

SHOTSHELL RELOADING GUIDE

EDITION 2.1



RAMSHOT
RELOADING POWDERS

GREATLY EXPANDED COMPETITION DATA!

SHOTSHELL GUIDE EDITION 2.1

WARNINGS

This guide is intended to be used as a reference. Each individual handloader must determine what is the best and safest load for their equipment. The loads described in this guide were generated at the ballistics test facilities of Western Powders, Inc. in accordance with SAAMI (Shooting Arms and Ammunition Institute) guidelines. All loads are fired through test barrels and individual results fired through different firearms may vary. The handloader is cautioned to read and follow safe reloading practices such as those outlined in the NRA Guide to Reloading before attempting to reload any cartridge.

DISCLAIMER

Western Powders, Inc. has developed this guide to provide the handloader with current data for reloading Ramshot powders. This guide is not intended to be a reloading textbook, but rather a list of recommended loads for Ramshot powders. As Western Powders, Inc. has no control over the actual reloading procedures and methods being used, or the condition or choice of firearms and components used, no responsibility for the use of this data is implied or assumed.

The buyer/user assumes full responsibility, risk, and liabilities for all injuries (including death), damages, and/or losses to persons or properties resulting from the use / misuse of this product. The ballistics data contained in this guide was obtained at Western Powders' ballistics facilities under strictly controlled conditions and is applicable ONLY for Ramshot powders. It is important to remember that equipment variations, different reloading techniques, as well as component variations will most likely yield slightly different ballistics data. With this in mind, it is imperative that you do not exceed the maximum charge recommendations in this guide and that you always start loading with the minimum powder charges in the loads illustrated.

POWDER WARNINGS

Smokeless powder is intended to function by burning. Therefore, it must be protected from exposure to flame, sparks, high temperatures and the sun's rays. When ignited, smokeless powder will normally continue to burn (and generate gas pressure) until the powder is entirely consumed. With this in mind:

1. NEVER MIX OR SUBSTITUTE powders with other powders;
2. Avoid open flames, combustible agents, and any spark-producing tools when handling powders;
3. Store powder in its original container in a cool / dry place;
4. Do not keep or use old or salvaged powders;
5. Check powder for deterioration on a regular basis. Deteriorated powder is detected by its noxious odor (not to be confused with solvents such as alcohol or ether).
6. Pour out only the amount of powder necessary for the application being conducted;
7. If you accidentally spill powder, use a broom and dust pan to clean it up. DO NOT VACUUM the spilled powder;
8. Do not stockpile powder - store and utilize the amount of powder necessary for your current reloading needs;
9. Be certain that the powder container is empty prior to discarding.

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COMPONENT WARNINGS

Primers

1. NEVER MIX PRIMERS of different makes;
2. Store primers in their original packaging(s) in a cool, dry place. Exposure to heat causes primer deterioration;
3. Do not stockpile primers or store in bulk. Storing primers in this manner can lead to mass detonation if a primer ignites;
4. Do not de-cap live or new primers - fire them in the appropriate gun and then de-cap;
5. For best results, use the mildest primer consistent with good ignition;
6. Do not force primers. If there is resistance in seating or feeding primers, stop and investigate the cause of the problem;
7. Clean your hands before and after handling primers - oil contamination can affect the ignitability of the primer.

QUALITY CONTROL

Reloading provides an individual with a cost effective means of obtaining ammunition, while at the same time allowing for custom load assemblage. You, the individual handloader, are responsible for producing the ammunition that you will later shoot. The caution and diligence you put into your reloading process can be ultimately rewarding or disastrous depending upon the quality of your work.

1. Common sense and care must be practiced during all phases;
2. Follow load recommendations exactly.
3. ALWAYS START LOADING WITH THE MINIMUM POWDER CHARGE SHOWN;
4. Designate a work area to be used only for reloading and keep that area clean and orderly;
5. Label components and reloads for quick and easy identification;
6. Develop a reloading routine and follow it;
7. Understand what you are doing and why it must be done in a specific manner; Never reload when you are tired or distracted;
8. Wear safety glasses when reloading;
9. DO NOT smoke, eat, or drink in your reloading area or while you are reloading;
10. Keep your powder, reloading equipment and firearms secure from children;
11. Obey all laws and regulations regarding purchasing, quantity, and storage of powder(s).
12. When the case fill is less than 50% extreme care should be taken to avoid the possibility of double charging. Always check every round.



NOTE:

THIS DATA SUPERSEDES ALL PREVIOUS LOAD DATA.
Always use the latest load data.

SHOTSHELL GUIDE EDITION 2.1

SHOT SHELL LOADING

Background and basic Fundamentals of Shot Shell loading.

- The fundamental difference between a shotshell cartridge and a typical centre fire rifle cartridge is, that the efficiency of the shotshell cartridge is 100% dependant on the round itself. By this we mean that all the “resistive forces” must be generated within the confines of the round itself. No assistance is provided by the gun.
- The reason for this is that the Maximum Peak Pressure is reached long before the base of the shot/wad assembly has left the case. (In the case of a CF rifle cartridge, the peak pressure is achieved when the bullet is engraved, therefore the large contribution, as a result of leade/free-bore dimensions on the combustion process. (I.e. bullet/bore interface fit, bullet hardness, bearing surface etc).
- The reason for this is that the critical engraving force which is so important to the dynamic combustion process present in a CF rifle caliber is totally absent in a shotgun.
- Shotgun and typical straight-case handgun calibers are actually basically the same in their fundamental ratios and dynamics. A shotgun can be described as an oversize low-pressure handgun caliber. That’s why the same powders are used in shotgun and handgun calibers.
- This means that the efficiency, regarding ignition and the subsequent increase in pressure, is totally controlled by the integral configuration and assembly of the round itself. These constitute the main inertial mass (shot mass), the initial internal volume (wad design), the dynamic collapse (primary expansion) of the internal volume (collapsible section of the wad), plus the displacing of the internal assembly and the unfolding of the fold/crimp (secondary/Final expansion).
- The way this COMBINATION interacts, will determine the efficiency Pressure impulse (Profile and time-base) and the Peak-pressure vs Velocity ratio (P/V). The resistive force, presented by friction in a shotgun is negligible.

CRIMPING: (ASSEMBLY)

- This is certainly one of the most important aspects of the Shotshell reloading process.
- The influence of crimp on the ballistics is often ignored, and assumed to be of lesser importance than primers and wad make/design.
- The fact is that the effect of Crimp-strength can totally overshadow the influence of the other components and parameters. This is controlled by the following:
 - Crimp depth: Depth setting on crimping machine.
 - Condition of the case: Material hardness resilience.
 - Wad: Length, Stiffness and rigidity/flexibility of collapsible section.
 - Wad Tension: Pre-tension/compression setting on crimping machine.
- Some reloader’s want to extend case life and they tend to crimp as shallow as possible, and with the least crimp strength possible. However, this practice can be problematic if the improper combination of primer, case, wad and powder is used. Example: If a “soft” combination is used, it can lead to underperformance, or in extreme cases bad ignition or “bloopers”. It is always wise to use a strong a crimp as possible, for any particular load/combination.

PRIMERS:

- It is well known that different primers deliver different energy levels. The way each company manufacturers and formulates the chemical composition, and configures the hardware (metallic) parts of the primer, all plays a major role in how the primer will deliver the energy to the powder.
- Again, we must emphasize that it’s all about the particular combination, and whether a change in primer will show a difference in ballistics.
- Shotgun primers are very sensitive to firing pin energy. This is due to the proportionally large displacement/deformation that must take place when the primer’s cup is crushed.
- It is extremely difficult to pin the data down to a standard one load, where primer X will always deliver higher performances than Primer Z. We developed our loads using a standard typical primer. If all conditions are the same, the difference between primers will rarely be dangerous. It is obvious that if the load one is using, is already running at the maximum level with primer X, it would be unwise to merely change the primer and continue loading. This is also true for any change in component or procedure.
- Once any component or procedure is changed, the combination will react differently. The proper way to proceed is to reduce the load by about 0.5grain to 0.7grains, and then confirm the performance by measuring the velocity or sensing the recoil/flight time. The reloader can then adjust back to the same velocity/recoil level, by increasing or decreasing the charge mass, or by adjusting to a stiffer or softer wad or decreasing or increasing the crimp.

VOLUMETRIC LOADING/DISPENSING:

- Always confirm the “thrown weight” from any bushing, bar etc on a scale.
- There are just too many variables that can influence volumetric measuring, of powder.
- These are:
 - The physical action with which the loading machine is operated.
 - The atmospheric conditions especially Relative Humidity (RH). This is especially true of single base powders which are very hygroscopic. Accurate Solo1000 is a single base powder, and Nitro 100 New Formulation and Ramshot Competition are double base powders.

RECOIL:

This is certainly the most discussed aspect of the shotgun shooting sport, and this is understandably so, because it determines the “comfort” of shooting hundreds of rounds in quick succession. (See section below on “Perceived recoil” and ergonomics). Because it’s such a subjective issue/subject, the conclusions and recommendations are most of the time unfortunately shrouded in confusion, and corrupted by improper comparisons.

