

The History & Use of My Favorite Calibers from a Handloaders View...

I cannot take credit for writing this from memory. I researched the history information then added my own experiences pertaining to handloading and shooting. I wanted to compile an informative history and handloading potential for these stoic calibers. While some of these calibers are variations from others on the list. The 243 Win is a necked down version of the 308 as an example. There is a vast assortment of off cast variations of most of the basic calibers. If a complete list of these variations were written it would rival Tolstoy's War and Peace for length and boredom. In my opinion any of the calibers listed here are more than capable of harvesting the game animals of Northern American. The powder recommendations are from personal trials and tribulations and other sources of load data.

I know some would argue I should have included the 338 family and the venerable 45's. My reasoning for not including these or anything with more punch than the 300 Magnums is most hunters can confidently and comfortably use them and they are relatively economical to handload for. I don't care what anyone says recoil DOES affect the overall performance of the gun and shooter. That is why the listed calibers are here. Even if a shooter starts out with the dainty 243 and builds confidence to step up to something with more power proper shooting techniques are easier learned, if it doesn't hurt to do so. I hate to use the term under-gunned, a more fitting term would be under-applied. The economics of should be a big factor. Most brass for a 338 is twice the price of the listed calibers and the bullets are higher as well.

In conclusion the listed calibers are in my opinion the most versatile across the board.

.243 Winchester

History

The 243 Winchester was introduced by Winchester in 1955 for their Model 70 bolt action and model 88 lever action rifles. The 243 was quickly adopted by Savage for their Model 99 lever and Model 110 bolt action rifles. All of the British and European manufacturers began chambering bolt action rifles for this round. In fact, even Remington, who developed their own 6mm, had to recognize the popularity of the 243 and started chambering their rifles for it. The 243 (6mm) Winchester is nothing more than the 308 Winchester case necked down. Original development and publicity was due largely to the efforts of gun writer, the late Warren Page, who along with other wildcatters worked out a similar version before Winchester. The 243 is probably chambered in more different rifles than any other cartridge, except possibly the 30-06 Springfield. All other manufacturers of rifles offer this caliber.

General Comments:

The 243 Winchester represents a successful effort to develop light deer rifle caliber that could hold its own with the high velocity 22's for long range use on small targets and still be adequate for larger animals. The 243 does this job well. It eliminates the need to own two rifles for anything from small game and pests up to and including deer size animals. All major domestic and overseas manufacturers of commercial ammunition offer this caliber. Its popularity as a deer caliber has prevailed over its varmint capabilities.

Performance

The greatest virtue of the .243 is that it offers adequate killing power for medium game at a noise and recoil level that can help any hunter to shoot calmly and accurately. For lightly built hunters or those suffering sustained shoulder injuries, the .243 is sometimes the maximum power tolerable. For such hunters, the 6.5x55 and 7mm08 cartridges are simply too much and the .243 is the only commercially suitable choice. That said, the .243 is nowhere near as versatile or powerful as the 6.5 and 7mm08 cartridges. For this reason, those who use the .243 must take special care to fully explore the cartridge, understand its strengths, its weaknesses along with a thorough understanding of game anatomy with all emphasis towards humane harvesting. The .243 is a cartridge that can perform either admirably or dismally with results entirely dependent on the aptitude of the hunter. While many experienced hunters like to argue the limitations of the .243 based on their own skills, animal welfare should always be paramount.

Loaded with controlled expanding conventional bullets, the .243 has ample power to penetrate medium sized deer shoulder bones but will not necessarily exit broadside. This dictates that penetration cannot be expected to exceed distances beyond 12 to 14", limiting the effectiveness of conventional projectiles on raking shots. The Barnes TSX projectiles can however penetrate vitals, even with tail on shots.

The .243 produces its fastest kills inside 200 yards or at impact velocities above 2650fps. Inside this range, internal wounding with select projectiles can be incredibly fierce with lung wounds as wide as 3". Beyond 200 yards, animals may show little sign of being hit and are able to cover considerable distances regardless of wounding. To minimize such effects, hunters are advised to aim at major shoulder bones, providing of course, that the bullet is matched to the penetration required. This rule is just as important on heavy boned deer and for those who choose to use the .243 on game the size of Red or Mule deer, it is imperative to resist the natural urge to aim for a soft spot to maximize penetration.

Between 300 and 400 yards, the .243 is still capable of producing a wide wound channel through vitals, usually around 1" in diameter. Nevertheless, wind drift can make exact shot placement difficult, leading to very slow kills. Rear lung shot game can take several minutes to expire.

Hand loading

When reloading for the .243, the most suitable powders are those in the W760, H4350, IMR4350 and H414 range. From normal 22" barreled sporting rifles, realistic safe maximum working velocities include 3200fps with 85/87 grain bullets, 3100fps with 90 grain bullets, 3050fps with 95 grain bullets, 3000fps with 100 grain bullets and 2950fps with 105 grain bullets. Some rifles do however produce best accuracy at velocities some 50fps below those listed above. A properly tuned .243 rifle will often produce groups as tight as .3" at 100 yards with the warmer loads as listed above grouping in the .65" to .75" range.

Closing comments

Animal welfare should always come first and hunters who are capable of comfortably shooting a more powerful cartridge should do so. Nevertheless, the .243 has its place and on the hunting block in question. I have one female client who is slightly built and the .243 is as much recoil as she can possibly handle. With attention to shot placement and actually acknowledging the limitations of the cartridge, this lady is able to fully utilize the .243. This is a cartridge that can produce either outstanding result in an entirely consistent manner or abysmal failures, all entirely dependent on both rifle accuracy, the skill of the hunter and a sensible approach to game suitability.

.270 Winchester

History

The .270 has proven itself as one of the most versatile and effective medium to large game cartridges in the world. It's effectiveness on game is so well embedded in our minds that we automatically use it as a benchmark when discussing other calibers.

By the 1920's, the .30-06 U.S military cartridge had proven itself to be a very effective and flexible cartridge for hunting North American game. Taking this a step further, Winchester designers were most likely inspired by the Mauser designed 7mm bore as a means to enhance the ballistic performance of the 06. A 7mm version of the .30-06 could utilize a lighter bullet than the 06 and produce a flatter trajectory along with lower recoil.

At this time, U.S citizens still carried a large degree of resentment towards German military technology having only recently been at the receiving end of first the 7x57 during the Spanish-American war of 1898 followed by the 8mm during WW1. Anything metric was met with trouble and bad memories for some. Winchester avoided this problem by creating a similar but new cartridge caliber of ".277".

The .270 Winchester was released in 1925 chambered in the Model 54 bolt action rifle. The first factory load featured a 130 grain bullet at a muzzle velocity which closely approached the factory advertised figure of 3160fps from the 54 rifle's 24" barrel. It should also be noted that in this same year, Winchester also offered the 7x57 as an option for the Model 54, perhaps as a means of testing the market.

