6.5x55

History

During the muzzle loading era, the most common bore diameters in Europe ranged between 17 and 18mm. With the development of the brass case cartridge and breech loading rifle, ballisticians also began experimenting with smaller bores. The 15mm bore diameter appeared during the 1850's and by the 1870's, 10 and 11mm cartridges were very much in vogue. The next major discovery was smokeless powder, this new powder created higher velocities, which in turn gave rise to the possibility of using even smaller bores.

In 1886 Colonel Nicholas Lebel of France created the first smokeless small bore cartridge, the 8mm Lebel. At this time, France was under the influence of a power hungry war monger, General Boulanger. The advantages of the Lebel cartridge in the hands of the French immediately struck terror throughout the rest of Europe. Some countries panicked and attempted to rework their existing weapons. Paul Mauser of Germany took a longer view and in 1888 produced the 7.92 (8x57). It was the first smokeless rimless cartridge and its design was so well thought out that it went on to become the parent of our most popular modern cartridges. Nevertheless, both Mauser and other industrious groups continued to experiment with various bore diameters, the most cutting edge developments produced by Swiss researchers.

The Italian military had acted very rashly in the face of Lebel's invention and had lost a lot of money trying to upgrade existing arms. It was the decision to start afresh using the latest available technology that led the Italians to Professor Freidrich Hebler of Switzerland. Hebler had been experimenting with 6mm and 6.5mm caliber bores. The Italians were impressed and decided to adopt a 6.5mm caliber cartridge. The Italian military then began looking for parties interested in designing a suitable rifle for the new caliber. 45 'contestants' entered the competition and of these, two contractors Paul Mauser and Ferdinand Ritter Von Mannlicher, were supplied with prototype cartridges and barrels. Only Mannlicher succeeded in a limited capacity with his magazine design, the Italians used this design while Italian Lt Col Salvatore Carcano was responsible for designing the rifle. The pyrotechnic laboratory of Bologna redesigned Hebler's prototype 6.5mm rimmed cartridge based on a rimless case. In 1891 the Modella 91 Carcano rifle chambered in 6.5x52 was born. Many of these rifles have survived to the present day and are often referred to as Mannlicher Carcano's. The original military load featured a 162 grain bullet at 2300fps (30" barrel).

The next Countries to adopt the 6.5mm bore diameter were Norway and Sweden. The 6.5x55 cartridge was initially designed during a joint Norwegian-Swedish commission. Norway officially adopted the 6.5x55 in 1894. But for whatever reasons, history seems to have forgotten Norwegian involvement as well as the 6.5x55 Krag even though over a quarter of a million rifles were produced in Norway. Furthermore, to the dismay of modern Norwegian hunters and historians, the 6.5x55 is today known as the 6.5x55 Swedish Mauser.

Sweden looked to Paul Mauser for a rifle design to house the 6.5x55. Mauser's newest rifle, the M93 (1893) chambered in 7x57 had just been sold in great numbers to the Spanish military. This rifle was a culmination of Paul Mauser's 22 years as a rifle designer and all of it's features were of his own design. Sweden decided to adopt the M93 design and in 1894 the Karbin M94 in 6.5x55 became Sweden's military rifle.

Between 1894 and 95 Mauser Werkes produced 10,000 M94 carbines (using Swedish steel) before Sweden's Carl Gustaf factory took over production. In 1896 a much longer rifle was released with a 29" barrel over the original carbines barrel length of 18.5". This model was designated the Gevar M96 and some 40,000 were made by Mauser Werkes between 1896 and 1899 while the Carl Gustaf factory produced 445,000 between 1898 and 1925. The next version of this rifle was the M38 manufactured by Husqvarna. The M38 featured a 24" barrel and micrometer adjustable rear U notch sight. Type 1 M38's were converted M96 rifles while type 2 M38's were newly built rifles.

Swedish Mauser rifles were built and inspected to incredibly high levels of workmanship. The Mauser design was also capable of handling greater pressures than the Krag. All inspected parts received a stamped crown for approval or an X if the part failed inspection and was to be scrapped. Horizontal crowns meant the part was made by Mauser or Carl Gustaf while tilted crowns denoted parts made by Husqvarna. Most rifles were proof tested and the inspection mark for this is a crown stamped on the left of the receiver beside the serial number or on the rear sight of Husqvarna rifles.

