



FITA
Coach's
Manual

FIELD ARCHERY

Module

Intermediate
Level



FITA Coaching Manual

Intermediate Level

Module

FIELD ARCHERY

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Chapter 1. Introduction

The topic of this module is archery on course, which includes the following disciplines in field archery: Field, Forest, 3D and 3DI. All these field archery rounds practice archery in natural surroundings. Shooting in the forest, uphill and downhill in the mountains, over lakes and slopes and with all kind of natural barriers is part of the game of archery on course.

According to the type of bow that is utilized, we distinguish for each discipline the following equipment divisions:

The compound bow



For compound bows a mechanical release and scope are allowed as in target archery.

The Recurve bow



A Recurve bow in field archery is the same as in target archery.

The Bare bow



A bare bow looks like a Recurve bow but without a sight or stabilizers. Different aiming techniques are practised in the bare bow division, using for instance the point of the arrow or the arrow rest for aiming. The bare bow archer will vary the position of the nock of the arrow in relation to his aiming eye, most probably by practicing 'string walk', using different positions on the string for the fingers of the draw hand, or by using different anchor points, 'face walk', or a combination of both in order to make it possible to aim in the middle of the target at different distances.

The Longbow and Traditional bows



Longbow and traditional archers shoot the simplest of all bows, with wooden arrow shafts and natural feather fletching. They practice the so called 'instinctive' style of shooting. Howard Hill, one of the best instinctive archers ever, described his way of aiming as 'split vision' or secondary aiming. If you point with your index finger towards a target and keep focused on the target with your eyes, you can move your finger up and down but you still will see it in your range of vision, be it blurred.

There are, on a national level, more disciplines such as the Recurve or Freestyle unlimited, Compound limited and unlimited, as well as different Bow Hunter styles.



Each time when shooting at a given distance, notice where in your range of vision, your finger can still be seen. Remember this and practice as often as possible on different distances and different objects. This is in a way subconscious 'gap shooting' which is aiming high or low to compensate for the distance.

Shooting field archery with a recurve or compound bow is basically the same as shooting target archery and some good target archers became a good field archer. There are however a lot of characteristics in field archery, that are unknown in target archery:

Shooting takes place in natural surrounding (forest, hills, etc.).

The archer has to shoot uphill and downhill and must know by experience how much to subtract from or add to the (estimated) distance to aim correct and hit the target.

The archer has to shoot at targets that are not perpendicular to the aiming line, which gives specific results if missing the centre of the spot (the highest scoring point on the target).

The archer has to recognize different target faces and has to estimate their position in the field.

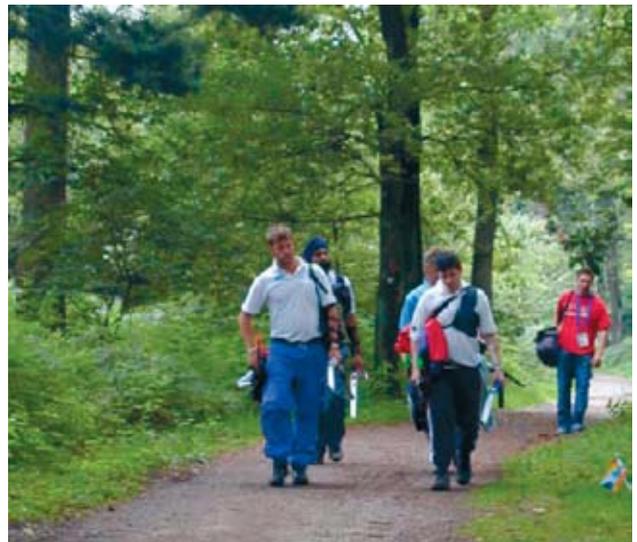
There is no direct visibility of most of the competitors, the scoring of competitors during the course is unknown.

Field archery round

There are 24 targets to be shot by each archer. The targets are of different size and at different moderate shooting distances spread over the area. The archers go round the course in groups of four.



A morning assembly of all participants, one of the organizers will act as an escort to take each group to their first target in the field. The thrill of encountering new shooting conditions is typical for a field archery round.



A shooting position in the field is marked with a wooden peg at some distance from the target. The Recurve and the Compound divisions shoot from the red pegs, the Bare Bow, Cadet Recurve and Cadet Compound divisions shoot from blue pegs and the Cadet Bare Bow division shoots from yellow pegs.



In field archery we use four different sizes of target faces; the distance being shot determines the size. Each target has one 80 cm or 60 cm face or four 40 cm faces or twelve 20 cm faces, ordered in a (3x4) matrix.



Individual event

An individual Field archery round consists of a Qualification Round followed by two Elimination Rounds and two Final Rounds.

The Qualification Round consists of two courses of 24 targets each:

- One marked.

A Unit for a Marked Course

Number of Targets	Diameter of Field Faces in cm	Distances in Meters		
		Yellow Peg Cadet Barebow	Blue Peg Barebow, Cadet Recurve, Cadet Compound	Red Peg Recurve and Compound
3	Ø 20	5-10-15	5-10-15	10-15-20
3	Ø 40	10-15-20	15-20-25	20-25-30
3	Ø 60	20-25-30	30-35-40	35-40-45
3	Ø 80	30-35-40	40-45-50	50-55-60

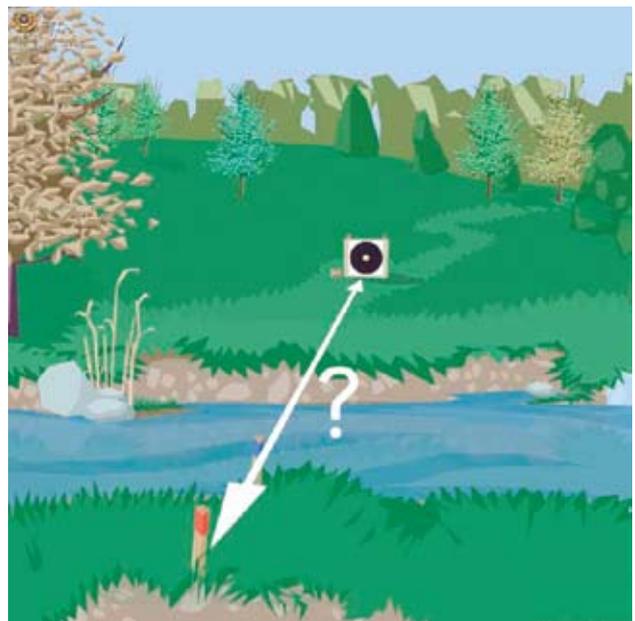
Where more than 12 targets are required for a Unit, additional targets may be added in multiples of 4.

- One unmarked.

A Unit for an Unmarked Course

Number of Targets	Diameter of Field Faces in cm	Distances in Meters		
		Yellow Peg Cadet Barebow	Blue Peg Barebow, Cadet Recurve, Cadet Compound	Red Peg Recurve and Compound
3	Ø 20	5-10	5-10	10-15
3	Ø 40	10-15	10-20	15-25
3	Ø 60	15-25	15-30	20-35
3	Ø 80	32-35	30-45	35-55

A Combination Round is where a Unit of Unmarked distances and a Unit of Marked distances are combined to make a single Round.



The targets are arranged along the course with difficulties in aiming and shooting as the spirit and traditions of the discipline requires and in harmony with the terrain.



The top sixteen competitors in each division and class from the Qualification Round shoot the first Elimination Round.

An Elimination Round is a twelve targets course with a time limit of four minutes for an end of three arrows. Six targets are marked and six are unmarked. The top eight in each division and class from the first Elimination Round shoot a second Elimination Round.

Unit for Elimination Round,

(Marked and Unmarked) 2 X 6 targets, each unit of 6 targets will contain 3 Marked and 3 Unmarked distances:

Number of Targets	Diameter of Field Faces in cm	Number of Faces	Distances in Meters	
			Blue Peg Barebow	Red Peg Recurve and Compound
1	Ø 20	12	5-10	10-15
1	Ø 40	4	10-20	15-25
1	Ø 60	1	15-30	20-35
1	Ø 80	1	30-45	35-55
1	Ø 40	4	10-20	15-25
1	Ø 60	1	15-30	20-35
1	Ø 60	1	30	35
1	Ø 80	1	45	55
1	Ø 20	12	10	15
1	Ø 40	4	20	25
1	Ø 60	1	40	45
1	Ø 80	1	50	60

In the Final Rounds, the top four competitors in each class and division shoot two matches each on 4 marked targets. The number one archer competes against the

number four and the number two against the number three (Semi-Finals).

The four-minute limit is strictly applied in the (Semi) Finals.

Unit for Finals Rounds (and Team Quarter Finals) 8 (2 x 4) targets with marked distances:

Number of Targets	Diameter of Field Faces in cm	Number of Faces	Distances in Meters	
			Blue Peg Barebow	Red Peg Recurve and Compound
1	Ø 20	12	15	20
1	Ø 40	4	25	30
1	Ø 60	2	35	40
1	Ø 80	2	45	55
1	Ø 20	12	10	15
1	Ø 40	4	20	25
1	Ø 60	2	40	45
1	Ø 80	2	50	60

Thereafter, the losers compete for the Bronze Medal and the winners for Gold and Silver (Finals). For the Finals four additional marked targets are used.



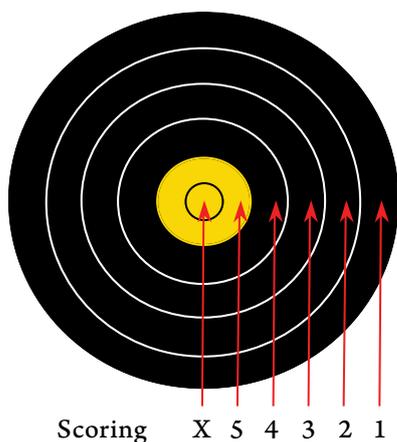
Team event

After the Individual event there is also a team ranking. The top eight teams in each class shoot a team elimination round. (Four Matches in total). A team consists of three competitors, one from each division. Throughout the team event, each competitor shoots one arrow per target. The Quarter Finals team elimination round is an 8 marked targets course. The winner of each match will proceed to the Team Finals Round (Semi-Finals) on a 4 marked targets course. The losing teams from the Semi

Finals advance to the Bronze Medal Match and the winning teams advance to the Gold Medal Match. Both Final matches are shot on four additional marked targets.

Scoring

The target faces in field archery have a gold spot and four black scoring rings; the diagram below shows the scoring zones.



Forest round

The distances of the targets of the same size shall vary between long, middle and short. The forest round has the same characteristic as in Field Archery except for the following aspects:

- It includes the longbow and traditional bow division, which shoot from the blue peg.
- It consists of a number of targets between 12 and 24 which is divisible by 4.
- All archers shoot up to 3 arrows per target.
- The Forest round is normally shot on unmarked courses but may be shot on marked courses provided the distances are kept within the limits as set in the rules.
- For each archer, all arrows must be numerically marked and shot in ascending order.

