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Terminal Bullet Performance

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31/2Makesmelaugh

One of Us



posted 01 March 2010 02:51

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Michael et al, thanks for the GREAT information in this thread! Now I just need someone to test the Belt Mountain Punch bullet at .45/70 velocities...

<http://www.beltmountain.com/punch.htm>

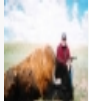
"Archery enshrines the principles of human relationships. The Archer perfects his form within himself. If his form is perfect, yet when he releases he misses, there is no point in resenting those who have done better than him. The fault lies nowhere."(Confucius)

Posts: **115** | Location: **Oklahoma** | Registered: **05 January 2005**



jwp475

One of Us



posted 01 March 2010 03:44

[Hide Post](#)

Macifej, Micheal458 needs to test your solids I believe that they would do extremely well

A 9mm may expand to a larger diameter, but a 45 ain't going to shrink

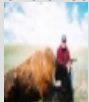
Men occasionally stumble over the truth, but most of them pick themselves up and hurry off as if nothing had happened.
- Winston Churchill

Posts: **5077** | Location: **USA** | Registered: **11 March 2005**



jwp475

One of Us



posted 01 March 2010 03:45

[Hide Post](#)

quote:

Originally posted by 31/2Makesmelaugh:
Michael et al, thanks for the GREAT information in this thread! Now I just need someone to test the Belt Mountain Punch bullet at .45/70 velocities...

<http://www.beltmountain.com/punch.htm>

I would also love to see the "Punch Bullets" tested at 45-70 velocity

A 9mm may expand to a larger diameter, but a 45 ain't going to shrink

Men occasionally stumble over the truth, but most of them pick themselves up and hurry off as if nothing had happened.
- Winston Churchill

Posts: **5077** | Location: **USA** | Registered: **11 March 2005**



michael458

One of Us



posted 01 March 2010 04:05

[Hide Post](#)

Hey Guys, just checking in before turning in. A little too much for tonight, I will get with everything in the morning!

Michael

<http://www.b-mriflesandcartridges.com/default.html>

The New Word is "Non-Conventional", add "Conventional" to the Endangered Species List!
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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**



Macifej

One of Us



posted 01 March 2010 04:18

[Hide Post](#)

quote:

Originally posted by jwp475:

Macifej, micheal458 needs to test your solids I believe that they would do extremely well

In the works. Something new coming out of QC in a few days. Michael will get some to test and post here.

How you been JP ..??

Posts: **13301** | Location: **On the Couch with West Coast Cool** | Registered: **20 June 2007**



Phatman

One of Us



posted 01 March 2010 04:31

[Hide Post](#)

Oh I'm stupid



I had forgotten all about the Punch Bullets, and I've used them before.

The .510 would be great in these tests. Its very short compared to mono bullets since it does have lead in the rear.

Might be the perfect bullet for the fast vs slow twist debate. I think it will like the fast twist.

John

Give me COFFEE and nobody gets hurt

Posts: **1608** | Location: **San Antonio, Texas** | Registered: **04 January 2010**



MikeBurke

One of Us



posted 01 March 2010 05:42

[Hide Post](#)

quote:

Originally posted by RIP:

A thought about boards (linear function resistance, LFR) mixed in with waterbuckets, wetpack, or SIM-TEST (exponential function resistance, EFR) as regards to response to velocity of the penetrating bullet and loss of resolving power of the test medium: LFR on the entrance end of the SimBA (simulated buffalo apparatus) contributes little to stopping the bullet, relative to its effectiveness in halting the bullet in the terminal/low velocity end of the SimBA. EFR provides much more resistance on the high velocity end, and less on the terminal end, thus allowing better resolution of difference in penetration, rather than having the LFR stop two close competitors at the same apparent distance, "hitting the wall."

