

Second Barrel Full Choke Dimension Tests:

These runs were done to prove the effect of opening the choke on pattern quality. Load chosen was Federal Gold Medal plastic target hull with enough Alliant Red Dot powder for chronograph-verified 1315's, Federal 209A primer, Bascheri and Pellegri T2 wad, 24 grams (370 grains) West Coast high antimony true-sized 7 1/2's. (This component combination proved to be good, although a very few other combinations have shown better results. . . At least there were no holes in the 10" core circle as is sometimes seen!) Load data from Precision Reloading. Same lot of components used for all 15+ pattern runs. Each shell's components were scaled-measured to insure consistency. Barrel cleaned before each session. All runs were done at 35 yards measured distance.

6/4/2010 FIXED Choke (top) barrel

	10	20	total	24	total	%	H1	H2
1	70	119	189	41	230	77.97	5	0
2	80	121	201	42	243	82.37	3	1
3	63	113	176	51	227	76.95	1	0
4	69	103	172	47	219	74.24	3	0
5	49	118	167	46	213	72.20	4	1
6	60	95	155	62	217	73.56	3	0
7	63	104	167	58	225	76.27	1	0
8	82	118	200	41	241	81.69	5	2
9	73	123	196	38	234	79.32	3	1
10	62	112	174	55	229	77.63	5	2
11	95	124	219	29	248	84.07	3	0
12	88	123	211	43	254	86.10	3	1
13	62	119	181	44	225	76.27	4	1
14	78	112	190	42	232	78.64	2	0
15	83	115	198	40	238	80.68	6	3
	71.8	114.6	186.4	45.27	231.67	78.80	3.4	0.8
						79 +7/-6		
1st 5	66.2	114.8	181	45.4	226.4	76.75	3.2	0.4
1st 10	67.1	112.6	179.7	48.1	227.8	77.22	3.3	0.7

6/4/2010 Seminole .042 tube in bottom barrel

	10	20	total	24	total	%	H1	H2
1	85	134	219	39	258	87.76	4	2
2	96	120	216	33	249	84.69	3	0
3	78	121	199	43	242	82.31	4	2
4	72	118	190	42	232	78.91	3	1
5	66	100	166	56	222	75.51	4	1
6	93	104	197	50	247	84.01	3	1
7	70	125	195	39	234	79.59	4	1
8	67	134	201	48	249	84.69	2	0

Sheet1

9	87	113	200	35	235	79.93	4	1
10	85	129	214	36	250	85.03	5	1
11	79	105	184	41	225	76.53	2	1
12	50	109	159	55	214	72.79	2	0
13	80	118	198	47	245	83.33	5	0
14	60	142	202	44	246	83.67	1	0
15	63	106	169	53	222	75.51	2	0
	75.40	118.53	193.93	44.07	238.00	80.95	3.20	0.73
						81 +7/-8		
1st five	79.4	118.6	198	42.6	240.6	81.84	3.6	1.2
1st ten	79.9	119.8	199.7	42.1	241.8	82.24	3.6	1

6/23/2010 Seminole .039 tube in bottom barrel

	10	20	total	24	total	%	H1	H2
1	75	107	182	37	219	74.49	4	0
2	60	124	184	39	223	75.85	4	0
3	77	117	194	44	238	80.95	4	1
4	93	109	202	39	241	81.97	5	4
5	67	112	179	41	220	74.83	4	1
6	72	119	191	41	232	78.91	1	0
7	91	110	201	38	239	81.29	1	0
8	77	103	180	58	238	80.95	3	1
9	77	119	196	45	241	81.97	1	1
10	80	108	188	46	234	79.59	2	0
11	78	124	202	46	248	84.35	1	0
12	64	111	175	57	232	78.91	2	1
13	75	126	201	33	234	79.59	1	0
14	74	110	184	41	225	76.53	4	1
15	64	117	181	43	224	76.19	1	0
	74.93	114.40	189.33	43.20	232.53	79.09	2.53	0.67
						79 +5/-5		
1st five	74.4	113.8	188.2	40	228.2	77.62	4.2	1.2
1st ten	76.9	112.8	189.7	42.8	232.5	79.08	2.9	0.8