First of all we need to emphasize and acknowledge the following important facts:

- First, there is true recoil energy in measured Ft/lbs of the gun itself, and once the shooter becomes part of the equation, the very subjective issue of “Perceived” or “Felt” recoil.

True Recoil:

- Normal physics still do apply, and in this case Newton’s Third law: For every action there is an equal and opposite reaction.

Formula: Mass of bullet + Mass of powder x Velocity (projectile) = Mass-gun x Velocity-gun.

- If different groups of ammunition, with the same shot mass are delivering the same velocity in a particular shotgun, the recoil WILL be the same.

“Perceived” or Felt” recoil:

Ergonomics

- Because the shooter forms a part of the “launching platform”, this reaction of the total platform will be as diverse as there are shooters.
- One must see the ammunition, gun and shooter as a three part “system” (Combination) forming this “launching platform”. The way these three parts interact and interface, will determine “how” the recoil takes place, and how the shooter will “perceive” or “feel” “experience” the recoil. (Notice the emotional aspects)
- Since the body is the heaviest part of the total recoiling mass, which anchors the system to the ground, it has the most inertial resistance. Since the body is soft, that part of the body interfacing directly with the shotgun, will absorb the energy long before the body starts moving (displacing). Thus the maximum absorption takes place in the few inches of muscle and tissue directly behind the butt.
- That’s why sometimes small and minute differences in gun design, hold/stance and balance will lessen the effects of recoil, and this will eventually directly determine the level of bruising/punishment, and as such the endurance of the shooter. This endurance-threshold will directly impact the shooters abilities to remain focused and accurate.
- This “endurance-threshold” is different for each shooter, and are determined by various aspects of the individual’s body structure re muscle, developed muscle (training), body weight and length (Tall = usually flexible, absorb energy better, softer feel, or short stocky = rigid hard recoil. The psychological make-up/preparedness (training) must also be considered.
- Apart from the above aspects, every person has a natural pain-threshold (nerves), and some will be able to endure more than others, before it will start affecting their shooting discipline and results.

AMMUNITION:

- As can be seen from the formula pressure is not part of the equation. Therefore the “peak”-value published in load guides does not really mean anything. However, Ammunition can be assembled (combination) to deliver similar velocities = true recoil, with a pressure impulse which can be slightly altered, having the same total impulse, but over a slightly longer time base. These changes can them be perceived as being “softer”. However, we must again stress the fact that the comparison must always be fair and clinical (apples with apples) re velocity. A proper average can really only be determined over a 10 and 20 round test, fired at different time’s, and days, to include day to day variation etc.
- This can be achieved by altering any one of the components in the above ammunition “subsystem”, which comprises of the primer, case/hull, wad, powder/burn-rate and the weight of the shot.
- This effect is the result of the combination and never one of the components only. This can only be properly done by thorough experimentation with different primer/s, cases, crimp /assembly methodology (see section below), wad design/s /make, wad tension (assembly), and the weight the shot.

MEASURING VELOCITY

POINTS TO REMEMBER WHEN LOADS ARE COMPARED.

The importance of measuring the velocity.

- Do not assume the velocity for your conditions is the same as the published data, even if you are duplicating the exact same combination re components i.e. the case/hull, powder type, powder charge, shot weight etc as recommended by any load guide.
- This real difference can only be determined by actually measuring the velocity, for the conditions, components and weapon system as used by the reloader/shooter.
- When loads are compared and the level of “perceived-recoil” has been determined for a particular shooter, have the velocity measured to confirm that the softer load are actually not merely a slower velocity. Since the formula for Kinetic Energy is half the mass x velocity squared, the shooter will detect a difference in recoil within a few feet per second. Especially the seasoned professional shooters that have developed an above average sensitivity and ability to sense variations between “loads”. — *Johan Loubser, Ballistician*.



Ramshot Competition - WINCHESTER - WAA - HS (2 Piece) Hulls continued

Shot wt	Wad	Prim	1050		1100		1125		1150		1175		1200		1225		1250		1275		1300		1325		1350		1375		1400		1425		1450	
			grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi
1	CB-4100-12-B	Fed	13.7	5,964	15.0	7,174	15.6	7,779	16.2	8,384	16.8	8,990	17.4	9,595	18.0	10,200	18.6	10,805																
1	Green Duster	Fed	13.8	7,045	15.0	8,056	15.7	8,562	16.3	9,067	16.9	9,573	17.5	10,078	18.1	10,583	18.7	11,088																
1	DR B-XL-1	Win			15.1	6,240	15.7	6,768	16.3	7,295	16.9	7,823	17.5	8,350	18.1	8,878	18.7	9,405	19.3	9,933	19.9	10,460	20.6	10,980	21.2	11,500								
1	DR B-XL-1	Rem			15.6	6,167	16.2	6,736	16.7	7,304	17.3	7,872	17.9	8,440	18.5	9,009	19.1	9,577	19.7	10,146	20.3	10,714	20.9	11,282										
1	DR B-XL-1	Ched			14.8	6,496	15.4	7,086	16.0	7,675	16.7	8,264	17.3	8,853	17.9	9,443	18.5	10,032	19.1	10,622	19.7	11,211												
1	DR B-XL-1	CCI	13.4	6,576	14.7	7,516	15.3	7,986	15.9	8,456	16.6	8,927	17.2	9,397	17.8	9,867	18.4	10,337	19.1	10,807	19.7	11,277												
1 1/8	WAA-12	Win	15.2	7,526	16.3	8,798			17.5	10,069																								
1 1/8	CB3118-12AR	Win	16.0	7,503	17.0	8,855	17.5	9,531	18.0	10,207	18.6	10,854	19.1	11,500																				
1 1/8	CB-3118-12A	Win	14.8	8,234	16.1	9,442	16.8	10,046	17.4	10,649	18.1	11,253																						
1 1/8	DR-Versatile	Win	15.2	7,016	16.3	8,211	16.9	8,809	17.4	9,407	18.0	10,005	18.5	10,603	19.1	11,201																		
1 1/8	WAA-12	Rem	14.6	7,535	15.8	9,040	16.4	9,793	17.0	10,546																								
1 1/8	WAA-12	Ched	14.3	8,681	15.6	9,890	16.3	10,494	16.9	11,098																								
1 1/8	WAA-12	CCI	14.6	7,647	15.9	8,858	16.5	9,464	17.1	10,069	17.7	10,674	18.3	11,279																				
1 1/8	Rem Fig 8	Win	15.6	7,471	16.6	8,744	17.1	9,381	17.6	10,017	18.2	10,653	18.7	11,289																				
1 1/8	Rem Fig 8	Rem	15.4	7,282	16.6	8,534	17.2	9,161	17.7	9,787	18.3	10,413	18.9	11,039																				
1 1/8	Rem Fig 8	Ched	15.1	8,221	16.2	9,386	16.8	9,969	17.3	10,551	17.8	11,134																						
1 1/8	Rem Fig 8	CCI	15.4	7,745	16.6	8,824	17.2	9,364	17.8	9,903	18.4	10,443	19.0	10,983																				
1 1/8	Rem RXP-12	Win	14.9	8,197	16.1	9,867	16.7	10,684	17.2	11,500																								
1 1/8	Rem RXP-12	Win	15.4	7,980	16.5	9,231	17.1	9,856	17.6	10,481	18.2	11,107																						
1 1/8	Rem RXP-12	Win	15.1	8,264	16.2	9,522	16.8	10,151	17.4	10,780																								
1 1/8	Rem RXP-12	Ched	15.0	7,931	16.2	9,304	16.9	9,991	17.5	10,678																								
1 1/8	Rem RXP-12	CCI	15.4	7,389	16.5	8,719	17.1	9,385	17.7	10,050	18.3	10,716	18.9	11,381																				
1 1/8	Rem RXP-12	Rem	15.0	7,963	16.4	8,956	17.1	9,453	17.7	9,949	18.4	10,446	19.0	10,942	19.7	11,439																		
1 1/8	DR-XL-1	Win	15.3	6,786	16.6	8,074	17.2	8,719	17.8	9,363	18.5	10,008	19.1	10,652	19.8	11,297																		
1 1/8	DR-XL-1	Rem	14.0	7,849	15.6	8,847	16.5	9,346	17.3	9,845	18.1	10,344	18.9	10,843	19.7	11,342																		
1 1/8	DR-XL-1	Ched	14.8	7,757	16.0	8,965	16.7	9,569	17.3	10,173	18.0	10,777	18.6	11,381																				
1 1/8	DR-XL-1	CCI	14.6	7,957	15.9	9,051	16.5	9,598	17.1	10,145	17.8	10,693	18.4	11,240																				
1 1/8	DR-F8	Win	15.6	7,396	16.6	8,518	17.2	9,079	17.7	9,640	18.3	10,201	18.8	10,762	19.4	11,324																		
1 1/8	DR-F8	Rem	15.3	7,271	16.4	8,655	17.0	9,347	17.6	10,039	18.2	10,731	18.7	11,423																				
1 1/8	DR-F8	Ched	14.9	8,289	16.1	9,493	16.7	10,095	17.3	10,696	17.9	11,298																						
1 1/8	DR-F8	CCI	14.9	7,462	16.3	8,783	17.0	9,444	17.6	10,104	18.3	10,765	19.0	11,425																				
1 1/8	DRRT	Win	15.5	7,798	16.6	8,914	17.2	9,472	17.7	10,029	18.3	10,587	18.8	11,145																				
1 1/8	DRRT	Rem	15.2	8,087	16.4	9,168	17.0	9,709	17.5	10,249	18.1	10,789	18.6	11,329																				
1 1/8	DRRT	Ched	15.1	8,410	16.2	9,599	16.7	10,194	17.2	10,788	17.8	11,358																						
1 1/8	DRRT	CCI	15.7	7,812	16.8	8,981	17.3	9,566	17.8	10,150	18.3	10,735	18.8	11,320																				
1 1/8	DRA-12	Win	15.2	7,954	16.4	8,691	17.1	9,059	17.7	9,427	18.3	9,796	18.9	10,164	19.6	10,533	20.2	10,901	20.8	11,270														
1 1/8	DRA-12	Rem	15.6	7,270	16.7	8,505	17.3	9,122	17.8	9,739	18.4	10,357	18.9	10,974																				
1 1/8	DRA-12	Ched	14.4	8,289	15.7	9,250	16.4	9,731	17.0	10,211	17.7	10,691	18.3	11,171																				
1 1/8	DRA-12	CCI	14.9	8,540	16.1	9,587	16.8	10,110	17.4	10,633	18.0	11,157																						
1 1/8	DRA-12	Fed209	15.4	8,617	16.6	9,572	17.2	10,050	17.8	10,528	18.5	11,006	19.1	11,483																				
1 1/8	DR-Versatile	Rem	14.4	8,309	15.8	9,378	16.5	9,913	17.1	10,447	17.8	10,974	18.5	11,500																				
1 1/8	DR-Versatile	Ched	14.4	9,084	15.7	10,096	16.3	10,601	16.9	11,106	8.5	5,553																						
1 1/8	DR-Versatile	CCI	15.3	7,722	16.5	9,195	17.1	9,931	17.7	10,667	8.9	5,334																						
1 1/8	DR-WJ-RPL	Win	15.8	6,676	16.9	7,991	17.5	8,649	18.0	9,307	18.5	9,965	19.0	10,623	19.6	11,281																		
1 1/8	DR-WJ-RPL	Rem	15.2	7,448	16.5	8,589	17.1	9,160	17.7	9,730	18.4	10,301	19.0	10,871																				
1 1/8	DR-WJ-RPL	Ched	15.2	8,173	16.3	9,199	16.9	9,712	17.4	10,225	18.0	10,738	18.5	11,251																				
1 1/8	DR-WJ-RPL	CCI	14.8	8,605	16.1	9,541	16.8	10,009	17.4	10,476	18.1	10,944	18.7	11,412																				