Military 6.5x55 ammunition was loaded to a pressure of 3200 ATM which converts to 47008psi. Proof loads developed between 4000 and 4500 ATM which converted (x14.69) give pressures of between 58,760psi and 66,000psi. The original m/94 military load featured a 10.1 gram (156 grain) round nosed bullet which achieved 725m/s (2378fps) in the 29" barreled m/96 rifle, 700m/s (2297fps) in the 24" m/38 rifle and 655m/s (2149fps) in the original 18.5" m/94 carbine. The first pointed bullets were tested between 1910 and 1920 in experimental rifles, the final load appeared in the M/41 sniper rifle and used a 9 gram (139 grain) pointed bullet. This load quickly proved itself superior to the former and in 1944, the 9 gram load replaced all of the previous M94 designated ammunition. The M/41 load achieved 793 m/s (2601fps) in the 29" M/96 barrel, 768 m/s (2519fps) in the 24" m/38 barrel and 730 m/s (2395fps) in the18.5" M/94. Many Swedish rifles still bare a brass disc on the butt which helps tell the user which ammunition the rifle was sighted in for, its zero - and the condition of the bore since its last inspection.

After WWII, Sweden adopted newer self loading rifle designs and released the Swedish Mauser to the civilian market. It is at this point that the 6.5x55 cartridge became known as the 6.5x55 Swedish Mauser or simply the 6.5 Swede. The 6.5x55 offered hunters worldwide the same virtues it had provided the military with; high quality, adequate power, excellent accuracy combined with low recoil. America mostly received the carbine M94 rifles while the longer rifles made it as far as Australia and New Zealand where they remain popular to this day. Having limited knowledge of the Swedish Mauser, American ammunition companies kept sporting loads for the Swede to extremely low pressures. Such loads perform adequately at close ranges, under 50 yards, but are left wanting at further ranges.

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In Europe, the 6.5x55 remained popular for several decades, helped to a great extent by the Norma Ammunition Company of Sweden who loaded the 6.5x55 to full pressures. Nevertheless, by the mid 1990's, the 6.5 had lost a great deal of its popularity to the 'modern' European favorite, the .30-06 Springfield, the larger cartridge being immensely superior when used on Moose.

Walter Bell and the 6.5 Mannlicher Schoenauer

After Sweden adopted the 6.5x55 and having had first hand experience with the 6.5x52 Carcano, Austrian designer Ferdinand Ritter Von Mannlicher went on to design both the 6.5x54 cartridge and Mannlicher rifle, adopted by the Austrian and Greek military in 1900 (1900-1940). The sporting version of this rifle was released in 1903 in the form of the famous Mannlicher Schoenauer. A true carbine at just 6 and a half pounds and 38 inches (97cm) overall, the smooth feeding Mannlicher is a highly sought after rifle today. From the short 17" barrel the 6.5x54 fired a 160 grain bullet at a velocity of 2330fps. The Mannlicher Schoenauer became an instant hit with European hunters and was a favorite of Walter Bell who used 160 grain solid projectiles on a great number of Elephant. The success of the Mannlicher Schoenauer was attributed to the rifle's quality - giving outstanding accuracy along with low recoil. From 1910 the Mannlicher Schoenauer was sold fitted with a scope which aided accuracy further.

Unfortunately, accuracy aside, many hunters died using the 6.5x54 Mannlicher Schoenauer in Africa after being gored by wounded dangerous game. Unless the CNS was struck directly, the 6.5x54 produced slow kills on dangerous game.

The 6.5x54 Mannlicher and 6.5x52 Carcano rifles were very similar in chamber and bore dimensions. In fact both held loose dimensions enabling both cartridge types to be fired in either rifle. Groove diameters in either rifle could be as wide as .269" (6.8mm). In recent years, this has posed varying degrees of accuracy problems for reloaders using .264" caliber projectiles. Typical velocities when hand loading for the 27" barreled 6.5x52 Carcano are 2600fps with 120 grain bullets and 2400fps with 140 grain bullets. The 6.5x54 hand loaded and fired from the short Mannlicher carbine gives velocities of 2500fps and 2300fps with 120 and 140 grain bullets respectively. Recently Hornady released a 160 grain .268" round nosed projectile, enabling reloaders to optimize accuracy when using these older rifles. Conservative velocities when hand loading this bullet are 2200fps in the 6.5x52 M91/41 27" barreled Carcano and 2100fps for both the 6.5x52 Carcano and 6.5x54 Mannlicher carbines.

Performance

The 6.5x55 has generated a huge amount of interest throughout the world since the influx of surplus military rifles became available on international markets. Articles relating to the Swede appear in every gun magazine yet there is still a lot of misinformation over the performance of the 6.5x55 on game. Authorities state that the Swede is useful for all game up to the size of Moose with its long for caliber bullets giving deep penetration. Comments have also been made that beyond 200 yards the Swede ballistically out performs the .270 while giving less recoil. In truth, the Swede is a rather modest performer. With factory ammunition, performance is generally in the same class as the .30-30. Wounding is slightly narrower than the .30-30 but penetration is usually deeper. The trajectory of factory ammunition is poor.

