

Lethality Of The .22 LR Standard Velocity Round

I've been shooting the 22LR for many years and even bought a new bolt action 22 LR rifle (Savage Mark II BTVS) so I could train more cheaply for tactical precision rifle matches. As I started to train, I actually became impressed with what could be achieved with the 22LR in short and medium distances and wondered about the actual lethality of the round, so I decided to do some research in that area.

I mean, I know that the 22LR has been a good hunting round for small critters/ varmints such as rabbits and squirrels but occasionally you hear it is used as well for killing deers, coyotes and bigger animals - heck, on the internet, you can even find a story about the elephant being killed with a 22LR on the internet, LOL!

During my research, I came upon several instances whereby the 22 LR has also been used by the military and law enforcement as well. There were several stories of Chechen snipers using the 22LR in urban setting or Israeli snipers using it in “crowd control”

I started talking to several many people through bulletin boards to find more information about the lethality of that round, specifically from a tactical viewpoint - I.E. How effective and lethal is it? Any information about its lethality should also of interest to the average target shooters or even plinkers, being that it is one of most available/cheap round. Having the correct information could make people more aware of the possible consequences of not treating the 22LR with respect - I think we’ve all heard “ It’s just a 22! It’s not that powerful, etc...”

To get back to the subject, talking to hunters on various message boards and filtering out the “I heard that or someone told me”, here are some of the typical feedback/information I received from people who actually did it:

Lots of varmint kills up to 150 yards (This distance came up the most).
Larger animals kills at shorter distance - Deer/Coyotes at 100-150 yards.
Mention of a larger animal kill at 200 yards
Mention of actual rabbit kills at 175, 225 and 330 yards

Overall the distance of 100 to 150 yards came up in 50% of the responses.

To go back to the “tactical” aspect and the actual effectiveness/lethality of the round in military/law enforcement settings - no real information was actually available. There were lots of stories and hearsay of people getting shot with 22s and how effective it was (or wasn’t) but no ACTUAL and PROVEN information - the main feedback was that shot placement was the most important in a military/law enforcement setting but there were no answers as to what would happen if someone was shot with a 22LR at medium distance (200 to 300 yards). When would the round stop penetrating several layers of clothing/skin and become completely ineffective and useless from a tactical point of view.

Gathering all the information from hunters, target shooters, etc... I personally came up with the conclusion that the 22LR “may be” effective up to 200 yards and possibly penetrate several layers of clothing which are usually something like a “t-shirt, a shirt and a jacket” and frankly I would not have been surprised if it didn’t penetrate at all.

Actual information not being available, I decided to conduct a test myself to see how far would a 22LR round penetrate 3 layers of clothing and penetrate skin as well. I looked at several options such as using ballistic gel, wet newspaper, etc... but finally ended up with the cheapest option and, what I thought the somewhat most realistic as well: purchasing a frozen turkey, thaw it and wrap it in 3 layers of clothing. This would be a good test to see how far the 22LR would penetrate.

Here is an account of my “experiment” and Boy! Was I in for a surprise in many levels!!!!!!

