

SCHEDULE 5

Regulation 32(1)

SAMPLING

**Obtaining a sample**

1. A sample shall be obtained from the seed lot by taking primary samples systematically or at random from different positions in the lot and combining them to form a composite sample. The composite sample may be submitted for testing intact but if the composite sample is too large it may be reduced in weight by using a riffle divider or a centrifugal divider, to give the submitted sample.

**Primary sample size**

2. At each position of sampling of a seed lot, primary samples of approximately equal size shall be taken.

**Condition of the Seed Lot**

3. The seed lot to be sampled shall have been subject to appropriate mixing and blending techniques so that it is as uniform as practicable. There shall be no documentary or other evidence of heterogeneity. If a seed lot is presented for sampling in more than one container, the containers shall be of the same size and type and contain approximately the same weight of seed.

4. When the seed lot is in sacks or similar sized containers each containing at least 15 kg of seed and not more than 100 kg of seed, the minimum number of containers to be sampled shall be in accordance with the following table—

<i>Number of containers in the lot</i>	<i>Minimum number of containers to be sampled</i>
1-4	3 primary samples from each container
5-8	2 primary samples from each container
9-15	1 primary sample from each container
16-30	A total of 15 primary samples with each sample being taken from a different container
31-59	A total of 20 primary samples with each sample being taken from a different container
60 or more	A total of 30 primary samples with each sample being taken from a different container

5. The containers to be sampled shall be selected systematically or at random and primary samples drawn from the top, middle and the bottom of containers, but not necessarily from more than one position in any container. The position from which the seed is taken shall be varied from container to container.

**Sampling from small containers**

6. For sampling seed lots in containers holding less than 15kg of seed, a 100kg weight of seed shall be taken as the basic unit and the small containers shall be combined to form sampling units not exceeding this weight (for example, eight packages of 12kg or twenty packages of 5kg). For sampling purposes each unit shall be regarded as one container and the sampling procedures prescribed in paragraphs 4 and 5 shall be used.

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7. When seed is in moisture-proof containers the opened or pierced container shall be adequately closed or the residues from sampling transferred to new containers. When seeds are in packets of 100g or less each packet may be considered as a primary sample and sufficient shall be taken at random to obtain a submitted sample of the prescribed minimum weight.

**Sampling from large containers or seed in bulk**

8. For the sampling of containers holding more than 100kg of seed, and for the sampling of seed in bulk, primary samples shall be taken from different horizontal and vertical positions selected at random and the following shall be regarded as the minimum requirement—

<i>Lot weight</i>	<i>Number of primary samples to be taken</i>
Up to 500kg	At least five primary samples
501-3,000kg	One primary sample for each 300kg but not less than 5
3,001-20,000kg	One primary sample for each 500kg but not less than 10
20,001kg and above	One primary sample for each 700kg but not less than 40

**Sampling from a seed stream**

9. Samples may be drawn from a seed stream during processing using an automatic sampling device, which shall uniformly sample the entire cross-section of the seed stream when a sample is taken. Portions of seed shall be taken at regular intervals throughout the processing of the lot using the same sampling intensity for seed in bulk as specified in paragraph 8.

**Sampling Instruments**

10. Sampling instruments shall be capable of sampling all parts of the seed lot. A dynamic spear sampler, stick sampler, cargo sampler or seed stream sampler of the type specified in paragraphs 12 to 14, 15 to 17, 18 or 19 respectively shall be used, as appropriate to the location of the seed, to draw primary samples in accordance with the method described in paragraphs 21, 22 and 23, 24 or 25 respectively.

11. Where it is not practicable to use an instrument of the type referred to in paragraph 10 in accordance with a method referred to in paragraph 10 another instrument or method may be used at the discretion of the Department.

