

UPDATE: Handloads That Work

Barsness reevaluates his standard loads.

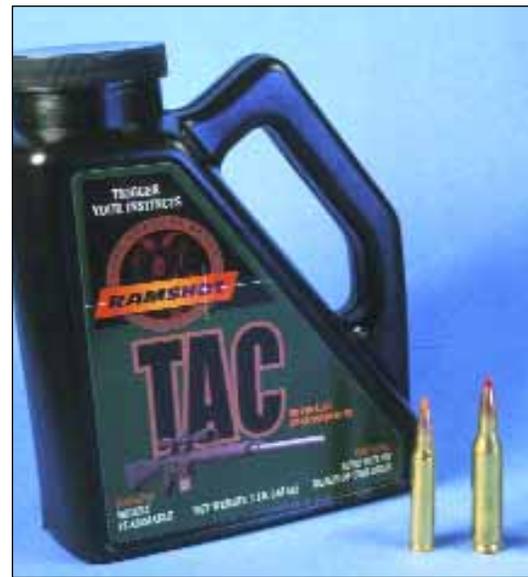
John Barsness

A few weeks ago, a reader noted that it had been eight years since an article entitled “Handloads That Work” appeared in these pages – a list of handloads that had shot pretty darn well in a variety of rifles chambered for the same cartridge. A major point of the original piece was that a reasonably well-tuned rifle should shoot such a handload at least acceptably. If the rifle doesn’t shoot with a handload that’s worked in several other rifles chambered for, say, the .30-06, then there’s probably something wrong with the rifle. This saves us time and money. Instead of blowing expensive powder and bullets downrange in an imperfect rifle, hoping for a load that hums, we fix the rifle until it shoots The Handload reasonably well. Then we can experiment further, knowing our rifle’s “tuned.”

This reader noted a bunch of new stuff (mostly powders) that had appeared since 1996. At the moment over 150 canister powders are available to the handloader. How’s a poor basement experimenter to

The right powder won't help unless bullets are seated reasonably straight. Right, bullets have gotten better since the original "Loads That Work" appeared eight years ago, thanks primarily to Vern Juenke's bullet machine.





With so many powders available today, how's a handloader to choose? One powder brand that John's found works very well in almost any rifle cartridge is Western Powder's Ramshot. TAC is perhaps the most flexible Ramshot powder with a burning rate about like IMR-4895.

begin? This is an excellent point, because it also applies to supposed professionals, such as your faithful reporter.

Today we simply can't reproduce Ken Waters "Pet Loads," because there are too many powders and bullets. The shooting alone could take a year – all for one article. Wolfe Publishing is reasonably generous to its staff writers, but in my experience *National Geographic* is the only magazine that pays a staffer enough to produce one piece a year. The following suggestions aren't the absolute cream of every component possibility, just loads that work.

To be honest, I'm constantly

amazed at how well off-the-rack sporting rifles shoot with almost any sort of ammunition. Yeah, we all encounter dogs now and then, and some rifles hate some ammunition. But in my experience about any off-the-rack bolt gun – and many based on other actions – will group three shots of almost any big game ammunition into 1.5 inches at 100 yards. Despite what many rifle loonies (or, for the more politically correct, rifle *enthusiasts*) apparently believe these days, this does fine for big game hunting out

to any sane range. Most new rifles chambered for varmint cartridges will group five shots of factory ammunition into one inch or less at 100 yards, a phenomenon that would have astounded your grandfather.

However, his grandson *wants more*. This is the human condition. If you really, really want to shoot itty-bitty groups, you should start by reading a pair of my articles about "Factors in Accuracy" in the July 2002 *Rifle* (No. 202) and the

The traditional IMR-4350 and Accurate's similar XMR-4350 still work fine, but John's found that temperature-stable Hodgdon H-4350 works just a little better in many applications.

Hodgdon's H-4831 has changed three times since it appeared as a military surplus powder after World War II. A "new" version appeared about 30 years ago, when the military powder ran out, and now we have H-4831sc Extreme.