Rip,

If I am reading this correctly two separate test I conducted now make sense. The first test I am referencing was a penetration test with the .474 500 Grain North Fork bullets. Penetration was nearly identical, note I said nearly. It was my typical test, 12" of wet newspaper, a 2 by 6, about 60" of wet newspaper, then a couple of pieces of 3/4" birch plywood to stop the bullet. The difference in penetration was the thickness of one piece of plywood at the rear of the box with the higher velocity round winning out. Those results were posted on Feb 20th at 10:53 central time.

This is the second test I am referring to. It was conducted tonight.

Caliber: 470 Nitro Express

Rifle: Krieghoff Double

Twist Rate: 1 in 18.9 Confirmed by Krieghoff (Edited 3-2-10)

Brass: Jamison

Primer: Remington 9 1/2M

Powder: Reloder 15 for standard velocity load (approximately 2100 fps)

AA 5744 for reduced loads (approximately 1650 FPS)

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

Test media consisted of 1/4" luan, 12" of saturated newspaper, 2 by 6 treated pine (shooting through the 1 5/8" thickness), an approximate 1 1/4" void and then a series of twelve pieces of 3/4" plywood with ten saturated newspapers 20

pages each between each piece of plywood (plywood, newspaper, plywood, newspaper etc) and approximately 33" of saturated newspaper to fill the box. 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

Bullet Length: 1.414"

Bullet Meplat: .335" or 70.67% of diameter

Test consisted of firing consisted of firing two North Fork bullets in the test media at standard Nitro velocity and two North Fork bullets at reduced velocity.

Reduced Velocity:

Average impact velocity of the was 1672. The first round stopped in the 11th piece of plywood. Total penetration was approximately 38". The second round stopped between the 11th and 12th piece of plywood. Total penetration was approximately 39".

The two bullets fired at standard Nitro velocities penetrated through all of the plywood and approximately 21" more than the lower velocity rounds for a total of 60".

Penetration was usual for the North Fork bullets, perfectly straight.



The picture above is the first piece of plywood the bullets penetrated. Note the location of the holes.



The picture above is the 11th piece of plywood the bullets penetrated. Note the location of the holes as they relate to the first picture.



Posts: 2939 | Registered: 26 March 2008

MikeBurke
One of Us



posted 01 March 2010 05:59

[Hide Post](#)

While I believe and agree nose profile plays a vital role in the ability of a bullet to penetrate I do believe sectional density plays a role also.

Sectional density for a 500 grain .474 diameter bullet is .318.

This is where the standard Nitro velocity rounds stopped. You can barely see the bullet in the top hole above the very visible hole. However, when a North Fork bullet hit the newspaper the hole was 461" of wet newspaper.

Which dimension would you use to calculate the sectional density? Shank or driving bands? .318 SD or .336 SD?

Is this part of the reason along with nose profile these bullets penetrate so well?

Posts: 2939 | Registered: 26 March 2008



Extremist458
One of Us



posted 01 March 2010 06:04

[Hide Post](#)

I'm not sure if this has been discussed yet (too many pages!) But as I believe Randy Garrett explains, the greatest penetration was achieved with the "heaviest" bullet possible to achieve 1600-1800fps. I mention this because of this test. If you were to take say a 700-750gr bullet at that same velocity as your reduced load (say that is standard Nitro load, comprable to your normal load), it should out-penetrate it; all things sorted and equal.

So if I was to reason, as we have almost all agreed, the faster you push a bullet, the larger the wound cavity and respective loss of penetration vs the same energy heavier bullet.

My next question would be who is going to make a 750 grain solid!...and the respective extreme twist barrel to accomodate?

Just something to think about.

-Extremist

"Pain is weakness leaving the body" -Instructor

Victory in life is dying for what you were born to do.

"I hope you live forever" -300

"Never judge an enemy by his words, he might turn out to be a better shot then a writer"

<http://www.qscustomusa.com>

Posts: **213** | Location: **Auburn, IN** | Registered: **16 April 2008**



Macifej
One of Us



posted 01 March 2010 06:17

[Hide Post](#)

quote:

Originally posted by Extremist458:

I'm not sure if this has been discussed yet (too many pages!) But as I believe Randy Garrett explains, the greatest penetration was achieved with the "heaviest" bullet possible to achieve 1600-1800fps. I mention this because of this test. If you were to take say a 700-750gr bullet at that same velocity as your reduced load (say that is standard Nitro load, comprable to your normal load), it should out-penetrate it; all things sorted and equal.

