

Orion Scoring System



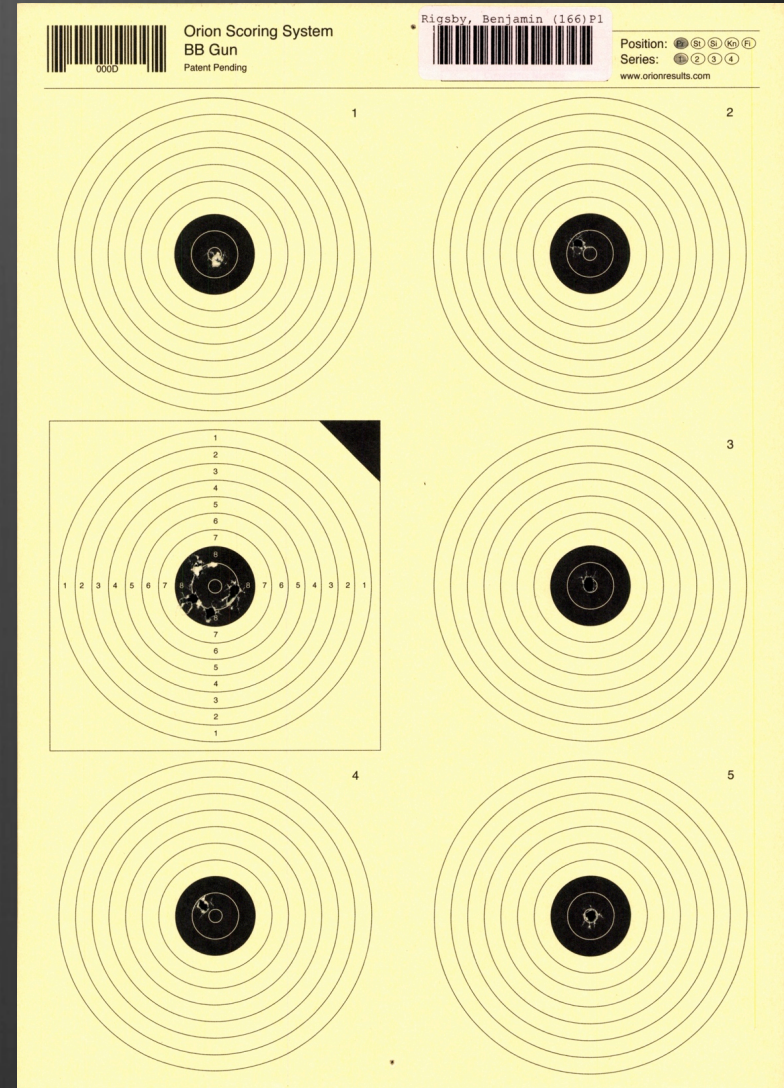
Target Management and Use at
Georgia 4-H Events

Why Orion?

- ❁ Orion is an Electronic Scoring system that automates the scoring process.
- ❁ The Orion software scans the targets and scores using an image processing algorithm.
- ❁ It is more consistent than manually scoring targets and removes the human factor.
- ❁ Insures all shooters are treated equal.
- ❁ Orion can be operated by a small designated staff rather than a large amount of volunteers needed for traditional scoring.