Ramshot Competition - REMINGTON STS - Hulls

Shot wt	Wad	Prim	1050		1100		1125		1150		1175		1200		1225		1250		1275		1300		1325		1350		1375		1400		1425		1450			
			grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi		
7/8	WAA-12L	Win															17.7	6,634	18.4	7,087	19.0	7,540	20.9	11,160	20.2	8,445	20.9	8,898	21.5	9,350	22.2	9,803	22.8	10,256		
7/8	WAA-12L	Rem															17.1	6,210	17.8	6,777	18.5	7,344	20.9	11,160	19.8	8,479	20.5	9,046	21.2	9,613	21.9	10,181	22.5	10,748		
7/8	WAA-12L	Ched							14.4	6,051	15.1	6,482	15.7	6,913	16.4	7,344	17.0	7,774	17.7	8,205	18.3	8,635	20.9	11,160	19.6	9,496	20.3	9,927	20.9	10,358	21.6	10,789	22.2	11,219		
1	DRF8	Win							17.1	6,439	17.7	7,056	18.2	7,672	18.8	8,289	19.3	8,905	19.8	9,522	20.3	10,138	20.9	10,755	21.4	11,371										
1	DR J-XL-1	Win			15.9	6,337	16.5	6,873	17.0	7,409	17.6	7,945	18.1	8,481	18.7	9,017	19.2	9,552	19.8	10,088	20.3	10,624	20.9	11,160												
1	DR J-XL-1	Rem			14.8	6,907	15.5	7,464	16.1	8,021	16.7	8,578	17.3	9,135	17.9	9,692	18.5	10,249	19.2	10,806	19.8	11,362														
1	DR J-XL-1	Ched	13.2	6,908	14.5	7,889	15.2	8,380	15.8	8,870	16.5	9,361	17.1	9,851	17.8	10,342	18.4	10,832	19.1	11,323																
1	DR J-XL-1	CCI	13.8	6,790	15.0	7,856	15.6	8,390	16.2	8,923	16.8	9,456	17.4	9,989	18.0	10,522	18.6	11,055																		
1	DR J-XL-1	Fed	14.3	6,383	15.3	7,541	15.9	8,120	16.4	8,698	16.9	9,277	17.4	9,856	17.9	10,435	18.4	11,014																		
1	DR-XL-1	Win			15.2	6,245	15.8	6,787	16.4	7,328	17.1	7,869	17.7	8,410	18.3	8,952	18.9	9,493	19.5	10,034	20.1	10,575	20.7	11,117												
1	DR-XL-1	Rem							16.1	7,267	16.7	7,968	17.3	8,669	18.0	9,371	18.6	10,072	19.2	10,773	19.8	11,474														
1	DR-XL-1	Ched	13.2	6,362	14.5	7,424	15.1	7,955	15.7	8,485	16.4	9,016	17.0	9,547	17.7	10,078	18.3	10,609	19.0	11,140																
1	DR-XL-1	CCI	14.2	6,120	15.3	7,222	15.8	7,773	16.3	8,323	16.9	8,874	17.4	9,425	18.0	9,976	18.5	10,526	19.1	11,077																
1	DR-XL-1	Fed	14.4	6,032	15.4	7,137	15.9	7,689	16.4	8,241	17.0	8,794	17.5	9,346	18.0	9,898	18.5	10,450	19.0	10,975	19.5	11,500														
1	DRA-12	Win							16.3	6,725	17.0	7,221	17.6	7,717	18.3	8,213	18.9	8,709	19.6	9,204	20.3	9,699	21.0	10,195	21.6	10,690	22.3	11,186								
1	DRA-12	Rem	13.9	6,783	15.1	7,583	15.7	7,938	16.2	8,293	16.8	8,671	17.4	9,048	18.0	9,426	18.6	9,803	19.2	10,181	19.8	10,558	20.4	10,936	21.0	11,313										
1	DRA-12	Ched			15.2	6,980	15.7	7,529	16.2	8,078	16.8	8,627	17.3	9,176	17.9	9,725	18.4	10,274	19.0	10,823	19.5	11,372														
1	DRA-12	CCI	13.7	6,758	14.9	7,677	15.5	8,137	16.1	8,596	16.7	9,056	17.3	9,516	17.9	9,976	18.5	10,435	19.1	10,895	19.7	11,354														
1	DRA-12	Fed	13.4	7,151	14.7	8,017	15.4	8,450	16.0	8,883	16.6	9,316	17.2	9,749	17.9	10,182	18.5	10,615	19.2	11,048	19.8	11,480														
1	WAA-12SL	Win							17.1	6,579	17.7	7,247	18.2	7,915	18.8	8,583	19.4	9,250	20.0	9,918	20.5	10,586	21.1	11,254												
1	WAA-12SL	Rem							16.8	6,923	17.4	7,538	17.9	8,152	18.5	8,767	19.0	9,381	19.6	9,996	20.1	10,610	20.7	11,225												
1	WAA-12SL	Ched			15.3	6,842	15.9	7,386	16.4	7,929	17.0	8,473	17.6	9,017	18.2	9,561	18.8	10,104	19.4	10,648	20.0	11,192														
1	WAA-12SL	CCI			15.9	6,726	16.5	7,252	17.0	7,777	17.6	8,303	18.1	8,828	18.7	9,354	19.2	9,880	19.8	10,406	20.3	10,931	20.9	11,457												
1	CB-1100-12	Win							18.5	6,699	19.2	7,286	19.6	7,873	20.2	8,460	20.8	9,047	21.4	9,634	22.0	10,220	22.6	10,807	23.2	11,394										
1	CB-1100-12	Rem			14.5	5,932	15.3	6,423	16.0	6,914	16.7	7,405	17.4	7,896	18.2	8,387	18.9	8,877	19.6	9,368	20.3	9,859	21.1	10,350	21.8	10,841	22.5	11,332								
1	CB-1100-12	Ched			15.2	6,600	15.8	7,073	16.4	7,545	17.0	8,018	17.6	8,491	18.2	8,964	18.8	9,436	19.5	9,909	20.1	10,382	20.7	10,855	21.3	11,327										
1	CB-1100-12	CCI							17.0	6,618	17.6	7,231	18.1	7,844	18.6	8,457	19.1	9,070	19.7	9,683	20.2	10,296	20.8	10,898	21.3	11,500										
1	WJII-12100	Win											19.1	6,013	19.6	6,723	20.1	7,433	20.6	8,144	21.1	8,854	21.6	9,565	22.0	10,275	22.5	10,986								
1	WJII-12100	Rem							16.7	6,413	17.3	6,969	17.9	7,525	18.5	8,081	19.1	8,637	19.7	9,193	20.2	9,749	20.8	10,305	21.4	10,861	22.0	11,418								
1	WJII-12100	Ched							16.0	6,167	16.7	6,815	17.3	7,463	18.0	8,111	18.6	8,759	19.3	9,407	20.0	10,055	20.7	10,703	21.3	11,351										
1	WJII-12100	CCI							16.5	6,267	17.1	6,803	17.7	7,338	18.3	7,874	18.9	8,409	19.5	8,945	20.1	9,480	20.7	10,016	21.3	10,552	21.9	11,088								
1	Rem-TGT	Win							16.8	6,470	17.4	7,112	18.0	7,753	18.6	8,395	19.2	9,037	19.8	9,679	20.3	10,320	20.9	10,962												
1	Rem-TGT	Rem			15.4	6,382	16.0	6,934	16.5	7,486	17.1	8,038	17.7	8,589	18.3	9,141	18.8	9,692	19.4	10,244	19.9	10,795	20.5	11,347												
1	Rem-TGT	Ched			14.9	6,898	15.5	7,462	16.1	8,026	16.7	8,590	17.3	9,154	17.9	9,718	18.5	10,281	19.2	10,845	19.8	11,409														
1	Rem-TGT	CCI			15.4	5,955	16.0	6,648	16.5	7,340	17.1	8,033	17.6	8,726	18.2	9,419	18.7	10,111	19.3	10,804	19.9	11,497														
1	CB-8100-12	Win			15.5	6,080	16.2	6,591	16.8	7,102	17.4	7,614	18.0	8,125	18.6	8,636	19.2	9,147	19.8	9,658	20.4	10,169	21.0	10,680	21.6	11,191										
1	CB-8100-12	Rem			16.0	6,233	16.6	6,786	17.1	7,338	17.6	7,891	18.1	8,444	18.6	8,997	19.1	9,549	19.7	10,102	20.2	10,654	20.7	11,207												
1	CB-8100-12	Ched			15.1	6,587	15.7	7,160	16.2	7,732	16.8	8,305	17.4	8,878	18.0	9,451	18.6	10,024	19.2	10,597	19.8	11,170														
1	CB-8100-12	CCI			15.5	6,875	16.1	7,444	16.6	8,012	17.2	8,581	17.7	9,149	18.3	9,698	18.8	10,247	19.4	10,836	19.9	11,424														
1	CB-4100-12-B	Win							17.3	6,093	17.9	6,662	18.4	7,231	19.0	7,801	19.5	8,370	20.1	8,940	20.7	9,509	21.3	10,079	21.8	10,648	22.4	11,217								
1	CB-4100-12-B	Rem							17.2	6,313	17.7	6,939	18.2	7,564	18.7	8,190	19.2	8,815	19.7	9,441	20.2	10,066	20.7	10,692	21.2	11,317										
1	CB-4100-12-B	Ched			15.2	5,888	15.8	6,489	16.3	7,089	16.9	7,690	17.5	8,291	18.1	8,892	18.6	9,492	19.2	10,093	19.7	10,693	20.3	11,294												
1	CB-4100-12-B	CCI			15.2	6,454	15.8	6,995	16.3	7,535	16.9	8,076	17.5	8,617	18.1	9,158	18.7	9,699	19.3	10,240	19.9	10,781	20.5	11,322												
1	Green Duster	Win			15.6	6,857	16.2	7,410	16.8	7,962	17.4	8,515	17.9																							