As much as Winchester hoped that the .270 would become an immediate and immense success, the cartridge went largely unnoticed due to the popularity of the sporterised ex-military .30-06 Springfield. A major problem was that factory loads for the .30-06 featured a 150 grain bullet at an advertised 3000fps, a potentially harder hitting load than the .270 130 grain bullet.

Fortunately for Winchester and hunters, gun writer Jack O'Connor rescued the .270 from obscurity. O'Connor suggested that the .30-06 loads were likely to have been chronographed in extremely long factory test barrels but were unrealistic velocities for sporting rifles. Hunters, generally have no access to a chronograph, relied solely on the factory's word. Much of the early acceptance of the .270 can be attributed to the writings of Jack O'Connor. He bought a Winchester Model 54 .270 during the year of its introduction in 1925. Some hunters felt that his opinions were biased towards his enthusiasm for hunting light game in open country. The cartridge was certainly designed as a lighter version of the .30-06. O'Connor favored the 130 grain Nosler Partition which he used to take most of his game. He was not however biased towards the .270 and had a list of favorite cartridges including the 7x57, .7mm Rem Mag, .30-06, .300 Weatherby Magnum, .338 Winchester Magnum and the .375 H&H Magnum. To his mind though, the .270 offered a level of power and a flat trajectory suitable for all North American hunting at a recoil level that most hunters could comfortably handle.

As hunters gradually began to use and experiment with the .270, the cartridge proved its worth, showing excellent exterior and terminal ballistic performance. The 130 grain bullet, though seemingly light, was designed with a stout jacket to withstand high velocity impact. Winchester's original 130 grain bullet delivered high shock, killed fast and gave outstanding penetration.

The .270 is popular with both factory ammunition users and handloaders. With handloads, like many cartridges, the performance of the .270 can be greatly enhanced with great economy. Both factory ammunition and hand loading components can be found in abundance and one would have to look very hard to find a gun store that does not stock at least one .270 caliber rifle.

Performance

The performance of .270 factory ammunition has undergone a significant change since the U.S war on Terrorism began in 2001. The war on Terrorism sparked a massive corporate bidding frenzy for military contracts. Contractors increased their focus on military ammunition but also smartened up their entire company profile by enhancing the performance of sporting ammunition.

For several decades, U.S factory sporting .270 130 grain ammunition produced between 2800 and 2900fps with 2850fps being the average. The only company that produced a load with a muzzle velocity above 3000fps was Olin (Winchester).

Generally speaking, the current range of factory ammunition is wide enough to suit almost any hunting situation. The various entry level 130 grain soft point loads are ideal for light game, the premium core bonded or Barnes TSX 130-140 grain loads are suitable for heavy bodied medium game

Hand loads for the .270 are capable of producing outstanding performance and can be further adapted to fit a wide range of situations. The .270 is easily downloaded to produce lower felt recoil with performance duplicating the 6.5x55. The .270 also makes for an excellent varmint cartridge. With high BC bullets loaded to full potential velocities, the .270 is a spectacular killer of medium game out to generous distances.

As for heavy game, the .270 has enough power to drive premium projectiles fully through the largest bovine broadside but wound channels are narrow and bleeding is slow. With head and spine shots, the .270 loaded with premium projectiles is able to anchor large animals instantly.

Hand loading

The most suitable powders for use in the .270 are the medium slow burners in the 4350 range through to slow burning 4831. Powder choice is very much dependent on throat length. Short barreled .270 caliber rifles simply cannot obtain optimum results with slower burning 4831 type powders.

Because the .270 is one of the world's most common and popular chamberings, this also means that more errors of machining are found within this caliber. This is a simple but unfortunate matter of statistics. Throat lengths of factory rifles do vary considerably making it imperative that handloaders pay heed to reloading manual guidelines during initial load development. A small number of rifles cannot

handle maximum listed loads, others can take up to 7 grains more powder than listed maximums to achieve full pressures.

The ideal barrel length for the .270 is 24" (600mm). This length will typically give 3150fps with 130 grain bullets, 3050fps with 140 grain bullets and 2950fps with the 150 grain weights. The standard 22" sporters who dominated the market place during the 1980's and 1990's will normally achieve 3100fps, 3000fps and 2900fps respectively.

Closing comments

Without a doubt, the .270 Winchester has proven to be the most effective cartridge carried by comparison to other non-magnum and small bore cartridges. The .270 really is a very straight forwards, reliable and often spectacular cartridge, suitable for well over 90% of game species.

.30-30 Winchester Center Fire (.30 WCF)

History

In 1886 France adopted the 8mm Lebel, the world's first smokeless military cartridge that changed cartridge design forever. Notable military followings were Germany's 8x57 Mauser in 1888, the Mauser designed 7x57, the conversion of the .303 British to smokeless powder and the American 30/40, all adopted between 1892 and 1893.

Although military powers saw the advantages of small bore smokeless cartridges, hunters were a little slower to accept these new concepts, feeling much more confident with the wide caliber black powder cartridges. In 1894 Winchester introduced to the hunting market the model 94 lever action repeating rifle, designed by John Browning and chambered for two already popular black powder hunting cartridges, the .32-40 and .38-55. In 1895, Winchester made a somewhat radical move, chambering the 94 rifle in the Winchester designed .30 Winchester Center Fire, Americas first smokeless powder, jacketed bullet hunting cartridge.

The Western cartridge company produced the ammunition for the .30 WCF, the initial load featuring a 160 grain metal patched bullet (RN-FMJ) loaded to a velocity of 1960fps from the M94's 24" barrel.

Around 1896, the Dominion cartridge company began manufacturing their version of the .30 WCF. Dominion labeled their ammunition using the traditional means of cartridge designation, calling the cartridge the .30-30. This described the cartridge as being of .30 caliber and loaded with 30 grains of smokeless powder. Ultimately, the Dominion labeling proved more popular than Winchester's .30 WCF designation and Winchester and the Western cartridge company changed their labeling to .30-30.

It soon became apparent that the .30-30 was a relatively flat shooting cartridge in comparison to traditional hunting cartridges. Zeroed at 200 yards the 160 gr bullet rose 6" at 100 yards while typical black powder cartridge projectiles had an MRT of over 12" at 100 yards for the same zero. Although the older cartridges fired wide 300 to 500 grain bullets boring large holes in game, in the hands of less experienced marksmen, the .30-30 became a far more reliable killer simply because it's flatter trajectory allowed superior shot placement.

The .30-30 was not without criticism. Experienced hunters of the day were not at all keen on the light 160 grain small bore projectiles for use on heavy bodied game. Western's initial load, the 160 grain FMJ round nose bullet would have produced rather disappointing wounding in comparison to the wider bores. Many hunters stayed with their favorite .45 and larger caliber black powder cartridges, refraining from using small bores until the later arrival of the mighty .30-06.