The Orion Target

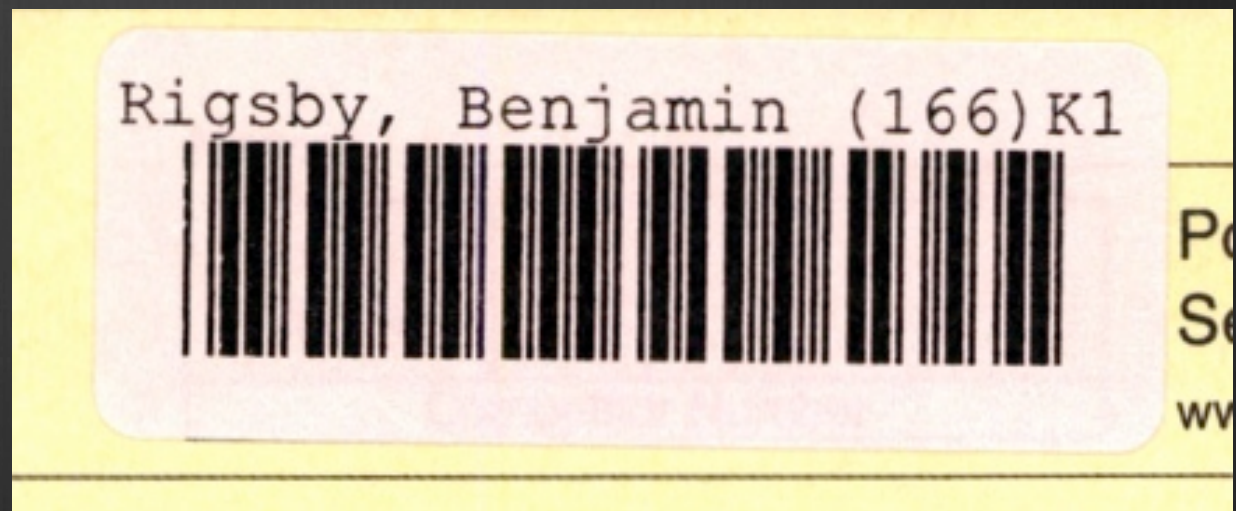
- ❁ The Orion Target is similar to a traditional target, but contains one sighting bull and 5 bulls for record fire. The reduction in size is necessary to feed through a computer scanner.
- ❁ They are printed on a higher grade of target paper which allows cleaner shot holes.
- ❁ They contain special markings that can be read by the software.
- ❁ Each bull has scoring rings for shooter reference but they are for shooter reference only and not used by the scoring software.



Target Use

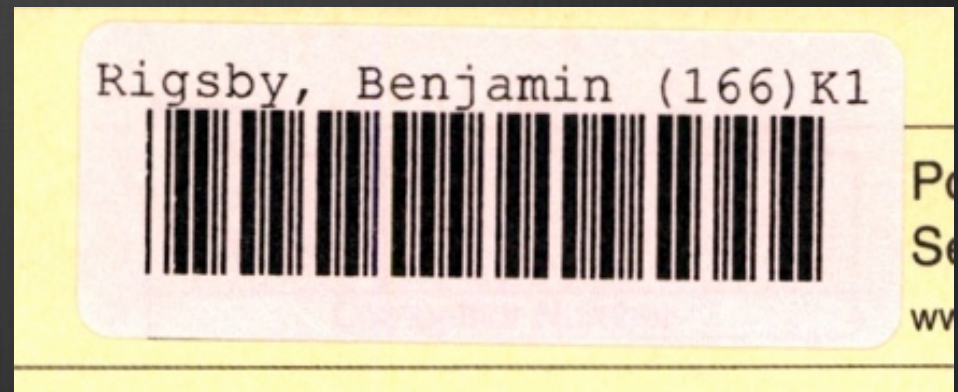
- ⦿ Each competitor is issued 8 Orion targets for the course of fire.
- ⦿ Two targets are hung at the same time for each position.
- ⦿ Each target contains a bar code label that has the name of the competitor, their competitor number and the position printed on it.

The label to the right designates the target for Benjamin Rigby, competitor number 166 and the target is for the kneeling position “K1.”



Target Labels

- On each target label, the competitor number is found in parenthesis followed by the Position and Series.
- Targets labeled “P1” and “P2” are for Prone.
- Targets labeled “S1” and “S2” are for Standing.
- Targets labeled “I1” and “I2” are for Sitting.
- Targets labeled “K1” and “K2” are for Kneeling.



Handling Targets at the Range

- ⦿ Coaches should make sure that targets stay dry and free from dirt. Although wet targets can be scanned, they do have to dry first.
- ⦿ Insure that you hang the right target for the right 4-H'er and for the right position.
- ⦿ Do not fold or bend targets. Instead of folding, they will break in half due to the thickness and quality of the paper.
- ⦿ Designate an adult from your team to be a target manager to keep target organized.
- ⦿ Push pins should be used in the corners to secure targets to the cardboard in the target box.