Ramshot Competition - REMINGTON STS - Hulls continued

Shot wt	Wad	Prim	1050		1100		1125		1150		1175		1200		1225		1250		1275		1300		1325		1350		1375		1400		1425		1450		
			grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	
1	Green Duster	Fed	14.2	6,869	15.4	7,933	16.0	8,466	16.5	8,998	17.1	9,530	17.7	10,062	18.3	10,594	18.8	11,126																	
1	DR B-XL-1	Win			15.6	6,241	16.1	6,794	16.6	7,346	17.2	7,898	17.7	8,450	18.3	9,003	18.8	9,555	19.3	10,108	19.8	10,660	20.4	11,212											
1	DR B-XL-1	Rem							16.4	6,826	17.0	7,462	17.6	8,098	18.3	8,734	18.9	9,369	19.5	10,005	20.1	10,641	20.8	11,277											
1	DR B-XL-1	Ched			14.8	6,992	15.4	7,600	16.0	8,207	16.7	8,814	17.3	9,421	17.9	10,029	18.5	10,636	19.1	11,243															
1	DR B-XL-1	CCI	13.6	6,455	14.8	7,516	15.5	8,047	16.1	8,577	16.7	9,108	17.3	9,638	18.0	10,169	18.6	10,699	19.3	11,230															
1 1/8	Rem Fig 8	Win	15.3	7,855	16.4	9,132	17.0	9,770	17.5	10,408	18.1	11,047																							
1 1/8	BD-GT-9118-12	Win	15.2	8,416	16.3	9,446	16.9	9,961	17.5	10,475	18.1	10,988	18.6	11,500																					
1 1/8	DR-WJ-RPL	Rem	15.2	7,084	16.3	8,298	16.9	8,905	17.5	9,511	18.1	10,118	18.6	10,725	19.2	11,332																			
1 1/8	Rem-RXP-12	Win	15.2	7,977	16.3	9,309	16.9	9,975	17.5	10,640	18.1	11,306																							
1 1/8	WAA-12	Win	15.3	7,472	16.3	8,751	16.9	9,390	17.4	10,029	18.0	10,669	18.5	11,308																					
1 1/8	WAA-12	Rem	14.9	7,476	15.9	9,049	16.5	9,836	17.0	10,622																									
1 1/8	WAA-12	Ched	14.2	8,758	15.5	10,120	16.1	10,801	16.7	11,482																									
1 1/8	WAA-12	CCI	14.7	7,917	15.9	9,094	16.5	9,682	17.1	10,270	17.7	10,859	18.3	11,447																					
1 1/8	Rem Fig 8	Win	15.4	7,837	16.4	9,157	16.9	9,817	17.4	10,476	18.0	11,136																							
1 1/8	Rem Fig 8	Rem	15.0	8,019	16.1	9,334	16.7	9,992	17.3	10,649	17.9	11,307																							
1 1/8	Rem Fig 8	Ched	14.7	8,639	15.8	10,092	16.4	10,796	16.9	11,500																									
1 1/8	Rem Fig 8	CCI	15.4	7,890	16.5	9,051	17.1	9,632	17.6	10,212	18.2	10,793	18.8	11,373																					
1 1/8	Rem RXP-12	Ched	14.7	9,176	15.9	10,361	16.5	10,931	17.0	11,500																									
1 1/8	Rem RXP-12	CCI	14.8	8,775	16.1	9,884	16.7	10,439	17.3	10,994																									
1 1/8	Rem RXP-12	Rem	15.3	8,353	16.3	9,414	16.8	9,945	17.3	10,475	17.8	11,006	18.3	11,536																					
1 1/8	DR-XL-1	Win			16.4	7,496	17.0	8,278	17.6	9,059	18.2	9,840	18.8	10,621																					
1 1/8	DR-XL-1	Rem	14.6	7,206	15.9	8,483	16.6	9,122	17.2	9,761	17.9	10,400	18.5	11,039																					
1 1/8	DR-XL-1	Ched	14.7	8,557	15.8	9,623	16.4	10,156	17.0	10,689	17.6	11,207																							
1 1/8	DR-XL-1	CCI	14.8	8,589	16.1	9,678	16.7	10,223	17.3	10,767	17.9	11,311																							
1 1/8	DR-F8	Win	15.7	7,172	16.7	8,450	17.2	9,089	17.7	9,728	18.2	10,367	18.7	11,006																					
1 1/8	DR-F8	Rem	15.3	7,324	16.4	8,653	17.0	9,317	17.5	9,981	18.1	10,646	18.6	11,310																					
1 1/8	DR-F8	Ched	14.9	8,213	16.0	9,492	16.6	10,131	17.1	10,770																									
1 1/8	DR-F8	CCI	15.4	7,476	16.4	8,933	17.0	9,662	17.5	10,390	18.1	11,119																							
1 1/8	DRRT	Win	15.1	5,787	16.3	7,617	16.9	8,532	17.5	9,447	18.1	10,362	18.7	11,277																					
1 1/8	DRRT	Rem	15.4	7,710	16.4	9,009	17.0	9,659	17.5	10,308	18.0	10,958																							
1 1/8	DRRT	Ched	15.2	8,325	16.2	9,626	16.8	10,276	17.3	10,926																									
1 1/8	DRRT	CCI	15.3	7,998	16.5	9,217	17.1	9,827	17.6	10,437	18.2	11,047																							
1 1/8	DRA-12	Win	15.2	7,833	16.4	9,098	17.0	9,731	17.6	10,364	18.2	10,997																							
1 1/8	DRA-12	Rem	15.2	7,670	16.3	9,073	16.9	9,774	17.4	10,475	18.0	11,176																							
1 1/8	DRA-12	Ched	14.5	8,656	15.7	9,856	16.3	10,456	16.9	11,055																									
1 1/8	DRA-12	CCI	15.0	9,175	16.2	10,322	16.8	10,895	17.3	11,468																									
1 1/8	DRA-12	Fed209	15.1	9,078	16.2	10,251	16.8	10,838	17.3	11,424																									
1 1/8	DR-Versatile	Win	15.2	6,988	16.3	8,302	16.9	8,959	17.4	9,615	18.0	10,272	18.5	10,929																					
1 1/8	DR-Versatile	Rem	14.6	7,712	15.8	8,968	16.5	9,597	17.1	10,225	17.7	10,854	18.3	11,482																					
1 1/8	DR-Versatile	Ched	14.1	8,257	15.5	9,732	16.2	10,469	16.9	11,206																									
1 1/8	DR-Versatile	CCI	14.7	8,276	16.0	9,688	16.6	10,394	17.2	11,100																									
1 1/8	DR-WJ-RPL	Win	15.4	7,080	16.5	8,400	17.1	9,060	17.7	9,719	18.3	10,379	18.8	11,039																					
1 1/8	DR-WJ-RPL	Rem	15.7	7,152	16.6	8,490	17.1	9,159	17.6	9,828	18.1	10,498	18.6	11,167																					
1 1/8	DR-WJ-RPL	Ched	15.1	8,297	16.2	9,309	16.8	9,815	17.3	10,321	17.9	10,827	18.5	11,333																					
1 1/8	DR-WJ-RPL	CCI	14.7	8,978	16.0	9,865	16.7	10,309	17.4	10,752	18.1	11,196																							



