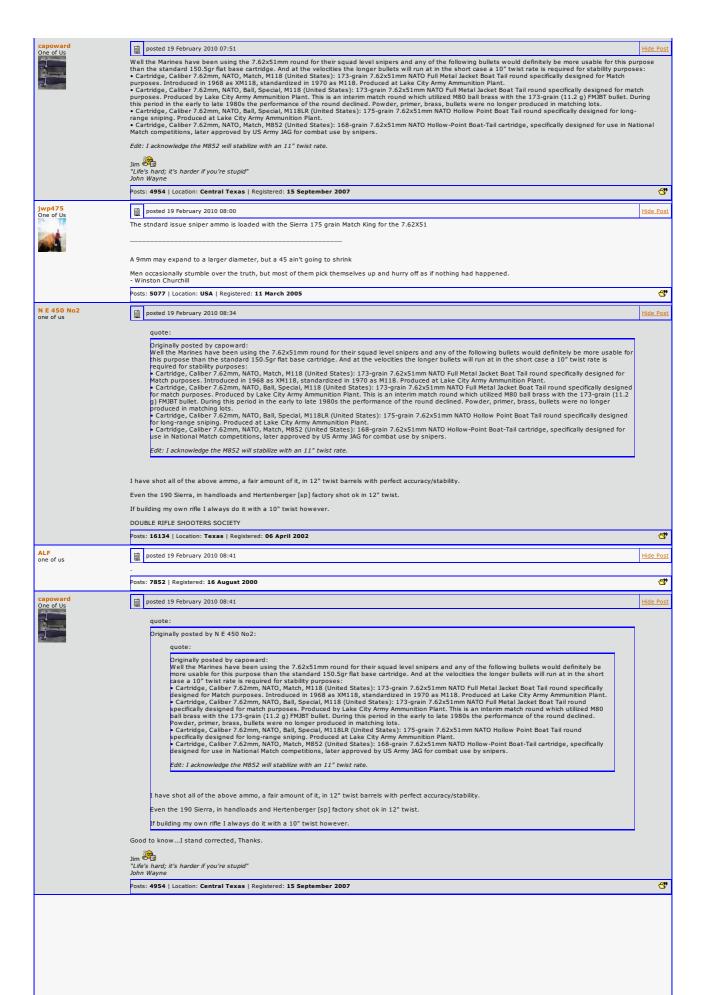
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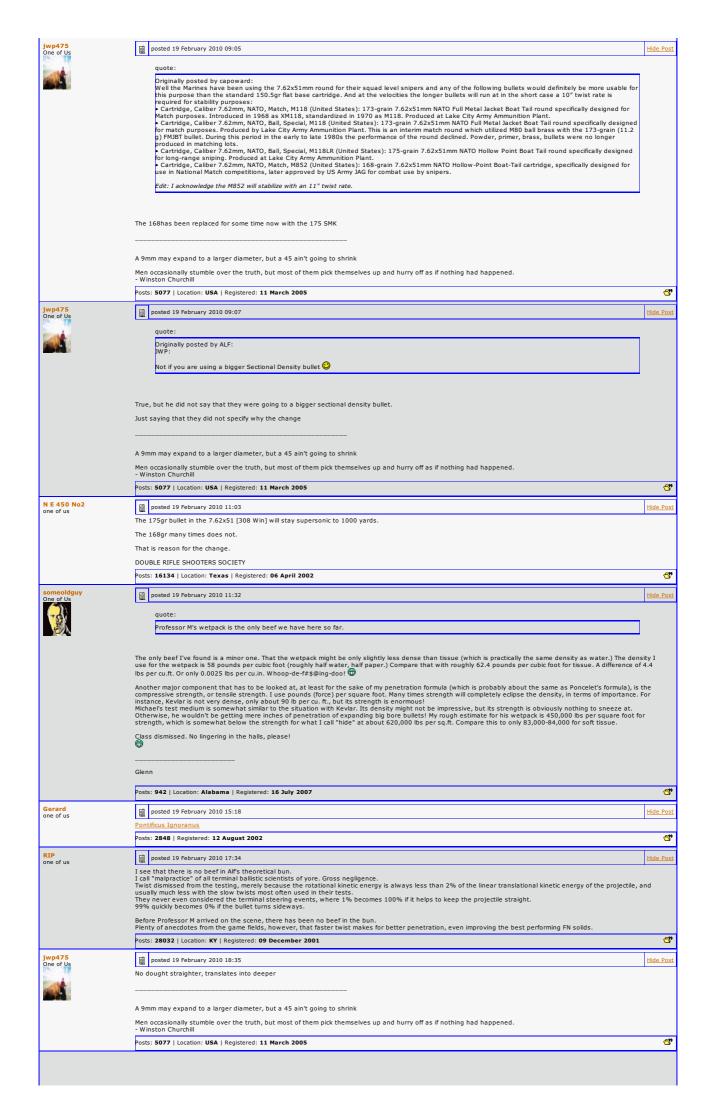