What If?

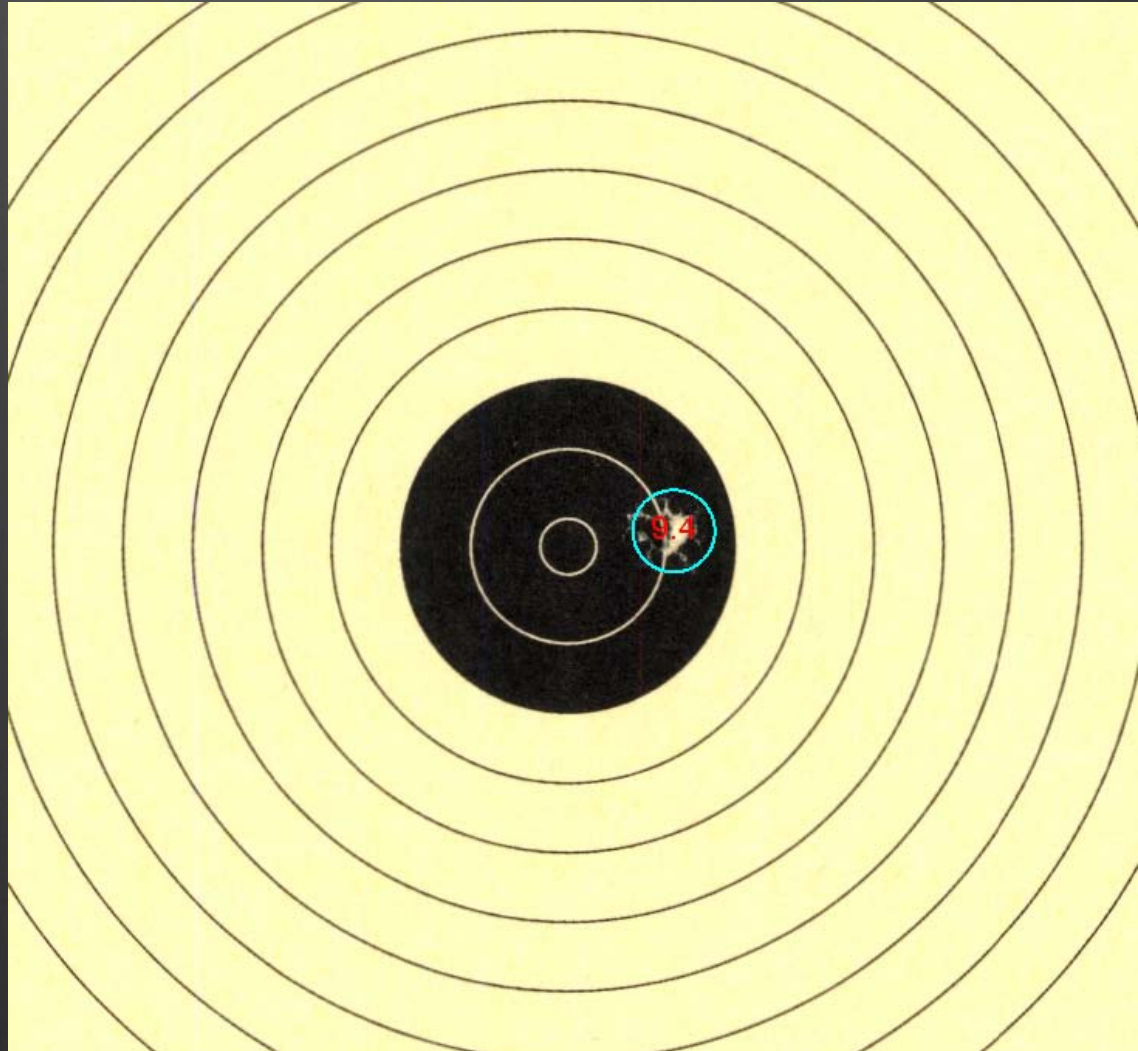
- ❁ If the first sighting shot goes out of the sighting box, alert the range master and he will mark and initial like a traditional target.
- ❁ If the wrong target for the position is posted and shot, alert the range master so he can mark a change on the target (s). The position will be manually marked and the bar code blocked so Orion will flag the target and the statistical officer can apply the target to the right position.
- ❁ If the wrong target is posted for a 4-H'er, alert the range master so he can mark a change on the target (s). The competitor number will be manually marked and the bar code blocked so Orion will flag the target and the statistical officer can apply the target to the correct 4-H'er.
- ❁ If a replacement target is needed, turn the original target into the range master and they will issue a replacement. The replacement target will be hand marked for identification.

