

Tom Roster's nontoxic shot lethality table adapted to Australian game birds[®]

Note: The pellets in the steel shot loads tested for this table were traditional, highly spherical ball-shaped pellets of ~7.86 g/cc density and 90-95 DPH hardness. The bismuth pellets were of ~9.6 g/cc density and contained 5-6% tin. The HEVI-Shot pellets were of 12.0 g/cc density.

Proven Nontoxic Shot Loads For Waterfowl & Upland Game Birds* <i>Velocity: 1,275 - 1,450 FPS</i> Activity	Typical Shooting Range of Activity (Meters)	Shot Size Choice Most Effective USA and Spanish Steel and Bismuth Shot Size Designations For Activity	Minimum Load Weight in Ounces And Grams	Minimum Pellet Hits Needed on Lethal Areas for Clean Kills	Minimum Pattern Count Needed at Any Distance for Clean Kills (# of Pellets in 30" Circle)	Most Effective Choke(s) Given in Lead Shot Choke Designations (See Choke Note #3 Below)
Cape Barren Goose At Medium Range	35-45	Stl. BB (4.6 mm) to BBB (4.8 mm) Bismuth BB (4.6 mm)	1-1/8 (32g) 1-3/8 (39g)	1-2	50-65	Modified Improved Modified
Medium Geese At Long Range Magpie Goose	45-60	Stl. 1 (4.1 mm) to Stl. BB (4.6 mm) Bismuth BB (4.6 mm)	1-1/4 (36g) 1-3/8 (39g)	1-2 1-2	60-65 60-65	Improved Modified Improved Modified to Full
Medium Geese Over Decoys Magpie Goose	35-45	Stl. 2 (3.8 mm) to Stl BB (4.6 mm) Bis. 2 (3.8 mm) to Bis. BB (4.6 mm)	1-1/8 (32g) 1-3/8 (39g)	1-2 1-2	60-65 60-65	Modified Modified
Mountain Ducks At Long Range	45-60	Stl. 2 (3.8 mm) to Stl. 1 (4.1 mm) Bis. 3 (3.6 mm) to Bis. 2 (3.8 mm)	1-1/8 (32g) 1-1/4 (35g)	1-2 1-2	75-85 75-85	Improved Modified to Full Full
Mountain Ducks Over Decoys	20-40	Stl. 3 (3.6 mm) to Stl. 2 (3.8 mm) Bis. 4 (3.3 mm) to Bis. 3 (3.6 mm)	1-1/8 (32g) 1-1/4 (35g)	1-2 1-2	75-85 75-85	I.C. (20-32 m), Mod. (32-40 m) I.C. (20-32 m), Mod. (32-40 m)
Black Ducks At Long Range	40-60	Stl. 2 (3.8 mm) to Stl. 1 (4.1 mm) Bis. 3 (3.6 mm) to Bis. 2 (3.8 mm)	1-1/8 (32g) 1-1/4 (36g)	1-2 1-2	85-90 85-90	Improved Modified to Full Improved Modified to Full
Black Ducks Over Decoys	20-40	Stl. 6 (2.8 mm) to Stl. 2 (3.8 mm) Bis. 6 (2.8 mm) to Bis. 3 (3.6 mm)	(24g-28g) 1-1/8 (32 g)	1-2 1-2	85-90 85-90	I.C. (20-32 m), Mod. (32-40 m) I.C. (20-32 m), Mod. (32-40 m)
Medium Ducks Over Decoys Hardhead, Wood, Grass, Water Whistle, shoveler	20-40	Stl. 6 (2.8 mm) to Stl. 3 (3.6 mm) Bis. 6 (2.8 mm) to Bis. 4 (3.3 mm)	(24g-28g) (28g-35g)	1-2 1-2	115-120 115-120	I.C. (20-32 m), Mod. (32-40 m) I.C. (20-32 m), Mod. (32-40 m)
Small Ducks Over Decoys Teal and Pink-eared Ducks	20-40	Stl. 6 (2.8 mm) to Stl. 4 (3.3 mm) Bis. 6 (2.8 mm) to Bis. 5 (3.0 mm)	(24g-28g) 1 oz. (28g)	1-2 1-2	135-145 135-145	I.C. (20-32 m), Mod. (32-40 m) I.C. (20-32 m), Mod. (32-40 m)
Chukar Partridge	20-40	Stl. 6 (2.8 mm) to Stl. 4 (3.3 mm) Bis. 7 (2.5 mm) to Bis. 6 (2.8 mm)	3/4 oz. (21g) 7/8 oz. (24 g)	1-2 1-2	150-160 150-160	Modified Modified
Quail Brown, Stubble, California & European	20-30	Stl. 8 (2.3 mm) to Stl. 7 (2.5 mm) Bis. 7 (2.5 mm) to Bis. 6 (2.8 mm)	3/4 oz. (21g) 3/4 oz. (21g)	1-2 1-2	225-245 170-190	Skeet, Improved Cylinder Skeet, Improved Cylinder
Ring-necked Pheasants	20-45 20-40	Stl. 3 (3.6 mm) to Stl. 2 (3.8 mm) Bis. 4 (3.3 mm) to Bis. 3 (3.6 mm)	1 oz. (28g) (32g-35g)	2-3 2-3	90-95 90-95	I.C. (20-30 Yds), Mod. (30-50 Yds) I.C. (20-30 Yds), Full (30-50 Yds)
Swatter Load For Wounded Birds (Head & Neck Vertebrae Target Area)	20-32	Stl. 7 (2.5 mm) to Stl. 6 (2.8 mm) Bis. 8 (2.3 mm) to Bis. 7 (2.5 mm)	1 oz. (28g) 1 oz. (28g)	1 1	200-250 200-250	Full Full

This table summarizes Tom Roster's analyses to date of the waterfowl and upland game bird lethality data bases for 15 published U.S. steel versus lead shooting tests and birds taken for published HEVI-Shot and bismuth shot ballistics and lethality reports he has authored for ammunition companies and/or the CONSEP organization.

Note 1: To date, steel #BB (4.6 mm) has exhibited the best overall performance for taking medium geese; steel #3 (3.6 mm) the best overall performance for ducks.

Note 2: To obtain lethality parity when using HEVI-Shot, employ a HS pellet one to two sizes smaller than the steel pellet size(s) listed in each horizontal column.

Note 3: In the Choke column the word "Full" in 12 ga. equals (~.030"); Imp. Mod. (~.025"); Mod. (~.020"); & I.C. (~.010") constrictions. In 20 ga. "Full" equals (~.028"); Imp. Mod. (~.022"); Mod. (~.015"); & I.C. (~.007") constrictions.

* This table involved testing 2¾" (70 mm) & 3" (76 mm) 20-ga.; 2¾" (70 mm), 3" (76 mm) and 3½" (89 mm) 12-ga. steel loads; 2¾" & 3" 12 and 20 ga. HEVI-Shot & bismuth loads.