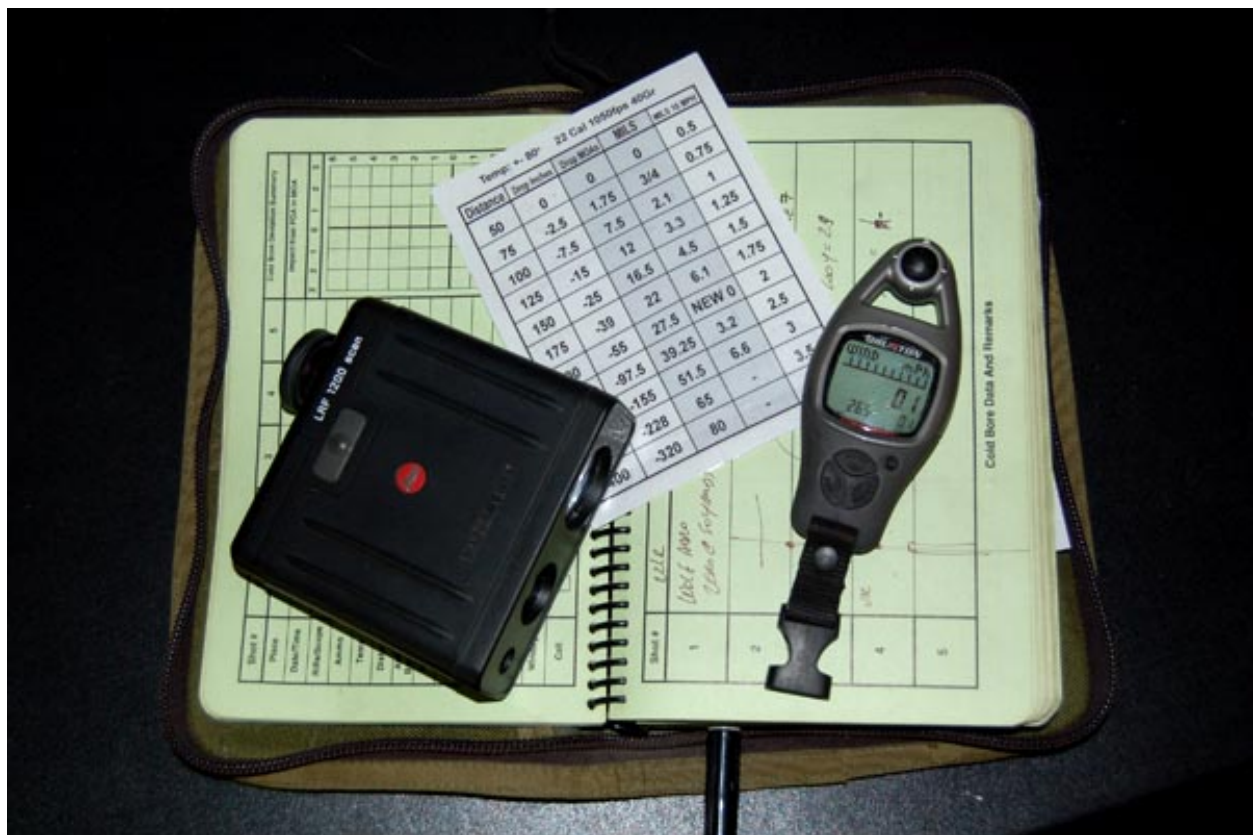
The test took place in the California desert at my usual shooting place for long distance shooting - far away from civilization and very safe. As it happens sometimes, nature has its own mind and does not always follow your plans. The weekend I chose and got ready for (including thawing the meat) ended up being quite windy.

How windy? Here is a look at my tent during the trip - yep, that’s the wind pushing the side of the tent nearly flat. Wind was an average of 25 MPH with gusts up to 30 MPH and lowest at 18MPH.