The Challenge (Review) Period

- ⦿ The concept of challenges with Orion is much different than with traditional scoring.
- ⦿ Coaches are provided the original targets and a score sheet for each 4-H'er to review.
- ⦿ As a coach, you are looking for “obvious errors” where the score is not a reasonable interpretation of the actual shot. Obvious errors are not a challenge and should be brought to the stat officer for correction.
- ⦿ Coaches may be allowed to view the shot in Orion.

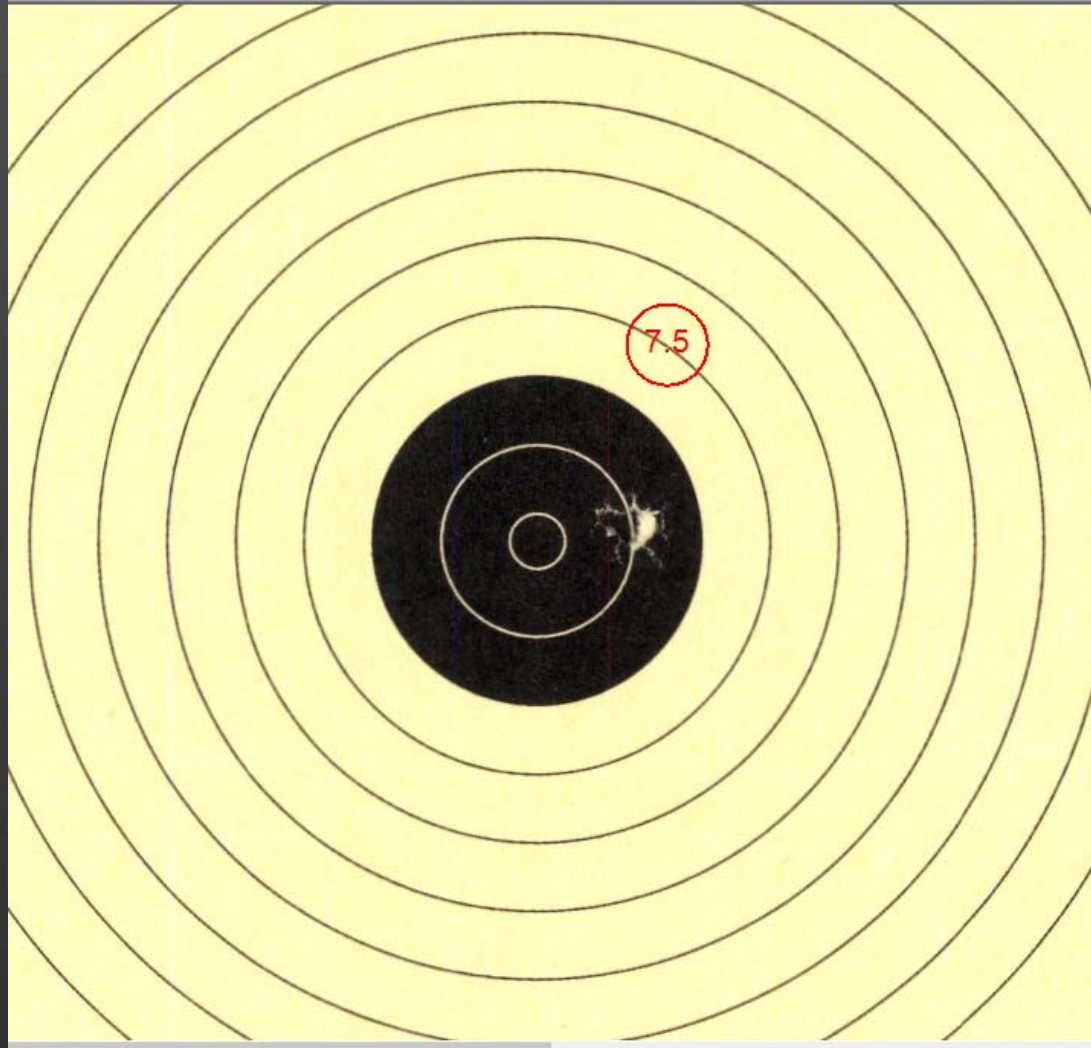
Orion Scoring Screen Shot

The shot value in this screen shot is a reasonable interpretation of the actual shot.



Orion Scoring Screen Shot

The shot value in this screen shot is not a reasonable interpretation of the actual shot and will be corrected by the stat officer.

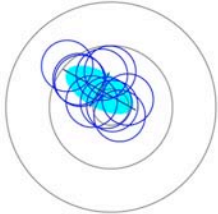


Protesting a Shot

- ⦿ If the stat officer determines that a shot is correctly scored, a coach still has the option to protest a shot. If a shot is protested, the stat officer will run a protest algorithm in Orion.
- ⦿ Important Notes Regarding Protest:
 - ⦿ There is no fee to protest a shot. Coaches can not “buy” points for a 4-H'er.