**Dynamic spear sampler**

12. A dynamic spear sampler may be used, in accordance with the method described in paragraph 21, for sampling seed in sacks or small containers. It shall be a hollow, cylindrical, solid-pointed metal spear or trier which shall be long enough to reach beyond the middle of the sack from the side and shall have an aperture so positioned that portions of seed of equal volume are removed from each part of the sack through which it travels

13. In sampling seed of the species specified in column (1) of the following table a dynamic spear sampler shall be used of a type specified in column (2) and the type of spear used in respect of each species shall not be smaller than the type specified in the corresponding entry in column (2)—

<i>(1)</i> <i>Species of seed</i>	<i>(2)</i> <i>Type of dynamic spear sampler</i>
Alaska brome-grass	B
Alsike clover	A
Annual meadowgrass	A
Asparagus	B
Barley	B
Beetroot	B
Birdsfoot trefoil	A
Black medick	A
Black mustard	A
Blue lupin (narrow leaved lupin)	C
Borecole	A
Broad bean	D
Brown mustard	A
Brown top	A
Brussels sprouts	A
Cabbage	A
Calabrese	A
Carrot	A
Cauliflower	A
Celeriac	A
Celery	A
Chard	A
Cheltenham beet	B
Chicory	A
Chinese cabbage	A
Cocksfoot	B
Common vetch	C
Creeping bent	A
Cucumber	B
Curley kale	A
Durum wheat	B
Endive	A
Festulolium	B
Field bean	C

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<i>(1)</i> <i>Species of seed</i>	<i>(2)</i> <i>Type of dynamic spear sampler</i>
Field pea (fodder pea)	C
Flax or linseed	B
Fodder beet	B
Fodder kale	A
Fodder radish	A
Fodder rape	A
French bean	D
Gerkin	B
Gourd	C
Hairy vetch	C
Hungarian vetch	C
Hybrid ryegrass	B
Italian ryegrass (including Westerwolds)	B
Kohl rabi	A
Leaf beet	B
Leek	A
Lettuce	A
Linseed or flax	B
Lucerne	A
Maize	C
Mangel	B
Marrow	C
Meadow fescue	B
Melon	B
Narrow leaved lupin (blue lupin)	C
Oats	B
Oilseed rape	A
Onion	A
Parsley	A
Pea (vegetable)	C
Perennial ryegrass	B
Radish	A
Red beet (beetroot)	B
Red cabbage	A

<i>(1)</i> <i>Species of seed</i>	<i>(2)</i> <i>Type of dynamic spear sampler</i>
Red clover	A
Red fescue	B
Red top	B
Rescue grass	B
Rough-stalked meadowgrass	A
Rye	D
Savoy cabbage	B
Sainfoin	A
Sheep's fescue	B
Small timothy	A
Smooth-stalked meadowgrass	A
Soya bean	C
Spelt wheat	B
Spinach	B
Spinach beet	B
Sprouting broccoli	A
Sugar beet	B
Sunflower	C
Swede	A
Swede rape	A
Sweet corn and pop corn	C
Tall fescue	B
Tall oatgrass	B
Timothy	A
Tomato	A
Trefoil	A
Triticale	B
Turnip	A
Turnip rape	A
Velvet bent	A
Wheat	B
Wood meadowgrass	A
White lupin	C
White clover	A

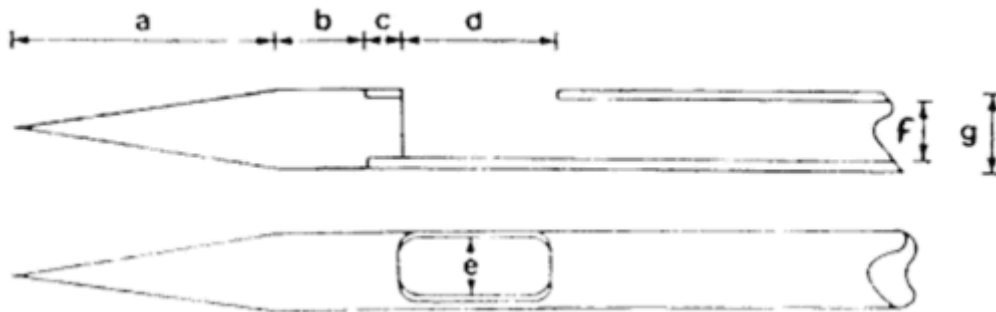
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(1) <i>Species of seed</i>	(2) <i>Type of dynamic spear sampler</i>
White mustard	A
Yellow lupin	C