IMR-7828 is still a good powder in the .270 Weatherby, but Reloder 25 is more accurate in most rifles.



For a traditional black-powder load in the .45-70, try 70 grains of Swiss 1½ Fg and a 405-grain cast bullet like these, cast from a Lee mould.

August 2002 *Handloader* (No. 218). The first tells how to tune and test a rifle for maximum accuracy; the second describes constructing precise ammunition.

Most handloads chosen by home handloaders are based on “insufficient data,” often only a couple of groups. To find if a certain combination truly works in your rifle, you should fire groups in varying weather conditions. You may discover that your magic load, worked up on a warm July afternoon, may not group into a coffee cup on a cold January morning. It might even shift point of impact considerably, probably because velocity dropped 100 fps or more.

Years ago I retested a pair of “pet” handloads for the .270 WCF,

obtaining some startling results. They were originally worked up in temperatures varying between 60 and 75 degrees, in a tuned Remington Model 78. (Anybody remember the 78, a cheap version of the Model 700?) The essentials were a 130-grain Nosler Solid Base and 62 grains of Hodgdon H-4831, and a 150-grain Nosler Partition and 57.5 grains of Alliant Reloder 22. (I’d probably consider the first load a little warm these days, but back then I had much more faith in traditional “pressure signs.”)

Both loads shot to exactly the same point of impact at 100 yards, the point of the exercise. I wanted a reasonably economical 130-grain load for deer, pronghorn and sighting-in, plus a 150-grain load

with the tougher Partition for bear and elk. When originally chronographed, muzzle velocity ran 3,114 fps for the 130s and 2,911 for the 150s. Both loads grouped under .6 inch for three shots at 100 yards. One six-shot group – three shots of both loads – went into .75 inch. Everything seemed perfect.

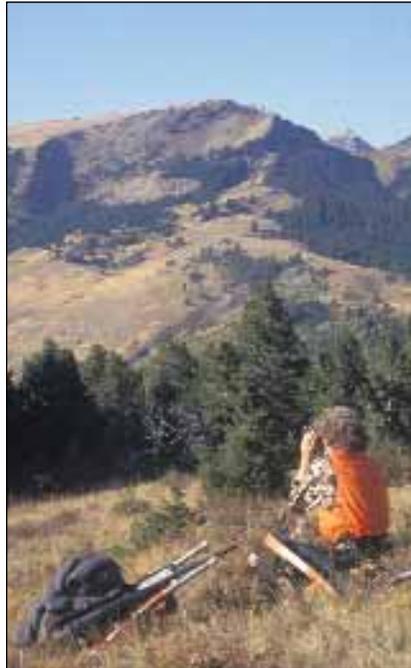
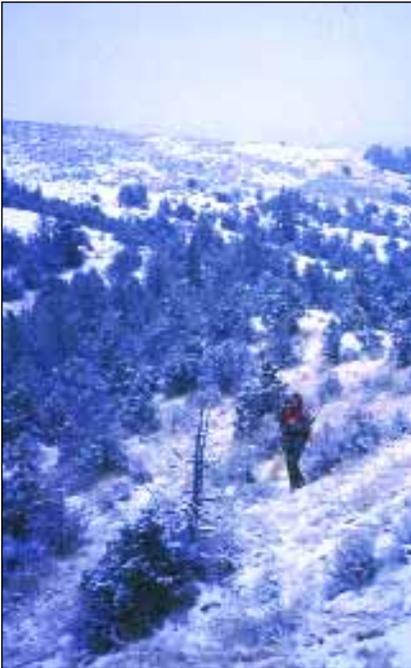
I’m constantly amazed at how well off-the-rack sporting rifles shoot with almost any sort of ammunition.

I shot both loads again in January, using the same rifle and scope. The 150-grain load still shot dead-center and 3 inches high at 100 yards. Even though muzzle velocity had dropped to 2,784 fps, the single group fired measured .56, center to center. But the 130-grain load now printed one inch high – and 3 inches to the right! Muzzle velocity dropped to 2,963 fps, and the single group fired opened up to 1.88 inches. Thereafter I abandoned the 130-grain load and hunted everything with the 150s, which worked perfectly.

