243 Winchester
The Need for Speed

Overview

This article will look at the King of Speed on the NRA firing line and one of the many great cartridges in the 308 family of cartridges. This cartridge was tried off an on by many shooters but found its groove when John Whidden used it to win his first of many NRA Long Range national championships. This along with success that other "sub-caliber" cartridges were having on the firing line helped end the dominance of the .30cal Mags on the firing line. In the past 10 years there have been a lot of development in newer bullets which have further helped cement the .243 as one of the kings of prone shooting cartridges. A low to no recoiling gun pushing 105gr bullets close to 3,300fps in the hands of a good shooter is very tough to beat.

Reason

Why should you chose a 6mm cartridge? The simple reason is recoil. Recoil is something you cant avoid in shooting much like heat loss in any mechanical device. You are going to have recoil and recoil is going to break down your position. A big boomer like a .300 Win Mag shooting 210s is going to beat you up on every shot and you have to rebuild your position. However if you have less recoil like you do with a .243 Winchester you may be able to maintain your position longer before having to rebuild it, if you have to. Top shooters like John Whidden will keep the rifle in his shoulder for the entire string. They may adjust their position but they never have to break it down and rebuild it. Try that with a Win Mag!!

Now why the .243 Winchester over other 6mm cartridges. For mid-range prone some people are using smaller 6mm cartrdiges such as the 6mm Dasher, 6mm BR, or the 6mm BRX. The though process is mid range smaller cartridge better barrel life, even less recoil, etc. While in theory that is good lets look at the actual numbers.

First lets look at barrel life using the barrel life calculator which has proven to be fairly close to what I've gotten out of not only my .243 but also .280 and other cartridges.

Cartridge/Powder	Barrel Life (Calculated)
280 Remington (H1000)	2,458 (claculated) around 2,600 (actual)
280 Remington (N165)	3,181
243 Winchester (N160)	2,522 (calculated), 2600 plus (actual)

While I don't own a BR, BRX, or Dasher I got the following loads from the internet which seems to be standards. Since the Dasher is similar to the BRX we will just look at the BRX

I used Quickload to calculate the chamber pressures

6BR- 29gr Varget, 105 Hybrid, 2,880 fps, 56,000psi

6BRX- 32.5gr Varget, 105 Hybrid, 3,015 fps, 54,000 psi

For the comparison I will use the standard .243 load that was given to my by John Whidden.

.243 Win- 45gr N160, 105 Hybrid, 3,280 fps, 53,800 psi and the round count will be that of the two barrels I've shot through or still shooting

.243 Win (Mid range)- 41gr N160, 105 hybrid 3,020 fps, 41,000 psi

Cartrdige	Round Count
6mm BR	2698
6mm BRX	2218
.243 Winchester	2,626 (shot out), 2,712 (still shooting), 2,522 calcualted
.243 Winchester (41gr N160 Mid range load)	3192

Now I've gotten more rounds out of both barrels than was calculated so we would expect the same for the 6mm BR/BRX/Dasher also. The second barrel shot a 597-33X in a 3x1000 before it was pulled as I had a regional match coming up. Barrel isn't shot out, but it is in uncharted territory and didn't want to

take a risk in a bigger match. But notice the round count isn't dramatically higher or in the case of the BRX it is lower. Why is this? Well the smaller cases use powders in the Varget range, you could switch powders to something cooler like N140 and that will increase the barrel life about another 1,000 rounds calculated on the BRX which is substantial but still is in the ball park of the .243 Winchester. However if you look at the .243 mid range load it is close to 3,200 founds. One truth of cartridges can't be ignored. A bigger case lets you use slower (i.e. cooler) powders. A smaller case has to run at higher pressures than a larger case to get the same velocity. So the barrel life argument doesn't exist, provided you follow one rule with the .243. More on this later. So why do people use the smaller "Boutique" 6mms? Simply for the reason I state later in this paper that I was told. "If you take something that isn't any better and your convince enough people it is is better, suddenly it is better." The 6BR has a cult following people didn't like it, they reinvented the wheel and they've convinced themselves these cartridges are better for a variety of reasons, even though they aren't.