Ramshot Competition - FEDERAL - Gold Medal Hulls

Shot wt	Wad	Prim	1050 grs Psi	1100 grs Psi	1125 grs Psi	1150 grs Psi	1175 grs Psi	1200 grs Psi	1225 grs Psi	1250 grs Psi	1275 grs Psi	1300 grs Psi	1325 grs Psi	1350 grs Psi	1375 grs Psi	1400 grs Psi	1425 grs Psi	1450 grs Psi
1	DRF8	Win						18.3 6,824	18.9 7,370	19.5 7,916	20.2 8,462	20.8 9,008	21.4 9,554	22.0 10,100	22.7 10,646	23.3 11,191		
1	DR J-XL-1	Win								20.0 7,126	20.7 7,765	21.3 8,403	21.9 9,041	22.5 9,679	23.2 10,318	23.8 10,956		
1	DR J-XL-1	Rem						18.7 7,084	19.2 7,729	19.7 8,373	20.2 9,018	20.7 9,662	21.2 10,306	21.7 10,950				
1	DR J-XL-1	Ched				16.8 6,382	17.4 6,975			19.8 8,753	19.8 9,346	20.4 9,939	21.0 10,532	21.6 11,124				
1	DR J-XL-1	CCI				17.6 6,075	18.2 6,641	18.7 7,207	19.3 7,774	19.8 8,340	20.3 8,906	20.8 9,472	21.4 10,038	21.9 10,604	22.5 11,171			
1	DR J-XL-1	Fed						18.6 7,292	19.1 7,958	19.6 8,624	20.1 9,291	20.6 9,957	21.1 10,623	21.6 11,289				
1	DR-XL-1	Win						18.7 6,716	19.3 7,267	19.9 7,817	20.5 8,367	21.1 8,917	21.7 9,467	22.3 10,017	22.9 10,567	23.5 11,117		
1	DR-XL-1	Rem						18.3 6,880	18.9 7,605	19.5 8,329	20.1 9,053	20.6 9,777	21.2 10,502	21.8 11,226				
1	DR-XL-1	Ched	15.1 6,239	15.8 6,675	16.4 7,110	17.1 7,546	17.8 7,981	18.5 8,417	19.1 8,852	19.8 9,288	20.4 9,723	21.1 10,158	21.7 10,593			23.0 11,464		
1	DR-XL-1	CCI				18.3 6,965	18.9 7,546	19.5 8,126	20.1 8,707	20.7 9,287	21.3 9,868	21.9 10,448	22.5 11,029					
1	DR-XL-1	Fed				18.5 6,808	19.1 7,371	19.6 7,933	20.2 8,496	20.7 9,059	21.3 9,622	21.8 10,185	22.3 10,748	22.8 11,311				
1	DRA-12	Win				16.3 6,502	17.1 6,921	17.8 7,339	18.5 7,758	19.2 8,176	20.0 8,595	20.7 9,014	21.4 9,433	22.1 9,851	22.9 10,270	23.6 10,689	24.3 11,095	25.0 11,500
1	DRA-12	Rem						17.8 6,891	18.5 7,479	19.1 8,066	19.8 8,654	20.4 9,241	21.1 9,829	21.8 10,416	22.5 10,958	23.1 11,500		
1	DRA-12	Ched				16.9 6,620	17.5 7,148	18.1 7,675	18.7 8,202	19.3 8,729	19.9 9,256	20.5 9,783	21.2 10,311	21.8 10,838	22.4 11,365			
1	DRA-12	CCI				16.9 6,699	17.6 7,217	18.2 7,735	18.9 8,253	19.5 8,771	20.1 9,289	20.7 9,807	21.4 10,325	22.0 10,843	22.7 11,361			
1	DRA-12	Fed	15.8 6,473	16.4 6,918	17.0 7,363	17.6 7,808	18.2 8,252	18.8 8,697	19.3 9,142	19.9 9,587	20.5 10,032	21.1 10,477	21.7 10,922	22.3 11,367				
1	DRF3-12	Win						18.7 6,220	19.4 6,947	20.0 7,673	20.6 8,399	21.2 9,125	21.9 9,852	22.5 10,578				
1	DRF3-12	Rem				17.1 6,429	17.8 6,947	18.4 7,465	19.1 7,983	19.7 8,501	20.3 9,019	20.9 9,537	21.6 10,056	22.2 10,574	22.8 11,092			
1	DRF3-12	Ched	15.8 6,007	16.4 6,515	17.0 7,022	17.6 7,530	18.2 8,038	18.8 8,546	19.4 9,053	20.0 9,561	20.6 10,069	21.2 10,577	21.7 11,084					
1	DRF3-12	CCI						18.8 6,748	19.4 7,377	20.0 8,005	20.6 8,634	21.1 9,263	21.7 9,892	22.3 10,520	22.9 11,149			
1	DRF3-12	Fed				18.3 5,883	18.8 6,483	19.3 7,082	19.8 7,681	20.3 8,280	20.8 8,880	21.3 9,479	21.8 10,078	22.3 10,677	22.8 11,277			
1	DR-XXL	Win				17.5 6,936	18.1 7,603	18.6 8,269	19.1 8,936	19.6 9,602	20.1 10,269	20.6 10,935						
1	DR-XXL	Rem	16.2 6,377	16.7 6,967	17.2 7,556	17.7 8,145	18.2 8,734	18.7 9,323	19.1 9,912	19.6 10,502	20.1 11,091							
1	DR-XXL	Ched	15.7 6,996	16.3 7,579	16.8 8,162	17.4 8,746	17.9 9,329	18.4 9,912	18.9 10,495	19.5 11,078								
1	DR-XXL	CCI	14.8 6,289	15.9 7,244	16.5 7,722	17.0 8,199	17.6 8,677	18.1 9,154	18.7 9,631	19.2 10,108	19.8 10,586	20.3 11,063						
1	DR-XXL	Fed		16.2 6,596	16.8 7,115	17.4 7,633	18.0 8,151	18.6 8,669	19.2 9,187	19.7 9,705	20.3 10,224	20.9 10,742	21.5 11,260					
