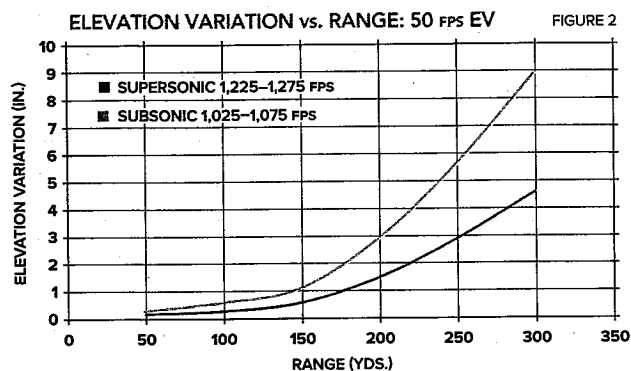


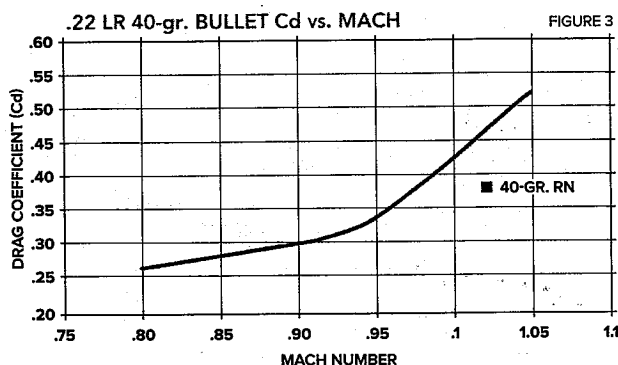
**50-YARD AMMUNITION TEST RESULTS**

AMMUNITION	AVG. VEL. (FPS)	EV (FPS)	SMALL (IN.)	AVG. (IN.)	SMALL (IN.)	AVG. (IN.)	ELEVATION (IN.)	WINDAGE (IN.)
CCI Clean Subsonic	1,074	16	2.19	2.47	—	—	—	—
CCI Clean Supersonic	1,173	47	1.94	2.16	—	—	—	—
CCI Green Tag	1,047	29	1.00	1.08	2.88	3.00	2.00	3.00
CCI Mini Mag	1,229	80	2.00	2.03	—	—	—	—
CCI Pistol Match	1,064	34	1.18	1.22	1.56	2.50	0.88	2.50
Federal Auto Match	1,170	71	1.00	1.52	—	—	—	—
Remington Golden	1,183	87	2.00	2.34	—	—	—	—
Remington Subsonic	1,000	105	1.19	1.60	—	—	—	—

Note: Tested using a Ruger American Rimfire Long-Range Target equipped with a Bushnell Engage 2.5-10x44mm riflescope.

100-YARD GROUPS

Let's compare a supersonic load that shoots 1.2 inches at 50 yards with an ES of 55 fps and a subsonic load that shoots .75 inch at 50 yards with a 35-fps ES. The accuracy of the subsonic load is 1.6 times better than the supersonic results. The ES of the subsonic load is 1.43 times better than the supersonic load's, too. These two factors added together are 3.03 (i.e., 1.6 plus 1.43). In this example, the subsonic load is expected to outperform supersonic loads at long range. The combination of ES and accuracy of subsonic loads should exceed a factor of



more than 2 better than supersonic ammo based on Figure 2 to provide better performance. As I'll continue to discuss, there's another good reason to shoot subsonic ammunition.

To evaluate wind drift of .22 LR, as well as trajectory, we must look at the drag coefficient (Cd) versus Mach number for a rimfire bullet. Figure 3 shows the Cd for a 40-grain round nose (RN) projectile generated by the U.S. Army in a spark range. For calibration, 1,250 fps is Mach 1.12 and 1,050 fps is Mach .94 at sea level.

This may seem counterintuitive, but a subsonic .22 LR

correlates strongly to the elevation's point of impact. As you can see from the plot, the subsonic load is more susceptible to time-of-flight variations due to the variations in muzzle velocity.

Figure 2 shows the corresponding elevation variation of the round's impact compared to range for the 50-fps ES. The subsonic load is sensitive to muzzle-velocity variations. You can get away with a lot at 50 yards, but velocity differences between shots will catch up to your potential effective range after that. At 200 yards, subsonic ammunition has about twice the elevation variation for a fixed extreme spread as supersonic ammunition, and it stays that way beyond that. If it were only as simple as finding ammunition with a low-velocity spread!

You must also have ammunition that is accurate. Looking

.22 LR 40-GRAIN RN 10-MPH WIND DRIFT

TABLE 1

RANGE (YDS.)	1,250 FPS (MOA)	1,050 FPS (MOA)
50	2.9	2.1
100	5.4	4.1
150	7.6	6.0
200	9.6	7.9
250	11.6	9.8
300	13.5	11.7

bullet, which has a higher initial drag for a given wind value, gets a bigger push from the wind initially than the subsonic load. Therefore, it drifts more. This is a good reason for finding a good subsonic load for shooting .22 LR. Table 1 shows the wind drift of a supersonic and subsonic 40-grain load in a 10 mph crosswind at sea level; you can see why I suggest that shooting rimfire at long-range is a