The H-4831 used was what might be termed “middle generation.” Original H-4831 was repackaged surplus powder from World War II. That supply ran out in the early 1970s, and Hodgdon developed a newly manufactured substitute

John used to use relatively “affordable” Sierra or Hornady bullets to do initial load work-up, knowing they were highly accurate, but these days many premium bullets are just as accurate.





Anywhere north of the Mason-Dixon line, hunting can take place in any weather from 80+ degrees Fahrenheit to well below zero. Some powders work better across that range than others.

that was pretty much identical. This is what I used in my cheap .270.

Many years later Hodgdon introduced its temperature-tolerant Extreme line of powders. I've tested H-4831 Extreme at both 70 above and 0 Fahrenheit, and it chronographed within 10 fps of the same velocity. All loads shot to the same place too.

In the meantime I've also tested Reloder 22 in a bunch more cartridges. It normally loses around 100 fps, or even more, from 70 to 0 F. In some rifles, RL-22 loads have also changed point of impact when shot at varying temperatures, sometimes as much as 2 to 3 inches at 100 yards. Sometimes accuracy deteriorated too, and sometimes it didn't. It depends on the load and rifle.

A load worked up in relatively warm weather may not work so well in cold. Any load that might be used in cold weather should be tested in cold weather.

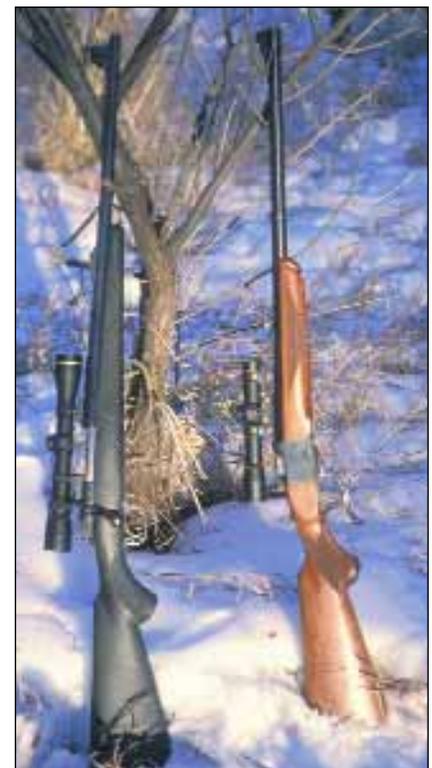


In my experiments, temperature-insensitive powders have never produced noticeable impact shifts in cold weather. This doesn't mean such can't happen, just that so far they haven't. Temperature-insensitive powders include the Extremes, Ramshot's line of rifle powders and Alliant Reloder 15. Vihtavuori also claims temperature insensitivity with many of its powders, but I haven't tested them enough to say for sure.

This doesn't mean that handloads using "traditional" powders such as the IMRs and most of Alliant's Reloder line always result in a noticeable change in point of impact in cold weather. Often such handloads shoot to the same place, and just as accurately, even if the bullets lose some muzzle velocity.

An example is my Ruger 77 Mark II 6.5x55 Mauser. Its primary load features the 120-grain Barnes X-Bullet and 49.0 grains of Reloder 19. This loses about 80 fps between 70 and zero F., but point of impact stays the same, and accuracy remains well under an inch at 100 yards. But the point here is that we won't know if our load really is the Perfect Solution unless we shoot it more than a few times.