With light 120 grain bullets hand loaded to between 2900 and 3000fps, the Swede is a fast killer on lighter medium game. Most 120 grain bullets produce shallow penetration therefore this bullet weight is not particularly well suited to larger bodied game unless using the 120 grain Barnes TSX or XLC.

The hand loaded 130 grain bullet weight is neither fish nor fowl. It has neither the high SD's and BC's of the 140 grain bullet weight or high velocity achieved from hand loaded 120 grain bullets. Performance is identical to budget .270 Winchester factory ammunition at 2900fps.

The 140 grain bullet is the most versatile bullet weight in the Swede. Hand loaded to between 2750 and 2800fps, this combination produces the best balance of wounding versus penetration. Nevertheless, regardless of high BC's and SD's, the Swede can be a slow killer at ranges beyond 200 yards. Conventional projectiles, regardless of SD, often fail to produce deep penetration. The 6.5x55 is simply not in the same class as the .270 which it is often compared to, regardless of hype.

At ranges beyond 200 yards, the hunter should aim to break the foreleg bones of game. Both rear lung and neck shots often result in very slow killing at extended ranges. With care to shot placement, the Swede gives excellent results, so much so that it is all too easy to become lulled into a false sense of security. It is therefore not unusual to have a string of successes followed by an abysmal failure after neglecting the above mentioned shot placement.

A sporterised and scoped Swedish Mauser weighs between 8 1/2 and 9 pounds which makes for extremely balanced shooting. The stout barrels of these rifles can handle repeated firing and if properly bedded and free floated will continue to give acceptable accuracy up until the point where the shooter can no longer see through the heat mirage coming from the barrel. For younger hunters it is important to make sure the stock of a sporterised military rifle is of the correct fit or else felt recoil will be noticeably enhanced. For those not wishing to go to the trouble of reworking the military rifle; there are several factory rifles to choose from including Sako, Tikka, CZ, Blaser as well as the occasional U.S design.

Factory Ammunition

For many years, Norma produced two loads for the 6.5x55, the 139 grain Vulcan at 2850fps (29" barrel) and the 156 grain Alaska at 2559fps. Both of these loads were used successfully on Sweden's Moose but this deserves an explanation. Firstly, the popularity of the 6.5x55 in Sweden came from the availability of cheap surplus rifles. Secondly, the 6.5x55 has mostly been used by farmers and lower income earners but has otherwise been superseded by more powerful cartridges.

When Norma designed projectiles for the 6.5, some 600 Moose were shot and autopsied which allowed Norma to conclude that flat point bullets deliver the most shock. The resulting flat pointed Vulcan and Alaska were ballistically suited to the Swedish woodlands where shots typically occur under 150 yards. Unfortunately the poor ballistic coefficients of both of these bullets make them highly susceptible to wind, drop and energy loss at the ranges they are used at in America, Australia and New Zealand. At close ranges, these bullets perform extremely well on medium game and offer immediate shock transfer on even the lightest animals. On Moose, death usually occurs after a run of up to 300 meters.

Norma have recently revised the loadings for the Swede, removing the once popular 139 grain Vulcan load. Current loads include the 120 grain Nosler Ballistic Tip at an anemic 2822fps, the 140 grain Nosler Partition at an equally poor 2690fps and three styles of 156 grain bullet, the Vulcan, Oryx and Alaska, all at 2560fps. The Vulcan is a flat point crimped nose conventional style projectile and as mentioned, is an excellent game bullet for close range hunting. Performance is nevertheless limited by low muzzle velocities. The Alaska is a basic conventional round nose soft point while the Oryx is a core bonded projectile which in the Swede, produces a narrower wound than either the Vulcan or Alaska but gives deeper penetration. Both of the Nosler projectiles are extremely good performers but again, are limited by the mild muzzle velocities.

U.S ammunition brands are typically very poor performers. True velocities from 22 to 24” barrels for Winchester, Federal and PMC 140 grain loads run between 2400fps and 2450fps. At close ranges, these velocities cause little disruption to conventional bullets on impact, giving up to 80% weight retention and outstanding penetration on medium game. That said beyond 50 yards these brands of ammunition offer very poor shock and slow kills are common.