A Unit for Forest Round

Number of Targets	Diameter of inner rings	Distance in Meters	
		Blue peg Barebow, Longbow, Bow Hunter	Red Peg Recurve and Compound
3	Ø 7.5/5cm	5 – 10	5 – 15
3	Ø 15/10cm	5 – 20	5 – 25
3	Ø 22.5/15cm	5 – 30	5 – 35
3	Ø 30/20cm	5 – 45	5 – 55

Scoring

In the FITA Forest Round only the first arrow hitting the scoring area will be scored in accordance with the following:

Arrow hit	1st Arrow	2nd Arrow	3rd Arrow
Inner Ring	15 points	10 points	5 points
Outer Ring	12 points	7 points	2 points

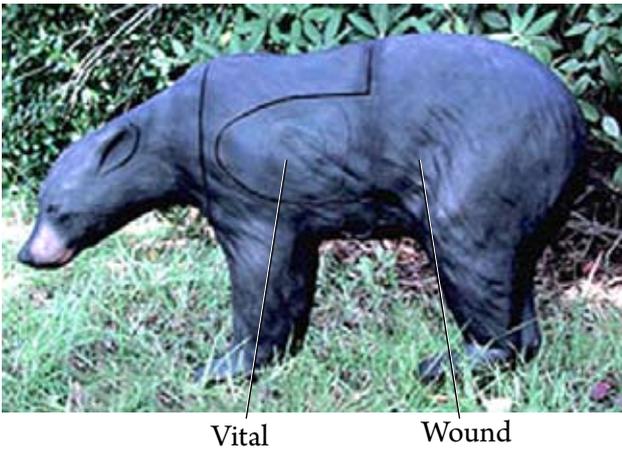
The Forest Round may be scored as in 3D, using the single arrow principle, at the organizer's discretion, in which case the smallest ring (X-ring) becomes the 15 point ring, the inner ring becomes the 12 point ring and the outer contour of the animal target face becomes the 7 point ring.

In the FITA Forest Round, picture faces may be used as set forth below:

Diameter of Inner Rings			
Ø 7.5/5cm	Ø 15/10cm	Ø 22.5/15cm	Ø 30/20cm
Typical Animals, such as:			
Squirrel Rabbit Marten Woodcock	Hare Fox Raccoon Wood Grouse	Roe Deer Wolverine Wolf	Bear Deer Wild Boar

The Forest Round target faces consist of pictures (photograph / drawing / painting) of animals (see chart) with such colours and contrast that people with normal eyesight can see them clearly under normal daylight conditions at the relevant distances.





The pictures should be printed on a white background. The picture faces have two concentric inner rings and an outer ring/line. The smaller inner ring is marked X, the larger inner ring is the higher scoring zone. The outer ring corresponds to the animal's body contour if this is clear, otherwise there shall be a clear line closely following the body contour.

Organizers may use 3-D animal figures in addition to, or instead of, animal faces.



Range Layout 3D

1. Mountain Goat	12. Mule Deer	22. Puma
2. Fox	13. Turkey	23. Bison
3. Deer-standing	14. Bobcat	24. Hyena
4. Boar	15. Rabbit	25. Caribou
5. Javeline	16. Coyote	26. Antelope
6. Wolf	17. Warthog	27. Fox
7. Lynx	18. Deer-laying	28. Turkey-side
8. Bear-standing	19. Beaver	29. Reindeer
9. Jackals	20. Woodchuck	30. Bear
10. Raccoon	21. Big Horn Sheep	
11. Lion		

The 3D Animal round or 3D round for short, has the same characteristics as in Field Archery except for the following:

- The 3D Round may be shot by the Recurve, the Compound, the Bare-bow, the Longbow and the Bow Hunter divisions.
- The round is shot on any number of 3D or silhouette animal targets of varying sizes, each having a marked centre ring and a marked critical ring ('heart/lung ring').
- One arrow per archer per target.
- The maximum time permitted to shoot the arrow is 2 minutes.
- The 3D round may also be scored using the 3-arrow principle as in the Forest round, at the organizer's discretion.



The distances are not marked and vary within the following limitations:

- Between 5-45m for the FITA Compound and Recurve divisions.

- Between 5-30m for the FITA Bare bow, the Longbow and the Bow Hunter divisions.

Scoring

Scoring Zones in a 3D Animal round:

- 15 points for the centre ring zone.
- 12 points for the critical ring zone.
- 7 points for the rest of the animal figure, except antlers, hooves, cloves.



For an arrow to score, the arrow shall hit and remain (be stuck) in the 3D figure.



In the case that animal targets are used with more than two rings engraved, the second smallest will become the centre ring and the biggest will become the critical ring zone. If the animal target has more than two rings, the smallest ring may be used as an X-ring at the organizer's discretion. The 3D round may also be scored using the 3-arrow principle as in the Forest round, at the organizer's discretion. The centre ring becomes the X ring and the critical ring becomes the Inner Ring (of the Forest round), the rest of the animal (silhouette) becomes the outer ring. If there are more than two rings on any animal

target, the second smallest becomes the X ring and the largest remains the critical ring zone, corresponding to the Inner Ring of the Forest Round and scoring 15/10/5 points. The rest of the animal (silhouette) becomes the Outer Ring scoring 12/7/2 points.

3DI round

A very new round in the FITA is the 3DI with its own World Championship 3DI Rules represent a joint venture of 3DI and FITA. The rules are based upon 3DI rules with the goal to make 3D more popular within FITA and to achieve a closer cooperation with 3DI. The 3DI round has a lot of the same characteristics as in Field archery except for the following aspects.

- One archer at a time.
- One arrow (only) per archer per target.
- When shooting, the archer must touch the peg with a portion of their body.
- Pegs farthest from the target must be shot first, unless directed otherwise by a shoot official.
- There is to be no discussion of yardage / distance until the target has been scored.



Shooting pegs

- Red: Men and Women Compound Bow maximum distance: 45 meters (50 yards).
- Blue: Men and Women Barebow
Men and Women Longbow
Men and Women Instinctive Bow
maximum distance: 30 meters (33 yards).
- The first archer in the group has two minutes; each following archer in the group has two minutes after the release of his predecessor.
- Cameras or distance estimating devices are not allowed on any of the shooting distances regardless of use. Binoculars (hand held) will be allowed with a maximum magnification of 8,5X according to the manufacturer's specification.

Scoring

For all sanctioned 3DI-shooting events, the scoring shall be as follows:

- X Small circle centred within the ten ring. Approximately 25% of the ten ring will be used. The arrow must at least touch the circle line. This score would reflect X-10 on the scorecard.
- 10 Circle inside vital area. The arrow must at least touch circle line.
- 8 Vital area other than the 10 point area. The arrow must at least touch the vital area line.
- 5 Remainder of the animal touching body colour.
- 0 A hit in the horn or hoof not touching body colour, any other miss, or glance off.

All scoring zones can be used unless otherwise noted at shooting peg.

Removing of arrows should be done with care for the arrows as well as for the deer targets. Recommended is the one hand method where one hand is on the deer pushing and the other one on the arrow shaft close to the impact point, pulling.



Another technique is with two hands on the arrow shaft close to the arrow impact and the body leaning against the deer.



Chapter 2.

Equipment

Sight

Traditionally a bow has no special aiming device. The bow hunter caught his prey by shooting instinctively, without even having the time for conscious aiming; bare bow archers use a fixed point on the bow or arrow to give the bow the necessary elevation by bringing this point on the virtual line between the eye and the target, which is the essence of aiming.

Modern bows have a special aiming device, the sight. A sight is a sliding device adjusted on the bow with which a fixed aiming point called sight pin can be fixed in place in order to give the bow the desired elevation during aiming.

A sight has a ruler with a scale usually indicating centimetres, millimetres and tenths of millimetres. The scale can indicate for instance from 0.00 cm to 9.00 cm. Depending on how the archer mounted the sight, the point of zero elevation (shooting straight forward) is somewhere at the top of the ruler.

In target archery we need only four marks on the scale of the sight, one for each distance. In field archery we have to shoot any distance between five and sixty meters and it is not possible consequently to have each distance marked on the sight. It is recommended to put some marks on the sight bar and to keep a table of sight marks between 5 and 60 meters on a piece of paper in the pocket. A field archer needs to know his sight marks at every 2.5 meter on the shorter distances and at every 5 meter on the longer distances. Confidence in performance for field archers strongly depends on their confidence in their table of sight marks.

Tuning

One can often see that a target archer adjusts the side setting of his sight when changing distances, in addition to the vertical sight setting he is adjusting his sight pin horizontally in or out. The reason for this is probably because his sight bar is set parallel to his sight window (bow riser) but he is holding the bow slightly tilted, which is quite normal and often preferred. It is preferred because your normal body line often makes it natural to hold the bow tilted and if resisting this natural stance you will have to force your body, or arm/shoulder into a position which is not natural and which may implement muscle strain and/or shooting errors. On a target round this need for side adjustment is not a big problem, but for a field archer this adjusting would be hopeless to keep track of, and thus we must correct our equipment accordingly.

Have someone help you to check by eyesight or by means of a level instrument that your sight ruler is vertical when you shoot – it doesn't matter how much you tilt your bow. As long as the ruler of your sight is vertical there will be no need for horizontal adjustment on different distances. (Depending of course, as long as you do not change the degree you tilt your bow). Tilting the bow, even the compound bow, may be an advantage to most archers. However, there may be one problem if you tilt the bow too much to the left (right handed archer) you may discover that by keeping the sight bar vertical the sight pin/ring may be hidden behind the riser on the longer distances. If this becomes a problem you will have to alter the bow grip or your shooting technique in order to limit the bow tilt.

Field archers must hit a small spot on distances from 5 meter and onwards, and therefore the bow/arrow combination should be well tuned so that the arrows leave the string as straight as possible.

Draw a horizontal line on your target or stick a narrow, good visible line of tape and shoot an arrow at that line from every meter between 5 and 10 and from every 2.5 meter between 10 and 20. Use the correct sight marks. Measure only the deviation from the (horizontal) line. If your arrows hit close to the horizontal line on those distances, they fly close to the horizontal plane. (See Manual 1 for 'horizontal' plane).

Next, tape a vertical line and shoot from every 1 meter between 5 and 10 and from every 2.5 meter between 10 and 20. Measure the deviation from the vertical line only.

If your arrows hit close to the vertical line on those distances, they fly close to the vertical shooting plane.

If your arrows fly close to the horizontal and the shooting planes, they will also fly straight on longer distances. If you are unable to hit the horizontal and/or vertical tape on the shorter distances it may mean your arrows are 'wobbling' too much and that you must continue tuning (optimising) your equipment.

Chapter 3.

Range Finding

Dead ground, such as where archers are looking over a ridge at a target and can't see the ground area between them and the target, or shooting over water, are notoriously difficult situations to estimate distance. The same is true, to lesser extent, when shooting across a valley where the direct distance is very different to the ground distance.



In the FITA Field (on the unmarked targets), the Forest and the 3-D rounds, archers have to guess the distance to a target on a place they may never have been before. This is a special challenge for most field archers. Hence one important shooting skill consists of making accurate distance estimations. Good intuition and terrain evaluation is not enough, as these are too inaccurate.

Unmarked distances are not completely unknown. According to the rules, unmarked targets can only be mounted between certain distances.