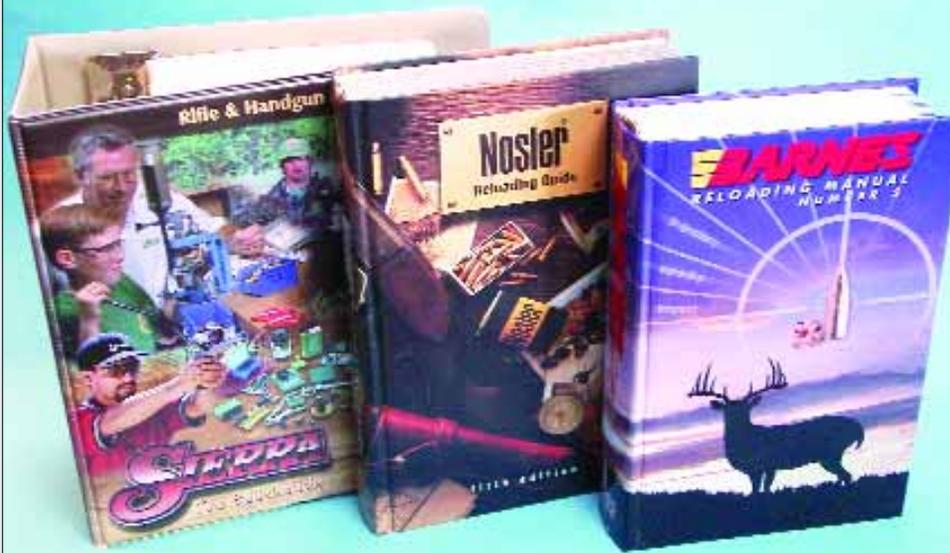
Many cartridges work very well with a variety of powders. Most "efficient" cartridges tend to be



REFERENCES

Eight years ago I noted references where you can find other loads that work, including the Nosler manual (which in recent editions has noted what loads worked best in a particular cartridge) and, of course, Ken Waters's "Pet Loads" articles, also collected in book form.

Since then some other loading manuals have let us know what worked for them. The *Barnes Reloading Manual Number 3* places an asterisk beside which powders worked best. Sierra's *Rifle and Handgun Reloading Manual, Edition V* lists both a hunting and an accuracy load for each bullet weight. The latest (free!) version of Ramshot's manual, called *Revised Load Guide Edition III*, also lists accuracy loads. Hornady's manual often tells which powders worked best in the preface for each cartridge's data. Thanks, everybody! Your help is always appreciated.



Some new loading manuals tell which powders worked best during testing.

very well behaved, mostly because their limited case capacity makes the rifle vibrate less when it goes bang.

Also, many similar powders are available in the suitable burning-rate range. For instance, not only does the .308 WCF jar everything (including the shooter) far less than a .300 Remington Ultra Mag but also a pile of appropriate powders exists. Most .308s hum with powders that burn about like 4895, whether IMR or Hodgdon. Look at a list of powders of that approximate "speed" these days, and the list runs on and on: Alliant Reloder 10x and 15, Accurate Arms 2495, Vihtavuori N135, Ramshot TAC, Hodgdon Varget, even IMR-4064 and IMR-4320. Load any of them behind a 150-grain bullet and you're probably good to go. In contrast, the list of powders that really work in the .300 RUM (or any high-intensity case) is much more limited, so chances of finding a "hummer" are lower.

Since my original article appeared, bullets have gotten noticeably better, probably because of the use of Vern Juenke's Interior Concentricity Comparator, the first machine that made pretesting bullets practical. Many serious hand-loaders use one these days – but

more importantly, many bullet companies do too. My own Juenke machine indicates improvement in almost all factory bullets over the past few years.

This makes "working up" a load far easier, because we don't have to try a bunch of different bullets to find one our rifle likes. Much of this "liking" was due to unbalanced bullets, not any magic relationship between a certain bullet and our individual rifle.

That statement might be considered a disclaimer. A major reason the following loads work in most rifles is because all components have gotten better – but bullets make the biggest difference. Over the past eight years my "work up" time has been enormously reduced through the quality of modern bullets.