14. In the table set out in paragraph 13 references to type A, B, C and D instruments shall be construed as referring to instruments having a point length (a), shoulder length (b), boss length (c), aperture length (d), aperture width (e), bore width (f) and outside diameter (g) as shown in the diagram below of the dimensions specified in the corresponding entries in the following table—

<i>Type of Instrument</i>	<i>Point length</i> <i>mm</i> <i>(a)</i>	<i>Shoulder length</i> <i>mm</i> <i>(b)</i>	<i>Boss length</i> <i>mm</i> <i>(c)</i>	<i>Aperture length</i> <i>mm</i> <i>(d)</i>	<i>Aperture width</i> <i>mm</i> <i>(e)</i>	<i>Bore Width</i> <i>mm</i> <i>(f)</i>	<i>Outside diameter</i> <i>mm</i> <i>(g)</i>
A	42	7	8	20	8	10	12
B	85	12	10	33	11	13	15
C	82	12	13	40	15	17	19
D	78	15	15	40	18	20	22

Dimensions (mm)



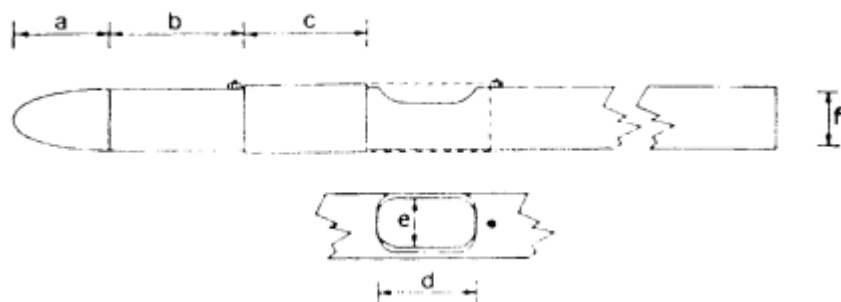
### Stick Samplers

15. A stick sampler may be used for drawing primary samples if it has an aperture or apertures of sufficient size to allow the unrestricted entry of seed or other particles and is capable of being opened and closed during the sampling procedure as appropriate to the method of use described in paragraph 22 or 23.

16. A single chamber type stick sampler may be used for sampling seed in open sacks, in large containers or in bulk.

Dimensions (mm)

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	<i>Point</i>	<i>Shoulder</i>	<i>Sliding Sleeve</i>	<i>Aperture Length</i>	<i>Aperture Width</i>	<i>Bore</i>
	<i>(a)</i>	<i>(b)</i>	<i>(c)</i>	<i>(d)</i>	<i>(e)</i>	<i>(f)</i>
Seeds in sacks	55	25	75	50	22	25
Seeds in containers holding more than 100kg, or in bulk	100	390	63	50	22	30

17. A multi-chamber type stick sampler may be used to sample seed in sacks or, subject to the requirements of paragraph 10 above, any other containers. The apertures shall open into chambers that shall be separated from one another by transverse partitions. The contents of each chamber shall be regarded as a primary sample.

Dimensions (mm)



	<i>Point</i>	<i>Shoulder</i>	<i>Sliding Sleeve</i>	<i>Aperture Length</i>	<i>Aperture Width</i>	<i>Bore</i>
	<i>(a)</i>	<i>(b)</i>	<i>(c)</i>	<i>(d)</i>	<i>(e)</i>	<i>(f)</i>
All species	60	50	100	15	110	25

**Cargo sampler**

18. A cargo sampler may be used to draw primary samples of seed in accordance with the method described in paragraph 24 for sampling seed in large containers or bulk and shall only be used in the vertical position.