1	WAA-12SL	Win								19.9 9,962	20.5 10,604	21.1 11,245	21.7 11,886	22.3 12,527	23.0 13,168	23.6 13,809		
1	WAA-12SL	Rem						18.7 6,330	19.3 6,935	19.8 7,540	20.4 8,145	20.9 8,750	21.5 9,355	22.0 9,959	22.6 10,564	23.1 11,169		
1	WAA-12SL	Ched						18.1 6,611	18.7 7,244	19.3 7,877	20.0 8,510	20.6 9,143	21.2 9,776	21.8 10,409	22.4 11,042			
1	WAA-12SL	CCI				17.2 5,966	17.8 6,470	18.4 6,974	19.0 7,478	19.6 7,981	20.2 8,485	20.8 8,989	21.5 9,493	22.1 9,997	22.7 10,501	23.3 11,005		
1	CB-1100-12	Ched						18.3 6,784	18.9 7,307	19.5 7,829	20.1 8,352	20.6 8,874	21.2 9,397	21.8 9,920	22.4 10,443	22.9 10,965		
1	WJII-12100	Win								21.0 5,885	21.6 6,611	22.1 7,336	22.7 8,062	23.2 8,787	23.8 9,513	24.3 10,238	24.9 10,964	
1	WJII-12100	Rem								20.7 6,872	21.2 7,479	21.7 8,086	22.2 8,693	22.6 9,300	23.1 9,908	23.6 10,515	24.1 11,122	
1	WJII-12100	Ched								18.9 6,493	19.7 7,312	20.4 8,131	21.2 8,950	21.9 9,769	22.6 10,588	23.3 11,407		
1	WJII-12100	CCI								19.8 6,780	20.4 7,407	21.0 8,033	21.7 8,660	22.3 9,286	22.9 9,912	23.5 10,538	24.2 11,165	
1	Rem-TGT	Win				17.3 5,979	17.9 6,550	18.4 7,121	19.0 7,692	19.6 8,263	20.2 8,834	20.7 9,405	21.3 9,976	21.8 10,547	22.4 11,119			
1	Rem-TGT	Rem				17.6 5,752	18.1 6,372	18.6 6,992	19.1 7,613	19.6 8,233	20.1 8,854	20.6 9,474	21.1 10,094	21.6 10,714	22.1 11,335			
1	Rem-TGT	Ched				16.6 6,512	17.2 7,097	17.8 7,681	18.4 8,266	19.0 8,850	19.6 9,435	20.1 10,019	20.7 10,604	21.3 11,189				
1	Rem-TGT	CCI				17.4 6,380	18.0 6,928	18.5 7,475	19.0 8,022	19.5 8,569	20.1 9,116	20.6 9,663	21.2 10,210	21.7 10,757	22.3 11,305			
1	CB-8100-12	Win						18.7 6,147	19.3 6,817	19.9 7,487	20.5 8,158	21.1 8,828	21.8 9,499	22.4 10,169	23.0 10,835	23.6 11,500		
1	CB-8100-12	Rem						18.5 6,709	19.1 7,359	19.7 8,009	20.3 8,660	20.8 9,310	21.4 9,961	22.0 10,611	22.6 11,261			
1	CB-8100-12	Ched				16.9 6,311	17.5 6,904	18.0 7,496	18.6 8,089	19.2 8,681	19.8 9,274	20.4 9,866	21.0 10,459	21.6 11,051				
1	CB-8100-12	CCI				16.2 6,216	17.0 6,765	17.7 7,314	18.4 7,863	19.1 8,412	19.8 8,961	20.5 9,510	21.2 10,059	21.9 10,608	22.7 11,157			
1	CB-4100-12-B	Win						19.4 5,756	20.0 6,369	20.5 6,981	21.1 7,594	21.6 8,207	22.2 8,820	22.7 9,432	23.3 10,045	23.8 10,657	24.4 11,270	
1	CB-4100-12-B	Rem				16.8 6,961	17.5 7,355	18.1 7,748	18.8 8,142	19.4 8,535	20.1 8,929	20.7 9,322	21.4 9,716	22.0 10,109	22.7 10,503	23.3 10,896	24.0 11,290	
1	CB-4100-12-B	Ched						18.6 6,621	19.1 7,265	19.6 7,909	20.2 8,553	20.7 9,197	21.3 9,841	21.8 10,485	22.4 11,129			
1	CB-4100-12-B	CCI						18.5 6,489	19.1 7,075	19.7 7,661	20.3 8,247	20.9 8,833	21.5 9,419	22.1 10,005	22.7 10,591	23.3 11,177		
1	WAA-12SL	Fed				17.2 6,189	17.8 6,716	18.4 7,243	19.1 7,770	19.7 8,296	20.4 8,823	21.0 9,350	21.7 9,877	22.3 10,404	23.0 10,931	23.6 11,457		
1	Rem-TGT	Fed	15.3 5,759	16.0 6,277	16.7 6,795	17.4 7,313	18.0 7,831	18.7 8,350	19.3 8,868	20.0 9,386	20.6 9,904	21.3 10,422	22.0 10,940	22.7 11,458				
1	WJII-12100	Fed						19.1 5,961	19.7 6,579	20.2 7,197	20.8 7,816	21.3 8,434	21.9 9,052	22.4 9,671	23.0 10,289	23.6 10,907		
1	CB-1100-12	Fed						18.5 6,230	19.1 6,828	19.7 7,425	20.4 8,023	21.0 8,620	21.6 9,218	22.2 9,815	22.8 10,412	23.4 11,009		
1	CB-1100-12	Win								20.4 6,271	21.1 6,892	21.7 7,512	22.3 8,133	22.9 8,754	23.5 9,375	24.1 9,995	24.7 10,616	25.3 11,237
1	CB-1100-12	Rem						18.5 6,121	19.1 6,687	19.7 7,252	20.4 7,817	21.0 8,382	21.7 8,948	22.3 9,513	23.0 10,078	23.6 10,643	24.3 11,209	