 - ⦿ The protest algorithm results in Orion is final. Plugging of targets is not supported in Orion. Manual and electronic scoring technologies can not be mixed.
 - ⦿ A 2-POINT PENALTY is ACCESSED for LOST PROTEST

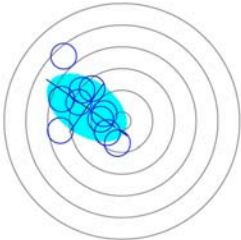
Score Sheet

JacksonCountyTest
Rigsby, Benjamin (166): 355 - 9
Team: Red Date: Thursday, 21 March 2013



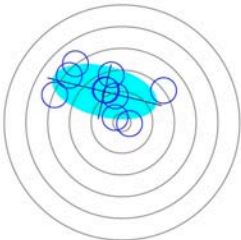
Shot	Bull	Score	X Pos.	Y Pos.	Radius
P1	1	10(10.7)	0.75	-0.76	1.07
P2	2	10(10.0)	-2.69	2.31	3.55
P3	3	10(10.8)	-0.43	0.39	0.58
P4	4	10(10.0)	-2.34	2.45	3.75
P5	5	10(10.9)	0.12	0.11	0.16
P6	1	10(10.2)	-0.80	2.84	2.95
P7	2	10(10.1)	-0.08	3.12	3.12
P8	3	9(9.6)	-3.84	3.62	5.28
P9	4	10(10.5)	1.46	0.67	1.61
P10	5	10(10.5)	-1.69	0.49	1.76

PR 1: 99 - 7
Group Center: (-1.00, 1.52)
Group Area: 16.33
Group Roundness: 2.10



Shot	Bull	Score	X Pos.	Y Pos.	Radius
S1	1	8(8.9)	-5.24	5.70	7.74
S2	2	6(6.9)	-10.23	11.40	15.32
S3	3	9(9.9)	-0.81	-3.82	3.91
S4	4	8(8.8)	-7.57	3.29	8.25
S5	5	10(10.0)	-3.74	0.33	3.76
S6	1	8(8.1)	-10.80	-1.66	10.92
S7	2	8(8.6)	-7.03	5.42	8.88
S8	3	8(8.0)	-10.58	3.85	11.26
S9	4	10(10.1)	-3.13	1.31	3.39
S10	5	10(10.1)	-2.58	-2.03	3.28