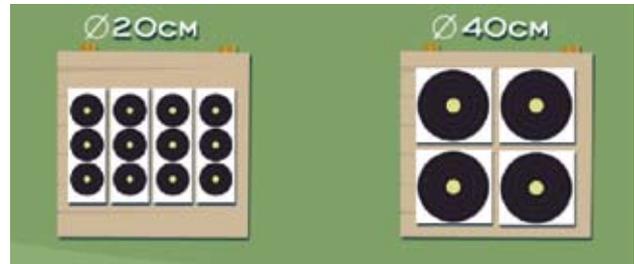
Number of 12 targets in a unit max – min #	Diameter of Field Faces in cm	Distances in Meters (unmarked)		
		Yellow Peg Cadet Bare Bow	Blue Peg Barebow, Cadet Recurve, Cadet Compound	Red Peg Recurve and Compound
2-4	Ø 20	5-10	5-10	10-15
2-4	Ø 40	10-15	10-20	15-25
2-4	Ø 60	15-25	15-30	20-35
2-4	Ø 80	20-35	30-45	35-55

Number of Targets	Diameter of Field Faces in cm	Distances in Meters (marked)		
		Yellow Peg Cadet Barebow	Blue Peg Barebow, Cadet Recurve, Cadet Compound	Red Peg Recurve and Compound
3	Ø 20	5-10-15	5-10-15	10-15-20
3	Ø 40	10-15-20	15-20-25	20-25-30
3	Ø 60	20-25-30	30-35-40	35-40-45
3	Ø 80	30-35-40	40-45-50	50-55-60

The distance of an 80 cm target face for instance from the shooting position of Recurve and compound archers is between 35 and 55 meters, and just by using the knowledge of the rules an archer can estimate the distance at 45 meters, which is obviously within 10 meter of the real distance. Although this is ranging the distance very basic, the archers have already a guess that gets the arrow on the butt. The 80cm target face is really the most complicated target on the unmarked round and it is clear that archers are happy to hit at least the butt.

Generally speaking it is the longer distances the archer needs to concentrate on for guessing. Archers may well have trouble in getting high scores at shorter distances and smaller targets, but most probably this has to do with the

archer's bow tuning and technique, more than distance measuring. At the shorter distances, the extent of compensation is by far less, especially when using a fast bow. Also, the smaller targets are easier to be recognized, especially in FITA rounds, so they will not confuse the archers.



In the unmarked round it's the 60 cm and 80 cm target faces, which can cause the archer some concern in deciding which size face they are about to shoot at.



Shooting a lot of field competitions on unmarked distances will give the archers more and more experience, which also allows them to achieve higher scores.

The FITA rules clearly state that the use of range finding devices is not allowed. It is not possible however to prevent archers from measuring the distance to the target by applying their common equipment.



Rules and judges are there to keep special range finder devices out of competition. The measuring methods mentioned below do not use exceptional devices for range finding.

Archers are allowed to use any information from the Rules. So, they can have a list of all the distances each target must be set in for each bow style. The archer can come to full draw and then compare the size of a special part of the bow with the known size of the target face.



It is indeed possible to estimate the distance to the target very accurately using previous tests during practicing. This type of estimating is actually not according to the spirit of the rules, but it is difficult to prove it is being used.

Archers are not allowed to discuss distances on the course, to prevent them from giving advice or misleading information to other competitors. The use of mobile phones or radio technique is prohibited for the same reason. Archers are not allowed to pace out the distance between pegs as they go to their own shooting peg to take up their position. (For example the bare bow archer go to their peg while passing the red peg).

Field archers need to find their own method of estimating distances (range finding) and this needs to be practiced as part of their shooting form. Whatever method of estimating the archer chooses to apply, there are also special factors to take into account.

The course setter is pitting their wits against archers, and will try everything to confuse the archer. Course setters don't like to make the target size obvious. They use tricks such as putting a small target face on a small butt, making it look like a large target face on a normal size butt. It is important to know the course setter as each of them has their own 'signature'.

The more field practice the archers do the more they get a feeling for distance, and how to reliably estimate distances. With increasing experience they will be able to

take advantage out of every single hint or sign in the surroundings to improve their skills in estimating distances as exact as possible.

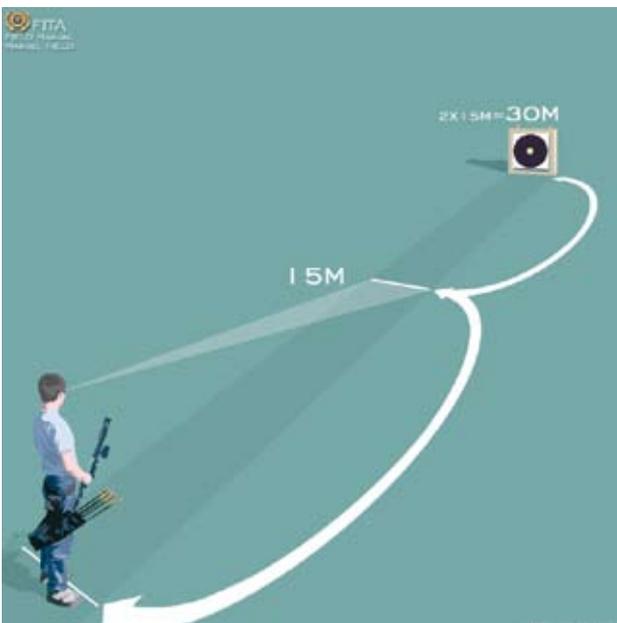
Practice exercises for range finding:

- A. During practice in the field the following task is instructive for the archer.
 1. Note the first thought about the distance that came up arriving at the peg.
 2. Note the distance which was decided to shoot the arrow.
 3. Measure and note the true distance.
 Experience shows that in about 95% of all cases the first thought is correct, but is followed by a different decision due to doubt.
- B. Judging by feel means that archers learn to judge the distance by 'feeling' the size of the target in relation to the distance. In order to do this they need to practice a lot, but below you will see a few suggestions: Take different Target Deer / Target faces glued onto cardboard and place them in the field and let archers judge the distance and then measure them yourself.
- C. Notice the different sizes of field faces, animal faces or 3D deer on various distances (start with the maximum distances), shoot at the targets while getting accustomed with their sizes.
- D. Locate the targets or 3D deer in the field, judge the distance by 'feeling', shoot at them, measure the distance using a measuring-line or by counting steps. Always remember the maximum distance for that particular target face, animal face or 3D deer according to the rules. (Archers may be fooled, try to judge by the spot size rather than the size of the whole target face). It is common to judge the distance too short!
- E. A useful distance training exercise is that you and your archers take a suitable measure-line or distance finder and go for a walk in the countryside, woods or mountains. Challenge the archers to guess the distance to nominated trees, plants or objects. Then check their accuracy by measuring.
- F. Learn how distances of 10 meters look like in various terrain.



Find a point at 10 metres away from the archer; copy this 10 metre distance visually until close to the target. Add or subtract the remaining distance. An error of X% in the 10 metres guess implies an error of X% error in the estimated distance.

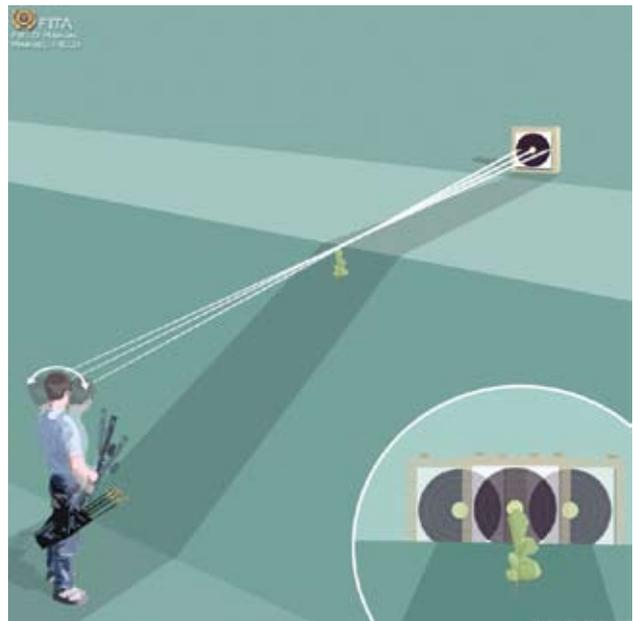
G. Try to find a point half-way to a given object and estimate the distance to that point.



Then double this distance and find the estimated distance to the given object. X% error in the half-way guess implies $X \times 2\%$ error in the estimated distance.

H. The 'owl' method is used when the archer is unable to oversee the terrain in front of the butt. Judge the distance to an object somewhere in between archer and

the target. Notice how this object is situated in relation to the target.



Then you move your head sideways and notice how that object moves relatively to the target. If it moves just a little bit, the distance between object and target is small, if it moves equal to your head movement it is half way in between, and if it moves more than your head, the object is nearer than halfway to the target.

- I.** If an archer has to shoot prior to you, then you listen how much time it takes between the release and arrow impact on the target and estimate the distance. This technique needs a lot of experience but can be very accurate.
- J.** Archers can get some information looking through their binoculars at arrow holes punched in the target face or 3D deer. With some experience you will know what the size of an arrow hole should look like relative to the gold / killing zone and get a clue or confirmation of target face / 3D deer size.

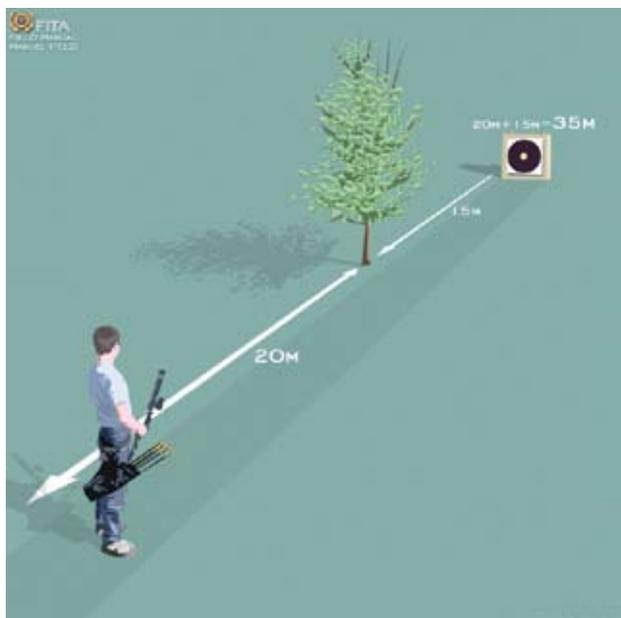
If, for example, most of the holes are below the gold / killing zone, it indicates that many of the preceding archers underestimated the distance. An archer might therefore deduce that the target is further away than it looks like. If the archer is not the first one in their group to shoot they might get confirmation of this observation by watching where the arrow of the target partner hits, weighing this against their (assumed) ability. If an archer watches archers from the preceding group still standing beside a target

face, or a 3D deer, it can help them in judging what size (or at what distance) it is.



It is therefore in the archer's interest, to leave the target immediately after scoring to avoid giving information away.

- K. Most of this information is reassurance, rather than a dead give away and, rather than to seek it, occurs during the shoot.
- L. The archer estimates the distance between the target and a tree let's say—15 meters in the example below.