Hand Loading

The 6.5x55 is a cartridge that is best utilized with hand loads. The Swede prefers powders in the medium slow to slow burning range such as H4350 (ADI 2209) and H4831sc (ADI 2213sc). For this reason the cartridge gains optimum performance in a 24" (600mm) barrel. All ex-military rifles have a 1:7.5 twist barrel and obtain best accuracy with bullets weighing between 140 and 160 grains. Most military rifles give acceptable accuracy with lighter 120 grain bullets out to 300 yards but very few will give sub MOA accuracy. Modern production sporting rifles such as Sako and Tikka fair a little better due to slower twist rates.

On average though most 24" barreled rifles will give 2950fps with 120 grain bullets, 2750fps with the 140 grain bullet weight and 2500fps with heavy 160 grain bullets. The 140 grain bullet can be driven to a velocity of 2700fps in 20” barrels with careful load development but does lose power at the carbine length of 18.5”. Furthermore, it is quite possible to drive 120 grain bullets at 3000fps and the 140 grain bullet weight at 2800fps from 24” barrels with long case life, using either of the above powders and careful load development.

There are a vast range of projectiles for the 6.5mm fan to choose from. The most in-expensive are the 120 and 140 grain Remington Core-Lokt projectiles. The 120 grain bullet is dynamite on lighter game. It opens quickly and mushrooms to a huge diameter, vitals are jellified at close moderate ranges. As can be expected, the huge frontal area of the 120 grain CL does not allow it to penetrate well on larger animals. The most reliable conventional bullet in the 6.5mm caliber is Remington's 140 grain Core-Lokt which opens fast but retains a good shank for deep penetration.

The 140 grain Core-Lokt is the toughest of the conventional cup and core type projectiles yet does not suffer any loss in wounding potential. The only limitations of the Core-Lokt bullets for use on medium game are the low BC’s of .323 for the 120 grain CL and .435 for the 140 grain bullet, these simply are not great long range bullets. As an example, from a muzzle velocity of 2750fps, the 140 grain CL retains only 2200fps at 275 yards which is detrimental to wide wounding. Wounding becomes narrower again as the CL approaches 2000fps at around 375 yards.

Sierra bullets include an 85 grain HP, a 100 grain HP, the 107 grain MatchKing, the 120 grain MatchKing (BC .430), the 120 grain Pro-Hunter (FBSP), 123 grain MatchKing (BC .510), the 140 grain MatchKing (BC .535), the 140 grain GameKing, the 142 grain MatchKing (BC .559), the 155 grain MatchKing (BC .570) and lastly, the 160 grain semi point Pro-Hunter.

Unfortunately, the MatchKing bullets are erratic performers on game. Results are always 50/50, sometimes the SMK will expand and fragment, other times it will produce pin hole wounding. Hunters often become enamored by the high BC’s inherent in the SMK line of bullets but do not take into consideration the potential for slow killing. If the SMK is to be used for game hunting, it is imperative that it is driven into a medium that offers optimum resistance. For example, the 123 grain SMK should be used on game weighing between 40kg and 70kg (90-154lb), the 140 to 155 grain SMK bullets can be used on deer weighing between 80 and 150kg (180-330lb).

On tough game such as Boar, the 140-155 grain SMK bullets can be used on both light through to larger body weights. In this instance, the SMK becomes quite useful as an intermediate long range / tough medium game bullet. Again, it must be reiterated that the SMK is unpredictable so while it normally produces a wide, extremely violent wound channel on wild pigs, it cannot be relied on to do so every time. To some extent performance can be enhanced by annealing the ogive of the SMK, as one would anneal brass in a shallow tray of water, in this case having the ogives above the water line and heated with a gas torch. Candle flame annealing (see 7mm Rem Mag) produces good but not 100% reliable results with the SMK. The choice of whether to use the SMK as a game bullet is ultimately a personal one. The hunter must weigh the benefits or strengths against potential weaknesses and limitations. The 6.5 caliber SMK’s do have an advantage over heavier SMK bullets such as the 168 and 175 grain SMK projectiles which, due to increased momentum, need quite a tough medium to initiate fragmentation.

Sierra’s 85 and 100 grain HP bullets are designed for varminting. These can be used on lighter medium game but due to low BC’s, low SD’s and low weight, tend to be far less emphatic killers than 120 to 140 grain bullets. Most ex-military Swede’s will not shoot the 85 grain bullet due to stability lost during the long bullet jump combined with excessive yaw induced via the fast twist rate. The 100 grain HP can sometimes be coaxed to produce groups of around 1” at 100 yards in Swedish Mausers.

The 120 grain Sierra Pro-Hunter was once a popular, inexpensive, light game projectile. Performance is certainly nothing to rave about, penetration is fair on light bodied animals, wounding is thorough but not spectacular and with a BC of .356, the Pro-Hunter sheds velocity fairly quickly. This is a basic cup and core projectile which kills in a no fuss manner.