Within a few years of its introduction, .30-30 ammunition was made available in a range of styles and bullet weights. Regardless of controversy, the .30-30 became immensely popular amongst mainstream hunters of the U.S. The Western cartridge company continued to promote the .30-30 as a potent cartridge by showing pictures of Grizzly bear on ammunition packets, alluding to its prowess on large game. The .30-30 cartridge saw a great deal of use on medium weight deer species and was used on game up to the size of moose and grizzly bear, regardless of whether it was truly suitable for fast, clean killing of large game is hotly argued yet today.

Performance

Due to the tube loaded magazines of the model 94 Winchester and Marlin 336 rifles, .30-30 ammunition must be loaded with round or flat nosed bullets to avoid detonation of bullet primers in the magazine under recoil. These low BC projectile designs limit the effective range of the .30-30 to around 200 yards, after which, shot placement becomes difficult to estimate due to the heavily curved trajectory not to mention wind drift. Low BC's also cause a rapid loss of velocity, affecting both disproportionate to caliber wounding as well as mechanical wounding. This makes it very hard for bullet manufacturers to develop optimum bullet designs.

For over 70 years the two most common factory loadings for the .30-30 have been a 150 gr bullet at an advertised 2390fps and a 170gr bullet at 2200fps. These velocities are taken in 24 - 26" as opposed to the 20" carbines carried by hunters. True velocities tend to average 2100fps for the 150 grain loads and 2050fps for the 170 grain loads. Velocities of the 150 grain bullet are kept within 50fps of the heavier 170 grain bullet to ensure that factory rifle iron sights can be used with both loads, otherwise, the two loads would be so vastly different; all rifles would have to be fitted with micrometer peep sights. Naturally, being so close in velocity to each other, of the two factory weights, the 170 grain bullet offers the single advantage of increased sectional density without sacrificing velocity and without any difference in bullet construction which could potentially limit expansion.

The .30-30 can be hand loaded well beyond factory specifications. 150 grain bullets can safely be loaded to produce 2400fps and 170 grain bullets to 2200fps. Inside 50 yards, a 150gr FN or RN bullet hand loaded to 2400fps can produce fast kills but past 50 yards (2200fps), speed of killing decreases. Animals shot at and beyond 100 yards may show little to no sign of a hit, falling only after running considerable distances.

Of all the factors affecting fast killing with the .30-30 shot placement is far more influential than bullet choice or velocity. Unfortunately many iron sight .30-30 users don't have the luxury of precision shot placement however; it is worth looking at typical results that can be expected with varying shots.

The fastest killing chest shot with the .30-30, using either factory ammunition or hand loads is one that strikes slightly forwards of the front leg, at or close to the intersection of the scapula and humerus bones. A shot in this area destroys the autonomous plexus, a major nerve center of the body, causing instant death, shot after shot.

A .30-30 bullet that strikes directly in line with the front leg at middle to upper chest level may cause hydrostatic shock transfer to the spine out to 60 yards (fast hand loads produce the greatest amount of shock) with better results on game weight between 110lb and 180lb. Often game will drop instantly as a result of a small amount of shock transfer but not lose consciousness, attempt to rise but die from blood loss before rising any higher than knee level.

At all ranges, from 0 to 200 yards, .30-30 bullets that strike behind the line of the leg into the rear lungs, missing the heavier shoulder muscles and scapula blade, fail to deliver both energy as shock and highly traumatic wounding, allowing game to run some distance before collapsing. For this reason and due to the fact that with iron sights, it is often difficult to ensure precise shot placement, it is wise to choose a bullet for the .30-30 that will exit game and leave a good blood trail.

With factory loads, wound channels through lung tissue tend to be around 1" in diameter with exit wounds only as large as, or slightly smaller than (due to elasticity of hide) the expanded bullet diameter if no major bone is struck near the exit point.

A fast hand loaded 150 grain bullet creates a lung wound less than a quarter inch larger than typical factory loads with exit wounds averaging .75" as opposed to just under or around .5" for factory loads. Although the difference in exit wounding may seem small, bleeding from exit wounds as a result of full velocity hand loads is much more profuse than exit wounds created by factory ammunition. This is one of the main advantages of using hand loads in the .30-30, free bleeding exit wounds which give the hunter a good blood trail to follow.

On heavier animals, the .30-30 may produce adequate penetration but is not nearly as fast killing as a higher velocity 30 caliber cartridge or larger bore. Wide wounds are the key to fast humane killing and hunters are urged to always keep this in mind, regardless of what a cartridge like the .30-30 may be capable of achieving.

Using an accurate scoped rifle, the .30-30 continues to produce the same or similar diameter wounding from zero to 180 yards. Bullet expansion throughout the brands tends to be adequate and although disproportionate to caliber wounding becomes nonexistent beyond 50 yards or so, mechanical wounding is still thorough. Beyond 180 yards, trajectory curvature makes shot placement very difficult, regardless of wounding capacity.

Again, it must be re-iterated that amongst fans of the .30-30, the greatest benefit of the .30-30 is the compact lever action rifles. In this regard, the pros and cons of cartridge performance can never be regarded as being of foremost concern. The .30-30 is in many instances, relied on for utility purposes, a tool that is required to perform basic tasks in a reliable manner.

Hand loading

With hand loads it is relatively easy to achieve factory stated velocities for 24" test barrels in 20" carbines. IMR4064 and Varget powders produce excellent results giving velocities of 2400fps and 2200fps for 150 and 170gr projectiles respectively. The .30-30 is never finicky, load work is predictable and most .30-30 chambered rifles are (ironically) capable of extremely good accuracy. Hand loading components are readily available for the .30-30.

In older rifles showing signs of wear, full power hand loads are most definitely un-advisable. Old rifles and factory ammunition go hand in hand and when one considers the low price of .30-30 factory ammunition, who would want to go to the effort of hand loading anyway?

In rifles of sound construction, the major difficulty with full power hand loads is matching the change in velocity to the open sights of the 94 and Marlin 336 rifles. Winchester's more recent 94AE (Angle Eject) rifle solves this problem as the side ejection allows for the fitting of a scope, as does the Marlin 336. However; it is commonplace to leave these rifles un-scoped and there are literally millions of pre-angle eject 94's in use that cannot be scoped. The simplest solution for those who wish to utilize full power hand loads in iron sighted rifles is to use Williams or Lyman aperture sights.

On the subject of sights, the open sighted .30-30, though it serves well for utility purposes, is far from ideal for stalking under a forest canopy where both open and aperture sights can be difficult and slow to line up. Poor sight definition is a common complaint of many who have decided to try open sighted .30-30 rifles for bush hunting with the goal of minimizing rifle bulk. The scoped 94AE and Marlin 336 are far more versatile in these darker terrains.

Closing comments

Heated debate often arises when discussing the merits and limitations of the .30-30. It cannot be reiterated enough, that the single greatest selling point of the .30-30, is not the cartridge itself but the compact, portable lever action rifles that house it. Second to this, the ammunition is plentiful and affordable, something which cannot be said of the more potent carbine cartridges. At close ranges, the .30-30 is a clean, effective killer of medium game. To those who use and rely on the .30-30, these factors outweigh any potential negative aspects of this cartridge in comparison to more potent, modern cartridge designs.