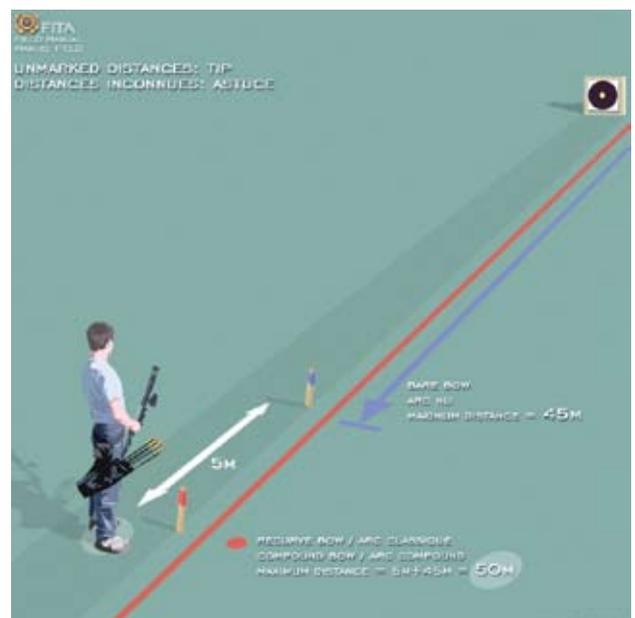
Then they estimate the distance between the tree and them self—20 meters in this example. Hence the total distance is 35 meters.

- M. There are often other clues to work out the distance. By looking at surrounding objects archers can quickly get a feeling for distance. For example, if a target, or 3D deer, is placed down a row of trees, archers can eas-

ily estimate the distance between each tree, normally, in a plantation of trees, the gap is usually exactly five meters between each tree, (depending in which part of the world or even country) count the gaps and the archer will know the distance.



- N. In the FITA Field rounds – for any given target size, the red peg upper and lower limits are 5 metres more than the blue peg. That is except for the maximum distance being shot on the 80 cm face. Here the difference is 10 metres.



For example, for a 40cm target face, the blue peg is between 10 and 20 meters while the red one is between 15 and 25 meters away from the target. It is therefore important to remember, or to have a note of the distance for both pegs of either colour. By estimating the distance be-

tween the two pegs, and also from each peg to the target, archers get a means of cross checking distances. Sometimes the two pegs are set side-by-side, so in the above example for a 40 cm target, archers would know that the distance must be between 15 meters (the red minimum) and 20 meters (the blue maximum). Very occasionally, the blue is set further then the red so guessing that is a little tricky.

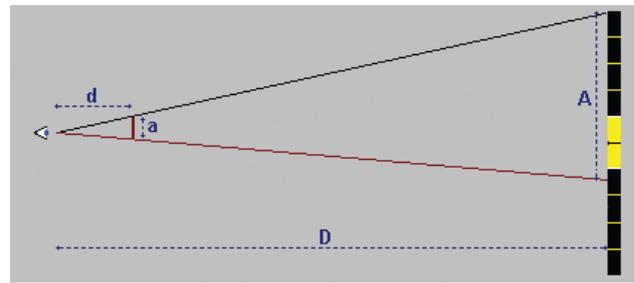
- O.** If the archer is uncertain about the distance and assumes it may be a little further than it looks; they should go for the 'percentage shot'. Set the longer distance and aim the first arrow a little low, say at 6 o'clock in the 4-ring. With this trick the arrow will then hit into the low 4, the 5 or high 4, depending on the degree of misjudgement. If the archer aims at the 5, they risk a 12 o'clock 4 or 3 and maybe, even worse. Alternatively, the archer could set up the short distance and aim high.
- P.** If the archer is really uncertain of the distance to the target, they should definitely go for the 'mathematic shot'.

Example: The 60cm target face in the unmarked course for recurve/compound is 20 – 35 metres. Take half of the difference and add 1 meter: $27\frac{1}{2} + 1 = 28\frac{1}{2}$ meter. This gives an indication for the archer's first arrow. Practice makes perfect and, by continually testing the archer's own estimating ability, they will improve. This will increase their confidence and performance.

Range finding with sight

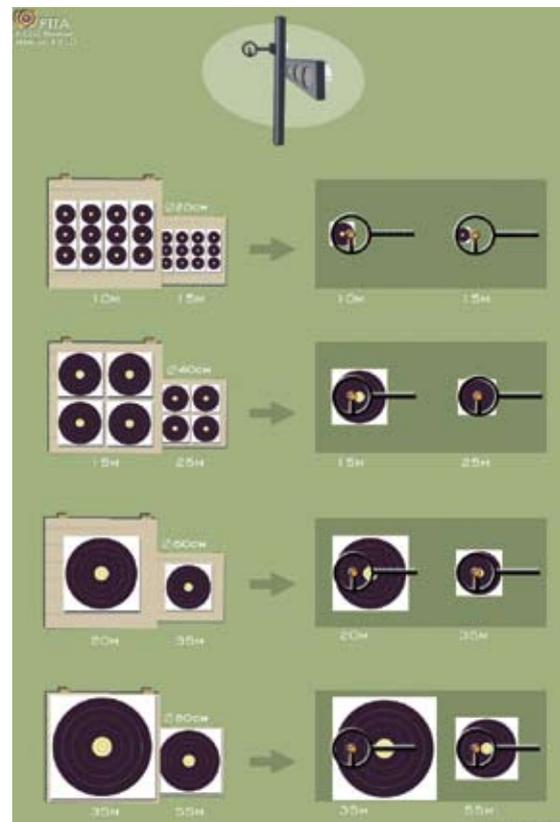
If we know the distance from the dominant eye to an aiming object on the bow (e.g. sight ring, scope, arrow rest), called 'd', and the width of that object 'a', and we know the width of the target 'A', and we call the distance to the target to be discovered as 'D', then the relationship $a / d = A / D$ will give you the distance to the target by simple calculation. This method is based on knowing the size of the target face or buttress. Recognizing the target faces of 20 or 40 cm presents no problem, as the target layout tells you the target size ('bunny' or quadruple). But if you mistake an 80cm target face for a 60cm target face, or vice versa, it will result in an error in the distance estimation between 10 and 15 meters. This would result in an error that would be a big loss in the score. It is in this case that the field evaluation, and your own experience or intuition should

help; besides of course, studying the various makes of target faces in order to see and consider the difference.



View from side: D is distance to target

1. Align the pin up a 20cm target face and a 40cm target face on the butt.
2. Measure and mark 20m and 40m from the butt.
3. Go to the 20m mark with your bow.
4. By aiming at full draw find something in front of you that covers the 20cm face, for instance the inside or outside of the sight ring, the threaded part between the ring and the sight, the bubble on the level, the spot or ring on the glass, the with of the arrow, parts on the arrow rest and so on an so forth.



5. If you are unable to find something, you have to modify i.e. change the sight ring or something else which will give the exact measurement of 20cm from 20m

distance. (Remember to use only manufacturers' parts and not your own modifications).

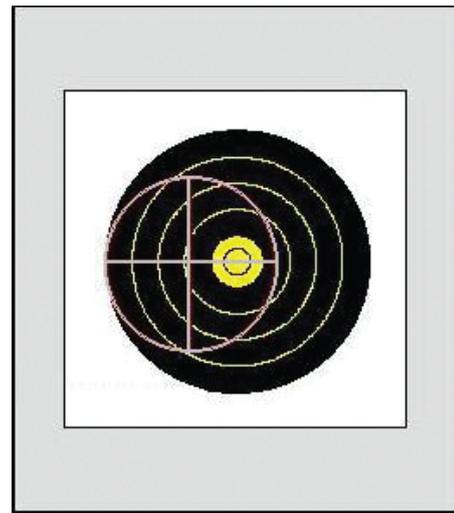
6. Once you have found the correct ring (or whatever) size, go to the 40m mark and measure the 40cm target face. If this is correct, and it should be if you have been accurate enough on the 20cm, you are now able to measure any distance provided you know the size of the object you are measuring on – you need to know if it is a 20cm, 40cm, 60cm or 80 target face you are measuring, but you can also use the size of the butt or any other object you are familiar with.

In practice you proceed as follows. When aiming at full draw you check and see /evaluate how many centimetres you measure on the target face – remember you must always use the same technique, because the distance between your aiming eye and the part on the bow with which you use to measure must be the same. The number of centimetres that you measure on the target face equals the number of meters, which is the distance from where you stand to the target face you are measuring on.

If you stand on an unmarked peg and can measure 40cm on an 80cm target face – the distance is 40m. On a 60cm target face the same situation would give you 30m, and on a 40cm target face it would be 20m. 40 cm on an 80cm target face is exact through the middle – the relationship is also valid for the other target face sizes.

If you measure on an 80cm target face from the edge of the black to the edge of the gold on the opposite side the distance is 48m, as $40+8 = 48\text{cm}$; with a 60cm target face you get $30+6 = 36\text{cm}$ which gives you 36m. If on the other hand, you measure from the edge of the black and your measuring device reaches to the 4 ring on the opposite side of the centre, the distance is $40+8+8 = 56\text{cm}$ which gives you 56m (in case of an 80cm target face) whereas on a 60cm target face you would get 42m, as $30+6+6 = 42\text{cm}$.

Remember! This is information you have to learn and keep in your mind, as you are not allowed to carry memoranda on the course. You may, however, have copies of parts of the Rules Book with you.



The above example shows a sight ring that covers the face from the edge of the black to 'a little' more than the centre of the four ring: On an 80cm target face this would correspond to approximately 40cm (half of the face) + 8cm (half of the gold) + 5cm (plus a 'little more' than half of the width of the four ring which is 8cm) = 53cm and consequently 53m

On a 60cm target face it would correspond to $30\text{cm} + 6\text{cm} + 4\text{cm} = 40\text{cm}$ and thus 40m, which is outside the allowed distance for a 60 cm face, which means, this must be an 80 cm face you will be shooting at.

On a 40cm target face it would correspond to $20\text{cm} + 4\text{cm} + 3\text{cm} = 27\text{cm}$ and thus 27m. If you miss by one cm or two, you miscalculate the sight setting by one meter or two, which is still acceptable.

For further information and divining field strategies you have a look into: FITA Field Organizers Manual. This gives the archer an idea on what they can expect from the course builders, as mentioned before each course builder has their own signature concerning course building. Archers can of course use the same rules and formulas on animal targets or 3D rounds as long as they know the target sizes. For the experienced field or 3D archer there is no such thing as unmarked distances. That is just for those who don't take the time necessary to learn how to do it.

Range Finding for Forest and 3D Animal rounds

Many rules and formulas of range finding in Field archery are also valid for Forest and 3D rounds, if we read 'animal' instead of 'target face'. Archers are allowed to be aware of any information that appears in the Rule Book, so archers can use the list out of this book containing the minimum and maximum distances for each animal target and for

each bow discipline. Archers must be able to recognize all animal target faces and even those made by the organization (which will be announced and shown before the tournament starts).



Once archers have mastered the ability to hit the vital/scoring zone consistently from known distances, it is about time to move on to the next step. Remove all the distance markers and shoot by simply judging the distance to the target. The ability to determine distances is usually the greatest challenge an archer will face. A wrong guess can send the arrow either high or low of the vital/scoring zone. Archers can spend a lifetime perfecting this ability.

Chapter 4.