Now lets look at down range performance as far as wind drift at 600yds

Velcoity	Lag time/Wind Drift @600yd 10mph
2,880 fps	.134 / 3.8 moa
3,015 fps	.125 sec/ 3.5 moa
3,280 fps	.1093sec/3.0 moa
88gr ELD .223 Rem at 2,880 fps	.134 / 3.9 moa

From a performance standpoint there is quite a bit difference between the 6BR and the .243 Winchester. To be honest the 6BR is the same as a .223 Palma rifle and you are putting yourself at a disadvantage. You have to shoot a palma rifle performance cartridge in the Any rifle category. As far as the BRX it is closer to the .243 Winchester, BUT it is still behind and getting less barrel life as we already mentioned. If we dial the .243 down to 6mm BRX/Dasher velocities we are getting same performance but much better wind drift.

Now there will be some that say well I can load my cartridge to shoot faster and the wind drift

will be better. Yes you can do that, but that will sacrifice barrel life. Again, the smaller the cartridge the smaller the boiler room for fuel. The smaller the room for fuel the more the need for quicker powders which erode barrel life quicker. A bigger cartrdige has more room for fuel and can use slower powders that are cooler and gives better velocity. Can't beat physics!!

So the argument for the smaller 6's for mid range doesn't really hold. It “sounds” nice but the numbers don't back it up. Now all that being said a shooter still has to read the wind and some really AWESOME scores have been shot with the little 6's. However those same scores can still be shot with a .243. As far as these cartrdiges for long range the difference will open up even more and its why you don't see them on the long line.

Let's look at the other cartridges that are compatible in case capacity and the arguments against.

6mm SLR- This is a .243 with the 6mm BR shoulder angle and a longer neck. It is said the longer neck makes it more “accurate” and secondly the shoulder angle/neck helps with barrel life. First at 54,000psi you're torching a bore and the bore doesn't care what the shoulder angle is. Barrel life will be the same. Also accuracy doesn't depend on shoulder angle if so why has the .308 with a 20 degree angle or even a .30-06 with a 13 degree angle shot such great scores over the years. The reason the 30 degree angle is hyped is because the 6BR in bench rest shoots really little bullets at slow speeds with no recoil. The last part is what makes it so darn accurate in benchrest. As Bryan Litz once told me, “If you get people to believe something is better even if it isn't, it will suddenly become better.” The other thing with the SLR is while the case prep just involves running through a sizing die you have to do the prep, you can't just buy the brass load and shoot.

6XC- Not denying this cartridge is successful or that it shoots, or that it has performance. The only reason I don't shoot the cartrdige that I will say online in public is brass availability. There are a couple sources that sell it but you have more brass sources for the .243 AND you can also make .243 brass

easily from the other .308 family cases. You can make 6mmXC brass from 22-250 brass, it involves necking it up and running it through a series of dies. Not hard but just extra steps, however unlike the required neck turning when necking down .308 brass to make .243 you do not have to neck turn when forming 6XC brass. The .243 does have an edge on performance numbers over the XC but not by much. If you weren't going to go with a .243 and were going to go with another 6mm cartridge this would be your best choice as it can be made from readily available brass.

6CM- Again .243 performance, has the hype behind it as far as better barrel life, etc. But it boils down to brass availability. This is a rather new kid on the block and is a proprietary cartridge. One source for your brass isn't ideal. If you are the hypster type with a man-bun and a scrub beard, this may be the cartridge for you.

6mm-250- Performance is not quite there with the ones above it. Somewhere between the BRX/Dasher and the XC beng closer to the BRX/Dasher. To make this cartridge you have to neck up 22-250 brass, which isn't hard. If you want to blow the shoulder out to AI you can and you get better performance but then you have basically created the 6mm XC.

Yes I'm biased towards the .243 and these are the reasons why. Does that mean you can't shoot one of the other cartridges? No it doesn't. But these are just the arguments as to why I choose the .243 Winchester over the others. As the saying goes it is the Indian not the arrow. Pick your arrow and learn to shoot it, however some arrows are better than others.

Cartridge History

This cartrdige was first introduced in 1955 in the Model 70 Winchester bolt action and the Model 88 lever action rifles and quickly gained popularity among sportsman world wide.

It was a ground-breaking development, combining a useful combination of lightweight (70 to 85 grain) bullets optimized for long-range performance for varmint hunters (groundhogs, coyotes,

prairie dogs) and 90- to 105-grain bullets suitable for game up to the size of deer and pronghorn antelope. Its predecessor in the Winchester lineup, the very similar .257 Roberts, could have easily been selected to accomplish the same tasks, but was not available factory loaded with either lighter, varmint-weight bullets or pointed, long range spitzer (pointed) bullets, so it never achieved the popularity of the newer round.