.30-06 Springfield

History

When the invention of smokeless powder led to France's adoption of the 8mm Lebel in 1886, a new era in arms development began. In the early 1890's the American military began testing repeating rifles to replace the .45-70 Trapdoor Springfield. At this stage repeating rifles were considered "wasteful" and economy was paramount. Nevertheless in 1892 America adopted their first military bolt action rifle, the Norwegian designed Krag Jorgenson. This fired the US designed rimmed .30-40 cartridge which was a .30 caliber bullet over 40 grains of smokeless powder and was loaded with a 220 gr round nosed bullet at a muzzle velocity of 1968fps.

The Krag was and still is considered an extremely smooth feeding and relatively accurate rifle. The Krag featured a unique side loading gate that allowed cartridges to be simply dumped into the magazine one at a time, and was also designed for reliable single shot loading to meet US military requirements. The Krag saw its first active role in combat during the Spanish American war of 1898 although many soldiers were still armed with the Trapdoor Springfield. The Krag was held in high regard by those who used it to aid America's victory over Spain. Nevertheless the Krag was no match for Spain's Mauser designed M1893 7x57, the Krag could not compete with the fast clip fed Mauser or its immensely flat trajectory.

During the war, the American military attempted to increase the power of the .30-40 220 grain load to 2200fps but unfortunately, due to the single locking lug design of the Krag, this resulted in several action failures which severely wounded users, causing the improved load to be recalled.

By the end of 1898, the US Army had decided that both rate of fire and power, especially a flat trajectory, were just as important as accuracy and economy. Following the conclusion of these ideas, the U.S ordnance department set about creating a more powerful cartridge and a suitable firearm.

The government owned Springfield Armory borrowed heavily from the designs of Mauser, creating the now famous 1903 Springfield, chambered for the .30-03 cartridge (the .30 caliber cartridge of 1903). The 30-03 fired a 220 gr round nosed bullet at a velocity of 2300fps. Gone was the rimmed 30-40 case design, replaced by the same case head design used in the 8x57 and 7x57 Mauser cartridges, a significant move which ultimately standardized modern cartridge design.

In 1905, Germany adopted a light 154 grain bullet for the 8x57 at an extremely high velocity of 2890fps. The U.S, keen to embrace new technologies, immediately set about upgrading the .30-03 cartridge. A more aerodynamic 150 grain pointed projectile was created and along with this, the .30-03 case was shortened by .07 of an inch (1.8mm) to optimize the new bullet design. This was the birth of the .30 US cartridge of 1906 known today as the .30-06. The Springfield rifle maintained its original designation as the 1903 Springfield. The .30-06 remained the principle military cartridge of the US for 50 years

During the First World War (1914-1918), the US was contracted to produce P14 .303 rifles for the British Army. This project was somewhat defunct in that the P14 was designed to fire a 7mm Magnum cartridge but with economic pressures and the outbreak of war, the rifle was quickly tailored to fire the .303 cartridge, yet in this configuration, showed no advantage over the fast handling Lee Enfield. To this end, production of the P14 .303 was not of great necessity. Having the tooling on hand and no commitment to mass production of .303 rifles, the U.S Ordnance department created a modified version of the P14 designed to fire the .30-06 cartridge. This rifle was formally adopted as a supplementary service weapon in 1917, designated by the year of its design as the M1917 rifle. This rifle saw use during WW1 and was considered an extremely fine rifle in both design and execution.

During the 1920's, the US ordnance department began research towards the development of a rifle that would prove as effective if not more so, than the machine gun witnessed in WW1. The major downfall of both the LMG and HMG, were that for the most part, these weapons were best employed from a static position. Along with weapons research, ammunition design was also under review.

In 1932, employed by the US ordnance department, Canadian born firearms designer John Cantius Garand presented a prototype semi-automatic rifle for military testing. The rifle was accepted however its cartridge, the .276 Pederson was not. General Douglas MacArthur ordered that the rifle should fire the .30-06 cartridge and after modifications were made to the rifle, the US military adopted the M-1 Garand .30-06 rifle in 1936.

Along with the new Garand rifle, ammunition was modified for a third time, specifically for anti-personal terminal performance. This last infantry load consisted of a 152 grain flat base bullet over a charge of 50 grains IMR 4895 for 2740fps. The final load was designated .30 Ball M2. There were of course other supplementary loads used during the 50 year service span, such as the 145.5 grain tracer, the 165 grain armor piercing (AP) bullet and the M72 match load which fired a 173 grain FMJBT projectile at 2640fps.

Although both the Springfield and M1917 rifles remained in service, the Garand was the principle rifle used by US forces when America entered the Second World War after the Japanese attack on Pearl Harbor. The Garand was an incredibly effective rifle but was not without its shortcomings. A major drawback was the magazine retained its clip until all 8 rounds had been fired before ejecting. Topping off a half full magazine clip is extremely difficult. The rifle was considered by some to be overly long with

its 24" barrel. The rifle was relatively heavy yet it produced a level of recoil detrimental to controlled aiming during repeated fire.

For the most part, U.S soldiers became very attached to the Garand rifle design, regardless of both its practical and theoretical shortcomings. By the end of the war, the US Ordnance department had become fully involved in designing a replacement rifle and cartridge after witnessing the effectiveness of the German assault rifle chambered for the low recoiling 7.92x33 Kurz. This eventually led to the US creation and adoption of the M14 rifle chambered for the 7.62x51 NATO (.308 Win) which the U.S formally adopted in 1957.

Although the .30-06 was officially retired in 1957, large amounts of surplus ammunition dictated that the .30-06 would continue to see supplementary use in training and warfare through to the 1970's. Furthermore, the .30-06 remained an excellent sniper cartridge up until the official adoption of the Remington M40 Sniper rifle introduction in 1969 chambered in 7.62.

Performance

The .30-06 is a highly effective game killing cartridge, its strengths lie in the availability of a wide range of bullet weights and styles and combined with good velocities, makes the .30-06, extremely versatile. It is however, important to match bullet weights and bullet styles to the job at hand. Readers need to be aware of this point and not fall into the trap of concluding that the .30-06 is versatile or emphatic with one, do it all load.

Light 125-130 grain bullets, although ideal for light game and varmints in theory, are not any more spectacular, nor more thorough in killing performance, as heavier frangible .30 caliber bullets. Nevertheless light weight bullets can be put to a variety of uses in the .30-06, including light recoiling loads. Loaded with slightly heavier 125-130 grain bullets, such as the Barnes TSX and GS Custom, the .30-06 can be used to deliver great shock, wide wounding and very deep penetration on small to medium game, out to extended ranges of around 400 yards.

Loaded with 150 grain bullets, the .30-06 is a fast, often spectacular killer of lighter medium game. Many bullet designs boast excellent performance out to ranges of around 650 yards while the 155 grain A-Max produces wide wounding out as far as 800 yards.