The 140 grain GameKing is a highly frangible bullet. There was a time when western hunters had a choice between this and the 140 grain Interlock while the 140 grain Partition was considered a special occasion bullet, seldom being employed. The GameKing produces slightly wider wounding than the Interlock due to its explosive nature. This bullet is best suited to game weighing no more than 60kg (130lb) although it will handle cross body shots on game weighing as much as 80kg, especially at ranges beyond 150 yards. This is a good open country bullet for light game species. On heavy bodied deer and especially wild pigs, the GameKing lacks the construction needed for emphatic kills, especially at awkward angles. By the same token, internal wounding after fragmentation is not as wide as wounds produced by the 140 grain A-Max. On tough animals, the GameKing can sometimes produce very slow kills, resulting in lost animals. Readers are urged to be wary of both the GameKing and Interlock in this regard.

Sierra's heavy 160 grain semi pointed soft point Pro-Hunter sits in no man's land and sales of this projectile tend to be poor. The Pro-Hunter has an excellent jacket design; capable of good penetration on medium sized deer yet is handicapped by a poor BC of .353 which limits its usefulness. The 160 grain SMP is designed as woods hunting bullet and is quite capable of anchoring large bodied game weighing up to 150kg with ease. On heavy medium game such as Elk, the SMP penetrates equally well but wounding potential is limited firstly by low muzzle velocities and secondly, by rapid loss of velocity due to the low BC. Sierra would do well to produce a 160 grain GameKing and fully pointed Pro-Hunter counterpart, though it would be best suited to the .264 Win mag.

The Hornady range of 6.5mm projectiles include, the 95 grain V-Max, the 100 grain soft point, the 120 grain A-Max, the 129 grain Interlock soft point, the 129 grain SST, the 129 grain InterBond, the 140 grain soft point Interlock, 140 grain SST, 140 grain A-Max, 140 grain BTHP Match and finally, the 160 grain round nose Interlock.

Hornady's 95 grain V-Max and 100 grain SP are both designed for varminting and like the lightweight Sierra bullets, can be used on light bodied medium game but results are far less emphatic or dramatic than heavier offerings, regardless of potentially high muzzle velocities.

The 129 grain Interlock is an adequate lighter medium game bullet but like so many conventional bullets for the Swede, is fairly lack luster in killing. Kills out to moderate ranges tend to be fast, wounding is adequately broad, and the Interlock is relatively inexpensive to obtain. In theory, the higher speed obtainable with the 129 grain Interlock and its lower momentum has the potential to initiate broader wounding than, for example, the 140 grain Interlock. In practice, the lighter 129 grain grain Interlock shows no advantage.

The 129 grain SST is immensely popular at present. This projectile produces explosive wounding and remains effective out to distances of around 500 yards or 2000fps, quite a feat for a stout jacketed projectile. BC is .485 while SD is .264. This is a good light medium game bullet, effective on body weights up to around 70 (154lb). The 129 grain SST can be pushed to work on larger animals but is not an optimal choice. The 129 grain InterBond is far more reliable in this regard.

The 129 grain InterBond is suitable for light through to medium body weights of up to 90kg (200lb). On game heavier than 90kg, the power level of the Swede is the limiting factor as opposed to the InterBond bullet design. The InterBond can be used on game weighing as much as 150kg however kills are never as emphatic as such cartridges as the .270/.264 Win Mag, which yield far greater velocities for broader wounding. The InterBond does its best work inside 180 yards (2600fps), can produce slightly delayed but nevertheless clean killing out to 300 yards (2400fps), gradually losing its ability to produce wide wounding thereafter.

The Hornady 140 grain Interlock received a lot of bad press in earlier years for giving narrow wound channels and it has often been suggested that the 6.5mm Interlock is too stout and best suited to the .264 magnum. This could not be further from the truth. At close range, the Interlock sheds its frontal area very quickly as well as losing a great deal of weight (usually over 50%). In some instances, especially on stout or large bodied deer, the 140 grain Interlock disintegrates altogether. At 50 yards the Interlock lacks enough retained weight or SD to exit the rib cage of 70 to 90kg animals hit through the shoulder. At 200 yards the Interlock is limited by the power of the Swede and lacks the momentum required to penetrate the shield of a mature boar and reliably destroy the vitals. Instead, the 140 grain Interlock finds its strengths on light game, just like its competition, the 140 grain GameKing, ideal for game weighing between 15 and 60kg (up to 130lb).