Uphill and downhill shooting

A sight mark corresponds to a certain elevation of the bow while aiming. In target archery it also corresponds to a certain distance to shoot. In field archery, when shooting uphill or downhill, elevation depends not only on the distance to shoot, but also on the difference in altitude to overcome. 'Distance to aim at' can be different from 'distance to shoot'. The field archer corrects (by adding or subtracting a few metres) according to the slope.

Distance to shoot + Correction = Distance to aim at

The archer has to learn by experience how much to correct in different situations. How much distance to subtract, has to be discovered by each individual archer, it depends on the archer's equipment and shooting technique. Distance correction for slopes is an art in itself, but generally the distance to aim is less than the distance to shoot for both uphill and downhill shooting. Below are some popular corrections for inexperienced field archers:

Sighting for shooting uphill

- At a slight slope, and especially at long distances, add one or two meters to the real distance (dependent of the meter / yardage and the efficiency of the bow).



- At a very steep slope, deduct at least two meters from the real distance (dependent of the meter / yardage and the efficiency of the bow).



The steeper the slope, the more the archer subtracts; however, in uphill shooting above a certain distance, called the 'jump', the rule is 'the steeper the slope, the less to subtract'. The distance of this 'jump' is dependant on the efficiency of the bow.

Sighting for shooting downhill

At a slight slope, deduct one, two or three meters from the real distance (dependent of the meter / yardage and the efficiency of the bow).



At a very steep slope, deduct up to 10 meters from the distance (dependent of the meter / yardage and the efficiency of the bow).

We can calculate the “jump” as follows. Write down the sight marks from 10 meter up to 50 meter distance with a step of 5 meter in a table. Next we add one column to the table in which we calculate between 15 and 60 meter the difference between two adjacent sight marks. The differences (adjustments for 5 meters further) are pretty constant below about 35 meters. Between 35 and 45 meters the list of differences makes a ‘jump’, maybe to about the double of the previous differences, and then become approximately constant again.

When the distance uphill or downhill is not marked and has to be estimated, usually an uphill target is judged too short and a downhill target is usually judged too far. For this reason the archer should as a rule add a few metres to his estimation when shooting uphill and subtract a few metres when shooting downhill.

Shooting more or less straight up or straight down, archers have to see it to believe it, let them try their 15 metres mark.

Posture for shooting uphill with level feet position

The basic posture is always the ‘T’ as in target archery.



For slight uphill shots move the hips towards the target before the draw, for steep uphill shots put the bow foot forward and move the hips towards the target before the draw.



At even steeper uphill shots you could move the string foot a little backwards so that you get more room in the chest to hold the correct draw length. Too little ‘swing’ in the hips, gives a wrong shoulder and bow arm position, shorter draw length and probably a bad release.



Posture for shooting downhill with level feet position

At slight downhill shots move their hips away from the target before the draw.



The downhill standard position is a swing in the hips to the rear and a wide stance.



Or even face the target with whole body and twist upper body towards the target face. Although anatomical not reasonable it is only for three shots and archer has a good balance.



For steep downhill shots let the archer take an open stance and move their hips away from the target; have the archer straighten their upper body before the draw. The steeper downhill the shot the more the archer has to open their stance.

Posture for shooting uphill on sloping ground:

With very steep uphill shots, sometimes archers shooting position will become more stable if they kneel on their forward knee.

Examples of common mistakes

- Hips not forward enough, giving wrong shoulder and bow arm position, shorter draw length and probably a bad release.
- Tilting the bow causing left or right hits.
- Bent knees give unstable shooting.



Posture for shooting downhill on sloping ground

For a downhill shot we put the feet wide apart and push the hips away from the target.



With a very steep downhill shot and an extremely steep hillside sometimes the archers shooting position will become more stable if they kneel on their rear knee.



In extreme slippery conditions archer can push their bow stand into the ground to give support to the front or back foot and to avoid slipping down the hill.

Chapter 5.

Training for field archery

Field archers must carry their complete outfit for a whole day of competition, they must have had sufficient rest and they should be fully motivated. They should practice in all weather conditions, to learn to react to wind and rain conditions and to be aware of the different sight adjust-

ments required. Athletes who want to be good field archers practice on both target and field archery distances.

The coach should include the following into the training program

- Alter of the shooting rhythm in the one arrow sequence as well as in the three-arrow sequence. In gusty wind conditions shoot when the conditions suit you.
- Shoot with reserve equipment (reserve bow, bowstring, finger tab or release aid, reserve arrows).
- Arrange for each archer to shoot in a lot of competitions with different opponents.
- Tactical time training (conscious training of the time rhythm during rests between targets).
- Individual and team event training with opponents.
- Imitation of different field competition situations i.e. shoot-offs and visualization of a Field competition situation.
- Practice to identify different target faces from varying distances.
- Practice in natural surroundings (use different terrain like woods, mountains, slopes etc.).
- Make optimal use of the field glasses/ binoculars (for target identification, arrow holes information, arrow sighting, etc.).

Organizational preparations for outdoor practice

- Plan your training sessions well in advance so that you can inform the authorities, i.e. land owner, game warden and so on.
- Make your emergency plan for each course, plan and organize training sessions with safety in mind.
- Make a plan of the safe paths for each target lay-out, keeping in mind all aspects of arrow flight.
- Plan in advance what materials are needed for that particular training session. For instance arrow stop nets, tape, signs, first aid kit.
- Plan to have someone at hand who is familiar with using the first aid kit.

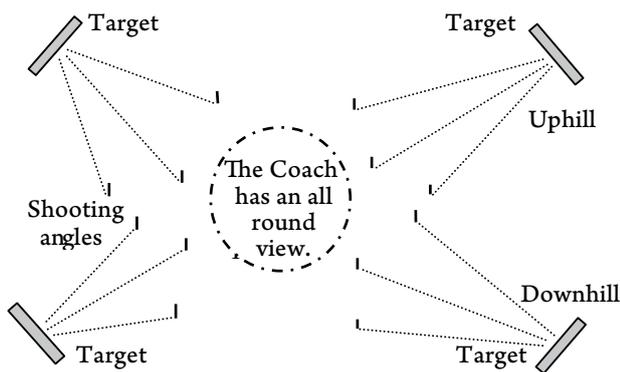
Facility

- Secure the field you want to use with signs and tape to keep out wanderers, mountain bikers or even horseback riders.
- Inspect the field of hazardous objects before every training session (especially after stormy weather conditions).

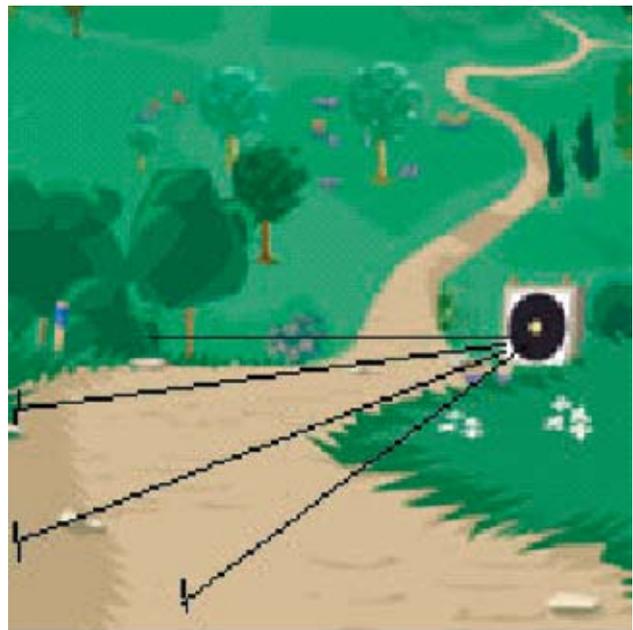
- Inspect the targets before each training session.
- Beware of the safety zones especially with uphill targets. At uphill targets, be aware that there is a natural barrier or net to stop arrows that miss the target.
- Before each training session convince yourself that all is free of obstacles, and live stock.
- Attach marking tape for a safe walking path to the targets (clockwise from target to target).
- Have reserve target faces laid down behind the targets.

Tips for preparing the practice site

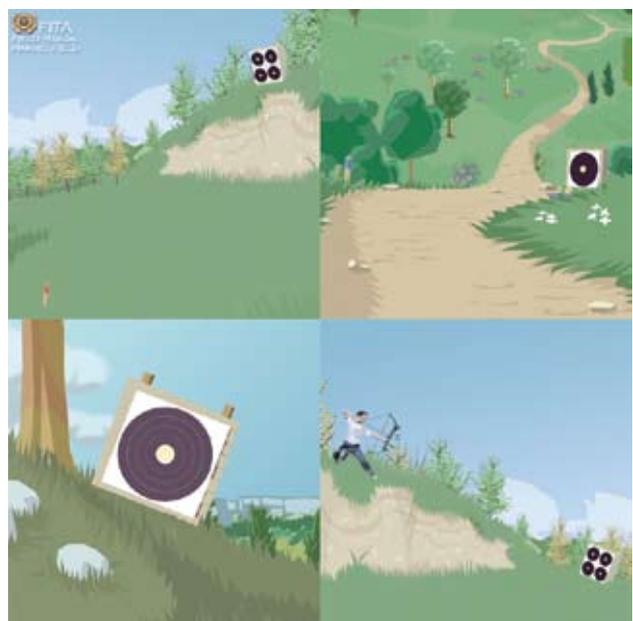
- For the first practice session, it is recommended that the shooting distances are not at the maximum distance. Let the archer get acquainted with the natural surroundings first before going on to the maximum distances. (Especially for the uphill targets). It gives you the opportunity to observe your archers and their behaviour in the field. It is recommended that this first shoot is on even ground in the woods or on a plain so that the archers get the feeling of shooting in the field.
- When setting out a field practice course it will not be necessary to set up a lot of targets. The recommendation is, when the field allows it, to set the targets in a circle so that the coach, by standing in the middle, has a good view on the targets around.



- Give each target different shooting positions and angles.



- Set out targets, if possible, so that all aspects of field archery can be practiced, like from light to dark surrounding or from dark to light or even making use of a lake.



Use your imagination and improvisation to set up a training course that covers a lot of the aspects a field archer has to cope with.

Indoor or off-season training

Whereas field archery in many countries can be shot all seasons, there are also countries in the world where it is season bound and where preparation for the coming season, has to take place indoors. Indoor practice will mainly consist of technical training.

Although all rounds in field archery have a lot in common concerning training methods in natural surroundings, we do have to be aware of the different disciplines.

After the field archer has mastered the basics of shooting we start individualizing the key elements of field archery such as range finding, in which the coach will find a lot of challenges. It is the task of the coach to offer the tools and the means to use them so that the archers can develop individually in all aspects of field archery.