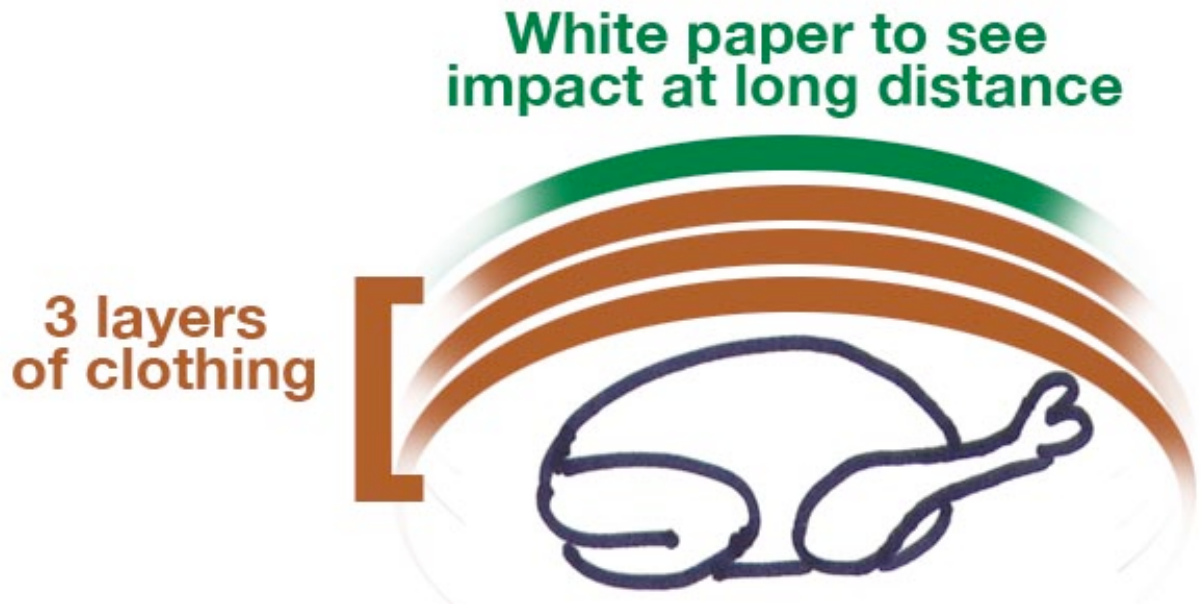


This was a nightmare for any rimfire shooter and frankly I was extremely close to just pack it up and go home after doing some shooting with my 308. I thought shooting the 22LR in these conditions (the wind was quite violent and shifting constantly between 18 and 30MPH) would be absolutely impossible.

The main goal of the trip was this research and I already purchased the turkey so I decided to at least "Try it" with much reservation as to being able to actually hit the target. Having participated in many tactical long distances matches over the years, I decided to follow my own hard learned lesson: "When in doubt, follow what the book says" or, simply, trust your ballistic information, instruments and basic field craft. Because I use the 22LR for training, I pretty much replicated my setup and had at hand all I needed such as ballistic data card for elevation and windage, wind meter and range finder.



The setup for the turkey was as follow: 3 layers of clothing wrapped around it and taped in the back (although care was given to not make the clothing too tight either) and a white paper on top so we could see the impacts at long distance.



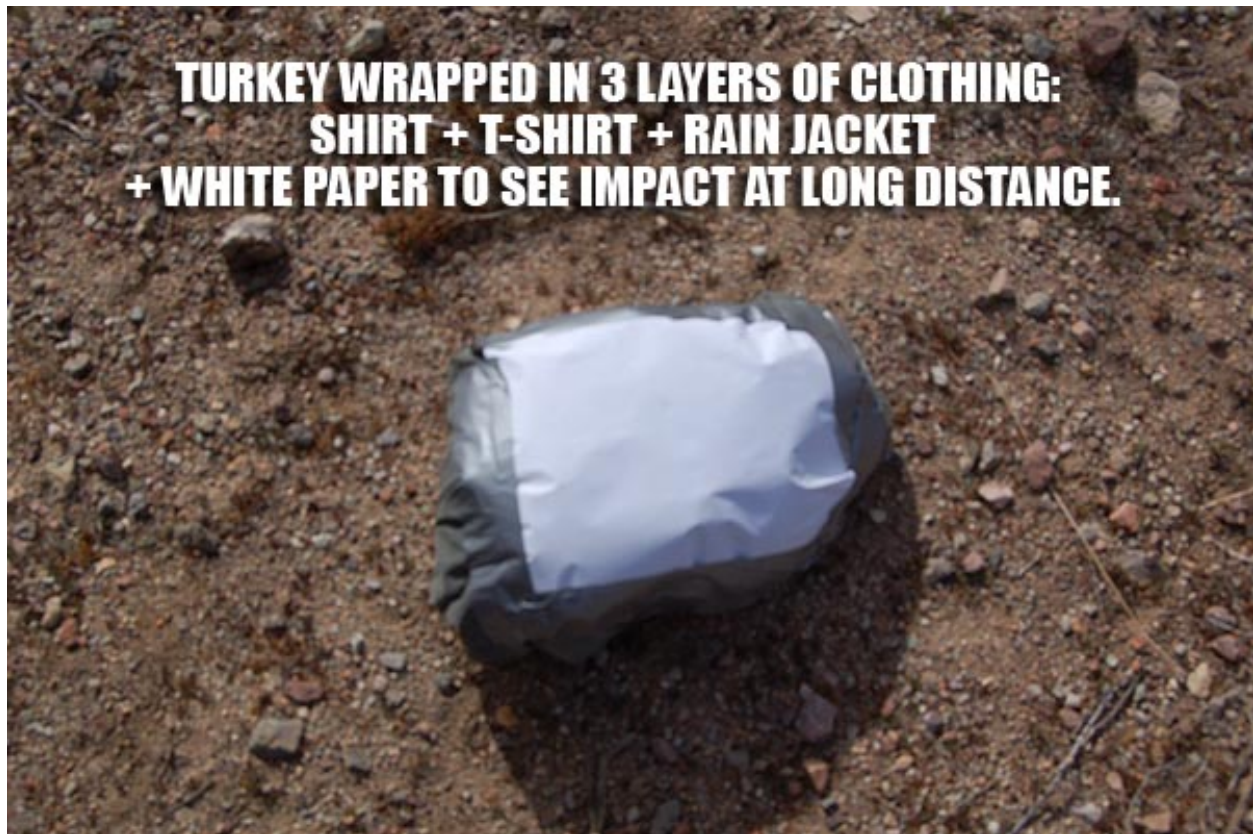
The test was done at the maximum distance of 300 yards because honestly, I thought that penetration would probably not occur at that distance and because, above 300 yards, using my elevation knob and even mildots was pretty much useless.