Both the 129 and 140 grain Hornady SST projectiles have lifted the wounding performance of the Swede dramatically, to levels never seen before. Both of these projectiles are prone to jacket core separation and of the two, the 140 grain SST is at least, slightly more delayed in this action as well as producing potentially larger fragments if separation occurs. BC of the 140 grain SST is a very high .520.

Annealing the 6.5mm SST (see 7mm Rem mag) does not seem to give any great improvement. For game weighing less than 80kg (180lb), the 140 grain SST, regardless of jacket core separation, gives deep, broad wounding. This is an excellent all-round bullet for the Swede when used on small to medium sized bodied deer species.

For longer range hunting using the swede, no other bullet can compare to the performance produced by the Hornady 140 grain A-Max. This bullet is best suited to lighter bodied deer under 80kg (180lb) and gives optimum results at impact velocities below 2600fps (beyond 75 yards) which allows the A-Max to shear into large fragments rather than smaller, less lethal particles. Wounding caused by the A-max at ranges of between 300 and 400 yards is such that both exit wounds and bleeding from exit wounds can be easily observed through the hunter's scope. The A-Max has a BC of .550 and produces wide wounding for clean, extremely fast killing out to 500 yards (2000fps), continuing to produce adequately wide wounding at 1800fps, out at the 600 yard mark.

Hornady's heaviest bullet is the 160 grain round nose Interlock. This is a soft, fast expanding bullet designed for woods hunting. Regardless of its high SD of .328, the Interlock is limited in performance and best used on light to medium weight animals if deep penetration for typical raking or woods shots is to be expected.

The Speer range of projectiles include the 90 grain TNT Varmint, the 120 grain Hotcor, the 140 grain Hotcor and 140 grain Trophy Bonded Bear Claw.

The 120 grain Speer Hotcor is best suited to light game. Although the jacket and core are lightly bonded, the Hotcor suffers occasional jacket/core separation when striking the major bones on medium sized animals. Performance is best described as mild, wounding is thorough, and penetration is adequate on game weighing less than 60kg/130lb. Terminal performance of the 140 grain Hotcor (BC .498) is best described as modest; wounding is thorough and uniform while penetration is adequate for light to medium sized deer at varied angles. Unlike the Interlock, the 140 grain Hotcor is less prone to suffer early jacket core separation when used on tough animals such as wild Boar. The Hotcor is an acceptable all around medium game bullet producing fast kills at impact velocities above 2400fps or 200 yards, clean but occasionally delayed kills as velocity approaches 2200fps (310 yards), gradually losing its ability to produce wide, fast bleeding wounds beyond this range.

The 140 grain TBBC is as can be expected, a very tough bullet, best suited to tough game. As is quite often re-iterated in the small bore texts, this type of bullet cannot be expected to produce wide wounds on large, heavy bodied animals due to the limitations of the caliber, not the bullet design. When using the TBBC on tough game, the bullet should be directed into major bone. Penetration is assured as is clean killing - providing the hunter works to the strengths of the TBBC design.

Nosler currently produce a vast range of 6.5 calibre projectiles including the 100 grain Ballistic Tip, the 100 grain Partition, the 120 grain Ballistic Tip, the 125 grain Partition, the 130 grain Accubond, the 140 grain Partition a 140 grain Match BTHP.

Nosler's 100 grain bullets are not ideally suited to ex-military Swede twist rates and along with this, as previously stated, 100 grain 6.5 caliber bullets do not produce the spectacular performance hunters expect due to low BC's and SD's. The 120 grain BT (BC .458) is perhaps the most violent light weight bullet available for the 6.5x55. Wound channels are immensely broad and kills are extremely fast. Bullet blow up is a given out to moderate ranges and due the limited start out weight, this projectile is best suited to lighter animals weighing less than 60kg (130lb). The 120 grain BT tends to retain its ability to produce dramatic wounding out to ranges of around 250 yards, producing wide but less violent wounding as velocities approach 2000fps or 500 yards.

The 125 grain Partition (BC .449) is simply outstanding. This is a good medium game bullet for deer weighing up to 80kg (180lb). The new 130 grain Accubond (BC .488) is another excellent performer. That said, due to the core bonding, wounding is never as explosive as the traditional Partition. The Accubond is perhaps better where maximum meat retrieval is a major concern. This projectile is also well suited to game weighing up to 80kg.