**Seed stream sampler**

19. A seed stream sampler may be used to draw primary samples if it uniformly samples the cross-section of the seed stream without any loss of the seed that enter the sampler, in accordance with the method described in paragraph 25. Timing devices shall be attached so that the frequency and duration of sampling can be adjusted to meet the requirements of paragraph 9.

### **Methods of use**

20. All instruments shall be clean before use.

### **Dynamic seed sampler**

21.—(1) In the case of a dynamic spear sampler in which the aperture reaches only to the centre of the sack or small container—

- (a) the instrument shall be inserted into the sack in an upward direction at an angle of approximately 30 degrees to the horizontal with its aperture downwards until the aperture reaches the centre of the sack or container;
- (b) it shall be lightly tapped to remove any seed taken in and then rotated to bring the aperture uppermost;
- (c) it shall be withdrawn immediately with a vibratory or oscillatory motion and at a decreasing speed so that the quantity of seed obtained from successive locations increases progressively from the centre to the side of the sack; and
- (d) seed passing through the instrument shall be collected in a clean container.

(2) In the case of a dynamic spear sampler in which the aperture reaches to the far side of the sack or small container—

- (a) the spear shall be inserted in the manner described in sub-paragraph (1) until its aperture reaches almost to the far side of the sack or container;
- (b) it shall be tapped and rotated in the manner described in sub-paragraph (1) and then withdrawn at a uniform speed; and
- (c) the seed passing through the instrument shall be collected in a clean container.

### **Single chamber type stick sampler**

22. In the case of a single chamber type stick sampler

- (a) the sleeve shall move freely;
- (b) the instrument shall be inserted vertically downwards till the aperture reaches the appropriate primary sampling position ensuring that the sleeve covers the aperture as it enters the seed;
- (c) the instrument shall be withdrawn sufficiently to uncover the aperture;
- (d) the instrument shall be left in position until the primary sample has been collected; and
- (e) the instrument shall be withdrawn and the contents emptied into a clean container.

### **Multi-chamber type stick sampler**

23. In the case of a multi-chamber type stick sampler—

- (a) the apertures shall be closed before insertion;
- (b) the instrument shall be inserted diagonally into sacks or vertically into large containers so that all apertures are fully covered;
- (c) the apertures shall be opened;
- (d) the instrument shall be agitated so that seed enters;
- (e) the apertures shall be closed gently to ensure that trapped seed is not broken or damaged;
- (f) the instrument shall be withdrawn and if the chambers are full the contents shall be emptied onto a clean surface or into a clean container; and



- (g) if all the chambers are not full, the contents shall be discarded and procedures specified in sub-paragraphs (a) to (f) shall be repeated.

### **Cargo sampler**

- 24. In the case of a cargo sampler
  - (a) the lid shall open and close easily;
  - (b) the instrument shall be inserted with the lid closed to the appropriate primary sampling position which shall be at least 300 mm below the surface of the seed;
  - (c) the handle shall be raised sufficiently to open the lid;
  - (d) the instrument shall be left in position until the primary sample has been collected; and
  - (e) the instrument shall be withdrawn and the contents shall be emptied into a clean container.

### **Seed stream samplers**

25. In the case of a seed stream sampler, the instrument shall take the number of primary samples necessary for the weight of the seed lot being sampled, the primary samples being taken from the seed lot at regular intervals and the resultant composite sample being of a weight not less than the prescribed minimum weight and not greater than can conveniently be reduced by means of one of the methods of sample reduction described in paragraph 31. They shall be installed in such a way that the composite sample can be readily identified with the seed lot from which it was taken.

### **Obtaining a submitted sample—composite sample division instruments**

26. Provided the composite sample is of at least the prescribed minimum weight for the relevant species of seed, it may be used as the submitted sample.

27. Where the composite sample exceeds the prescribed minimum weight for the submitted sample, a riffle divider of the type specified in paragraph 28 or a centrifugal divider of the type specified in paragraph 30 may be used to obtain a submitted sample. Other instruments and methods may be used at the discretion of the Department.