A 400 yards shot is basically an 80 MOAs drop. Even shooting at 300 yards requires me to place my elevation for 200 yards (27.5 MOAs) and use 6.6 MILS (actually already off the mildots reticle so there is somewhat of a guess).

The clothing layers were composed of the following: One usual heavy cotton t-shirt, one heavy cotton shirt and a canvas raincoat.



The wrapped around turkey looked like this:



My son was with me and it took use considerable time to find the right location. Safety was definitely an issue but also, in order to have any chance to hit the target with winds that strong we had to shoot within the wind. Even then, because of the constant shifting of the wind from 7 to 5 O'clock, I had doubts we could even pull it off. So instead of 300 yards, we actually started at 250 yards which allowed me to use my elevation knob zeroed at 200 yards and my mildots reticle and thus "less guessing".

As you can see the package is quite small at 250 yards!!!!!! The wrapped Turkey was a bit bigger then a human head, it wasn't a big turkey to start with - I actually bought the cheapest one (\$12)



We positioned ourselves on top of the Jeep. My son used my 308 and the Leupold 6.5-20X to spot me (if we could do so) and I shot the 22LR.



Equipment was as follow:

Savage Mark II BTVS in 22 LR

Bushnell 3200 Tactical Scope - 10X Mildots

Ammunition was Wolf Match Target - 40 Gr Bullet - 1050 fps

Note that shooting in that position was not the most stable and 25-30 MPH wind actually WILL shake you around. I calculated the wind cycle to range from around 18 to 30 MPH. It was a quick wind cycle with periods of 18 MPH lasting only a 4-5 seconds at best. I decided to shoot at the lowest point of the wind cycle and simply use 0 windage as I was shooting in the wind.