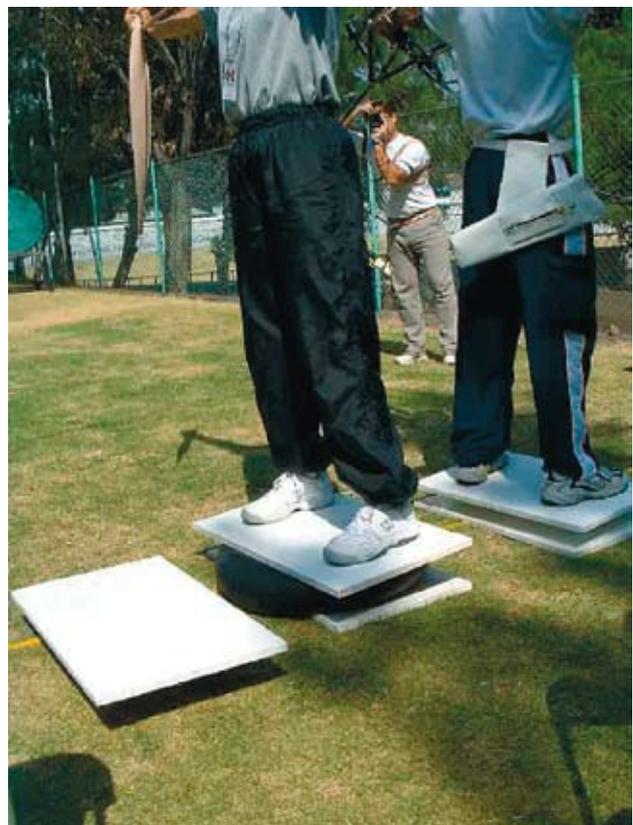
During the off season when the weather conditions are such that no shooting can take place in the field, indoor training facilities will be required to practice for the next field season. Depending on the local indoor facilities you have a regular sport complex or a factory hall at your disposal. Use your imagination and improvise to set up targets, always bearing in mind the safety aspects. A target can be placed at higher level or even at ceiling height by means of a pulley construction. Be sure to secure and protect the target at all times. Remember that archers have to retrieve their arrows, so make the pulley construction reliable and strong.

Practical training tips for the off-season indoor sessions

- As the stance is the basic for body alignment and consequently for a good shot, let the archer practice all possibilities that we meet when shooting in a natural surrounding.
- Always start a training session with a warm up. Make the archer aware of the fact that the warming up procedure on the field can be interrupted. After the regular warming up and before starting the competition, the archers are taken into the field to their target. It may take up to 30 minutes before the competition actually starts so that the archer must also do a small warming up at the starting target. During the day it can happen that, while rotating from one target to another, the

archer has to wait because there is a 'jam' which can last half an hour or longer. It is recommended in this case to do a warming up before starting to shoot again. (An elastic band in the backpack is recommended).

- Let the archer get the habit of watching the target every time they start to shoot so that they get a good recognition of the target and learn the importance of reading information from the target (Like arrow hits left/right/high/low of gold or kill).
- To practice shooting on soft ground we use an inner tube from a lorry tyre, filled with air to approximately three quarters and a strong board placed over it in the middle. Let the archer focus their attention on the target which will distract their attention from the stand. Open and closed stances should be practiced.



- Place a chair with the back facing the target and let archers shoot with one foot on the seat. Observe the body alignment; the standing leg, on which the archer puts the bodyweight, should be in a straight line with the body whilst the other leg is 'resting' on the chair.



- Do the same with the other leg position with the chair facing away from the target. The foot / toes should point in the same direction as the knee to avoid twisting the knee and lower leg.



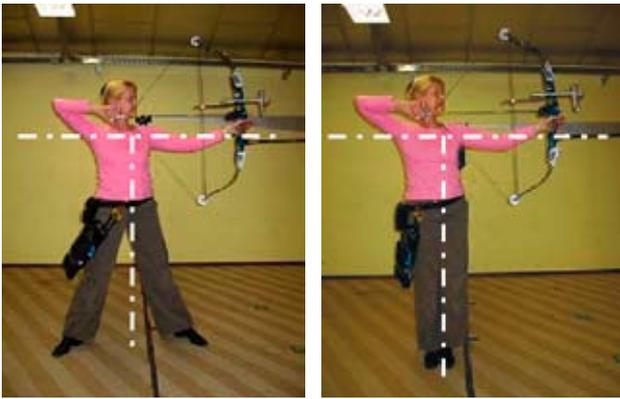
- Place a chair towards the target and place a strong board on the seat of the chair—a different length of the board will give a higher or lower angle slope, place the chair at different angles towards the target and you will achieve a different view on the target face. Let the archer shoot standing and kneeling to get the feeling of shooting uphill and downhill.



- For practicing non-level positions in the field, place a small board under one foot. Placed under both feet it can simulate shooting on an upward or downward slope.



- Closed stance and open stance should be practiced for field archery. The stance depends on the position of the shooting peg in relation to the target.

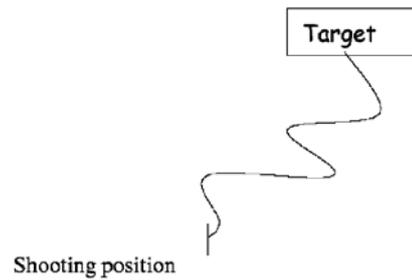


- Let the archers practice the uphill and downhill circumstances by stretching all the way up as far as possible and then come back to straight shooting position (**Arrows should not be in the bow for this exercise**).
- To simulate shooting uphill you could make use of a target at high level with a pulley construction, downhill can be practiced from a table platform as used by constructors.



- Have archers shoot in different light conditions by turning off the light on the targets and have light only on the shooting position or turn off the light on the shooting line and have only light on the target. Or if possible, have only light halfway to the target.
- Use original field targets or deer.
- Let the archers use their field glasses / binoculars after each shot so that they get used to the rhythm in the field to analyse each shot.
- Make them aware that there are only three shots, or even only one, per target and that the next target will be different all together.

- Lay a rope $\varnothing 0.5$ cm on the floor from shooting position to target and let archers walk along the rope to practice walking to and from the target in the field.



Indoor facilities for instruction

The facilities for the off season instructions for field archery indoor are the same as described in the FITA Level 1 manual chapter 11. Watch safety issues; in field archery the shooting line is not always parallel to the target.

Stands or butts for field archery should be made of light material so that they can be easily transported in the field. A lightweight, portable butt is an ideal target for field archery. Butts should be securely fastened.

For 3D deer you need different sizes of deer, from the very smallest to the biggest.

Training for reliable sight marks

A reliable table of sight marks is crucial for a field archer. The archers can build up this table during practice. In addition the archer learns how much to adjust their sight if they miss the spot by X cm on a certain distance.

When verifying your sight marks on various distances, use the opportunity to shoot also a shorter and a longer distance for each mark. If you are for instance content with your 20 metres mark, shoot at 17.5 and at 15 metres as well as at 22.5 and 25 metres, using your 20 metres mark. Note how much you miss the spot on the different distances. Do the same for every 5m interval. Note the deviation at each odd distance. These notes will show you how much you would miss the spot if your sight setting was wrong. Study your figures and note that if your sight setting is too long, you will miss the spot less than if the sight setting would be too short. Elite archers use this in their advantage, by calculating their aiming a little bit high in the spot.

It is also a fact that poor shots have the tendency of hitting low rather than high. So if you trust yourself, your table of marks is based on the upper part of the gold and you stay brave on your marks.

If your archers are unable to confirm their marks before a competition, you can use a monogram or table of extrapolation that gives many marks, provided a 20 or 30 metres mark as well as a 60 or 70 metres mark is available.

Practicing on site

Start every training session with a warm up. Make the archer aware of the fact that the warming up procedure is somewhat different for target archery (not the exercises, as mentioned before on indoor practice) because after the regular warming up and before starting the competition, the archers are taken into the field to their target which may take up to 30 minutes before the competition actually starts so that the archer must do a small warming up at the starting target. It can also happen that during the day, while rotating from one target to another, the archer has to wait, maybe several times, at a certain target (s) because there are more groups waiting for their turn to shoot which can last up to 30 minutes or longer then it is recommended to do a warming up before starting to shoot again. (An elastic band in the backpack is recommended).

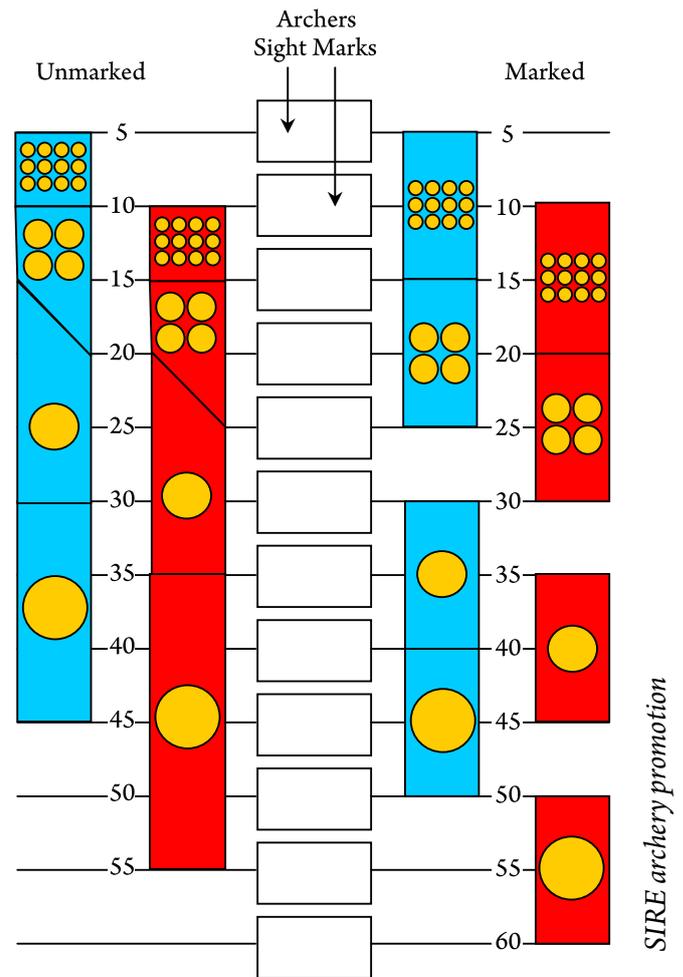
Advise and check the archer's equipment and clothing, especially the shoe choice.

Before starting the practice session walk around the training course and tell the archers what you want them to do on that particular target and point out the safety aspects of that target and of the whole training field. Tell them to walk in the marked direction and whilst walking they should take care, especially after rainy weather, where to step: not on roots of trees or logs lying in the field.

Appoint an archer in each group who will be responsible for that group concerning safety aspects. In field archery the 'A' shooter is the responsible person for that group.

To avoid loss of arrows or damage let the archer first judge the distance and then advise the coach at what distance they intend to shoot. If the estimation is too long you can correct them.

Let archers make notes during their practice on what they see through their sight so that they can study the situation afterwards. The distances from the rulebook are also a helpful guide in training. A lot of archers have their own 'bookmarks' of the distances of each target or deer.



Sunlight will influence archers aiming sideways. Shoot with the sun coming in from various angles, and let archers learn what the consequences are for their aiming.

Wind will influence the arrow flight. Contrary to target shooting this wind may vary from target to target, archers are moving around the course and shoot in various directions. Let archers learn to lean the top of their bow more or less into (towards the direction of) the wind depending on the strength of the wind. This will compensate for the drift of the arrow similar to adjusting the sight sideways, but the archer will not lose their normal centre line adjustment.

Shooting across a slope

When shooting at a target across a slope the probability of hitting on the downhill side of the face is greater than hitting on the uphill side.



The reason for this sideways grouping is that archer is leaning and that the bow is tilted. Archers tend to lean downhill when standing on sloping ground.