The 140 grain Partition is without a doubt the most effective all around projectile for the Swede. Nothing else comes remotely close. This is a bullet that time after time, produces a deep, broad, violent wound resulting in fast kills. The Partition exits medium game at speeds fast enough to ensure complete disruption of vital organ pressures. Light and lean or large and tough, this is the go to bullet in the Swede, reaching its limit (wide wounding) on game weighing around 150kg (330lb) although it is adequate for use on Elk - unless you are sold on the idea that 450kg (1000lb) body weights are what the Swede was designed for. Wounding is wide down to velocities as low as 2200fps (310 yards) becoming moderate as velocities approach 2000fps or 430 yards. For those who use the Swede and have not hunted with this bullet, try it. The Partition should be driven into the major bones of the forwards chest cavity on game of all weights, not because of the bullet design but due to the power limitations of the Swede. Used this way, the Swede is brought to optimum performance.

Barnes bullets include a 110 grain solid, the 120 grain TSX, 120 grain Tipped TSX (untested at this time of writing), the 120 grain coated XLC bullet, the 130 grain TSX, 130 grain solid and 140 grain XLC. Both the 110 and 130 grain solid boat tail bullets are designed for fur/hide retrieval.

Every once in a while, during the course of testing for this knowledge base, a cartridge and bullet combination come together in such a way as to produce unique results. This is certainly the case with the Swede and 120 grain Barnes TSX and especially TTSX bullets. These 120 grain bullets have a long bearing surface, ideal for the fast twist rate of the Swede, producing optimum accuracy. The fast twist rate and fairly high muzzle velocity of the Swede combined with the blender blade style Barnes produce a result that, to be blunt, is best described as vicious.

The 120 grain Barnes bullets (BC .381) will take medium sized game end to end with tail on shots as well as giving fast kills during this process. Wounding at close ranges is fierce and wound channels at ranges of between 250 and 300 yards remain very broad if major bones are encountered. This load is perfectly balanced for use on all game up to the size of Elk, again with attention to shot placement due to limitations of the caliber. Wide wounding tapers off after 300 yards (2200fps) and this is the one caveat with these bullets - they are not fully consistent in action. The Barnes bullets need both velocity and or a measure of body weight resistance in order to produce wide wounding. The use of a light bullet such as the 120 grain weight also helps to enhance energy transfer. But if rear lung shots are taken at ranges of 250 yards and beyond, or if the range is simply too long- all bets are off. At extended ranges, the Barnes bullets simply cannot create wide wounds.

The heavier 130 and 140 grain Barnes bullets are better suited to large, heavy animals where deep penetration is a most critical element. To some extent the 140 grain Barnes (BC .522) is capable of penetration beyond the wounding capacity of the Swede. The 120-140 grain Barnes bullets usually retain exactly 100% bullet weight as 6.5 velocities are not high enough to cause petal damage. Bullet frontal area after penetration is normally around 16mm (for all 6.5 Barnes bullets). At impact below 2200fps, wound channels in the absence of hydraulic shock are 16mm accordingly, the wound being similar to but smaller than a broad head arrow.

Swift produce three projectiles for the Swede, the 120 grain A-Frame, 130 grain Scirocco and 140 grain A-Frame. All are very sound, reliable projectiles. Performance of the A-Frame is very much in line with the Partition, though not quite as violent. The Scirocco is similar to the Accubond and InterBond and IB upon impact which is extremely desirable for the initiation of hydrostatic shock. BC of the 130 grain Scirocco is an incredibly high .571.

Berger produce two long range hunting bullets, the 130 grain VLD (BC .552) and 140 grain VLD (BC .612). Between the velocities of 2400fps and 2000fps the VLD projectiles produce huge wound channels on light bodied game due to the fully annealed, fragile jacket materials. On larger bodied medium game, light weight small bore VLD bullets can sometimes fail to produce both deep and broad wounding. To some extent, the A-max is better in this regard as it shears into large fragments rather than small particles. The 6.5 VLD projectiles are certainly excellent performers but as is the nature of the 6.5, bullet weight and construction must be matched to the job at hand.

Already discussed is the performance of the 139 grain Vulcan bullet. On test medium consisting of compacted wet newsprint, the shock transfer of the Vulcan causes blow back at the point of entry which forces the surface of the medium into a volcano shape. Wounding on game is just as thorough. That said, spectacular as the Vulcan is, it does not give the penetration one would expect of a Moose cartridge and is more akin to conventional projectiles, especially the Remington Core-Lokt. The Vulcan slows down and arrests quickly when striking bone. This and its poor aerodynamic shape are major limitations.

In recent years the 6.5x55 Ackley Improved wildcat has been receiving praise in both hunting and benchrest circles. Re-chambering a 6.5x55 rifle to the AI is a relatively simple affair. Problems do occur however, after the conversion when over eager hand loaders increase loads too far in an effort to maximize results. From a 26" barrel, typical recorded velocities for the AI are 3100fps with 120 grain bullets and 2900fps with 140 grain bullets. These velocities are pushing pressure limits and realistically, those who want more power should start with a larger case or both a larger case and wider caliber.