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My next question would be who is going to make a 750 grain solid!...and the respective extreme twist barrel to accomodate?

Just something to think about.

Uh-Oh ...!!

Posts: **13301** | Location: **On the Couch with West Coast Cool** | Registered: **20 June 2007**



RIP
one of us



posted 01 March 2010 09:21

[Hide Post](#)

Mike,

Your latest work is Ph.D. level material for your terminal ballistics thesis.

Makes perfect sense to me.

You have unstacked the deck to show what is happening with the standard nitro load penetrating better versus reduced load.

Got lucky or you had a good feel for your medium, eh?

Stopped that slow FN right on the last board in the stack,

where the LFR has most effect on slow bullets,

but the faster standard nitro express had enough velocity left to break through the last board and coast on through the EFR wetpack, which has less resistance to lower velocity at the terminal end, allowing a big

difference to be "resolved."

Now how shall we address you in professorial functions? There is already a "Doc M." Will "Doc Mike" do?

SD?

The driving bands are .474" and they determine the "Static SD," of the bullet sitting on a shelf, so call that spade a spade. SSD?

The meplat size determines the Dynamic SD, DSD?

But all is not so simple in real life.

Smaller meplat would give a higher DSD but not necessarily better penetration.

Bullet length, gyroscopic spin, linear momentum, meplat, SSD and DSD ... all interact, and I do not know all the answers, just that it surely is not to be found in "LSD," nor "S&M," nor in the nether regions of a goat.

That is what Ph.D.s at the U. of A.R. Department of Terminal Ballistics are for, for finding the answers, not doing LSD and S&M, nor craniorectal bestiality with goats.

You Sir have found the answer for all existing 20" twist 470 NE double rifles.

With the North Fork 500-grain FP (~70% meplat) at 2100 fps, it will do all, eh?

Extremist458 will be needing a custom built Searcy with 10" twist barrels regulated for 750-grainers at 1700 fps, for his experiments with the 470 Nitro Express.

Bravo, Doc Mike.

Posts: **28032** | Location: **KY** | Registered: **09 December 2001**



michael458
One of Us



posted 01 March 2010 14:40

[Hide Post](#)

Lot's to catch up on I see. Been reading stuff.

Doc Mike, great test--Velocity trumps in that case, I have to get that recorded in my data sheets, as once again we unravel the mysteries and the myths! Maybe we are the real myth busters?

J and I have been in contact, whatever run he is doing I will be getting a few samples to work with!

Punch bullets, I will check and see if I can get some samples in, they do look pretty good eh? Nice big meplat!

Mikes 470 is 1:20? Whewww, slow slow slow! If this being the case, nose profile and meplat trump twist---as I believe is the case when bullet design is proper. Drop meplat size down to a point, twist takes over and becomes the lead factor!

I am on a mission today, measuring meplats, working out my system in my mind, will report during the day, caliber by caliber, stamping and measuring. I do suspect that in most cases meplat size measurements will drop a few percentage points from what we have been measuring, or attempting to! Trying to get a proper lens for the girls microscope to look at bullets with! It's a very serious microscope! Even connects up to the computer, and can take digital photos of what you are looking at! That would be sorta neat I think! But have to have a special lens for that.

Michael

<http://www.b-mriflesandcartridges.com/default.html>

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




buffalo
One of Us



posted 01 March 2010 15:15

[Hide Post](#)

wow - those AGS solids did well.. I had the feeling they would perform good because of their compactness - easy to stabilize..

I have only shot one animal with them. That was a large Livingstone eland. He was a huge blue bull. Bullet entered his ass and was found resting against his skull in the neck.. That was in a 416 Wby I had several years back (in 1997) with a slow () 1-14" rate of twist..