Loaded with 165-168 grain bullets, the .30-06 has both high velocity and high down range killing power. Hunters can choose bullets which cover a wide range of body weights and hunting situations including both woods hunting and long range hunting, out to 800 yards.

Loaded with stout 180-220 grain bullets, the .30-06 is an excellent performer on heavy body weight game. Heavy bullets and mild velocities ensure deep penetration. On the heaviest of game, the .30-06 cannot be expected to produce wounding of the same diameter and depth as the big bores, however, the .30-06 is entirely adequate in extreme situations where care is taken with shot placement.

Loaded with 178-210 grain high BC, frangible bullets, the basic 24" barreled .30-06 produces wide wounding on both light through to large medium game out to ranges of around 900 yards (1400fps), becoming subsonic at around 1170 yards. Although this cartridge is not as flat shooting as the large capacity sevens, it must always be remembered that the .30-06 can carry a heavy pay load to large bodied game at long ranges.

Recoil of the .30-06 is tolerable for adults of both sexes and teenagers providing consideration is given to stock design and scope eye relief. If either of these two factors is not matched to the shooter it does have a level of recoil great enough to induce flinch and a general disliking of high power centerfire. This requires careful consideration. Alternatively the .30-06 can be down loaded with ease.

For the hunter who requires a deep penetrating snap shooting woods cartridge, a cartridge for long range large medium game and an adequate heavy game cartridge the .30-06 does it all. This cartridge is not fussy with either hand loads or factory ammunition.

Hand loading

The .30-06 cartridge gives best results when hand loaded with medium burn rate powders. IMR 4064 and Varget are optimal burn rates for 130 to 150 grain bullets while IMR4350 and H4350 are ideal with heavier bullets. From a 24" barrel, the .30-06 is capable of comfortably pushing 130gr bullets at 3200fps, 150 grain bullets at 3000fps, 165-168 grain bullets at 2850fps, 175 grain bullets at 2800fps, 180 grain bullet at 2750fps, 200 grain bullets at 2550-2600fps, 208-210 grain bullets at 2450fps and 220 grain bullets at around 2400fps. Maximum loads in some rifles can produce velocities 50 to 100fps faster than these statistical averages with traditional powders.

Closing comments

The .30-06 is an immensely versatile cartridge. There was a time when ammunition selection was a choice of either a soft 150 or a 180 grain bullet. The 180 grain bullet was promoted as being the best all-around choice which was quite often detrimental to the performance and popularity of this cartridge. By matching bullet weights and bullet styles to game weights and ranges the .30-06 can be tailored to suit pretty much any hunting situation. Utilized accordingly the .30-06 is truly a joy to hunt with.

7mm Remington Magnum

History

When the Mauser brothers designed the 7x57 cartridge for use in their M93 military bolt action rifle, the excellent qualities inherent in the 7mm bore diameter soon became apparent to cartridge designers all over the world. Here was a cartridge that produced a flatter trajectory than most of its competition, minimal wind drift and potentially, optimum terminal performance at extended ranges. Following these discoveries, cartridge designers began to experiment with larger cases to maximize down range performance.

One of the earliest high power designs was the .280 Ross, designed by F.W Jones for the Ross rifle company of Quebec, Canada in 1906. This cartridge featured a rimless case, not too dissimilar to the 7mmRUM. The Ross rifle and cartridge were intended primarily for military use however the rifle locking mechanism had some short comings which proved undesirable.

The British were also very interested in driving 7mm bullets at maximum velocities. Holland & Holland introduced the .275 H&H Magnum in 1912, based on a shortened version (2.5") of their .375 H&H cartridge case, featuring the typical H&H smooth feeding tapered case design. The British military tried to follow on from this with the creation of the .276 Enfield prototype cartridge and P14 rifle to house the large 7mm magnum. Unfortunately for Enfield designers, war and politics halted any further experimentation. These early cartridges, the Ross, H&H and Enfield generally achieved 2900fps with 140

grain bullets. Higher velocities were not quite yet obtainable due to the limits of powder design. Throat erosion was also very severe.

The first 7mm's to be created were the 7x61 Sharp and Hart and the 7mm Weatherby magnum, both U.S inventions, introduced during the early 1950's. While the cartridge designs were somewhat similar to the .275 H&H, albeit blown out to minimize body taper, the major breakthrough was the adoption of surplus 20mm cannon powder. This slow burning powder enabled huge increases in velocity. Nevertheless, although the 7x61 and Weatherby were very good cartridges, neither had become mainstream offerings which limited ammunition availability and effected pricing.

Following the introduction of the 7mm Weatherby and 7x61, American gun writer Warren Page of 'Field & Stream' magazine was noted, among others, for promoting the idea that America needed a standardized Magnum 7mm cartridge chambered in a standard production rifle, easily obtainable from any gun store. Wildcatter Art Mashburn had recently designed a very appealing candidate based on the .300 (or .375) H&H case necked down to 7mm, this was similar to the 7x61 and Weatherby however rather than being shortened to 2.5", the Mashburn featured a longer case at 2.620" as opposed to 2.5" resulting in a noticeable increase in powder capacity.

Warren Page had Art Mashburn chamber one of his rifles for the 7mm Mashburn Super Magnum and Page was ecstatic over the results. The Mashburn was able to drive a 160 grain bullet at 3200fps and for medium game hunting at both close and longer ranges, the Mashburn was an emphatic killer.

The situation became heated when Jack O'Connor gifted his .275 H&H magnum (load at the time was a 175 grain bullet at 2680fps) to wildcatter Les Bowman. Impressed with the idea of a 7mm magnum, Bowman in turn had a .338 Win Mag necked down to 7mm by Fred Huntington of RCBS, naming it the .280 Remington Magnum. Bowman had no trouble impressing his friend Mike Walker of Remington with the new cartridge. Recoil levels were approximately the same as the ever popular .30-06 yet the 7mm produced a much flatter trajectory and excellent down range terminal performance. In 1962, after much experimentation at the Bowman ranch, Remington released the 7mm Remington Magnum. Almost overnight it made several fine cartridges near obsolete, among them the .264 Winchester Magnum.

Today the 7mm Remington Magnum is currently one of the world's popular medium game cartridges. It was also utilized by the U.S military as a sniper cartridge for specialized operations but has since been superseded by the dual purpose .338 Lapua and .50BMG cartridges.

The 7mm RM is available in a wide range of rifle configurations. Barrel lengths differ from maker to maker. The common barrel length for sporting rifles is 24". This is slightly too short for optimum performance not only because of the 70fps reduction in velocity but the shorter barrel raises both noise and recoil.

Performance

The 7mm RM is one of the most effective, versatile medium game cartridges available to hunters. The two major complaints of its design are the short neck and belt. The short neck can sometimes affect bullet to bore alignment however this usually poses few problems and most hunters never witness adverse effects. The belt is certainly an unfortunate accessory. It serves no purpose other than to make the cartridge "look" like a magnum. The belt can cause feeding problems in rifles with an already poor feed design. The remedy for this is correct insertion of cartridges into the rifle magazine. When a magazine is filled, it is important to ensure each case is pushed back as far as possible before placing

another cartridge in the stack. With attention to practices, the belt soon becomes completely irrelevant and cycling is smooth and fast. It has been said that the belt helps thicken the primer pocket area and helps to maximize case life with warm hand loads. There is possibly a small amount of truth to this statement.