I used to test new rifles with Sierras and Hornady Spire Points, because they were reasonably priced and had proven themselves accurate over time. Only after a rifle shot well with Sierras or Hornadys would I shoot expensive stuff like Nosler Partitions. These days I often start with the bullet I intend to use on game. Sometimes this is a Sierra or Hornady, but just as often it's a boutique bullet,

sorted through the Juenke machine – or spot-tested by a Juenke machine at the factory.

Seat a well-balanced bullet reasonably straight, in a case neck that varies no more than .0015 inch in thickness, using a reasonably appropriate powder, and your rifle should shoot pretty darn well. If not, something's probably wrong with the rifle, scope or mount.

You might not find your favorite chambering among the loads. This may be because I've never worked with it, or because I haven't worked with enough rifles to state that XYZ load works in most rifles.

The same goes for some newer powders. Of all the new rifle powders, I've been most impressed with Ramshot's temperature-tolerant, clean-burning spherical powders and burn a lot of them anymore. But Ramshot powders aren't available everywhere, so when I note a good load using, say, Ramshot TAC, I'll also note a load using a more widely available powder.

Remember to work up from at least 5 percent below the charge noted:

.22 HORNET: Ramshot Enforcer or Hodgdon Lil'Gun and a 40-grain bullet.

In magazine rifles the bullet will have to be blunt, like Sierra's semi-spitzer, then load about 9.0 grains of Enforcer or 10.5 grains of Lil'Gun. Either should produce about 2,800 fps, somewhat faster than traditional Hornet powders.

In single shots, pointy bullets like the Hornady V-MAX or Nosler Ballistic Tip can be seated well out and the powder charge upped to about 11.5 grains of Enforcer or 13.0 grains of Lil'Gun. Either produces around 3,000 fps, and the sleek bullets turn the old Hornet into a genuine 300-yard varmint rifle.

.222 REMINGTON: Almost anything works in the Triple Deuce, but recently I've used Ramshot TAC, for reasons explained in the .223 Remington notes. Even in my worn old Remington Model 788, 25.0 grains and the 40-grain Hornady V-MAX produces over 3,400 fps and 10-shot (*not* five-shot) groups average around an inch. If you can't find TAC, 22.0 grains of Reloder 7 will also do.

.223 REMINGTON: Previously "the load" was 26.0 grains of Hodgdon H-335 and a 50-grain bullet for about 3,300 to 3,400 fps, depending on barrel length. This was the standard .223 load among many prairie dog shooters.

Unfortunately, H-335 isn't the cleanest-burning powder, requiring frequent field-scrubbing. But the Ramshot line burns as cleanly as the better extruded powders, so we get the same easy metering with less cleaning. With TAC I've shot over 450 rounds without cleaning in my heavy-barrel Remington Model 700 – and five-shot groups still plunked into .5 inch or so.

.22-250 REMINGTON: Here I still prefer an older powder. Some newer powders equal IMR-4895, but none really surpass it. Around 34.0 grains produce fine accuracy with 50-grain bullets at 3,600 to 3,700 fps.

.220 SWIFT: I used to use IMR-4895 in the Swift, but 37.0 grains of Alliant Reloder 15 behind a 55-grain

bullet beats IMR-4895's velocities – and the .220's name, after all, is Swift. Reloder 15 has been temperature-tolerant ever since it was adopted by the U.S. military.

.243 WINCHESTER: I used to use IMR-4350 in the .243 but since have switched to other powders. For varmint loads using bullets from 55 to 75 grains, I generally use Ramshot Big Game. It meters *much* more easily than IMR-4350 and produces excellent accuracy at top velocities. With 49.0 grains of Big Game and the 55-grain Nosler Ballistic Tip, the .243 beats the Swift. With 70- to 75-grain bullets, drop the charge to 42.0 grains for about 3,300 fps. If you can't find Big Game, try 45.0 grains of Varget with the 55, and 40.0 with 70- to 75-grain bullets.

Ramshot Big Game meters much more easily than IMR-4350.