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Well today "TWIST RATE" reared it's head up and won the battle of Terminal Penetration, once again!

Today was 416 Caliber-400 gr Barnes Banded Solids! 416 B&M and 416 Rigby. As we know my 416 B&Ms have 1:14 twist rates, and as we recall testing the GSC Solids at 410 grs we had the exact same issue, stability during penetration. Same story today with the 400 Barnes.

1:14 twist is not enough twist rate to stabilize 400 gr bullets during penetration. These 1;14 twist rifles stabilize 350 Barnes and 370 North Forks, but not 400 Barnes and 410 GSC's.



As best I can measure the 400 Barnes has a 68% of caliber meplat. Whether it is related to CALIBER and meplat size, I am not sure, but in 416 caliber it seems that a 68% meplat of diameter is NOT enough to overcome twist rate! For a fact in caliber .500 and 70% meplat for caliber can overcome a poor twist rate, whether or not that is the 70% meplat or if it is related to much larger caliber, I don't know for sure. My feeling is that it is caliber related, being much larger. For sure if one wishes to stabilize 400 gr 416 caliber solids, better have 1:12 or faster.

http://www.b-mriflesandcartridges.com/default.htm

The New Word is "Non-Conventional", add "Conventional" to the Endangered Species List! Live Outside The Box of "Conventional Wisdom"

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Posts: 8426 | Location: South Carolina | Registered: 23 June 2008

⋖"



posted 19 February 2010 21:24

Hide Pos

416 Rigby 400 gr Barnes Banded did much better as you can see. Again, not 100% sure of twist rate here, 1;12 I think. Same story as the 410 GSC's, the Barnes did very well in the Rigby.

So this difference between the two is not bullet, not meplat, not even velocity, it's an issue of stability and twist rates. I am quite sure that the lower velocity would not have penetrated as deep, but it would need to be stable first.



Buffalo, the 400 Barnes in your 1;12 twist would do fine, as does the 410 GSC's.

Michael

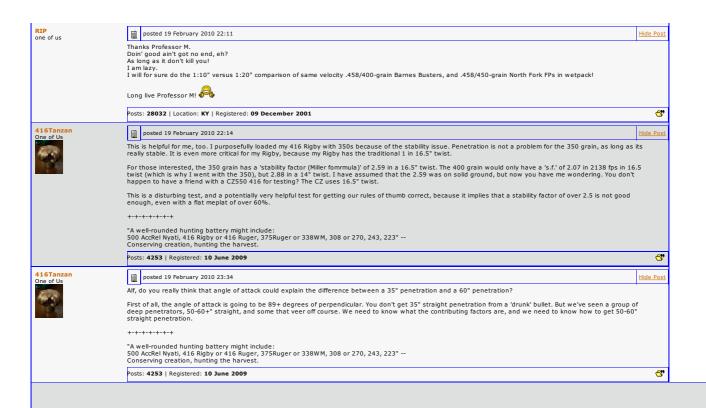
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Posts: 8426 | Location: South Carolina | Registered: 23 June 2008







Originally posted by boom stick: Classic!

I title this one "Wishful thinking"



Dang, Michael, with that lab coat you look like a mad scientist!