Closing Comments

The 6.5x55 is still fairly popular in Europe and the South Pacific, but less so in the States, especially since Remington introduced the identically powered 260 Remington. The 6.5mm bore is highly favored by competitive target shooters, a factor which has contributed greatly to its acceptance and survival in mainstream hunting. Nevertheless, it cannot be reiterated enough that regardless of hype, the Swede and .260 should be used with care.

Personally, I have had more failures with this cartridge than any other cartridge I have used. Some of this can be attributed to my own over-confidence after falling for gun rag hype as a younger man. Failures occurred in three instances as a result of bullet blow up and in another two instances as a result of the cartridge being unforgiving with shot placement, one being a rear lung shot, the other, a neck shot taken by a client on a wild pig at 240 yards. Early failures inspired me to learn everything I could about terminal ballistics and rifle accuracy, eventually leading to the business we have today.

The 240 yard shot was immensely disappointing, the then new 140 grain SST entered the neck of the pig dead center, glanced off the spine, and exited the opposite side leaving a .75” exit wound. The 40kg (90lb) pig tumbled down a cliff system from spinal concussion but at the end of its fall, used its powerful shoulders to brace its wounded neck, rose to its feet and ran. The pig had no idea of our position and ran towards us. The client was unable to make a second shot at the moving target. The pig ran within 25 yards of me before it turned and revealed the clearly visible exit wound. The SST had clearly done its job; the Swede simply did not have the velocity to effect wide diffused internal wounding at 240 yards.

Today, my Swede continues to serve as an extremely accurate, mild recoiling back up rifle for our hunting clients. With the benefit of hind sight, this rifle is a reliable killer when loaded with the 140 grain Partition driven into the major bones of the chest to maximize wounding on tough animals. At extended ranges, The A-Max, now called ELD-M or the slightly tougher tougher ELD-X provide maximum wounding potential for this cartridge. That said, the Swede is not nearly as forgiving as heavier cartridges, especially when wind drift and bullet drop cause shot placement error.

Hunting with my Carl Gustaf M96. The stock has a pistol grip and comb added to improve ergonomics when scope shooting while retaining the original stock. The bullet used on this boar was the 140 grain Nosler Partition, one of the very best bullets available for general hunting when using the 6.5x55.

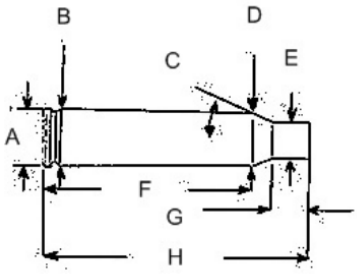
Suggested loads: 6.5x55					Barrel length: 24”	
No	ID		Sectional Density	Ballistic Coefficient	Observed MV Fps	ME Ft-lb’s
1	FL	140gr Winchester/PMC	.287	.450	2450	1865
2	HL	120gr Nosler Bal Tip	.246	.458	2950	2318
3	HL	140gr Nosler Partition	.287	.490	2750	2351
4	HL	140gr A-max/ SST	.287	.550	2750	2351
5	HL	140 A-max/SST Ack Imp	.287	.550	2900	2351

Suggested sight settings and bullet paths									
1	Yards	100	125	211	247	300	350		
	Bt. path	+3	+3.1	0	-3	-8.1	-16		
2	Yards	100	150	266	313	350	400		
	Bt. path	+3	+3.5	0	-3.5	-7	-13.6		
3	Yards	100	150	245	285	325	350	375	400
	Bt. path	+3	+3.3	0	-3	-7.25	-10.4	-14	-18
4	Yards	100	150	248	287	325	350	375	400
	Bt. path	+3	+3.4	0	-3	-6.7	-9.8	-13	-17
5	Yards	100	150	265	307	325	350	375	400

No	At yards	10mphXwind	Velocity	Ft-lb's
1	300	8.25	1929	1157
2	300	6	2392	1524
3	300	6	2248	1571
4	300	5.4	2300	1644
5	300	5	2435	1844

Note: The 140gr A-max has a BC of .550 while SST has a BC of .520.

6.5x55



	Imperial	Metric
A	.480	12.18
B	.479	12.17
C	25deg	
D	.435	11.05
E	.297	7.54
F	1.704	43.29
G	.313	7.95
H	2.165	55
Max Case	2.165	55
Trim length	2.155	54.7

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