For deer I used to use a 100-grain bullet and 42.0 grains of IMR-4350 for about 2,900 fps in 22-inch barrels. This is a good load, but if you substitute Hodgdon's H-4350, it doesn't lose velocity in cold temperatures. If you prefer more speed, even lighter bullets hold together well. Forty-two grains of Reloder 22 will push the 90-grain Swift Scirocco or 95-grain Nosler Partition to over 3,000 fps.

6MM REMINGTON: To real rifle loonies, the 6mm beats the .243, mostly because of the longer neck and steeper shoulder. Lab testing also shows the .243 isn't as pressure-consistent when pushed hard, the reason factory 6mm ammunition shows a 140-fps edge with 100-grain bullets.

Alliant Reloder 19 provides a fine combination of velocity and accuracy in both varmint and big game loads. For varmints, 49.0 grains of RL-19 pushes the 80-grain Nosler Ballistic Tip or 87-grain Hornady V-MAX to over 3,400 fps – in a 22-inch barrel. For deer, etc., 45.0 grains starts either the 90-grain Scirocco or 95-grain Nosler Partition at over 3,100 fps.

.250 SAVAGE: For varmints, nothing I've tried works better than Hornady's 75-grain V-MAX and around 37.0 grains of Alliant RL-15. This usually gets incredible accuracy at around 3,200 fps from 22-inch barrels.

I used to use around 33.0 grains of IMR-4895 with 100-grain bullets but have since switched to 36.0 grains of Ramshot Big Game. This load is mild enough to use in Savage 99s but provides more zip than IMR-4895. From the 20-inch barrel of my Winchester Model 70 Lightweight Carbine, it chronographs 2,850 fps with the 100-grain Hornady Spire Point or Speer Hot-Cor spitzer. Either is plenty for average deer hunting.

Hodgdon's H-4831 can push 115- to 117-grain bullets to nearly the same velocity, making the .250 more reliable on really big deer. I've used 42.0 grains and the 115-grain Nosler Partition in a pair of rifles with one-in-10-inch twists, and it really does the job. In a traditional rifle with a one-in-14-inch twist, use the 117-grain Hornady roundnose. Accuracy is normally so-so but plenty for deer at .250 ranges.

.257 Roberts: Like the 6mm Remington (the same case necked down), the .257 Roberts does fine with one powder. The traditional choice is IMR-4350, but Hodgdon's H-4350 works equally well – and better in cold weather. Around 46 grains works excellently with 100-grain bullets with velocity about 3,000 fps, plenty for most deer hunting. For larger deer I've mostly used the 115-grain Nosler Partition and 43.0 grains of H-4350. Velocities run right on the heels of the 100-grain load noted above, and the bullet is more reliable on really big deer.

.25-06 Remington: Eight years ago I picked 49.0 grains of IMR-4350 with a 120-grain bullet. This is still an accurate load, usually getting around 3,000 fps from a 24-inch barrel. I'm not a big .25-06 user (nothing against the cartridge, I've just never found the .257 Roberts lacking), so haven't tried H-4350. But every time I've substi-

tuted H-4350 for IMR-4350 in other cartridges, it's worked just as well, with the advantage of temperature insensitivity.

.260 Remington: Around 41.0 grains of Reloder 15 does it with 100-grain bullets, whether for varmints or lighter big game, at around 3,200 fps. With 120- to 125-grain bullets either 44.0 grains of H-4350 or 46.0 grains of RL-19 does the job at close to 3,000 fps in standard-length barrels. With 140s try 44.0 grains of H-4831 or RL-22 for 2,700+ fps.

6.5x55mm Mauser: The powders that work in the .260 also work in modern rifles chambered for the old "Swede." Up the powder charges 2 to 3 grains with the same bullets for about the same muzzle velocities.

.270 Winchester: The new Extreme, short-cut version of H-4831 is far better than the old military powder but slightly hotter, so go no higher than 60 grains with 130-grain bullets or 57 grains with 150s. For 140s split the difference.

In the original article I listed 50.0 grains of IMR-4350 and the 90-grain Sierra hollowpoint as an accurate, light-kicking varmint load, getting 3,100+ fps. I don't shoot many varmints with the .270 anymore, but this load shot well in half a dozen .270s.