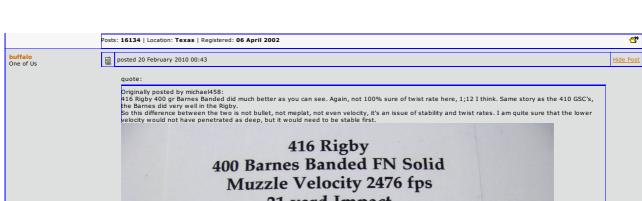
"Ignorance you can correct, you can't fix stupid." JWP

If stupidity hurt, a lot of people would be walking around screaming.

Semper Fidelis

"Building Carpal Tunnel one round at a time"

N E 450 No2 one of us



21 yard Impact **60 Inches Straight Penetration** Found at 62 inches 1" Hi-1" Rt otobucket

uffalo, the 400 Barnes in your 1;12 twist would do fine, as does the 410 GSC's.

Michael. Thanks. But you NEED to measure correct twistrate on your Ruger in 416 Rigby. As far as I remember, Ruger have only made 1-14" and 1-16" twistrates in their 416 barrels.. On the other hand, a 1-14" barrel and a bullet with a velocity of almost 2500 f/s gives more revs than same barrel with a 2150 f/s load - giving increased stability? That might as well be an explanation if you find out that twistrates are 1-14 in both your rifles..

Some Speer AGS tungsten core solids are on their way to you together with the GS Custom 3grs. 416" HV bullets. I noticed that the AGS solids had a smaller meplat than the Barnes banded solids in 416 caliber. But they are a lot shorter as well, so it will be exciting to see their performance....

Posts: 873 | Location: Denmark | Registered: 04 January 2005

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posted 20 February 2010 02:06

Hide Pos

I realize now that my "beef" was used differently than everyone else's "beef." My "beef" meant complaint, whereas everyone else's "beef" meant substance. This is easily explained: No hablo ingles.

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quote:

Before Professor M arrived on the scene, there has been no beef in the bun.

I agree. Plenty of burgers for everybody now! \bigcirc



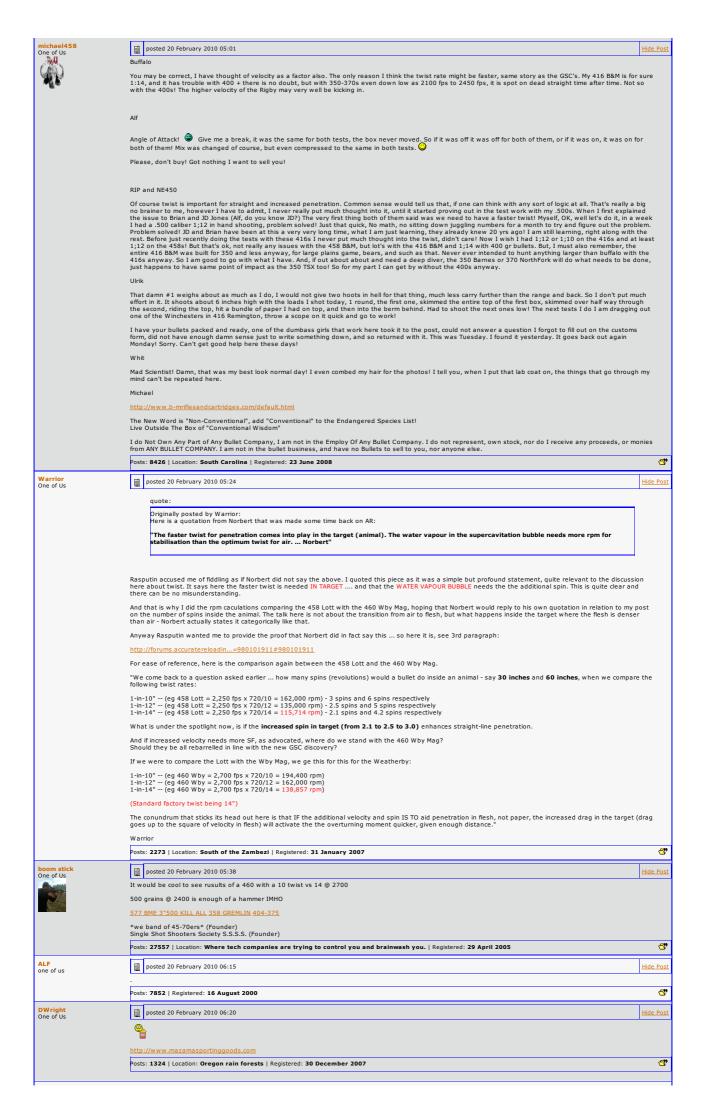
I used my formula with the two .416 tests. With my formula, near enough is good enough because I only intend it to be an approximation anyway. For the meplat, I assumed that this is a .29 caliber (about 70% of .416 inch bullet diameter.) For the impact velocities I used round numbers, 2100 and 2400 respectively. With all this in mind, the penetrations "should" (theoretically) have been 71! to 76.5". Time to throw the formula into the recycle bin? I don't think so. Because this answer would assume 100 percent stabilization the whole time, which doesn't often happen.