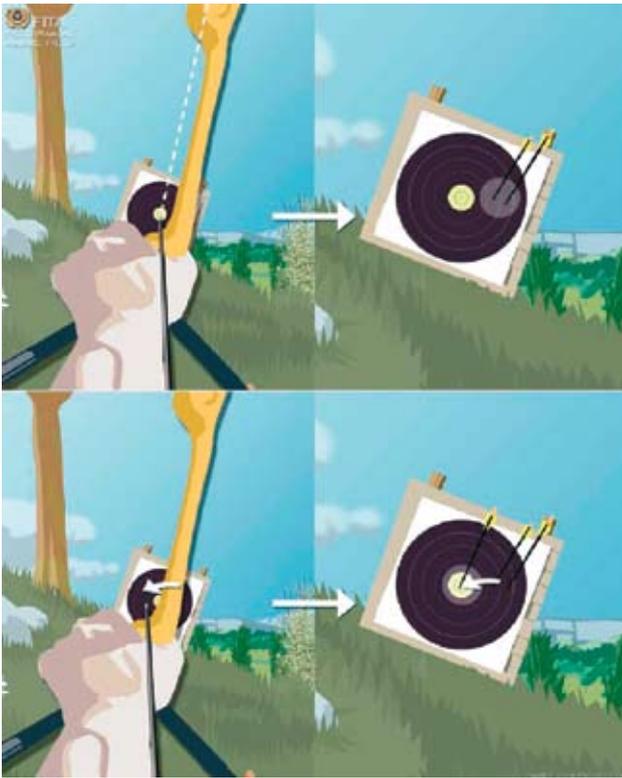


Vertical body position reduces the downhill hitting effect. Archer and coach can check this as follows:

- Try to find a level piece of ground. In competition archers are allowed to move a little behind the line (or around the peg), as long as they do not obstruct their competitor.
- Prepare the shot by leaning the top of the bow towards the hill. At full draw, let the coach check the archer's vertical alignment using the image of the vertical trunk of a tree, or through an imaginary vertical line through the target.
- Line up archer's body in a vertical position, and make sure they are not leaning down hill.
- If the archer is unable to stand in a vertical position and their bow is tilting, they will have to aim a little to the opposite side of their tilt.

When shooting across a slope, teach the archers to start drawing their bow with the tip towards the hill. This will prevent them from leaning away from the hill.

Archers should not adjust their sight when hitting on the downhill side of the target. Let the archer just aim uphill on the next arrow or tilt the bow in the uphill direction.



Compound (scope) shooters can of course check their level. Always start by leaning the bow towards the hill. This reduces the tendency of tilting the bow away from the slope.

Summary of considerations for training in field archery

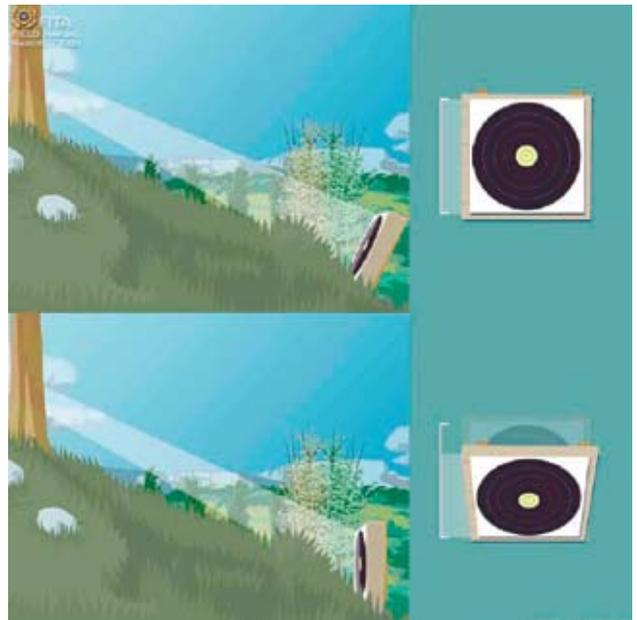
In target archery the centre of the target is set 130 cm above the ground and when shooting you are standing with one foot on either side of the shooting line. In field archery you are standing behind the line and often you will have the targets closer to the ground than in target archery, sometimes much higher.

Check your sight marks on various distances with high/low targets.

Let the archers shoot at the target / deer at different angles, from left and from right, up and down. In field archery the targets / deer are not always placed perpendicular to the aiming line of the archer.



Let the archers shoot at extreme angles to prepare them for the actual field tournament.



If there is a wind, look at the trees and grass to estimate the wind direction and strength, so that the archer can react to it. Archers must know by experience how much to subtract or add to the distance due to weather conditions

As targets / deer are placed in natural surroundings and only one or three arrows are shot at each target shooting in various weather and light conditions is a must so that archers learn to anticipate them.



Such as: sight setting on all distances in all weather and light conditions, cope with all kinds of wind (constant-wind bursts – wind directions) – add or subtract on uphill and downhill shots with wind or rain–shooting in the direction of the sun (especially uphill) A tip for shooting in wind is to let the archer lick with their tongue the back of their bow hand just before starting the shooting sequence so that they also feel the wind during shooting. Let archers also get acquainted with the rule of the use an A4 paper while shooting in the sun direction. If the sun is shining in the archers eyes which may possibly cause a hazard, a colleague can shield the archers' eyes whilst they are shooting with a piece of paper or card that is no larger than A4 size.

Recognize different target faces / deer and their position in the field (distances), especially the 60 cm and 80 cm target faces. Use different buttresses and buttress sizes so archers can recognize the differences. Also use square and round buttresses. In 3D or forest rounds the archer has to know all (or most of) the deer and deer faces, especially know where the kill zone is situated on every deer or deer target face. A lot of manufacturers have those as a small leaflet. It could also be of importance to know from which manufacturer 3D deer are used during a certain tournament, look at the manufacturer's website to gather information.



Archers should have these leaflets or pictures at hand at any time to look at them or place them somewhere where they can see them when they have time (on the bathroom or kitchen wall may be a good suggestion).





Advise the archers on their clothing especially the footwear choice—walking boots (waterproof) and solid waterproof field glasses / binoculars, also advice on the choice of backpack, food and drinking needs for field archery.

Chapter 6.

Personal care

The field archer needs to plan for the whole course, decide what kind of food and drinks they need for a whole day of competition, which spare equipment to take along on the field. They have to carry whatever they need through the field them self. As weather conditions can change, they have to learn to experiment with clothing and equipment in order to be prepared for 'everything'.

Footwear

Advise the archers on their choice of footwear, waterproof walking boots. Let archers try out the boots in all kind of weather conditions and with a couple pairs of socks to be used only at training sessions and tournaments. Make sure that the walking boots have a good profile and if the natural surroundings are very slippery due to rainy weather and soft underground the walking boots should have the possibility to attach spikes to them. (Let the archer practice in training sessions with spikes).



Solid walking boots are necessary for a good stance in the field, to protect the ankles (to avoid a sprained ankle) and for a safe walk from one target to another in natural surroundings in all weather conditions. For rainy weather or for high grass boot protection is advisable such as some form of canvas gators may also be appropriate.

Clothing in cold weather

Advise the archers on their clothing for all weather conditions. In cold weather the clothing should be 'breathing' at all times and must not be too loose around the body to avoid string contact. A jumper / sweater of pure wool are very good for field archery in cold weather as wool has the ability to hold the warmth of the body. During rain it becomes wet but will still hold the body temperature.



Gloves are recommended for the periods between shooting. Also a pouch (self made) attached to the archers belt to warm the hands is recommended; there are different kinds of warming devices which can be placed into the pouch and at the same time the archer can keep the finger tab in this pouch.



Trousers with pockets on the side of the legs where the archer can reach them easily are very handy.

Clothing in hot weather

It is recommended that people on a Field course wear long trousers at all times to protect the legs from insects (flies, ants, mosquito's) and annoying plants like nettle and ivy which could distract the archer while shooting. The shirt should have long sleeves, also to protect the archer from insects and annoying plants. The field archer has one big enemy in the field and these are the ticks. (Although ticks are not everywhere in the world, certain countries have them, your local doctor should be able to give advice on this). From 10° Celsius the ticks settle in bushes and branches. Ticks are parasites that suck blood of humans and animals and transfer contagious infections and illness. So it is of great importance that archers cover their body with sufficient clothing. (It is important that archers check their entire body after a training or tournament for ticks).

Clothing in rainy weather

Good waterproof wet weather clothing is of importance as the field archer will be in the field the whole day and can not, like in target archery, sit in a tent or go to the car to fetch clothing for differing weather conditions. The field archer will have to decide if they take wet weather clothing along with them at the start of the tournament. It

is advisable to have some kind of lightweight wet weather clothes available.



Suitable is a large plastic (garbage) bag where at the bottom and side holes are cut out to fit the arms and head to be worn over the shooting clothing and under a woollen jumper/sweater.



Also suitable is the tight body fitting clothing which is used in the bicycle fraternity. Let the archers try out their wet weather clothing during training sessions so they know what suits them best and so that they have no unexpected encounters during a tournament.

The archer should consider taking an umbrella. An umbrella is useful for different reasons: keeping you dry if it rains, protection against the sun, as a temporary bow stand and a really handy walking stick for getting up slippery and tricky slopes.

Binoculars

Advise the archers on field glasses / binoculars. (See the FITA rule book for restrictions). Binoculars should be attached to the belt so they do not get lost on the course and are easily reachable to use.



Train the archers to use the field glasses/binoculars after each shot or even before shooting to gather information from the target face. Even in the out of season indoor training sessions let archers use binoculars / field glasses after each shot so that it will be an automatism during the season. As arrows are shot from different angles at target faces the impact of the arrows are such that the archer may see the arrow nock in the three ring / 8 ring 3DI whereas the point could be in the five/ 10 zone 3DI.

Backpack or belt

Advise the archers on the sort of backpack or belt that would be best for them. A good backpack is a must for field archery as the archer stays out on the field course the whole day without the opportunity to leave the field and fetch something. The archer needs for example up to 4 litres of drinks, food, spare parts and wet weather clothing. A small first aid kit and sprays against insects and sun protection. Some archers prefer a belt, besides the quiver, to carry their needs during the field tournament but most archers prefer a backpack with a seat so that they can sit down during the waiting time at targets.



A good backpack must be waterproof and strong enough to sit on, have different compartments, good shoulder pads / carrying strap. During training sessions let the archers carry their backpack and be aware that they carry the backpack on two shoulders. Carrying the backpack on one shoulder could overburden this shoulder. Let

them make a checklist of what to take with them so that the backpack will not become too heavy.

Spare parts

Decide which spare equipment to take along on the field course. This is an individual matter for the archer but as a coach you have to make the archer aware of their choice and advice them on this matter. A compound archer will most probably take more spare parts into the field than a longbow or bare bow archer. A spare string or finger tab for example is advisable to take along, so is a knife for retrieving stuck arrows from the butt, this would also be good for food matters.

Nutrition

Decide what kind of food and drinks to take along for a whole day of competition. Should we drink water or a sport drink? Nutrition is one of the most important aspects for athletes, which has been recognized since the first competitions in ancient Greece because of the increased need for energy. Field archers, involved in heavy physical activity, need more food than target archers. The energy expenditure of an adult amounts to approximately 2000 – 2800 kcal per day. Physical activity by means of training or competition will increase the daily expenditure by 500 to 1000 kcal per hour, depending on physical fitness, duration, and type of intensity of the activity. For this reason archers must adapt their energy intake by increasing food consumption, according to the level of daily energy expenditure.