.270 Weatherby Magnum: This high-intensity magnum is surprisingly easy to load, one reason it stays at the top of Weatherby's sales list. Alliant's Reloder 25 is outstanding; about 78.0 grains and a 130-grain bullet will do everything Roy's .270 was designed to do at 3,300 to 3,400 fps.

7mm-08 Remington: You cannot beat 47.0 to 50.0 grains of H-4350 and any bullet around 140 grains in Remington's little update of the classic 7x57mm Mauser. Some bullets are longer and grabbier so will only take the lighter charge, but Hornady's 139 grainer will take 50.0 grains. Muzzle velocity ranges between 2,800 and 2,900 fps in 22-inch barrels.

7x57mm Mauser: In modern

rifles, the same powder and charges that work in the 7mm-08 also work with 140-class bullets in the 7x57 – and with the same results, both over the chronograph and on game.

For traditionalists, a 175-grain bullet combined with 48.0 grains of RL-22 will do for any game on earth, as W.D.M. Bell proved. Muzzle velocity usually breaks 2,500 fps in 22-inch barrels.

.280 Remington: Like its ballistic twin the .270 WCF, the .280 loves H-4831. With modern bullets around 150 grains will do the job on anything appropriate to the .280. Try around 58.0 grains and you'll generally get 2,900+ fps in a 22- to 24-inch barrel.

7mm Remington Magnum: In the old article I listed 66.0 grains of RL-22 or H-4831 with a 160-grain bullet. These are a little warm in some barrels, especially with H-4831. Stick with just enough RL-22 to get 3,000 fps from a 24-inch barrel. In some rifles this is as little as 62 grains – but it always seems to shoot, and 3,000 fps with a 160-grain bullet always got the best out of The Seven.

.30 WCF: I still use the same load here, partly because RL-15 is an even better powder. A 170-grain bullet and 34.0 grains gets 2,100 fps out of most 20-inch carbine barrels and can push 2,300 fps from 24-inch rifle barrels.

.300 Savage: Reloder 15 has also improved the old Savage. Try 42.0 grains with a 165-grain bullet, and you'll get around 2,600 fps from a 24-inch barrel, along with fine accuracy. This means you don't have to scratch your head over whether to use the 150 or 180 grainers.

.30-40 Krag: Either brand of 4350 and a 180-grain bullet works in the Krag. In older rifles don't go higher than 46.0 grains, for about 2,100 to 2,300 fps, depending on barrel length. In stronger rifles, like the Winchester High Wall reproduction, you can add a couple of grains and reach 2,500 fps.

.30-06: I used to use around 58 grains of IMR-4350 and a 165-grain

bullet to test '06s, but H-4350 does just as well. Muzzle velocity will be close to 2,900 fps. With 180s around 59.0 grains of RL-19 provides a good combination of accuracy, with velocity pushing 2,800 fps in a 24-inch barrel. For decades I used the 200-grain Nosler Partition and 59.0 grains of H-4831 as my heavy-game load in the '06, for 2,600+ in 22-inch barrels. If you like heavy bullets, this load shoots a lot flatter than you'd imagine.

.300 H&H Magnum: This oldie but goodie was the first to approach 3,000 fps with a 180-grain bullet, a combination that works superbly. You can get there, accurately, with around 70 grains of H-4831 or RL-22.

.300 Winchester Short Magnum: The short magnums are pretty much a snap to handload and tolerant of a wide array of powders. With 165s I haven't found anything better than 64.0 grains of Vih-tavuori N550 for 3,100+ fps. With 180s any of the old standbys from H-4350 to RL-22 produces the classic 3,000 fps, though 65.0 grains of H-4350 does it with less compression than the slower powders, if you're using a real long 180 grainer. Contrary to handloading superstition, 200-grain bullets work just fine in the stumpy case, with about 66.0 grains of either H-4831 or RL-22 for close to 2,900 fps.