Remington also saw the 6 mm (.243") family as suitable for this dual-purpose use and introduced their version, the .244 Remington, in the same year (1955) based upon the .257 Roberts necked down to accept .243 bullets up to 90 grains in weight. The Winchester round remains available today whereas the .244 Remington, later renamed the 6mm Remington with the introduction of 100-grain bullets, is far less popular even though it can push all bullet weights slightly faster with maximum loads due to the larger capacity case. The fact that the .243 Win was originally offered in a 1 in 10" rifling twist rate, a rate better able to stabilize heavier, 100- and 105-grain bullets, versus the .244 Remington's 1 in 12" twist (hence the 90-grain factory offering) was also a factor in their popularity.

Had Remington thought out their rifle more thoroughly and offered it in a faster twist barrel it would have probably supplanted the .243 Winchester. However as is often the case with Remington they very poorly implemented a very good idea.

A lot of people tried the .243 as a competitive cartridge over the years and had varying success with it. John Whidden was the first shooter to have repeated success with it and this was because he developed over time “The System” that works with the .243. If you change one of these things it becomes different and you change the system and this is why people had trouble with it.

Barrel

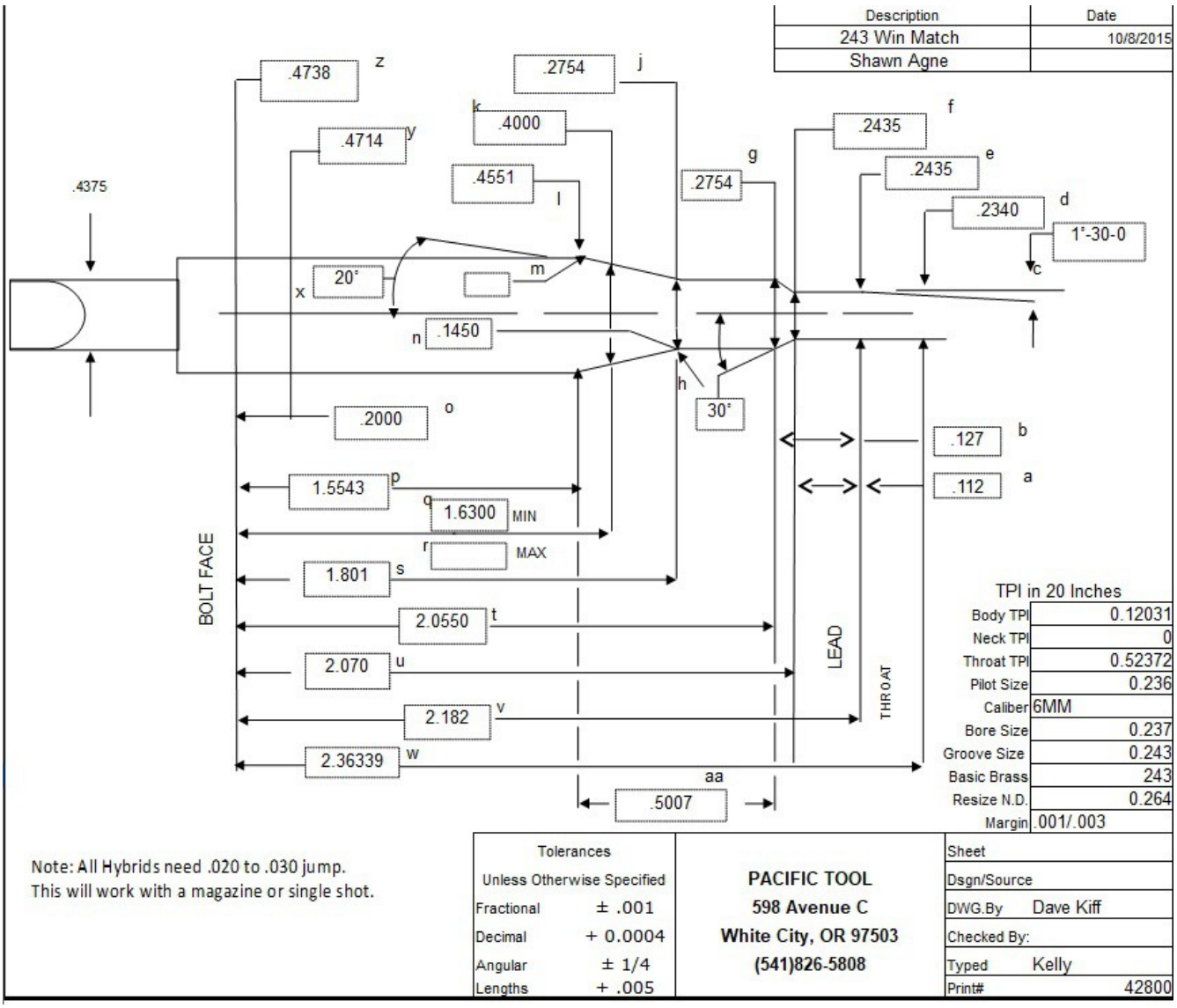
This is the first part of the system to shoot the 105's at the 3,300fps area you need to reduce the stress on the bullet as much as possible so you need to do the following.