### **Riffle divider**

28. The riffle divider shall consist of a rectangular hopper leading to a series of evenly spaced chutes, arranged so that seed is distributed equally on two sides. There shall be a minimum of 18 chutes, each discharging in the opposite direction to its immediate neighbour. Three (or more) metal collecting vessels (pans) of sufficient depth to prevent seed bouncing out shall be used.

### **Method of use**

- 29.—(1) The method of using a riffle divider shall be as follows—
  - (a) the divider shall be placed on a firm level surface;
  - (b) the divider and pans shall be clean;
- (2) For sample mixing—
  - (a) an empty pan shall be placed on each side of the divider to receive the discharge from the chutes;
  - (b) the entire composite sample shall be poured evenly into the other pan(s);
  - (c) the seed shall then be poured from the pan(s) evenly along the entire length of the hopper;
  - (d) the two pans into which the seed has passed shall then be replaced with empty pans;

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- (e) the procedures described at sub-paragraphs (a) and (d) shall then be repeated twice to mix the sample thoroughly;
- (3) For sample reduction—
- (a) before reduction, the composite samples shall have been thoroughly mixed using procedures described at sub-paragraphs (2)(a) to (e). The contents of one of the two receiving pans shall then be set aside. If the seed in the second pan is of at least the prescribed minimum weight for a submitted sample of a particular species of seed, it may be used as the submitted sample. If the weight of seed in the second pan is greater than the appropriate prescribed minimum weight for a submitted sample, it may be reduced using the procedures specified in sub-paragraphs (b) to (d);
  - (b) an empty pan shall be placed on each side of the divider to receive the discharge from the chutes;
  - (c) the contents of the second pan shall be poured evenly along the entire length of the hopper;
  - (d) the contents of one of the two pans into which the seed has been passed shall then be set aside. If the weight of seed in the other pan is still greater than the appropriate prescribed minimum weight for the submitted sample, it may be submitted intact or it may be reduced further using the procedures specified in sub-paragraphs (b) to (d);
  - (e) if the weight of seed in either of the two pans at either (a) or (d) is less than the appropriate prescribed minimum weight for a submitted sample, the procedures specified in sub-paragraphs (f) to (j) shall be used;
  - (f) an empty pan shall be placed on each side of the divider to received the discharge from the chutes;
  - (g) the contents of one of the pans shall be set aside. The contents of the other pan shall be poured evenly along the entire length of the hopper;
  - (h) one receiving pan and its contents shall than be removed and replaced with an empty pan. The other pan, with its contents, shall be left in place;
  - (i) the contents of the pan removed at (h) shall be poured evenly along the entire length of the hopper so that two subsamples of different weight shall be produced;
  - (j) the procedures specified in sub-paragraphs (h) and (i) when repeated, constitute the process of continuous halving, and shall be repeated using whichever subsample is appropriate until sufficient seed is obtained in one pan, which when added to the seed set aside at (g) produces a submitted sample of at least the appropriate prescribed minimum weight;
- (4) To obtain more than one submitted sample—
- (a) two submitted samples shall be obtained from a composite sample by first obtaining a sample of at least twice the appropriate prescribed minimum weight for a submitted sample, using the procedures specified in sub-paragraphs (2)(a) to (e) and (3)(a) to (j) as appropriate, and then dividing it into two parts by passing it once through the divider;
  - (b) when three submitted samples are required from one composite sample, one sample of at least the appropriate prescribed minimum weight for a submitted sample, shall be extracted using the procedures specified in sub-paragraphs (2)(a) to (e) and (3)(a) to (j) as appropriate. All portions of seed which have been set aside shall then be recombined and the residue of the composite sample so obtained shall be subject to the procedure specified at sub-paragraph (a).

### **Centrifugal divider**

30. The centrifugal divider shall consist of a hopper from which the seed flows on to a shallow cup that is then rotated by an electric motor. The seed shall be distributed by centrifugal force onto a

stationary baffle that divides it into two equal parts that are then discharged through separate spouts. Four metal collecting vessels (pans) of sufficient depth to prevent seed bouncing out shall be used.