With 140 grain bullets, driven at velocities of between 3200 and 3300fps, the 7mm RM delivers extreme trauma on light bodied game out to ranges exceeding 400 yards. This bullet weight tends to lose its ability to produce wide wounding at ranges of around 650 yards. On heavily built medium game, the 140 grain bullet can produce somewhat less than ideal performance wounding and penetration may be adequate but results can be erratic.

Loaded with 150-154 grain bullets driven between 3100 and 3200fps, the 7mm RM is devastating on a wide range of game out to ranges sometimes exceeding 900 yards. This bullet weight is more versatile than the lighter 140 grain weight but is still somewhat limited on large heavy bodied medium game although wounding and penetration are more uniform. This bullet weight is best suited to game weighing less than 180 lbs.

The 160-180 grain bullet weights are the most versatile performers in the 7mm RM, providing bullet construction is matched to the targeted game. The heavy weight 7mm projectiles can be used on the lightest of game through to large game animals producing fast clean killing out to 1000 yards. On heavier game the 7mm RM is capable of producing adequate penetration but not wide wounding relative to body weight. For this reason if the 7mm is to be used on large heavy animals neck and head shots are the most humane means of obtaining fast kills. For ordinary chest shots, the .30 caliber and medium bores provide much broader wounding through vital tissues.

The 7mmRM produces mild recoil in medium weight rifles with straight recoiling stock designs. In light weight rifles or rifles featuring Monte Carlo style stocks recoil can be uncomfortable. It has been said that one of the goals of Remington in designing this cartridge was to duplicate the power and recoil levels of the .30-06 in order to ensure mainstream acceptance.

Barrel length is another concern; several manufacturers continue to produce 24" barreled magnums while optimum barrel length is 26" for normal use through to 28" for open country hunters and long range enthusiasts.

Hand loading

The most suitable powders for reloading the 7mm RM are the slow burn rates IMR4831, H4831sc, N165, RL22 through to H1000 and RL25. Brass for the 7mm RM is readily available and is produced by several manufacturers.

Hand loaded for a 24" barrel, maximum safe working velocities include 3250fps with 140 grain bullets, 3150fps with 150 grain bullets, 3100fps with 154 grain bullets, 3050fps with 160-162 grain bullets and 2900fps with 175 grain bullets and the 180 grain VLD. From a 26" barrel, velocities include 3320fps with 140 grain bullets, 3220fps with 150 grain bullets, 3120fps with 160-162 grain bullets and 2950fps with 175-180 grain bullets. As always and regardless of barrel length, individual rifles will show preferences, some producing best accuracy at higher pressures and other rifles producing optimum accuracy with low pressure charges

For dedicated long range hunters, best velocities are achieved with 28-30" barrels capable of pushing the 162 grain Amax at 3200fps or the 180 grain VLD at 3000-3050fps. Optimum twist rate for all bullet weights in the 7mm RM is 1:9".

Accuracy is of vital importance when working up a 7mm magnum load. Any gain in velocity over a standard cartridge will immediately be negated if the rifle will not shoot better at the extended ranges for which magnums excel. This applies not only to long range hunters but also to the hunter who expects clean killing at 300 yards. Poorly bedded rifles or rifles set up with unreliable optics produce abysmal results in the field, slow killing gut shots being the most common result and is not the fault of this caliber.

As with most belted magnums, neck sizing usually produces better accuracy than full length resizing dies. The only exceptions to this general rule are when reloading for rifles with minimum head space as well as semi auto rifles and unique action designs such as the Blaser rifle system. Not only do neck dies aid accuracy. They are also much quicker and cleaner to use than FL dies.

Closing comments

Personally, I believe that the 7mm RM is one of the very best cartridges available for western hunters. It produces high power at a recoil level that hunters can either tolerate or learn to tolerate. It is equally versatile in woods situations as it is at long range.

I often recommend the 7mm RM cartridge to clients; however it is not a good choice for less experienced shooters and better suited to intermediate experienced hunters. Nobody regrets buying a 7mm RM it can loaded fast, loaded for low recoil, loaded to produce minimum meat damage or loaded to produce maximum wounding for the fastest possible kills at extended ranges.

.300 WSM & 300 Win Mag

History

The .300 WSM was the first of Winchester's short magnum family, released in 2001. Remington released their 7mm and .300 short action ultra-magnums in the same year and a year later, Winchester released the 7mm and .270 WSM cartridges. Inspired by wildcat experimentations, The Dakota cartridges and especially the John Lazzeroni cartridges of the late 1990's, the WSM family of cartridges is loosely based on the .404 Jeffery case.

Brass for the .300 WSM was designed to withstand much higher pressures than traditional belted magnums, enabling the small case to either duplicate or surpass .300 Win Mag factory loads. The ability to utilize these high velocity factory loads without having to hand load was one aspect of appeal to hunters who adopted the .300 WSM. The most appealing factors of the .300WSM included the short, portable light weight rifles. Yet for many hunters, it was simply the appeal of a new cartridge design to enjoy and experiment with.

Initial loads from Winchester featured 150 grain bullets driven at 3270 to 3300fps and 180 grain bullets driven at 2970 to 3010fps, all running true to advertised specifications from the 24" barreled factory rifles. Olin (Winchester brand ammunition) furnished both highly frangible and extremely stout loads, offering a wide range of performance. The .300 WSM was introduced just as the overly stout Failsafe

projectile design was being phased out. For a short time, the .300 WSM was loaded with the 165 grain FS at 3125 and the 180 grain FS at 2970fps before been discontinued in favor of the Elite projectile for use on tough game.

The .300 WSM has grown in popularity since its introduction and of the many recent creations; this cartridge has most definitely proven to be a success. Shooters have enjoyed using the .300 WSM in a variety of configurations from ultra-light rifles through to heavy weight 30" barreled long range rigs.

Performance

The .300 WSM achieves what its designers intended, duplicating the velocities of the .300 Win Mag from a short, lightweight rifle platform. Generally, the savings in length are approximately 2.5" when using a 24" barrel as opposed to the optimal 26" barrel length for the .300 Win Mag. Nevertheless, there is no free lunch.

While several authorities have stated that the .300 WSM produces more moderate recoil than the larger .300 Win Mag due to the smaller powder charges, in practical terms the recoil level of the .300 WSM in a light weight platform is hefty enough to require highly disciplined technique in order to maintain accuracy at the long ranges where magnums excel. Still, where there is a need for intense weight savings when back pack hunting or alpine hunting, the .300 WSM offers optimum performance. The .300 WSM capable of driving all bullet weights at suitably high velocities to deliver fast killing on medium game at close through to truly long ranges- providing the shooter has no illusions as to the need for adequate personal shooting discipline and technique.