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




Mafunyane
One of Us



posted 01 March 2010 18:26

[Hide Post](#)

This post need to stay on top 

All that is needed for evil to triumph is for good men to do nothing!!

Posts: **53** | Location: **Limpopo province South Africa** | Registered: **27 January 2010**



jwp475
One of Us



posted 01 March 2010 19:00

[Hide Post](#)

quote:

Originally posted by Mike70560:
While I believe and agree nose profile plays a vital role in the ability of a bullet to penetrate I do believe sectional density plays a role also

Mass is definately an important part of the penetration equation, but as we all have seen a proper meplat flat point of 450 grains in .458 caliber will out penetrate a 500 grain round nose solid. Make the nose profile the same and the 500 grain has the potential to penetrate deeper


A 9mm may expand to a larger diameter, but a 45 ain't going to shrink

Men occasionally stumble over the truth, but most of them pick themselves up and hurry off as if nothing had happened.
- Winston Churchill

Posts: **5077** | Location: **USA** | Registered: **11 March 2005**



accit
One of Us

 posted 01 March 2010 19:40

[Hide Post](#)

quote:

Originally posted by Mafunyane:
Your mind is still good.
Was just wondering if .458 standard twist can stabilise such a long bullet.

I would not change the weight I'm using now .450 gr in win mag is tops.


What 450gr do you use?
Load and speed ?

Posts: **42** | Location: **RSA, Pretoria** | Registered: **14 October 2008**



Mafunyane
One of Us



 posted 01 March 2010 20:16

[Hide Post](#)

quote:

Originally posted by accit:

quote:
Originally posted by Mafunyane:
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What 450gr do you use?
Load and speed ?


Barns bandid solid + triple x and 72gr. s321 for 2200fp/s

All that is needed for evil to triumph is for good men to do nothing!!

Posts: **53** | Location: **Limpopo province South Africa** | Registered: **27 January 2010**



465H&H
One of Us

 posted 01 March 2010 20:37

[Hide Post](#)

quote:

Originally posted by accit:

quote:
Originally posted by Mafunyane:
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My 458 Lott with 1 in 14" twist was able to stabilize 550 grain Woodleights. When loaded to 2,150 fps it penetrates better than any thing I have seen on elephants including FN or semi-FN solids. I mean over 6 feet of penetration on frontal head shots on eles. But it won't work in your 458 Win, just too long unless you can seat it way out.
465H&H

Posts: **5686** | Location: **Nampa, Idaho** | Registered: **10 February 2005**



michael458
One of Us



posted 01 March 2010 21:20

[Hide Post](#)

quote:

Originally posted by 465H&H:
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465H&H

465HH

I have seen close to 5.5 or 6 ft penetration on elephant heads, as best I can tell or make a guess, from frontals with the 450 Barnes Banded Solids! More than 6 feet with a 510 gr .500 caliber solid of mine, another frontal. Also had them exit more than 7 feet of body. Of course all FN solids! What about those FN Hornadys you were shooting this year? I thought I heard you complaining about TOO MUCH penetration with those?

Michael

<http://www.b-mriflesandcartridges.com/default.html>

The New Word is "Non-Conventional", add "Conventional" to the Endangered Species List!
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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**




michael458
One of Us



posted 01 March 2010 21:24

[Hide Post](#)

quote:

Originally posted by buffalo:
wow - those AGS solids did well.. I had the feeling they would perform good because of their compactness - easy to stabilize..
I have only shot one animal with them. That was a large Livingstone eland. He was a huge blue bull. Bullet entered his ass and was found resting against his scull in the neck.. That was in a 416 Wby I had several years back (in 1997) with a slow () 1-14" rate of twist..

Buffalo

They did do extremely well! I was betting against them you know, and they surprised me a good bit! That's a few feet of penetration in an eland! They stabilized a tad better than the 400 Barnes and much better than the 410s!