ST 1: 85 - 0
Group Center: (-6.17, 2.38)
Group Area: 118.34
Group Roundness: 1.65

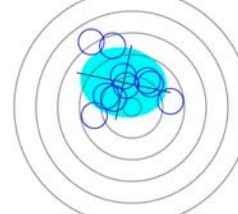


Shot	Bull	Score	X Pos.	Y Pos.	Radius
I1	1	8(8.5)	7.29	5.62	9.21
I2	2	9(9.3)	-2.73	5.65	6.27
I3	3	8(8.7)	-1.88	8.38	8.59
I4	4	9(9.7)	-1.17	4.67	4.82
I5	5	9(9.3)	-2.94	5.75	6.46
I6	1	10(10.6)	1.31	-0.17	1.32
I7	2	7(7.7)	-9.26	8.26	12.41
I8	3	7(7.6)	-11.80	4.88	12.77
I9	4	10(10.6)	-1.20	0.89	1.49
I10	5	7(7.5)	-8.15	10.32	13.16

SI 1: 84 - 2
Group Center: (-3.05, 5.43)
Group Area: 131.00
Group Roundness: 2.10



JacksonCountyTest
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Team: Red Date: Thursday, 21 March 2013



Shot	Bull	Score	X Pos.	Y Pos.	Radius
K1	1	10(10.0)	-3.21	1.52	3.55
K2	2	9(9.2)	-6.61	-1.43	6.76
K3	3	9(9.5)	-1.52	5.42	5.63
K4	4	9(9.2)	6.75	1.02	6.82
K5	5	7(7.0)	-3.41	10.76	11.29

Rule 14.10, Too many shots on a target: 1 points
K6 1 9(9.7) -4.52 1.94 4.92
K7 2 9(9.6) 3.24 4.05 5.19
K8 3 9(9.9) -1.01 3.79 3.92
K9 4 9(9.5) 2.71 4.63 5.37
K10 5 7(7.4) -7.17 11.44 13.50
KN 1: 87 - 0
Group Center: (-1.48, 4.31)
Group Area: 145.81
Group Roundness: 1.25

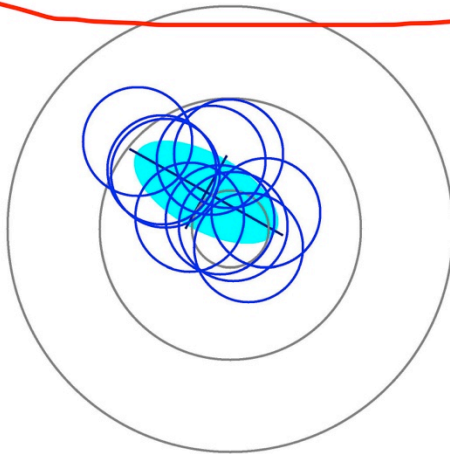


Sample Score Sheet Provided for each 4-H'er

Score Sheet Overview

JacksonCountyTest
Rigsby, Benjamin (166): 355 - 9

Team: Red Date: Thursday, 21 March 2013



Shot	Bull	Score	X Pos.	Y Pos.	Radius
P1	1	10*(10.7)	0.75	-0.76	1.07
P2	2	10(10.0)	-2.69	2.31	3.55
P3	3	10*(10.8)	-0.43	0.39	0.58
P4	4	10(10.0)	-2.84	2.45	3.75
P5	5	10*(10.9)	0.12	0.11	0.16
P6	1	10*(10.2)	-0.80	2.84	2.95
P7	2	10*(10.1)	-0.08	3.12	3.12
P8	3	9(9.6)	-3.84	3.62	5.28
P9	4	10*(10.5)	1.46	0.67	1.61
P10	5	10*(10.5)	-1.69	0.49	1.76

PR 1: 99 - 7

Group Center: (-1.00, 1.52)

Group Area: 16.33

Group Roundness: 2.10

On the top left corner of the first page of the score sheet (circled in red for this example), the 4-H'er is identified along with their match score. The match score reported in this example is 355 with 9 center shots.