Going back to the formula and using Newton's laws, I estimated that the velocities at the points where the bullets went unstable (3 feet and 5 feet) are 1474 fps for the slower bullet and 1116 fps for the faster one. Since we know the twist rate of the slower bullet, the estimated rpms where the bullet starts veering is 1474 x 720 / 14 or just over 75800. (Notice this is a lot faster than the 40,000+ rpms for the .500 inch bullet that I did.) If the twist rate for the faster bullet was 1:12, then the rpms would be 66960. Hmm. That's less than 12 percent difference in rpms.

I think the other reason for the disappointing performance of the .416 bullet is the length. (All due respect to Newton, I've begun to think that his simplified impact depth formula is full of it,) Since I don't have a measurement for the length, just eyeballing it tells me that it's aspect ratio (length to diameter) is likely pretty high. If I'm not mistaken, this would mean that the bullet might go unstable easier, in other words at higher rpms, than the .50 caliber bullet.

Posts: 942 | Location: Alabama | Registered: 16 July 2007

₫"





posted 20 February 2010 19:53

Caliber: 470 Nitro Express

Caliber: 47/J Nitro express Rifle: Krieghoff Double Twist Rate: 1 in 20 (as checked with cleaning rod and jag) Brass: Jamison Primer: Remington 9 1/2M Powder: Reboder 15 for standard velocity load (approximately 2100 fps) AA 5744 for reduced loads (approximately 1700 FPS)

I have completed the first round of penetration testing with different velocities.

The test box is fabricated from 2 by 6 pine boards and is 72" long.

Test media consisted of '%" luan, 12" of saturated newspaper, 2 by 6 treated pine (shooting through the 1 5"8" thickness), and approximately 60" of saturated newspaper. Great care was taken to make certain the newspaper was thoroughly soaked in a tub prior to placing in the test bed.

After placing the paper in the test bed excess water was permitted to drain for 30 minutes.

The bullet entered the box at 32 feet from the muzzle.

Bullets tested: North Fork 500 Grain solid

First test consisted of firing consisted of firing 5 North Fork bullets in the test media.

Expected results: The 2100 FPS load would travel the length of the test box. The 1700 FPS would travel between 4 and 5 feet.

Actual results: The 2100 FPS load result was exactly as expected. Every North fork bullets I have fired to date in the 2100 FPS range has performed exactly the same. Straight line and stuck in the wood at the back of the box. (one split the wood and exited, that is why I use scrap plywood to keep the bullets in the box)

The 1700 FPS load surprised me. Average impact velocity was 1661. It penetrated the entire length of the box and the bullets stuck in the first piece of plywood. Penetration wad dead straight. I placed the first piece of newspaper over the bullets stuck in the plywood, none were off more than 1°. The only difference was the bullets were not stuck in the plywood straight like the 2100 FPS loads were.

In summary I was very, very surprised with the results. With an extra 430-440 FPS the difference in penetration was the thickness of a ¾" piece of furniture grade birch plywood. The higher velocity round did penetrate more, but not by much.

I was pleased with the consistency of the results. I take great care in setting up the test. Again the traditional load performed the same as the tests I conducted the last couple of weeks. The reduced loads all penetrated exactly the same as each other.

The next test will be Woodleighs: standard velocity versus reduced velocity.



The picture is of the first piece of newspaper placed over the plywood from the back of the box. None of the bullets are more than 1" off line through 72" of penetration.

Posts: 2939 | Registered: 26 March 2008

Reply 🗞 😘

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