This increased food intake should be well balanced. Large perspiration losses may pose a risk to health by inducing severe dehydration, impaired blood circulation, and heat dissipation, leading to heat exhaustion and collapse.

Food and meals to be ingested shortly before and during training, or during a small break between training or competition periods, should be adapted to specific ingestion and assimilation conditions, which depend on the nature and circumstances of our sport. Food regulations exist for foods covering special needs in special circumstances, e.g. dietetic food products. However, no such regulation is available for sport nutrition products/ supplements. Also the different food habits all over the world and the different cultures concerning food have to be taken into consideration. It is therefore the archer that should find the right balance

for food intake and drinking. It has to be tried out during training and competition.

As field archers have to carry their food and drinks for the whole day, the archer should carefully consider what to take; contagious foods cannot be transported the whole day. Advisable are the rich in carbohydrate biscuits. Be careful of drinking out of mountain streams even if the organizers say there is no danger. Again it is up to the archer to see what food and drinks suits them best and the only way to experience that is during an intensive training program and competition. During an intensive training session ensure that enough water is available.

In competition there will be mostly catering points on the course but as a coach assure your self before the competition and ask the organizers if there is a possibility of taking on water in the field. If not, the archer must take with them at least 3 litres of water in their backpack.

Consulting with a dietician along with your archers could be of great help. There are however some basics concerning the food and drink in our sport based on experience of international archers and dieticians from the National teams.

- Have breakfast at least two hours before training or competition.
- Drink only small amounts before training or competition.
- After the first set of arrows drink and eat all day in small portions after each set of arrows. Remember if an archer gets thirsty or hungry during the training or competition it is too late, they are already dehydrated, and it could influence their concentration.
- Archers need up to 4 litres of water a day especially during competition.
- After a day of intensive training or competition eat a carbohydrate rich meal within two hours. Shortly after the activity the body takes up the carbohydrates more easily than at a later time. A spaghetti or macaroni meal is excellent.
- Be careful with caffeine products such as coffee as they have the tendency to waste body fluid (not to mention the heartbeat effects).
- Do not drink liquid that is too cold.
- If abroad at a competition or training camp do not eat anything that is not familiar.

Chapter 7.

Safety in field archery

Although serious injuries or accidents rarely occur in the Field discipline you must be ready to deal with them if they occur. Field archery is mostly shot in natural surroundings which are mostly outside of the built up areas of cities or villages. Practice mostly occurs in small groups on different targets on the Practice Field which may not be accessible all times. Training is not always on a Field course set out by a club it could be that you decide to shoot in a special place for more steep shots. It is therefore important that you have with you, at all times, an Emergency action plan whilst conducting or taking part in training sessions. Each different Field course should be examined and an emergency plan formulated. During competition the archers must adhere to the safety guidelines but it is the organizers that are responsible for the overall safety procedures.

Planning

Plan your training sessions well in advance, whichever location, so that you can inform the authorities, land owner, game warden and so on, and make your emergency plan for each course:

- Plan and organize training sessions with safety in mind.
- Make a distance layout for each field bearing in mind all safety aspects of arrow flight.
- Plan all material needs for each particular training session—for example arrow stop nets, tape, signs, first aid kit, different target faces or deer, (and for training purposes only) distance estimating equipment, measuring tape and portable radios etc.
- Plan to have someone at hand each training session that is familiar with using the first aid kit.

Facilities

When training is planned in natural surroundings:

- Secure the field you want to use with signs and tape to keep out wanderers, mountain bikers or even horseback riders.
- Inspect the field of hazardous objects before every training session, especially after stormy weather conditions.
- Inspect the targets before each training session, the target butts / deer should be firmly anchored so that they will not tip over.

- Beware of the safety zones especially with uphill targets before each training session assure yourself that all is free of obstacles, and live stock.
- Have marking tape to mark safe walking paths to each target (mostly clockwise to targets).
- Have reserve target faces laid down behind the targets.

Emergency action plan

Develop and write down an action plan for emergencies for every field course so that everyone is clear of their responsibilities. It should contain at least the following aspects:

- That at least one person has a mobile telephone
- The telephone number and address of the nearest ambulance, doctor or hospital, write these down before the training starts and keep copy in the first aid kit.
- Keep a record of all emergency telephone numbers.
- Have a record of the telephone numbers from members taking part in the training and of whom to contact in case of an emergency.
- Have a first aid kit at a central point.
- Name and telephone number of the person who is familiar with the first aid kit.
- A detailed plan of the facility where training takes place (distance and target lay out with walking directions).
- A copy for each group in the field.
- Portable radios are no luxury in Field archery and people should be discouraged from using them during training or at tournaments.
- Make instructions to stop shooting should an emergency arise, for example three loud blasts on a whistle.

Individual safety

Inform the archers of any hazardous terrain they may encounter during the training session.

- Instruct the archers of their responsibilities and behavioural requirements in the field.
- Instruct the archers that they should not stand close to a cliff edge.
- Instruct the archers to watch where they walk going to a target to score, and when walking on to the next target.

- Going up or downhill instruct archers that they have their equipment in one hand, away from the hillside, keeping the other hand free for safety reasons.
- Instruct the archers to be alert for the unexpected in the field such as wanderers, bikers, dogs, horse riders etc.
- Instruct the archers that they must not run in the field.

Group Safety

All shooting should be under the direct supervision of the coach, or designated person, who will appoint one archer responsible for each group.

- The archer responsible in each group shall give the approval, at each target, to shoot after convincing them self that all safety precautions are taken.
- Every effort should be made to recover lost arrows on the training course.
- Under no circumstances should anyone shoot if someone is on the field near the targets, this also includes all animal life.
- Care should be taken when drawing arrows out of the target, especially when there is an uneven standing area and surroundings.



- When looking for lost arrows make sure a bow is placed in front of the target / deer, or place a person near the target, so that it is visible for oncoming archers to see that the target is not available.



- When leaving the target be sure that the target is secured for the next group.
- Groups will continue to the next target clockwise and keep to the marked walking paths.
- Since all targets may be shot at simultaneously, the walking path should be safe from stray arrows and slippery ground.

Duty care of participants

It is the responsibility of each archer participating in any field archery event to ensure that the equipment they use is in a safe condition and within the guidelines laid down by the equipment manufacturer and rules of the tournament, and is capable of withstanding the requirements of a field archery course. It is their further responsibility to decline any shot that they consider too dangerous, and report to the course organizer (or judge) any matter that they deem to be hazardous to the health and safety of any participant or spectator. Participants can also be in breach of the duty of care regulations by not adhering to laid down rules and regulations, which result in negligence, caused by their own acts or omissions.

Personal protective clothing

Field Archery can be a hazardous sport both from the equipment in use and the condition of the course. It is the responsibility of each archer to take whatever steps they deem necessary to ensure their personal safety and protection against equipment failure in addition to the elements of weather and terrain. For juniors, the onus is on the parent or appointed guardians to ensure those in their care are suitably protected.

First aid

It is the duty of every course organizer to have a first aid station supervised by a competent person, established to cater for all situations likely to occur. In addition a means of communication must be present, to enable help to be summoned from emergency services such as fire, police and ambulance. This can be in the form of a mobile telephone or two way radio base station, regardless of which, it must be tested by a competent person to ensure that a connection can be made to the relevant Services before the event commences.

Directional signs

Care must be taken in the placement of the safe path directional arrows. Although not mandatory in law, they are there for the guidance and safety of the archers when they are travelling between targets. They must not direct the archers, or spectators into areas where there is a risk of flying arrows, or an area that may be considered a hazard due to the terrain. If needed, extra directional arrows should be used, and an alternative route sought to guide those persons away from any hazard, but keeping them within the course boundaries. Where an alternative cannot be found, the targets in the area concerned must be relocated accordingly.

Lost arrows

Every effort should be made to recover lost arrows on the course. If they cannot be found, the course organizer should be notified accordingly giving the target number where the arrow was lost, and the approximate area in which the arrow (s) may be. An archer can also write these notes on the target face, at National level tournaments. At the earliest opportunity, a concentrated search should be carried out to recover any arrows, so as to reduce the possibility of injury at a later date to either pedestrians or livestock.

Chapter 8.

Tactical considerations in field archery

The basic principle to learn and obtain tactical skills in field archery is constantly repeating the activity under different circumstances. Alter the shooting rhythm (in the one arrow sequence as well as in the three arrow sequence) to use the calm moments.

Role playing of different field competition situations (shoot offs) visualization of a field competition situation.

What do I need for a field shoot?

Below is a short list of essentials for a field shoot, they are in no particular order but are essential for archers own sanity and enjoyment. Bear in mind that the archer is on the field course for the most of the day and that they have no opportunity to leave the course until the end of the tournament.

- The same archery equipment the archer uses for target archery, including the same arrows the archer would normally use, take at least 8 on the course, including a small repair kit to make small repairs if necessary.
- A light snack to eat is always welcome.
- Some local currency coinage, this is to buy some snacks at the stops on course (if available).

Specific Field archery awareness and considerations

- Light wind can cause the arrow to stray sideways (reaction: aim left or right or tilt bow left or right)
- When in open terrain, look at the trees and grass to measure the wind strength so that the archer can react to it.
- In valleys there could be a light wind causing the arrows to drift left or right, (reaction: react against the wind direction or set sight).
- Rain will make the arrow strike lower in the target (reaction: aim higher or set sight lower, keep finger tab-bow and arrows as dry as possible).
- In very high temperatures the efficiency of the bow limbs may be affected and the arrows may react slightly weak, for right handed archers the arrow group will be hitting to the right, (reaction: set the button a little harder and try to keep the complete bow in the shade).
- With low temperatures the arrows could react stiffer and for right handed archers the groups will hit to the left (reaction; set the button a little weaker)

- With strong light coming from the side the arrows will group on the same side the light comes from, (reaction: set the sight or hold on to right or left of the target).
- A slanting/sloping horizon or a slanting target causes the arrow grouping to be left or right depending on the slope angle (reaction: tilt bow – the arrow will follow the top limb, cant the bow left–the arrows will go left and vice versa).

Preparations for the field rounds before the opening of the field season

- Setting goals for the coming season.
- The archer should have an ongoing training plan which includes all aspects like power-endurance-mental-technical.
- Practice should be held on regular basis.
- Practice with all weather clothing.
- Archers should try out all aspects of individual nutrition (food and drink) needs.
- Preparing and planning the participation in certain rounds.
- All equipment, nutrition and clothing must be checked.

Target practice is absolutely essential, prior to the start of the Field season.

Tips for the coach

- Give a good example as a leader and as a coach.
- Give orders and explanations in a clear and precise way.
- Organize your training efficiently.
- Correct errors efficiently and in a friendly way.
- Be enthusiastic and interested.
- Be aware of safety at all times.
- Share your interests with all of your archers.
- Be careful with conclusions.
- Give trust to each other and have respect for each other.
- Be tactful when learning something new.
- Beware of things that can distract the attention of archers.
- Have a whistle with you to stop shooting immediately should the need arise.
- Treat the natural surroundings with respect.