along the for-end, such as the point at the barrel band since this is where a solid block sits just underneath the wood or aluminum surface of the stock.

Use moderation as you clamp; tighten the vise enough to hold the gun still, and then try to wiggle it with your hands. If it wiggles, then add another 1/8 of a turn or so until it is solid—overtightening can damage your rifle. Frequently the buttstock and pistol grip offer several possible locations for a solid surface. Study your gun’s characteristics to decide the best set-up. All of these considerations require the vise to be attached solidly. A large heavy desk might work, or a framework bolted to a wall or ceiling.

In addition to the clamping vises, there are also machine rests that use a rail system to relocate the gun to the exact position after each shot. I have seen several variations made in Europe, and one of the best is manufactured here in the USA, called Angie’s Rest. It uses the sling rail on the gun to mount angled blocks so the barrel is level with the target. When the shot is fired, the ball-bearing slide backward in the V-track, and then can be nudged forward again to a positive stop. Of course, this rest must be screwed into a solid block, concrete floor or a heavy bench or desk.

In conclusion, I should point out that while it is critical for the gun to be resting in the same place for each shot, don’t forget that target needs to be stationary as well. If you’re using hanging targets, be sure they’re weighted or backed properly to eliminate all movement, or this can cause your group to “grow.” Good luck with your pellet testing and selection—I hope you can quickly get a “grip” on the process and setup to produce one-hole groups.