Michael

<http://www.b-mriflesandcartridges.com/default.html>

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



Mafunyane
One of Us



posted 01 March 2010 21:38

[Hide Post](#)

quote:

Originally posted by 465H&H:

quote:

Originally posted by accit:

quote:

Originally posted by Mafunyane:

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465H&H

What do you think will penetrate better,550 woodleigh or 500 mono FN solid

All that is needed for evil to triumph is for good men to do nothing!!

Posts: **53** | Location: **Limpopo province South Africa** | Registered: **27 January 2010**



Mafunyane
One of Us



posted 01 March 2010 22:16

[Hide Post](#)

Micheal

What do you think of this calculator for twist rate

www.z-hat.com/twistrate.htm

All that is needed for evil to triumph is for good men to do nothing!!

Posts: **53** | Location: **Limpopo province South Africa** | Registered: **27 January 2010**



michael458
One of Us



posted 01 March 2010 22:18

[Hide Post](#)

quote:

Originally posted by Mafunyane

What do you think will penetrate better,550 woodleigh or 500 mono FN solid

For me that is a very easy choice, I will take a 500 FN Solid 100% of the time and go with 100% confidence.

Michael

<http://www.b-mriflesandcartridges.com/default.html>

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



michael458
One of Us




posted 01 March 2010 22:29

[Hide Post](#)

quote:

Originally posted by Mafunyane:
Micheal
What do you think of this calculator for twist rate
www.z-hat.com/twistrate.htm

That's the old greenhill formula, it's been around longer than 465 HH and round nose fmj bullets. 

I am no twist expert, guys correct me if I am wrong, but that is a formula devised for stability for accuracy mostly I think, and won't be of any help for terminal penetration of solids, or what we are discovering here.

Michael

<http://www.b-mriflesandcartridges.com/default.html>

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

ovny
One of Us



posted 01 March 2010 22:45

[Hide Post](#)

I wonder, you are true scientists of ballistics 

Oscar.

I am Spanish

My forum: www.armaslargasdecaza.com

Posts: **1131** | Location: **Spain (Madrid)** | Registered: **11 June 2008** 

someoldguy
One of Us



posted 01 March 2010 23:05

[Hide Post](#)

quote:

Reduced Velocity:
Average impact velocity of the was 1672. The first round stopped in the 11th piece of plywood.
Total penetration was approximately 38". The second round stopped between the 11th and 12th piece of plywood. Total penetration was approximately 39".

The two bullets fired at standard Nitro velocities penetrated through all of the plywood and approximately 21" more than the lower velocity rounds for a total of 60".

That's amazing. But my two long-version penetration models didn't fare so well. Their estimate for penetration at 2100 fps is 51 and 55 inches. That's not a huge error, but it just goes to show me there's nothing like empirical testing!

The "short version" that I use to evaluate Dr. M's tests fared much better, even though it only gives an estimated range of penetration. Substitute the meplat diameter into the SD formula and multiply by the impact velocity. Divide this by the constants 21 and 27 (which I used for Michael's tests) for a maximum and minimum range respectively.

So for the 1672 fps bullet, the expected range is roughly 51" to 39". For the 2100 fps bullet, the estimated penetration range is about 64" to 50".

The weakness (or strength) of this short method is that the constants have to be derived empirically. But it also turns out that all the constants I've found have a fairly narrow range.

Glenn

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



quote:

Originally posted by Mafunyane:

quote:

Originally posted by 465H&H:

quote:

Originally posted by accit:

quote:

Originally posted by Mafunyane:

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465H&H

What do you think will penetrate better, 550 woodleigh or 500 mono FN solid

I really can't answer that as I haven't fired enough of either to come to a firm conclusion. I need to shoot a few more elephants. I haven't used any 500 grain FN solids out of my Lott on elephants. I can say that the 550 has given me more penetration on frontal brain shots than 480 grain FN solids out of the 465 at 2,150 fps or 500 grain DGS out of the 458 Win also at 2,150 fps.