Ramshot Competition - FIOCCHI - Hulls

Shot wt	Wad	Prim	1050		1100		1125		1150		1175		1200		1225		1250		1275		1300		1325		1350		1375		1400		1425		1450			
			grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi		
7/8	WAA-12L	Win																			19.6	5,868	20.3	6,340	20.9	6,811	21.6	7,283	22.2	7,754	22.9	8,226	23.6	8,697		
7/8	WAA-12L	Rem																			19.6	5,845	20.3	6,334	21.0	6,822	21.7	7,311	22.3	7,800	23.0	8,289	23.6	8,777		
7/8	WAA-12L	Ched																							20.4	6,413	21.1	7,008	21.8	7,603	22.5	8,198	23.2	8,792		
1	DRF8	Win															20.4	6,930	21.0	7,559	21.5	8,188	22.1	8,817	22.6	9,445	23.2	10,074	23.8	10,703	24.4	11,332				
1	DR-J-XL-1	Win															19.8	7,074	20.5	7,677	21.1	8,279	21.8	8,882	22.4	9,485	23.1	10,088	23.7	10,690	24.4	11,293				
1	DR-J-XL-1	Rem												18.5	7,181	19.1	7,780	19.7	8,378	20.3	8,976	20.9	9,574	21.5	10,173	22.1	10,771	22.7	11,369							
1	DR-J-XL-1	Ched		15.3	6,463	16.0	6,905	16.6	7,346	17.3	7,788	18.6	8,672	19.2	9,113	19.9	9,555	20.5	9,996	21.2	10,438	21.8	10,880	22.5	11,322											
1	DR-J-XL-1	CCI						17.6	6,092	18.2	6,666	18.7	7,240	19.3	7,814	19.9	8,388	20.5	8,962	21.0	9,536	21.6	10,110	22.2	10,684	22.8	11,258									
1	DR-J-XL-1	Fed						17.5	6,429	18.1	6,999	18.6	7,568	19.1	8,138	19.6	8,707	20.2	9,277	20.7	9,846	21.2	10,416	21.7	10,985											
1	DR-XL-1	Win												18.7	6,815	19.3	7,319	19.9	7,822	20.5	8,326	21.1	8,829	21.7	9,333	22.3	9,836	22.9	10,339	23.5	10,842	24.1	11,344			
1	DR-XL-1	Rem												18.2	6,679	18.8	7,313	19.4	7,946	20.1	8,580	20.7	9,214	21.3	9,848	21.9	10,481	22.6	11,115							
1	DR-XL-1	Ched												17.9	6,973	18.6	7,527	19.2	8,080	19.9	8,634	20.5	9,188	21.2	9,742	21.9	10,295	22.6	10,849	23.2	11,403					
1	DR-XL-1	CCI												18.8	6,998	19.4	7,593	19.9	8,188	20.4	8,783	20.9	9,378	21.5	9,973	22.0	10,568	22.6	11,163							
1	DR-XL-1	Fed					17.9	5,987	18.5	6,520	19.0	7,052	19.5	7,585	20.0	8,117	20.5	8,650	21.0	9,182	21.6	9,715	22.1	10,247	22.6	10,780	23.1	11,312								
1	DRA-12	Win												19.8	6,801	20.5	7,429	21.2	8,057	21.9	8,685	22.6	9,313	23.3	9,941	24.0	10,568	24.7	11,196							
1	DRA-12	Rem					17.1	6,438	17.8	6,899	18.4	7,359	19.0	7,820	19.6	8,281	20.3	8,742	20.9	9,203	21.6	9,664	22.2	10,125	22.9	10,586	23.5	11,046	11.8	11,500						
1	DRA-12	Ched												18.7	6,716	19.3	7,372	19.8	8,027	20.4	8,682	20.9	9,337	21.4	9,993	21.9	10,648	22.5	11,304							
1	DRA-12	CCI					17.2	6,096	17.9	6,621	18.5	7,145	19.1	7,670	19.7	8,195	20.4	8,720	21.0	9,245	21.7	9,770	22.3	10,295	23.0	10,820	23.6	11,345								
1	DRA-12	Fed	14.4	6,260	15.7	6,968	16.4	7,322	17.1	7,676	17.8	8,030	18.4	8,384	19.1	8,738	19.7	9,092	20.4	9,446	21.1	9,800	21.8	10,154	22.4	10,508	23.1	10,862	23.7	11,216	24.4	11,500				
1	DRF3-12	Win												19.5	6,907	20.0	7,440	20.5	7,972	21.0	8,504	21.5	9,036	22.0	9,568	22.5	10,100	23.0	10,632	23.5	11,164					
1	DRF3-12	Rem												19.0	6,937	19.6	7,542	20.1	8,146	20.6	8,751	21.1	9,356	21.7	9,961	22.2	10,565	22.8	11,170							
1	DRF3-12	Ched						17.0	6,185	17.7	6,779	18.3	7,373	18.9	7,967	19.5	8,560	20.2	9,154	20.8	9,748	21.4	10,342	22.0	10,935											
1	DRF3-12	CCI												18.7	6,667	19.3	7,279	19.9	7,890	20.6	8,502	21.2	9,113	21.8	9,725	22.4	10,336	23.0	10,918	23.6	11,500					
1	DRF3-12	Fed												18.6	6,987	19.3	7,555	19.9	8,122	20.5	8,690	21.1	9,257	21.8	9,824	22.4	10,391	23.0	10,946	23.6	11,500					
1	DR-XXL	Win					17.4	6,674	18.0	7,249	18.6	7,823	19.2	8,397	19.8	8,971	20.4	9,546	21.0	10,120	21.6	10,694	22.2	11,268												
1	DR-XXL	Rem		16.1	6,083	16.7	6,646	17.2	7,208	17.8	7,771	18.4	8,334	19.0	8,897	19.6	9,460	20.2	10,023	20.8	10,585	21.4	11,148													
1	DR-XXL	Ched		15.5	6,662	16.2	7,164	16.8	7,666	17.5	8,169	18.1	8,671	18.7	9,173	19.3	9,675	20.0	10,177	20.6	10,679	21.3	11,182													
1	DR-XXL	CCI					16.4	5,871	17.0	6,461	17.5	7,050	18.1	7,640	18.6	8,230	19.2	8,820	19.7	9,409	20.3	9,999	20.8	10,588	21.4	11,178										
1	DR-XXL	Fed					17.8	6,758	18.3	7,372	18.8	7,985	19.4	8,598	19.9	9,211	20.4	9,824	20.9	10,437	21.4	11,050														
1	WAA-12SL	Win					17.3	5,887	18.0	6,384	18.6	6,880	19.3	7,377	19.9	7,874	20.6	8,371	21.2	8,867	21.9	9,364	22.5	9,861	23.2	10,358	23.8	10,854	24.5	11,351						
1	WAA-12SL	Rem					17.2	6,026	17.9	6,573	18.5	7,120	19.1	7,668	19.7	8,215	20.4	8,762	21.0	9,309	21.6	9,857	22.2	10,404	22.9	10,951	23.5	11,498								
1	WAA-12SL	Ched					16.4	6,497	17.1	7,005	17.8	7,512	18.5	8,020	19.2	8,527	19.9	9,035	20.6	9,542	21.3	10,050	22.0	10,557	22.8	11,029	23.5	11,500								
1	WAA-12SL	CCI												19.2	6,780	19.8	7,405	20.3	8,029	20.8	8,654	21.3	9,279	21.9	9,904	22.4	10,528	23.0	11,153							
1	CB-1100-12	Win												20.4	6,499	21.0	7,105	21.6	7,711	22.2	8,317	22.8	8,922	23.5	9,528	24.1	10,134	24.7	10,740	25.3	11,345					
1	CB-1100-12	Rem												18.3	6,786	19.0	7,355	19.6	7,923	20.2	8,492	20.8	9,060	21.4	9,628	22.0	10,196	22.7	10,765	23.3	11,333					
1	CB-1100-12	Ched												18.2	6,782	18.9	7,338	19.5	7,893	20.2	8,449	20.8	9,004	21.5	9,560	22.1	10,115	22.8	10,670	23.4	11,225					
1	CB-1100-12	CCI												18.8	6,294	19.4	6,880	20.0	7,466	20.6	8,053	21.2	8,639	21.8	9,226	22.4	9,812	23.0	10,399	23.6	10,985					
1	WJII-12100	Win															20.1	6,391	20.8	6,887	21.5	7,383	22.2	7,879	22.9	8,374	23.6	8,870	24.3	9,366	25.0	9,872	25.7	10,378		
1	WJII-12100	Rem															20.8	6,292	21.4	6,878	21.9	7,464	22.4	8,050	22.9	8,636	23.5	9,222	24.0	9,808	24.5	10,395	25.0	10,981		
1	WJII-12100	Ched															19.9	6,054	20.6	6,710	21.2	7,366	21.8	8,022	22.4	8,678	23.1	9,334	23.7	9,990	24.3	10,646	24.9	11,302		
1	WJII-12100	CCI												20.4	5,993	21.1	6,572	21.7	7,150	22.3	7,729	22.9	8,307	23.5	8,886	24.1	9,464	24.7	10,043	25.3	10,621					
1	Rem-TGT	Win												18.2	6,439	18.9	6,965	19.6	7,491	20.3	8,017	21.0	8,543	21.7	9,069	22.4	9,595	23.1	10,121	23.8	10,647	24.5	11,173			
1	Rem-TGT	Rem												18.6	6,224	19.2	6,841	19.7	7,457	20.3	8,073	20.9	8,689	21.5	9,306	22.0	9,922	22.6	10,539	23.2	11,155					
1	Rem-TGT	Ched					17.0	6,156	17.6	6,652	18.2	7,148	18.9	7,644	19.5	8,139	20.1	8,635	20.7	9,131	21.3	9,627	21.9	10,123	22.5	10,619	23.1	11,115								
1	Rem-TGT	CCI															19.8	6,978	20.4	7,695	21.0</															