The section circled in green is the scoring detailed by position listing how each bull was scored.

Score Sheet Overview

Shot	Bull	Score	X Pos.	Y Pos.	Radius
P1	1	10*(10.7)	0.75	-0.76	1.07
P2	2	10(10.0)	-2.69	2.31	3.55
P3	3	10*(10.8)	-0.43	0.39	0.58
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P9	4	10*(10.5)	1.46	0.67	1.61
P10	5	10*(10.5)	-1.69	0.49	1.76

PR 1: 99 - 7

Group Center: (-1.00, 1.52)

Group Area: 16.33

Group Roundness: 2.10

This is the scoring detail for the Prone Position that a coach will use to compare against the actual target. The five bulls above the red line belong to the target marked “P1” and the five below to the target marked “P2.”

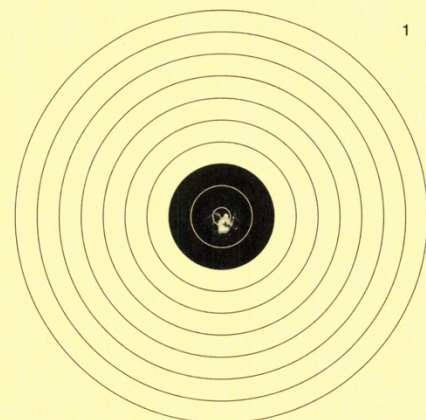


Orion Scoring System
BB Gun
Patent Pending

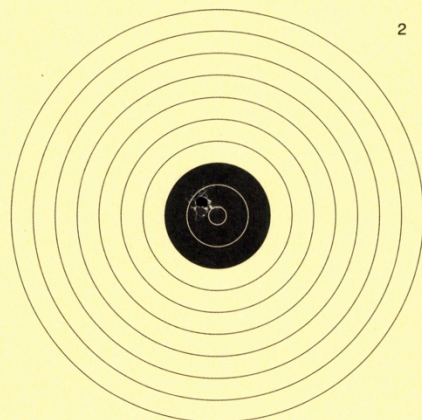
Rigsby, Benjamin (166) P1



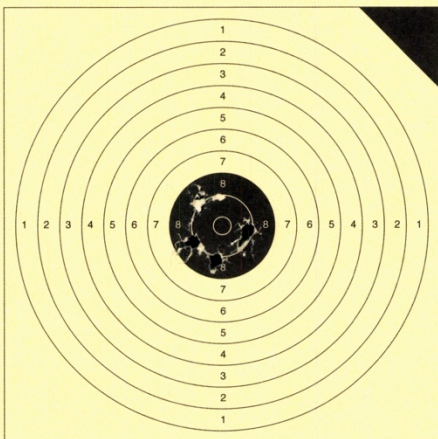
Position: P S L K R
Series: 1 2 3 4
www.orionresults.com



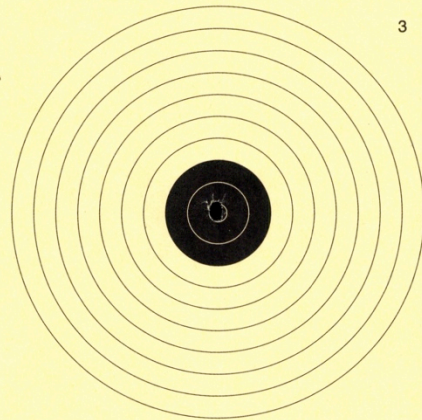
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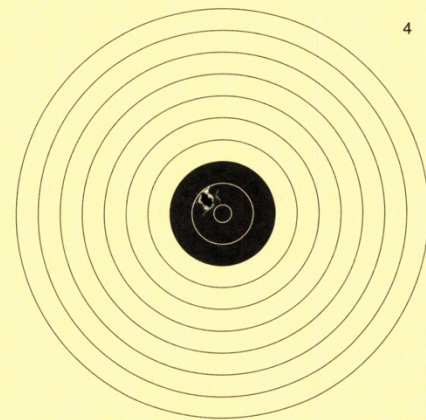
2