.300 Winchester Magnum: Winchester's "antique" .300 magnum is another very forgiving cartridge. With 165-grain bullets 75.0 grains of RL-19 has shot extremely well in several rifles at 3,200+ fps. With 180s, you can't beat 75.0 grains of H-4831 for around 3,000 fps. Some powders might be slightly faster but none more reliable in cold elk weather. With 200-grain bullets I used to use 73.0 grains of RL-22 for around 2,900 fps but these days obtain the same accuracy and velocity with around 80.0 grains of Ramshot Magnum, a cold-insensitive powder.

.300 WEATHERBY MAGNUM: The standard is a 180-grain bullet and as close to 85.0 grains of IMR-7828 as the individual rifle can stand.

This combo generally gets 3,100 to 3,200 fps at the muzzle, depending on barrel length. One disassembled 180-grain round of factory Weatherby ammunition was filled with 85.0 grains of what very well could be IMR-7828.

.338 WINCHESTER MAGNUM: With lighter bullets I've recently started using RL-15 with excellent results. Combining a 200 grainer with 65.0 grains gets right around 3,000 fps, superb accuracy, flat trajectory and light recoil – at least for this cartridge.

With 220- to 230-grain bullets 75.0 grains of H-4381 or RL-22 gets around 2,800 fps. With 250s, H-4831 is king with up to 72.0 grains getting around 2,700 in 24-inch barrels.

.358 WINCHESTER: IMR-4895 is still a good choice in this fine, little “woods cartridge,” but Ramshot TAC has produced similar results in my .358s, without the extreme compression often necessary with IMR-4895, and is temperature-stable besides. My rifles like about 47.0 grains of TAC with 225-grain bullets (2,350 to 2,500 fps, depending on barrel length) and 45.0 grains with 250s (2,200 to 2,300 fps).

9.3x62mm Mauser: At one time almost unknown in North America, this fine, old German “medium” is gaining respect wherever **big** game is hunted. With any bullet weight, RL-15 is a great choice. Try around 65.0 grains with 232-grain Norma bullets (if you can find them) for about 2,700 fps, 63.0 grains with 250s for 2,600+ and 59.0 grains with 286s for about 2,400 fps.

Ramshot Big Game is outstanding with the classic 286-grain bullets. Try around 65.0 grains for close to 2,500 fps in most rifles.

9.3x74R: At least three of you are holding your breath for this data. I include it only because it's regulated well in several double rifles: about 65.0 grains of H-4350 and the 286-grain Nosler Partition for 2,400 fps in a typical double-barrel length of 26 inches.

.375 H&H: In the last article I suggested around 76.0 grains of IMR-4350 and a 300-grain bullet. The only change here is a switch to H-4350. Velocity is the same in a 24-inch barrel at 2,500+, but H-4350 is more tolerant both of Alaskan cold and African heat. Some .375s take a little more powder to reach 2,500 fps.

.416 REMINGTON MAGNUM: This cartridge is easy to load, if not quite so easy to shoot. In the last piece I suggested 75.0 grains of IMR-4895 for around 2,400 fps with a 400-grain bullet but since have had equally good luck with 78.0 grains of RL-15 or 69.0 grains of Ramshot TAC for about the same velocity. Both powders are less temperature-sensitive than IMR-4895, and neither charge is an absolute maximum, which could be important on a 90-degree day in Africa.

.45-70: This ancient cartridge is easy to load, one reason it's hung on for so long. To reproduce original ballistics of about 1,300 fps with a bullet in the 400-grain class (and be ultrasafe in “trapdoors”), 38.0 grains of good, old IMR-3031 can't be beat. For the original cloud of smoke, 70.0 grains of 1½ Fg Swiss brand black powder works better than anything else I've tried.

In modern rifles you can zip a 300-grain bullet to over 2,100 fps with 50.0 grains of Reloder 7, though in light leverguns it will rattle your cage. For 400 grainers, 50.0 grains of IMR-3031 does the job at over 1,800 fps. ●