Michael,

Yes, the Hornady FN solid did well as did the North Fork FN solid on frontal brain shots. My point on over penetration had to do with side heart/lung shots. These modern bullets are so good at penetration that one must be very careful of using them on side shots on eles. As I reported, I ended up shooting through one ele on such a shot and killing another behind it. They would even be worse on buffalo.

465H&H



capoward
One of Us



posted 02 March 2010 00:39


[Hide Post](#)

quote:

Originally posted by 465H&H:
Michael,


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465H&H

Ok I have to ask...and up front I've not shot elephant...so this is strictly on of those  kind of things.

I thought that a slow expanding bullet was the optimal choice for side heart/lung shot due to over-penetration of the solids in this scenario? Also thought one of the principal sellers of the DR was the ability to have one solid/one expanding chambered when hunting DG to assure one bullet of optimal construction available at all times should things go South quickly. Also that due to their "quietness" that the DR hunter could easily change out the wrong bullet construction quickly should it appear two quick shots of same bullet construction is likely required.

So if the above is correct, H do you use the Woodleigh FMJ bullets for both shots due to the solid having sufficient penetration for a frontal shot as well as will tumble and cause damage approaching that of an expanding bullet for a heart/lung shot *Edit added: without exiting the body?*

If you have selected your bullet to work within this dual spectrum of performance then  as there's nothing wrong with this type of a decision.

Jim 
"Life's hard; it's harder if you're stupid"
John Wayne

Posts: **4954** | Location: **Central Texas** | Registered: **15 September 2007**



michael458
One of Us



posted 02 March 2010 00:43

[Hide Post](#)

quote:

Originally posted by 465H&H:
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I really can't answer that as I haven't fired enough of either to come to a firm conclusion. I need to shoot a few more elephants. I haven't used any 500 grain FN solids out of my Lott on elephants. I can say that the 550 has given me more penetration on frontal brain shots than 480 grain FN solids out of the 465 at 2,150 fps or 500 grain DGS out of the 458 Win also at 2,150 fps.

Michael,

Yes, the Hornady FN solid did well as did the North Fork FN solid on frontal brain shots. My point on over penetration had to do with side heart/lung shots. These modern bullets are so good at penetration that one must be very careful of using them on side shots on eles. As I reported, I ended up shooting through one ele on such a shot and killing another behind it. They would even be worse on buffalo.

465H&H[/QUOTE]

465HH

Oh good grief, that's the biggest load I have heard in a long time, I know what you are up to, you are just using that as an excuse to shoot more elephants!!!!!! Go do a little test work I think!
I know this game well! And you can't pull that one over on me!

Yep, on some I have better watch shooting them from the rear too, never mind broadside! I figure that 550 I have from the 500 MDM will give an ele a run from the south end out the north end! The 510 comes close. If you pay attention to any of the penetration tests any bullet that is getting in the 60 inch range in this medium will broadside exit elephants with ease! As for buffalo, they are great when shooting up the south end! I say you must be careful with them only to the point of getting the buffalo lined up correctly so you can get a few of them at once! I think one of my next tests will be "how many broadside buffalo can we penetrate?" Will take that to Australia on my next shoot, in which I am putting in for more quota this time, instead of 20 I am putting in for 50.

Good show!

Michael

<http://www.b-mriflesandcartridges.com/default.html>

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



MikeBurke
One of Us



posted 02 March 2010 02:23

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I need to make a change to my posts. After calling Krieghoff I have learned that the twist rate in my barrel is suppose to be 1 in 480MM or 1 in 18.9"

Not a big difference. My check with the jag was off about 5%. Not much, just want to be correct.

Posts: **2939** | Registered: **26 March 2008**



465H&H
One of Us

posted 02 March 2010 03:52

[Hide Post](#)

Michael,

I don't need an excuse to shoot more elephants just more money!! Can you help me out? 😊

465H&H

Posts: **5686** | Location: **Nampa, Idaho** | Registered: **10 February 2005**



465H&H
One of Us

posted 02 March 2010 04:04

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quote:

Ok I have to ask...and up front I've not shot elephant...so this is strictly on of those kind of things.