Still see pellet strings on pattern sheets

Seminole .036 tube in bottom barrel
06/25/2010

	10	20	total	24	total	%	H1	H2
1	63	117	180	50	230	78.23	3	1
2	97	115	212	38	250	85.03	3	0
3	90	126	216	37	253	86.05	4	1
4	76	101	177	42	219	74.49	2	0

Sheet1

5	76	109	185	42	227	77.21	2	1
6	83	132	215	40	255	86.73	3	0
7	72	105	177	51	228	77.55	4	0
8	74	120	194	39	233	79.25	3	0
9	79	128	207	40	247	84.01	2	0
10	79	113	192	43	235	79.93	7	1
11	89	119	208	34	242	82.31	5	1
12	64	115	179	40	219	74.49	3	1
13	85	116	201	44	245	83.33	5	1
14	79	100	179	50	229	77.89	3	1
15	47	129	176	46	222	75.51	4	0
	76.87	116.33	193.20	42.40	235.60	80.14	3.53	0.53
						80 +7/-6		
1st five	80.4	113.6	194	41.8	235.8	80.20	2.8	0.6
1st ten	78.9	116.6	195.5	42.2	237.7	80.85	3.3	0.4

Seminole .033 in bottom barrel
06/25/2010

	10	20	total	24	total	%	H1	H2
1	73	123	196	39	235	79.93	4	0
2	84	118	202	40	242	82.31	6	0
3	68	121	189	42	231	78.57	2	0
4	80	122	202	38	240	81.63	3	0
5	70	116	186	38	224	76.19	5	1
6	60	105	165	55	220	74.83	4	1
7	77	124	201	47	248	84.35	3	0
8	78	120	198	44	242	82.31	2	0
9	74	107	181	44	225	76.53	2	0
10	89	113	202	36	238	80.95	4	1
11	83	123	206	32	238	80.95	2	0
12	68	129	197	45	242	82.31	3	0
13	86	112	198	44	242	82.31	4	1
14	75	117	192	38	230	78.23	4	1
15	102	120	222	31	253	86.05	7	1
16	71	137	208	43	251	85.37	3	1
	77.38	119.19	196.56	41.00	237.56	80.80	3.63	0.44
						81 +6/-6		
1st five	75	120	195	39.4	234.4	79.73	4	0.2
1st ten	75.3	116.9	192.2	42.3	234.5	79.76	3.5	0.3

The H1 and H2 numbers reflect an attempt to evaluate pattern uniformity. H1 is the standard test using an International-sized target to count the number of no-pellet holes in a pattern. Realizing that the 20 to 24" inch area of the pattern is extremely weak, H2 uses the same target to evaluate the 20" circle for no-pellet holes (for all practical purposes this really is a test of the 10" to 20")

Taurus. Very few shells will produce holes in the 10" core. Those that do, should not be evaluated further. The +/- figures in the % column evaluate the load consistency and are typical here for the Distance (you don't want to see +/- 20!).

Conclusions:

A summary table:

	10	20	total	24	total	%	H1	H2
FIXED	71.8	114.6	186.4	45.27	231.67	79 +7/-6	3.4	0.8
0.042	75.4	118.53	193.93	45.07	238	79 +5/-5	3.2	0.7
0.039	74.9	114.4	189.3	43.2	232.5	79 +5/-5	2.53	0.67
0.036	76.87	116.3	193.2	42.4	235.6	80 +7/-6	3.53	0.53
0.033	77.38	119.19	196.56	41	237.56	81 +6/-6	3.63	0.44

On perusing the table the first thing that jumps out is that the 20" circle pellet counts get **higher** and the 20 to 24" Taurus gets weaker as the choke is opened up – the opposite of what is expected. This shows up as well in the total pattern percentage. The over-all pattern uniformity H1, suffers slightly – the result of pellets staying in the center – but the H2 uniformity dramatically improves.

This suggests that the ideal "tightest" choke dimension is not in the 0.040 region, but somewhere in the 0.033 area that delivers higher pellet count and less holes in the patterns. Careful testing will determine that exact dimension with your barrel, choke and cartridges. Note that the uniformity figures were averaged from 15 patterns. This should be the absolute minimum for reasonably reliable figures; more data is better.

Using heavier shot loads will produce more pellets in the outer rings than 24 gram (7/8 oz) loads not only from the increased pellet counts but because more pellets are against the bore to be deformed on firing. Hence leave the pattern soonest.