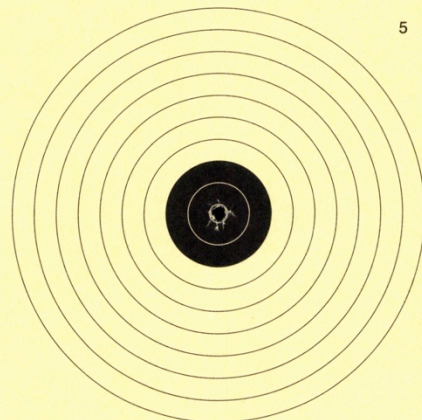
3



5



4



Comparing Score Sheets to Targets

Shot	Bull	Score
P1	1	10*(10.7)
P2	2	10(10.0)
P3	3	10*(10.8)
P4	4	10(10.0)
P5	5	10*(10.9)
P6	1	10*(10.2)
P7	2	10*(10.1)
P8	3	9(9.6)
P9	4	10*(10.5)
P10	5	10*(10.5)

PR 1: 99 - 7

Scores are listed as 10* (10.7) for bull 1 on this target. The target is scored a 10 and the “*” denotes a center shot. The “(10.7)” is not used to calculate total score. The total score in this position is marked in red, 99 with 7 center shots.

Hits on Wrong Target or Bull (Rule 14.7)

At times, a 4-H'er may double shoot a bull by mistake but not fire on another bull so there are still 10 shots on the target. In this particular case, on Kneeling Target 1 (K1), the 4-H'er fired twice on bull 4 and skipped bull five on target K2. For scoring purposes, both targets in a position are treated as one target.

For scoring, the lower value shot on K1 bull 4 is assigned to K2 bull 5 (score of 7). The remaining shot scored a 9 is accessed a 1 point penalty. The following example shows how it is reflected on the score sheet.

Shot	Bull	Score	X Pos.	Y Pos.	Radius
K1	1	8(8.7)	-5.38	6.74	8.62
K2	2	9(9.1)	-0.63	6.99	7.02
K3	3	8(8.7)	1.70	8.51	8.68
K4	4	8(8.4)	5.69	-1.10	5.79
Rule 14.7, Hits on Wrong Bull: 1 points					
K5	5	9(9.7)	-0.72	4.82	4.88
K6	1	9(9.0)	-4.06	-6.25	7.46
K7	2	8(8.7)	-8.31	1.31	8.42
K8	3	9(9.6)	-0.98	4.95	5.05
K9	4	7(7.6)	12.66	0.19	12.66
K10	5	7(7.6)	-1.77	12.70	12.82

KN 1: 82 - 0

Group Center: (-0.18, 3.89)

Group Area: 257.24

Group Roundness: 1.17

Excessive Hits on Target (Rule 14.10)

If more than the required number of hits are found on the target, the 4-H'er will be scored the required number of hits of lowest value less one penalty point per extra shot. In this case Bull 5 on target K1 had two hits making a total of 11 shots.

For scoring purposes, both targets in a position are treated as one target. The value of the shots on bull 5 were a 10 and 8. The score of 10 was lost and one penalty point was added for the excessive hit.

Shot	Bull	Score	X Pos.	Y Pos.	Radius
K1	1	10(10.0)	-3.21	1.52	3.55
K2	2	9(9.2)	-6.61	-1.43	6.76
K3	3	9(9.5)	-1.52	5.42	5.63
K4	4	9(9.2)	6.75	1.02	6.82
K5	5	7(7.0)	-3.41	10.76	11.29

Rule 14.10, Too many shots on a target: 1 points

K6	1	9(9.7)	-4.52	1.94	4.92
K7	2	9(9.6)	3.24	4.05	5.19
K8	3	9(9.9)	-1.01	3.79	3.92
K9	4	9(9.5)	2.71	4.63	5.37
K10	5	7(7.4)	-7.17	11.44	13.50

KN 1: 87 - 0

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