### **Method of use**

- 31.—(1) The method of using a centrifugal divider shall be as follows—
- (a) the divider shall be levelled prior to use;
  - (b) the divider and pans shall be clean;
- (2) For sample mixing—
- (a) an empty pan shall be placed under each spout of the divider;
  - (b) the entire composite sample shall be poured into the centre of the hopper;
  - (c) the motor shall be operated so that the seed passes into the pans;
  - (d) the motor shall be switched off;
  - (e) the two pans containing seed shall be removed and replaced by empty ones;
  - (f) the contents of both pans removed at (e) shall be poured together into the centre of the hopper, the seed being allowed to blend as it flows in. The procedures specified in sub-paragraphs (c), (d) and (e) shall be repeated;
  - (g) the procedure specified in sub-paragraph (f) shall be repeated to mix the sample thoroughly;
- (3) For sample reduction—
- (a) before reduction, the composite sample shall have been thoroughly mixed using the procedures specified in sub-paragraphs (2)(a) to (g). The contents of one of the two receiving pans shall then be set aside. If the seed in the second pan is of at least the prescribed minimum weight for a submitted sample of a particular species of seed, it may be used as the submitted sample. If the weight of seed in the second pan is greater than the appropriate prescribed minimum weight for a submitted sample, it may be reduced using the procedures specified in sub-paragraphs (b) to (d);
  - (b) empty pans shall be placed under the spouts;
  - (c) the contents of the second pan shall be poured into the hopper and the procedures specified in sub-paragraphs (2)(c) and (d) shall be repeated;
  - (d) the contents of one of the two pans into which the seed has passed shall then be set aside. If the weight of seed in the other pan is still greater than the appropriate minimum prescribed weight for a submitted sample, it may be submitted intact or it may be reduced further using the procedures specified in sub-paragraphs (b) to (d);
  - (e) if the weight of seed in either of the two pans at either (a) or (d) is less than the appropriate prescribed minimum weight for a submitted sample, the procedures specified in sub-paragraphs (f) to (j) shall be used;
  - (f) empty pans shall be placed under the spouts;
  - (g) the contents of one of the pans shall be set aside, the contents of the other pan shall be poured into the centre of the hopper and the procedures specified in sub-paragraphs (2)(c) and (d) shall be repeated;
  - (h) one receiving pan and its contents shall then be removed and replaced with an empty pan; the other pan, with its contents, shall be left in place;
  - (i) the contents of the pan removed at (h) shall be poured into the centre of the hopper and the procedures specified in sub-paragraphs (2)(c) and (d) shall be repeated so that two sub-samples of different weight shall be produced;

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- (j) the procedures specified in sub-paragraphs (h) and (i) above, when repeated, constitute the process of continuous halving, and shall be repeated using whichever sub-sample is appropriate until sufficient seed is obtained in one pan, which when added to the seed set aside at (g) produces a submitted sample of at least the appropriate prescribed minimum weight;
- (4) To obtain more than one submitted sample—
  - (a) two submitted samples shall be obtained from a composite sample by first obtaining a sample of at least twice the appropriate prescribed minimum weight for a submitted sample, using the procedures specified in sub-paragraphs (2)(a) to (g) and (3)(a) to (j) as appropriate, and then dividing it into two parts by passing it once through the divider;
  - (b) when three submitted samples are required from one composite sample, one sample, of at least the appropriate prescribed minimum weight for a submitted sample, shall be extracted using the procedures specified in sub-paragraphs (2)(a) to (g) and (3)(a) to (j) as appropriate. All portions of seed which have been set aside shall then be recombined and the residue of the composite sample so obtained shall be subject to the procedure specified in sub-paragraph (a).

#### **Moisture sample**

32. Primary samples of seed for moisture tests shall be drawn in such a way as to minimise exposure to the atmosphere. The composite moisture sample so collected may, if his licence permits it, be tested by a licensed seed sampler but shall in any other case be submitted intact to the testing station in an airtight container. It shall not be passed through a seed divider. Seed for moisture tests shall be kept separate from seed on which other determinations are to be made.