Ramshot Competition - FIOCCHI - Hulls continued

Shot wt	Wad	Prim	1050		1100		1125		1150		1175		1200		1225		1250		1275		1300		1325		1350		1375		1400		1425		1450					
			grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi				
1	Green Duster	Win											18.2	6,413	18.9	6,988	19.6	7,562	20.3	8,136	21.0	8,710	21.7	9,284	22.3	9,858	23.0	10,433	23.7	11,007								
1	Green Duster	Rem											19.0	6,600	19.6	7,156	20.1	7,712	20.7	8,268	21.3	8,824	21.9	9,380	22.5	9,936	23.1	10,492	23.7	11,047								
1	Green Duster	Ched											16.9	6,472	17.5	7,010	18.1	7,547	18.8	8,084	19.4	8,621	20.0	9,158	20.6	9,695	21.2	10,233	21.8	10,770	22.5	11,307						
1	Green Duster	CCI							17.0	6,884	17.7	7,369																										
1	WAA-12SL	Fed											18.7	6,583	19.4	7,108	20.0	7,632	20.7	8,157	21.3	8,681	21.9	9,206	22.5	9,730	23.2	10,255	23.8	10,780								
1	Rem-TGT	Fed											18.6	6,910	19.2	7,505	19.8	8,100	20.4	8,696	20.9	9,291	21.5	9,886	22.1	10,481	22.7	11,077										
1	WJII-12100	Fed											18.8	6,238	19.4	6,734	20.0	7,230	20.6	7,727	21.2	8,223	21.8	8,720	22.4	9,216	23.0	9,712	23.6	10,208	24.2	10,705	24.8	11,201				
1	CB-1100-12	Fed											18.6	6,254	19.3	6,805	19.9	7,356	20.6	7,906	21.2	8,456	21.9	9,008	22.5	9,560	23.2	10,111	23.8	10,662	24.5	11,213						
1	CB-8100-12	Fed							17.0	6,098	17.7	6,623	18.3	7,147	19.0	7,671	19.7	8,195	20.4	8,720	21.0	9,244	21.7	9,768	22.3	10,292	23.0	10,817	23.6	11,341								
1	CB-4100-12-B	Fed							17.1	5,835	17.7	6,376	18.3	6,917	19.0	7,458	19.6	7,999	20.2	8,540	20.8	9,080	21.5	9,621	22.1	10,162	22.7	10,703	23.3	11,244								
1	Green Duster	Fed							17.2	6,779	17.8	7,281	18.4	7,782	19.0	8,284	19.6	8,786	20.2	9,288	20.8	9,789	21.4	10,291	21.9	10,792	22.5	11,294										
1	DR B-XL-1	Win											18.2	6,145	18.9	6,757	19.5	7,368	20.2	7,980	20.9	8,592	21.6	9,204	22.2	9,816	22.9	10,428	23.6	11,039								
1	DR B-XL-1	Rem											18.0	6,283	18.7	6,827	19.3	7,370	20.0	7,914	20.6	8,457	21.3	9,001	21.9	9,544	22.6	10,088	23.2	10,631	23.9	11,175						
1	DR B-XL-1	Ched							16.8	5,895	17.4	6,429	18.0	6,963	18.6	7,517	19.2	8,071	19.9	8,615	20.5	9,159	21.1	9,703	21.7	10,247	22.4	10,791	23.0	11,335								
1	DR B-XL-1	CCI							17.3	5,910	17.9	6,433	18.5	6,956	19.1	7,479	19.7	8,002	20.3	8,526	20.9	9,049	21.5	9,572	22.1	10,095	22.7	10,619	23.3	11,142								
1 1/8	WAA-12	Win	16.9	4,671	17.9	6,182	18.4	6,938	18.9	7,693	19.4	8,449	19.9	9,205	20.4	9,961	20.9	10,716																				
1 1/8	WAA-12	Rem	16.4	6,361	17.4	7,351	17.9	7,847	18.3	8,342	18.8	8,837	19.3	9,332	19.8	9,828	20.3	10,323	20.8	10,819	21.3	11,314																
1 1/8	WAA-12	Ched	15.8	6,700	16.9	7,836	17.4	8,404	17.9	8,971	18.5	9,539	19.0	10,107	19.6	10,675	20.1	11,242																				
1 1/8	WAA-12	CCI			17.5	7,028	18.0	7,644	18.5	8,260	19.0	8,877	19.4	9,493	19.9	10,110	20.4	10,726	20.9	11,343																		
1 1/8	WAA-12	Fed			17.2	7,117	17.7	7,833	18.2	8,548	18.8	9,264	19.3	9,980	19.9	10,696	20.4	11,412																				
1 1/8	Rem Fig 8	Win	16.2	6,330	17.3	7,560	17.9	8,175	18.4	8,790	19.0	9,405	19.6	10,020	20.2	10,636	20.7	11,251																				
1 1/8	Rem Fig 8	Rem	15.6	6,379	16.8	7,612	17.4	8,229	18.0	8,845	18.6	9,461	19.2	10,077	19.9	10,694	20.5	11,310																				
1 1/8	Rem Fig 8	Ched	14.9	7,124	16.2	8,429	16.9	9,081	17.5	9,733	18.2	10,385	18.9	11,037																								
1 1/8	Rem Fig 8	CCI			17.8	6,968	18.4	7,591	18.9	8,214	19.4	8,837	19.9	9,459	20.5	10,082	21.0	10,705	21.5	11,328																		
1 1/8	Rem Fig 8	Fed	15.6	6,746	16.8	7,989	17.4	8,611	18.0	9,233	18.6	9,855	19.2	10,476	19.9	11,098																						
1 1/8	Rem RXP-12	Win	15.9	5,896	17.1	7,269	17.7	7,956	18.3	8,642	19.0	9,329	19.6	10,015	20.2	10,702	20.8	11,388																				
1 1/8	Rem RXP-12	Ched	16.0	6,516	17.1	7,952	17.7	8,671	18.2	9,389	18.8	10,107	19.3	10,825																								
1 1/8	Rem RXP-12	CCI	16.1	6,839	17.4	7,804	18.0	8,286	18.6	8,768	19.2	9,250	19.8	9,732	20.4	10,214	21.0	10,696	21.7	11,179																		
1 1/8	Rem RXP-12	Fed	16.1	7,116	17.2	8,122	17.8	8,625	18.3	9,128	18.9	9,631	19.4	10,133	19.9	10,636	20.4	11,139																				
1 1/8	Rem RXP-12	Rem	16.6	6,618	17.8	7,536	18.4	7,995	19.0	8,454	19.6	8,914	20.2	9,373	20.8	9,832	21.4	10,291	22.0	10,750	22.6	11,209																
1 1/8	DR-XL-1	Win			17.6	5,794	18.3	6,541	18.9	7,287	19.5	8,034	20.1	8,781	20.7	9,528	21.3	10,274	22.0	11,021																		
1 1/8	DR-XL-1	Rem			17.4	6,016	18.0	6,819	18.6	7,622	19.3	8,426	19.9	9,229	20.5	10,033	21.1	10,836																				
1 1/8	DR-XL-1	Ched	15.5	5,985	16.9	7,276	17.6	7,922	18.2	8,567	18.9	9,213	19.5	9,858	20.2	10,504	20.8	11,149																				
1 1/8	DR-XL-1	CCI			16.9	6,462	17.6	7,196	18.2	7,929	18.8	8,663	19.4	9,396	20.1	10,129	20.7	10,862																				
1 1/8	DR-XL-1	Fed			17.3	6,806	17.9	7,466	18.4	8,125	19.0	8,785	19.5	9,444	20.1	10,104	20.7	10,763																				
1 1/8	DR-XXL-1	Win	16.5	6,886	17.5	8,205	18.0	8,865	18.5	9,525	19.0	10,185	19.5	10,845																								
1 1/8	DR-XXL-1	Rem	15.9	7,523	17.0	8,816	17.5	9,463	18.0	10,109	18.6	10,756	19.1	11,402																								
1 1/8	DR-XXL-1	Ched	16.5	8,126	17.4	9,374	17.9	9,998	18.3	10,622	18.7	11,246																										
1 1/8	DR-XXL-1	CCI	15.6	8,257	16.7	9,333	17.3	9,871	17.9	10,409	18.5	10,947	19.1	11,485																								
1 1/8	DR-XXL-1	Fed	15.6	8,387	16.8	9,480	17.4	10,027	18.0	10,573	18.6	11,120																										
1 1/8	DR-F8	Win			17.5	6,763	18.1	7,425	18.7	8,087	19.3	8,750	19.8	9,412	20.4	10,075	21.0	10,737																				
1 1/8	DR-F8	Rem			17.2	6,347	17.8	7,012	18.4	7,676	19.0	8,341	19.6	9,006	20.2	9,671	20.7	10,335	21.3	11,000																		
1 1/8	DR-F8	Ched	15.1	6,603	16.4	7,952	17.1	8,627	17.7	9,302	18.3	9,977	18.9	10,651																								
1 1/8	DR-F8	CCI	14.7	7,698	16.2	8,490	17.0	8,886	17.7	9,282	18.5	9,678	19.3	10,074	20.1	10,470	20.8	10,865	21.6	11,262																		
1 1/8	DR-F8	Fed	16.4	6,039	17.5	7,278	18.1	7,898	18.6	8,518	19.2	9,138	19.7	9,757	20.3	10,377	20.8	10,996																				
1 1/8	DRRT	Win	16.																																			



Ramshot Competition - FIOCCHI - Hulls *continued*

Shot wt	Wad	Prim	1050		1100		1125		1150		1175		1200		1225		1250		1275		1300		1325		1350		1375		1400		1425		1450	
			grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi	grs	Psi		
1 1/8	DRA-12	CCI	15.5	6,674	16.8	7,928	17.5	8,555	18.1	9,181	18.8	9,808	19.4	10,435	20.1	11,062																		
1 1/8	DRA-12	Fed	15.3	7,358	16.6	8,563	17.3	9,166	17.9	9,768	18.6	10,371	19.3	10,973																				
1 1/8	DR-Versatile	Win	15.9	5,481	17.2	6,805	17.8	7,467	18.4	8,129	19.1	8,791	19.7	9,453	20.3	10,115	20.9	10,777																
1 1/8	DR-Versatile	Rem	15.9	6,020	17.1	7,352	17.7	8,018	18.3	8,683	18.9	9,349	19.4	10,015	20.0	10,681	20.6	11,346																
1 1/8	DR-Versatile	Ched	15.6	7,008	16.8	8,244	17.4	8,862	18.0	9,479	18.6	10,097	19.2	10,715	19.9	11,333																		
1 1/8	DR-Versatile	CCI	15.7	6,293	16.9	7,591	17.5	8,240	18.1	8,889	18.7	9,538	19.3	10,187	19.9	10,837	20.5	11,486																
1 1/8	DR-WJ-RPL	Win	15.7	6,271	16.9	7,469	17.5	8,068	18.1	8,667	18.7	9,266	19.3	9,865	19.9	10,464	20.5	11,063																
1 1/8	DR-WJ-RPL	Rem	16.0	5,832	17.1	7,237	17.7	7,940	18.2	8,642	18.7	9,344	19.2	10,046	19.8	10,749	20.3	11,451																
1 1/8	DR-WJ-RPL	Ched	14.6	8,326	16.1	8,911	16.9	9,204	17.7	9,496	18.5	9,788	19.2	10,080	20.0	10,373	20.7	10,665	21.5	10,958	22.2	11,250												
1 1/8	DR-WJ-RPL	CCI	15.9	8,845	17.1	9,522	17.7	9,860	18.3	10,198	18.9	10,536	19.5	10,874	20.1	11,187	20.6	11,500																

SHOTSHELL SUPERIORITY

- Clean
- Low Recoil
- Consistent



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