The small weight and length savings of the .300 WSM can be exploited further through the fitting of recoil reducing muzzle brakes or suppressors which ordinarily, on a long magnum, can make the rifle overly bulky. These rifle configurations can be immensely effective, being easier to shoot, allowing for minor changes of technique in the field, without drastic changes in point of impact.

CAUTION: It should be advised the adopting suppressors and brakes in the lax fashion is dangerous. Without close attention, both brakes and suppressors can be highly detrimental to accuracy and barrel life. Both suppressors and brakes can cause heavy carbon fouling which can decrease chamber dimensions, increase pressures and boost velocities over the course of a shooting session. Over barrel suppressors trap heat and during rapid fire with light weight barrels, ruin extreme velocity spreads. Winter developed hand loads can produce severe pressures in the summer during rapid/repeat fire. Muzzles can be completely destroyed via moisture condensing onto carbon deposits, causing severe corrosion (including on stainless steel) or in other instances, causing a swaged burr at the muzzle. Both brakes and suppressors are excellent, extremely useful tools but should always be utilized carefully. With either addition, the shooter must be vigilant with both cleaning and shooting methods.

In comparison to the .300 Win Mag, velocities are very similar between the two cartridges. In factory ammunition form, the .300 WSM is generally loaded to maximum potential.

With hand loads and using the heaviest of projectiles, the older Winchester Magnum can prove to be more potent, in some instances by as much as 200fps. Rifle to rifle variations do however muddy the waters. The WSM cannot really be accused of being a severely powder cramped design, even though powder capacity is heavily reduced when using long for caliber 208/210 grain projectiles, the WSM is able to achieve velocities of between 2650 and 2730fps, delivering excellent wounding potential out to moderate hunting ranges with controlled expanding projectiles as well as wide wounding out to, at the very minimum, 1000 yards.

Chambers of the .300 WSM factory rifles are generally configured with minimal freebore, minimizing bullet jump for optimum accuracy. Although custom rifles built on the M98 action (or custom re-barreling of the Tikka T3) can be utilized to increase COAL's in order to maximize powder space and velocities, a separate throating reamer must be used to increase the COAL rather than using the standard chamber design measurements.

300 WSM Hand loading

With hand loads it is difficult to exceed .300WSM factory velocities by any great amount. The .300 WSM achieves top velocities with powders in the 4350 and RL19 medium slow burning range while some rifles achieve better results with slower burning powders in the H4831sc, N165, RE22 requiring experimentation for best results.

From a 24" barrel typical velocities include 3500fps with 130 grain bullets, 3300fps with 150 grain bullets, 3100fps with 165-168 grain bullets, 3000fps with 180 grain bullets, 2800fps with 200 grain bullets, 2700fps with 208-210 grain bullets and 2600fps with 220 grain bullets.

This performance is very similar to the .300 Win Mag while using around 12 grains less powder and a 2" shorter barrel. The limitation as suggested earlier, occurs with heavy projectiles. The .300 Win Mag is quite often capable of driving 208-210 grain bullets at 2900fps, some rifles producing 2950-3000fps. Of course, lengthening the barrel of the .300WSM also helps improve velocities at a rate of 20-35fps.

It is worth noting that as hand loads for the .300WSM are increased to full potential, in light weight .300WSM rifles, recoil to both the shooter and rifle platform can have an overwhelmingly negative effect on accuracy. In such instances where accuracy cannot be achieved at full pressures, velocities should be lowered accordingly. To this end, it is quite common to find .300 WSM rifles producing best accuracy at velocities of around (for example) 2900fps with 180 grain projectiles, approximately 100fps below maximum potential loads.

Due to the fact that the .300WSM achieves similar velocities to the .300 Winchester Magnum, individual projectile performance can be sought within that text as well as being explored throughout the .30-06 text. The .300WSM hand loader is somewhat overwhelmed for choices when it comes to bullet selection, whether bush/woods hunting with the emphatic 180 grain Norma Vulcan, or trying core bonded bullet designs, to experimenting with the SST bullets or experimenting with the long range projectiles. One projectile that will be explored here before departing ways with the .300WSM, is the performance of the 208 grain Hornady A-Max.

The Hornady A-Max has a G1 BC of .648, well high enough for long range shooting. For intermediate experienced long range hunters, it is much easier to read wind and connect shots at impact velocities of 1800fps and above while for experienced 'wind readers', the A-Max can be expected to produce wide wounding down to 1400fps. At a mild velocity of 2600fps in the .300 WSM, the 208 grain A-Max breaks 1800fps at 650 yards and 1400fps at 1050 yards. From a full potential velocity of 2730fps, the A-Max breaks 1800fps at 730 yards and 1400fps at around 1140 yards. That's a big punch for a little case.

Closing comments

The .300WSM has been, without a doubt, a commercial success, boasting great power from a highly portable platform. The modern light weight rifles chambered in .300 WSM are especially ideal for those who climb high to hunt large bodied medium game. The .300WSM is also suited to those who work in low labor intensive industries, who struggle to maintain field fitness between hunts. Yet this portability

comes at a price. Light platform .300WSM's can be difficult to shoot, after all this is a potent magnum regardless of its visually small case size. It seems that with rifles and cartridges, there is never any free lunch. As always, a sound rifle platform, good shooting technique and matching bullet designs and bullet weights to game weights are the keys to success with the .300WSM.

.308 Winchester (7.62 NATO)

History

Due to industrialization, the First World War was dramatically different to all those before it. The main cause of casualties came from the widespread use of artillery. The second greatest cause of casualties came from the use of machine guns, based on Hiram Maxim's design. This new style of warfare forced millions of troops to dig trenches running parallel to their enemies. These trenches stretched some 473 miles across Europe.

In 1944, one year before the war's end, the US Ordnance Department under the direction of Colonel Rene R Studler reopened infantry rifle cartridge research at Frankford Arsenal. The major goal was to develop a selective fire rifle chambered for a cartridge that would give controllable recoil during fully automatic fire as well as a useful and generous effective range. Experiments were conducted exploring the feasibility of a shorter version of the .30-06. Starting with the .300 Savage cartridge as a base design, several prototype cartridges were developed over the next few years before arrival at the final cartridge design, prototype T-65. The T-65 had less body taper than the .300 Savage, in order to increase powder capacity while the shoulder angle was reduced from 30 to 20 degrees for ease of production. The case rim was thickened for added reliability during extraction and a longer neck gave superior bullet grip as well as increased case capacity. Outwardly, the cartridge appeared to be a shortened version of the .30-06 however in essence, the T-65 was a subtle blend of both the .30-06 and .300 Savage combined with further modifications. Along with military ballisticians, the U.S Repeating Arms Company (Winchester) was heavily involved in the development of the T-65. Today, with the Winchester brand having changed hands several times since the development of the T-65, it is difficult to identify to what extent Winchester influenced the final design. What is clear is that in 1952, Winchester applied and was granted permission from the Office of the US chief of Ordnance to standardize the T-65 commercially as the .308 Winchester.