1. 5groove- reduces strain on bullet
2. .237” bore diamter- a tighter barrel stresses the bullet more
3. 8 Twist- an 8 will stabilize the 105s just fine, if you go faster they will blow up

The other recommendation is to get a 32” finished length barrel. Now any of the top manufacturers will work (Kreiger, Bartlein, etc.) but the above specs are what you want. Barrel life has been very good, due to the N160 powder. First barrel I pulled at 2,626 rounds. The second barrel is at 2,712 rounds, but isn't shot out yet. The last match with it on was a 3x1000 shooting a 597-33X and it was still holding good elevation and all the shots were on call. I have a feeling this barrel may be atypical for barrel life and one should expect 2,500-2,600 with the N160 powder.

Chamber

There isn't a whole lot of magic to this. The main thing is as with most cartridges you want a 1.5 degree leade. Below is my reamer print. This is similar to the reamer that Whidden will use. Mind is a little longer in the throat as that is how Dave Kiff designed it for me.



Brass

The main reason I like the .243 is because of all the brass options. Every manufacturer makes 243 Winchester brass. Also 243 brass can be made by necking down the other .308 familiy cases such as the .260 Remington, 7mm-08 Remington, and the .308 Winchester. All of this will require varying amounts of neck turning.

When I got my first .243 barrel I followed Whidden's advice to the T and used Winchester brass. The stuff worked great. In 2012-13 when Newtown happened I needed brass and the only stuff I could find was Remington. I'm still shooting that along with the Winchester brass and it works great. Now

unfortunately Remington brass is hard to come by because of their bankruptcy and Winchester brass has been severely lacking in quality here of late. That being said there are still a lot of options and more options out there for brass than what you see for other cartridges we've mentioned. Dogtown brass seems to be a good alternative to Winchester. It has nearly identical capacity and doesn't break the bank. There are also other companies that are offering .243 brass that I have not personally tried such as Starline and Alpha.

As far as brass prep you can load it and shoot and you will be fine, and I will do this. However if I have time I will turn the necks to 0.0135", and prep the flash hole. This is kind of universal for all my brass and not just something I do for this cartridge.

Bullets

There are lots of bullet choices out there that shoot great. For prone shooting you are looking at the 105gr and heavier. If you are wanting to use the .243 Win for course many of the lighter hunting bullets such as 75gr and 87gr Vmas will work great at the 200 and 300 yard lines. For the longest time the 115gr DTAC was the heaviest bullet out there. But recently we've seen the introduction of other 110+gr options from many companies.

These newer heavier bullets have very impressive BC's however I still stick with the 105/107gr bullets. Going back to when I had my first .243 barrel chambered I asked John why he shot the 105 VLD (at that time now hybrid) instead of the 115 DTAC. He said he tried the 115 but he noticed more vertical with I t than the 105s. We see this same thing in the .308 palma world as 155gr bullets going faster thus flatter hold better vertical than a slower heavier bullet. Why is this? Quite simply a slower heavier bullet comes in at a steaper angle than a faster flatter bullet. Because of this incoming angle being greater the target shrinks some vertically. So an error in aiming is amplified. Also any deviation in bullet velocity is amplified. Now there is a benefit of increased wind drift with the heaveir bullets, but it is minimal and regardless of which bullet you chose you still have to read the wind. There will

be another paper which discusses this.