I thought that a slow expanding bullet was the optimal choice for side heart/lung shot due to over-penetration of the solids in this scenario? Also thought one of the principal sellers of the DR was the ability to have one solid/one expanding chambered when hunting DG to assure one bullet of optimal construction available at all times should things so South quickly. Also that due to their "quietness" that the DR hunter could easily change out the wrong bullet construction quickly should it appear two quick shots of same bullet construction is likely required.

So if the above is correct, H do you use the Woodleigh FMJ bullets for both shots due to the solid having sufficient penetration for a frontal shot as well as will tumble and cause damage approaching that of an expanding bullet for a heart/lung shot Edit added: without exiting the body?

If you have selected your bullet to work within this dual spectrum of performance then as there's nothing wrong with this type of a decision.

Jim

Jim,

Bloody bad form to ever use any kind of soft on elephant. You always have to be prepared for a charge and a soft is nearly useless for that. Loading one soft and one solid in a double is for buffalo hunting. I have never used a 550 grain woodleigh for a side heart/lung shot because i knew it would go through. I didn't expect that with the Hornady DGS. You don't need a soft on side body elephant shots as they die quite easily from a high heart shot. Solids work fine for this. I have never seen any steel jacketed solid tumble in elephant or buffalo and I have shot around 100 of them into them. If one did I didn't see any sign of it but admit that I didn't always follow the bullet paths. I have found that the RN design usually penetrates through the heart/lung area and is found under the off side skin. The FN seem to go on through. At least the two that I used did.

465H&H

Posts: **5686** | Location: **Nampa, Idaho** | Registered: **10 February 2005**



416Tanzan
One of Us



posted 02 March 2010 09:09

[Hide Post](#)

The best online stability analyzer is
<http://www.jbmballistics.com/cgi-bin/jbmstab-5.0.cgi>
it uses the expanded miller formula


+--+--+--+--+

"A well-rounded hunting battery might include:
500 AccRel Nyati, 416 Rigby or 416 Ruger, 375Ruger or 338WM, 308 or 270, 243, 223" --
Conserving creation, hunting the harvest.

Posts: **4253** | Registered: **10 June 2009**



Warrior
One of Us

 posted 02 March 2010 14:00

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416 Tanzan

The McGyro program is more accurate. It was developed by Bill Davis and Robert McCoy. The Greenhill formula and the Miller formula (just an adaptation of Greenhill) has its origins in lead-core bullets that had to be stabilized way back in 1879 when the gun fraternity faced the problem of projectile stability in air.

Munk took the Bavis-McCoy model just a bit further and Alf did make reference to this before in this thread. Munk was regarded as a highly gifted engineering student. He was one of Prandtl's most gifted students. Dr. Ludwig Prandtl is regarded as the father of modern aerodynamic theory.

In 1919 Munk received two doctorates from the University of Goettingen. One in engineering and the other in physics. In 1920 he moved to the US and went to work for NAS Langley where he suggested, designed and supervised the NACA variable density wind tunnel. Dr Max Munk specialized in aerodynamics. His knowledge of aerodynamics was overwhelming. It was a culture shock within the US aero-engineering community. He brought modern aerodynamics to the US.

Warrior

Posts: **2273** | Location: **South of the Zambezi** | Registered: **31 January 2007**



someoldguy
One of Us



 posted 02 March 2010 15:02

[Hide Post](#)

Oh, this is what I was talking about earlier:

quote:

I think RIP or Jim, Glenn or some of the other guys are more qualified than I to give you a proper answer.

No, sir! I'm not qualified! I'm only a student of terminal ballistics. A rank amateur!

But not that rank because I bathe regularly every Saturday.