The American military was not alone in efforts to develop a selective fire rifle and cartridge. British ballisticians had been submitting prototype 7mm cartridges to the British Armament design establishment, beginning in 1947. In 1949, the North Atlantic Treaty Organization (NATO) was formed between the countries of the commonwealth, several European countries and the U.S.A. As part of this alliance it was agreed that one military cartridge should be standardized for use by all parties. In 1950, Britain submitted for testing the .280-30 (7x43), firing a 140 gr 7mm bullet at 2595fps. The rifles submitted for testing included the Belgian FN FAL and the radically designed EM2 Bullpup. The U.S submitted the T-65 cartridge in a John Garand designed prototype of the M14 rifle and while the Belgian FN FAL did prove to be effective, the U.S carrying much weight in NATO, insisted the T-65 was the superior cartridge.

The 7.62 NATO cartridge did however survive within the U.S military, utilized in the M60 LMG for heavy suppressive fire and as a sniper cartridge. As a sniper cartridge, the 7.62 proved to be effective and was eventually standardized for all Allied sniper operations. In the U.S the 7.62 was housed in the Remington

bolt action rifle as the primary sniper weapon and utilized in the M14 as the secondary weapon carried by the spotter within a two man team.

Although the infantry service life of the 7.62 NATO cartridge was short lived in the U.S many commonwealth countries remained with the 7.62 NATO as late as the early 1980's. Countries such as England, Australia and New Zealand remained committed to the FNAL or obtained rights to its design, adopting the L1A1 SLR (Self Loading Rifle), capable of semi-automatic fire only. Eventually, the heavy FNAL at 4.45kg (9.79lb) unloaded was replaced with rifles using the 5.56 (.223 Remington) cartridge.

Presently, the 7.62 continues to see use as a sniper cartridge. This cartridge has a huge following within the military and many incredible feats of marksmanship have been achieved with the 7.62 over the last 5 decades. The 7.62 is still used for heavy suppressive fire in LMG rifle designs but is these days considered less versatile than a squad automatic weapon (SAW) chambered in 5.56.

Since its adoption as a hunting cartridge, the .308 Winchester has become a best seller worldwide. The .308 has proven to be a powerful effective game killer and combined with readily available sporting ammunition and cheap surplus military ammunition and rifles of every conceivable design the .308 Winchester is one of the most popular cartridges of our time.

Performance

The .308 is a highly effective medium game cartridge, supported by a huge range of ammunition and projectile designs that enable it to achieve optimum performance at varying ranges and on varying body weights.

Loaded with conventional soft point bullets, many bullet brands lose the ability to produce hydrostatic shock at impact velocities below 2600fps and in such cases, dead running game can be a common occurrence when using the .308 at ranges beyond 50 yards. In fact with some bullet brands, it's as if a magic button has been switched off right at the 2600fps mark. Several bullet brands do however have the ability to produce hydrostatic shock (instant collapse) of game down to velocities as low as 2400fps, depending on target resistance and relevant factors. Regardless, hunters can manipulate speed of killing by matching bullet construction to the game and in this caliber, there are some excellent options, capable of extremely fast killing via wide wounding. The 2600fps parameter and the gradual reduction in shock with conventional SP bullets below this velocity are common throughout the small bores, up to the .338 caliber.

In the .308, actually all bores 7mm and above, a simple rule of thumb for best results on deer is to use either a bonder grain bullet or, a soft heavy bullet, as a means to effect wide wounding combined with adequate penetration. This may seem an overly simple rule but it can be used with great success prior to load selection. Of course dangerous game would call for a different approach.

The .308 can be loaded with 110 to 130 grain bullets and used with great results on varmints and light bodied game however; heavier bullet weights can in many cases give better results than their lighter counterparts regardless of reductions in muzzle velocity. In this regard, light bullets are often better utilized, down loaded, for training new hunters.

Loaded with 150 grain bullets, the .308 is immensely effective across a wide range of game species. Hunters have a choice of fast expanding through to stout, deep penetrating projectiles. This bullet weight can be used to produce clean kills on medium game out to ranges of around and exceeding 600 yards.

The 165 to 168 grain bullet weight in .308 is, generally speaking, somewhat more effective on heavy game, than on light bodied game. Performance of this bullet weight can be altered by matching bullet construction to the job at hand. Soft rapid expanding bullet designs work extremely well on a wide variety of game while the vast range of semi controlled expansion projectiles work well on tough animals.

One of the greatest virtues of the .308Win comes as a result of the carefully developed case design. The cartridge can be loaded to quite high velocities and without any great difficulty in obtaining accuracy. Initially, the .308 was loaded with Win 748 ball powder which optimized performance in 20" military barrels. Sporting ammunition followed suit but only for a time. Today, factory ammunition features rather slow burning stick powders, limiting the performance of the .308 in 20" barrels. Hand loaders can obtain excellent velocities with or without W748 by careful load development.

The .308 is often compared to the .30-06 Springfield, specifically, the ability of the .308 to duplicate the larger cartridge's performance. Using modern powders the .30-06 remains more powerful than the .308 producing on average 150fps greater velocity.

Although military ammunition works well in sporting rifles, using sporting ammunition in military rifles is usually not recommended. 7.62 NATO ammunition is loaded to a maximum average pressure of 50,000psi and proof tested at 67,000psi. For reliable feeding in the field, military 7.62 NATO rifles have oversized chambers and military brass is made thick to allow expansion to the chamber walls without cases splitting. The sporting .308 ammunition is made to the same sized outside dimensions as military case but lacks the thickness of brass to flow and fill a loose military chamber with the possibility of split or ruptured cases as a result. Commercial hunting ammunition can be loaded up to 62,000psi. Incidents of sporting ammunition rupturing in military rifles are rare considering commercial ammunition is not usually loaded to high pressures.

Hand loading

The .308 is one of the simplest and cost effective cartridges to work with and the choice of reloading components is endless. In 20" barreled rifles fast burning powders such as H4895 are far better performers than the more traditional powders. Win 748 ball powder is good after all it was designed for the .308 and short military barrels. In longer barreled rifles (24-26") IMR 4064 and Varget burn rates come into their own.

Closing comments

The .308 Winchester is an incredibly versatile cartridge for its size. Competitive shooters enjoy it, woods hunters can utilize heavy or premium bullets, capable of producing fast emphatic kills with raking snap shots. Open country and long range hunters also have access to excellent, fast killing bullet designs. Highly effective factory ammunition is readily available, hand loading components are abundant and the cartridge is easy to load for optimum accuracy. On top of this, recoil is mild, especially from medium weight platforms.

In more recent years, the .308 has seen a revival amongst civilian shooters, based on the fascination of the .308 as a military sniper cartridge. This new direction is, for the most part, positive in that it encourages good marksmanship. The .308 is certainly enjoying great popularity and will continue to remain popular for many years to come. And why not, the .308 Winchester really is a great cartridge.