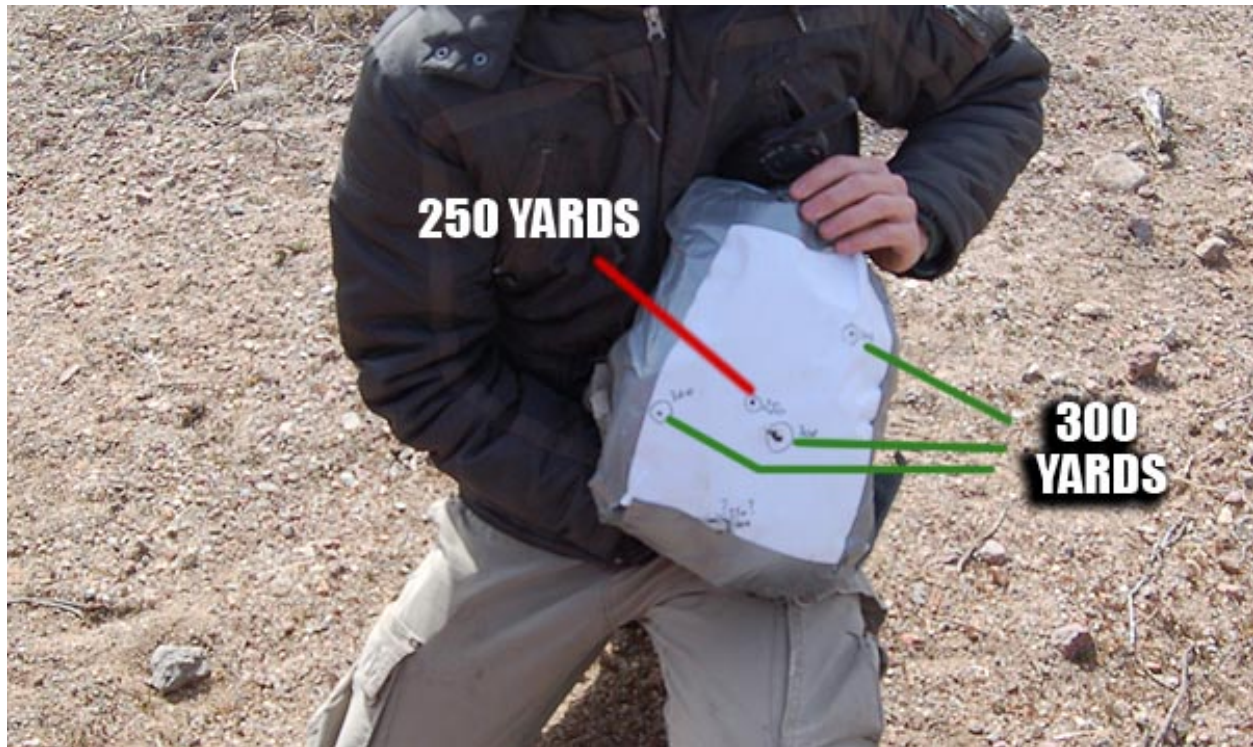
My first round went slightly to the left missing the target by a couple of inches, my second round did the same on the right side and my third one actually hit the small turkey dead center. I was actually amazed!!!!!!

I was ready to shoot 50 rounds in those windy conditions to have some "Hope" to hit the target because, from what I was told, the 22LR is so unstable in the wind at long distance. Yet despite the atrocious conditions - using elementary ballistic information and field craft, shooting it in 18 to 30 MPH was factually quite easy. From a tactical viewpoint, every single shot would have hit a center mass target.

Inspecting the 250 yards target was quite revealing...the bullet had gone through the 3 layers as if it was nothing.

Encouraged by the results and the fact that we could hit the target, we placed the turkey at 300 yards. I spotted for my son and he took the shots. Again we were amazed that despite the wind we had 4 hits out of 10 rounds!!! If someone had told me he can shoot such a small target in those conditions, before we did so ourselves, I would have laughed!

Here was the result:

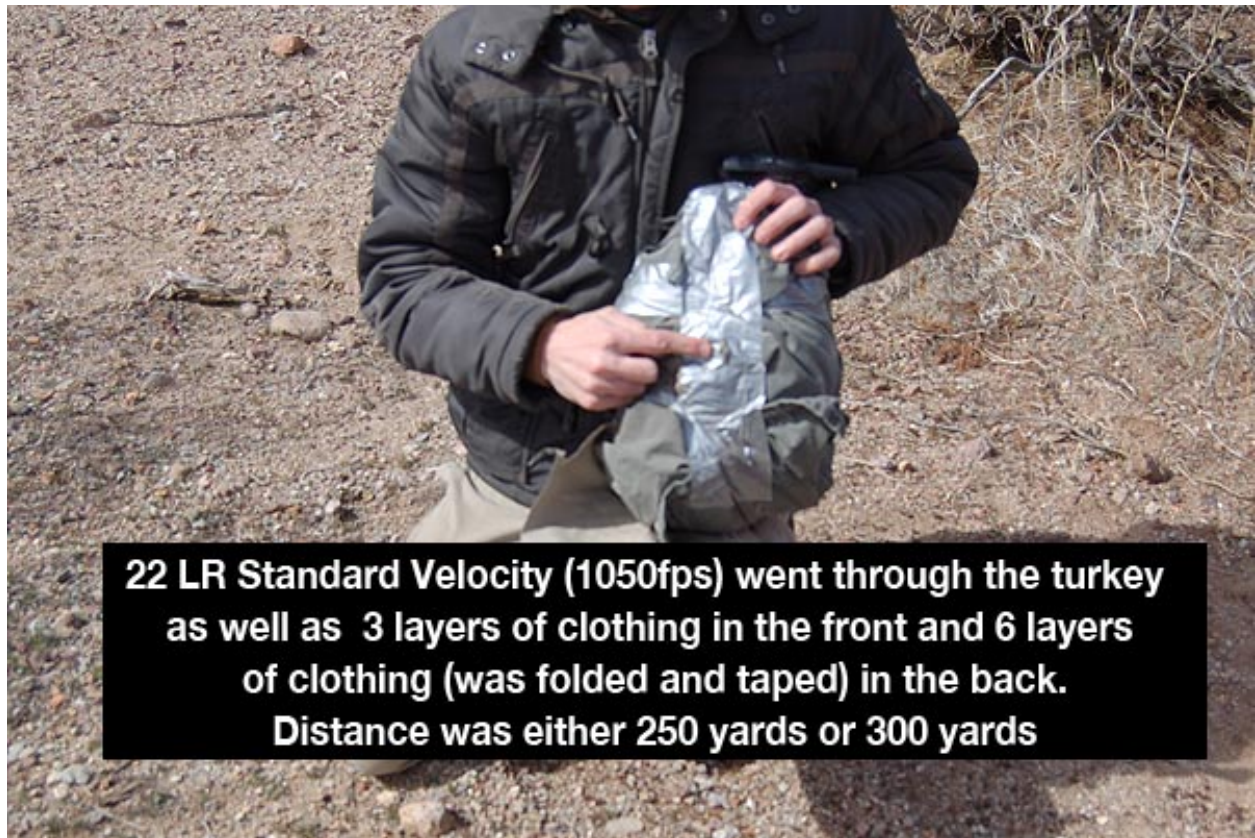


Note that the 300 yards round in the center seemed to have keyhole. The probability is that the bullet hit some of the sage brush that was moving around wildly in the wind because no other impacts showed signs of keyholing and we were somewhat shooting through the moving brushes.

Now the huge surprise was the following. After taking the shot at 250 yards I was quite happy to see that the bullet had penetrated the 3 layers of clothing but I would have never thought of actually checking the **BACK OF THE TARGET**.

After shooting the 300 yards and taking back the target to the Jeep, we realized that one round had gone through the whole turkey, the clothing layers in the front **AND** the layers in the back as well!!!!!!!!!! And this had to occur between 250 yards and 300 yards. This was **MUCH MORE** than I ever had anticipated for the standard velocity 22LR round!!!!!!!!!!

Not only that but because the clothing was wrapped around and folded/taped in the back, it was the equivalent of shooting through 3 layers of clothing in the front and 6 LAYERS of clothing in the back plus on layer of duct tape!



22 LR Standard Velocity (1050fps) went through the turkey as well as 3 layers of clothing in the front and 6 layers of clothing (was folded and taped) in the back. Distance was either 250 yards or 300 yards

We did one more shot at 100 yards and the round went through easily. The turkey was the equivalent of 7 inches of meat and bones.



Unwrapping the target showed that the rounds at 300 yards (assuming that the round that went through was probably the 250 yards round) went through the turkey and got stuck under the skin. Still penetrating 7 inches of bones and meat.



My conclusions:

I've gained a new respect for the 22LR and its efficiency. The 22 rounds is very underrated. In many ways, it is much more powerful than I anticipated.

From a tactical viewpoint, it was also very interesting that despite the atrocious conditions, basic ballistic information and field craft (wind cycle, shooting in the wind, etc...) make it possible to shoot effectively that round at medium distances.

300 yards can be a VERY doable and an effective shooting distance in normal conditions. We did it in terrible conditions.

Although I probably won't do further tests, I can imagine that round penetrating layers of clothing and be effective at much longer distances then 300 yards -maybe 500 yards and beyond.

But now I consider proven that within 300 yards it can be accurate and extremely lethal!

Hope this help others to gain more respect as well for the small 22LR and thus make sure we all practice safe shooting, even if it looks like a tiny little round!

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