So what do I recommend? For mid range I shoot the cheapest 105/107 I can find. Nosler CC's, Hornady BTHP all have shot great, and I've even shot seconds and they shoot great. In 2015 I won the 500yd Iron Sight match at Camp Perry with a 200-17X shooting 105gr Nosler Custom Comp seconds. The Berger Hybrid, Nosler RDF, Hornady ELDs do have better BC but it isn't as big of a help at mid range. Plus you will save money.

For Long Range I have shot the 105 Berger Hybrid for a long time, their VLD's are good also. The Nosler RDF has shown to shoot just as well as the hybrid. I have not tried the ELD yet but assume it will shoot well aslo.

Bottom line here is I look for the cheapest bullet that will ballistically work the best.

Powder

This is what makes and breaks the 243 not as far as performance, but on barrel life. Bottom line you want to run N160 that is what John said to run, its proven to work, and it gives you the best barrel life. As you'll notice in the table below there are powders that give the same performance as N160 but they have much less barrel life. There are powders that give the same or better barrel life but performance is less. If the .243 has an Achilles heal this is it as there is one optimum powder for performance and barrel life. However the others will work, its just not part of John's system and as far as I was concerned I'm not reinventing the wheel.

Molly

When I had my first barrel chambered I asked John why he could run the 243 so much faster than everyone else and why it worked for him and not others. Molly coating was one of the three things. The reason was the early 105 VLDs had a thin jacket and the molly was needed to help reduce the stress on the jacket and prevent failure. Not reinventing the wheel I did this and I have continued to do this. With the thicker jackets I'm not sure it is needed. The last year I shot MW Palma Bryan Litz had a .243Win for the 1200yd match and his bullets were naked. I don't think you have to, but I do

and will continue to do so just because once I get something working I don't like to change.

Load Data

When I first got my .243 Winchester barreled by John back in 2009, he told me your load molly coated is going to be 45 or 45.5gr N160 molly coated or 44.5 to 45 naked. In 7 shots I found it was 45gr of Winchester, regardless of the bullet, didn't matter. Same for my brothers .243 Winchester. This got the 3,280fps performance. After the second year of the NRA mid-range championships I came home and found the lower node of around 43.5gr. It shot well, but not as good as the 45gr load so I didn't use it. So life was good.

Now I rarely use a chronograph in working up a load. I just so happened to be looking at the velocities with my new (3rd barrel) at a couple matches at 1000yd and noticed they were lower than I remembered. Same was true at mid-range. I pulled the last couple targets with the 2nd barrel and again noticed they were slower than they should have been. I was showing 1600fps-ish at 1000yd, and for the 3,280fps load it should be 1,720-ish. I was using Remington brass, which is less capacity and the load in that brass is less then Winchester. Well to keep a long story short, backwards calculating this muzzle velocity I was shooting at the lower node, which now perfectly matched Quick load. Prior to this I was 100fps above what it said. So the only thing I can surmise is two things. First this chamber is slightly longer so the pressure is lower and needs more powder than the previous two barrels. Second N160 burn rate has either slowed down or the earlier lots I had were quicker. Pressure tests verified this because on a mid 90 degree day, loads that would blow the primers in Remington brass back in 2013 when I got it, weren't completely flattening out the primers. Either way my load in Remington brass is now 44gr for mid range and 46gr for long range. This being said I would suggest working up the loads in .5gr increments. Starting at 43gr in Remington brass just to be safe. Going back from the original working up, Remington was a grain less than Winchester, and Lapua was .5gr less than Remington.

Impressions

I really like the 243 Winchester. You get very low recoil, just a tad more than my .223 palma gun. It is very easy to keep it in the shoulder while you shoot a string. It doesn't break down your position. These were all reasons why in an Accurate Shooter article after he won his first long range national championship John Whidden said he shot the .243 Winchester. I've shot it probably more in mid range than I have for long range. In mid-range matches you have all the horsepower you could ever need. Do you always need it? No you don't, but when you get that hard switching wind and it is a big match it is nice to have the ability to shoot through something you didn't see. In Long Range I haven't shot it as much, but when I have it has shot VERY well. At 1000yd I have noticed it does get blown a smidge more than my .280 Remington. However in the last two years I've been doing more of a golf club approach and if it is a calm/no wind condition or light wind I'm shooting the .243. However if the .243 was all I had I would be fine. When people are wanting an Any gun this is where I point them. Reasons being less recoil than a 7, cheaper bullets than a 6.5 or a 7. Barrel life with N160 just as good.