Glenn

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



michael458
One of Us



 posted 02 March 2010 15:51

[Hide Post](#)

quote:

Originally posted by Mike70560:
I need to make a change to my posts. After calling Krieghoff I have learned that the twist rate in my barrel is suppose to be 1 in 480MM or 1 in 18.9"

Not a big difference. My check with the jag was off about 5%. Not much, just want to be correct.

Mike

Not much difference at all. I would not worry with it. The fact remains that the North Fork can overcome what might be considered a slow twist rate to stabilize during terminal penetration. Meplat size is all important! I have paid little attention to 470's recently, is Hornady making a DGS in 470? I would assume if they were, it will have a smallish meplat around 55% of caliber maybe if around the same as the 458s. Might be interesting to see the difference between the North Fork, Woodleigh, and the Hornady? If your twist would stabilize the Hornady or not? If they even make one, like I said, I have paid little attention to 470 in recent times. Still pissed off with my Capsticks!

Michael

<http://www.b-mriflesandcartridges.com/default.html>

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



michael458
One of Us



posted 02 March 2010 16:01

[Hide Post](#)

quote:

Originally posted by 465H&H:
Michael,

I don't need an excuse to shoot more elephants just more money!! Can you help me out? 😊

465H&H

465HH



Yeah right! You know how many bullets I can put in stock for the cost of an ele?

You a good fellow and all, I like you, and I am sure you understand when I say, that I am spending my bucks on B&Ms and bullets, and my own elephants and buffalo! Now I like to shoot elephants and buffalo too, and I really don't have to justify it with new rifles or bullets, but I will state for the record that I need those new rifles and bullets to keep my interest up! I would soon be very bored with shooting the same old same time after time, and would eventually give it up if that was the case! However, it is not, so I am looking for some elephants and buffalo next year for the 500 MDM and those wonderful big 550 gr solids of mine, and for buffalo I might be looking at some new NonCons for them, made of brass! So that gives me a goal and something new to do! I cannot be constrained "inside the Box", I must endeavor to be free of the box, and escape the confines thereof!

Michael

<http://www.b-mriflesandcartridges.com/default.html>

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



416Tanzan
One of Us



posted 02 March 2010 16:06

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quote:

Originally posted by Warrior:
416 Tanzan

The McGyro program is more accurate. It was developed by Bill Davis and Robert McCoy. The Greenhill formula and the Miller formula (just an adaptation of Greenhill) has its origins in lead-core bullets that had to be stabilized way back in 1879 when the gun fraternity faced the problem of projectile stability in air.
Warrior

Yes, an adaptation of that is also available at that site: <http://www.jbmballistics.com/cgi-bin/jbmdrag-5.0.cgi>

However, it requires many precise measurements of the bullet shape including ogive in calibres and specific gravity. Lacking those, one can use the 'stability factor' Miller formula, that has gotten good reviews of practical confirmation.

+--+--+--+--+

"A well-rounded hunting battery might include:

500 AccRel Nyati, 416 Rigby or 416 Ruger, 375Ruger or 338WM, 308 or 270, 243, 223" --

Conserving creation, hunting the harvest.

Posts: **4253** | Registered: **10 June 2009**



michael458
One of Us



posted 02 March 2010 16:07

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Tanzan and Warrior

Still looking at aerodynamics and those are well and good formulas all. But still not the issue here, which is stabilization during penetration for the solids, which is much different than aerodynamic stabilization, as we are learning. But we are also learning that a proper designed bullet can overcome deficiencies in twist rates designed to stabilize for aerodynamics and not for terminal penetration! As Mike has proven with the North Forks!

Michael

<http://www.b-mriflesandcartridges.com/default.html>

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



michael458
One of Us



posted 02 March 2010 16:09

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quote:

Originally posted by someoldguy:

No, sir! I'm not qualified! I'm only a student of terminal ballistics. A rank amateur!

But not that rank because I bathe regularly every Saturday.



Glenn

Me too, just a student of!

Every Saturday? Damn man, you will scrub your skin off bathing that much!

Michael

<http://www.b-mriflesandcartridges.com/default.html>

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