

## SCHEDULE 5

### PART I

#### SAMPLING OF SEED LOTS

##### Definitions

**1.** In this Part of this Schedule—

“composite sample” means a single sample comprising all of the primary samples taken from a seed lot during a single sampling exercise to produce a submitted sample<sup>(1)</sup> for the seed lot; and

“primary sample” means a sample taken from a seed lot in accordance with paragraphs 13 to 19 of this Part of this Schedule.

##### Obtaining a submitted sample

**2.** A submitted sample shall be obtained from the seed lot by taking primary samples systematically or at random from different positions in the seed lot and combining them to form a composite sample. Where the composite sample is a submitted sample, it may be submitted for an official examination intact or it may be reduced in weight by using one of the instruments referred to in paragraph 19 of this Part of this Schedule in accordance, where appropriate, with the relevant procedures specified in paragraphs 20 to 23 of this Part of this Schedule to give a smaller submitted sample.

##### Primary sample size

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

##### Condition of the seed lot

**4.** The seed lot to be sampled shall be a homogeneous seed lot<sup>(2)</sup>.

##### Seed lot containers

**5.** 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.

##### Sampling from sacks – minimum number of containers to be sampled

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

<b>Number of containers in which the seed lot is contained</b>	<b>Minimum number of containers to be sampled</b>
1–4	3 primary samples from each container

(1) See regulation 2(1) for the definition of “submitted sample”.

(2) See regulation 2(1) for the definition of “homogeneous seed lot”.

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<b>Number of containers in which the seed lot is contained</b>	<b>Minimum number of containers to be sampled</b>
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

**Sampling from sacks or similar containers**

7. The containers to be sampled shall be selected systematically or at random and primary samples shall be drawn from the top, middle and bottom of containers; and if more than one primary sample is taken from any container then the position from which the seed is taken shall be varied from primary sample to primary sample and from container to container.

**Sampling from small containers – general**

8. For sampling seed lots in containers holding less than 15 kilograms of seed, a 100 kilogram 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 9 packages of 10 kilograms, 20 packages of 5 kilograms) and for sampling purposes each unit shall be regarded as one container and the sampling procedures prescribed in paragraphs 6 and 7 of this Part of this Schedule shall be used.

**Sampling from small containers – moisture proof containers**

9. When seed is in moisture-proof containers the opened or pierced containers shall be adequately closed or the residues from sampling transferred to new containers.

**Sampling from small containers – primary samples**

10. When seed is in packets of 100 grams or less each packet may be considered as a primary sample and sufficient packets shall be taken at random to obtain a submitted sample.

**Sampling from large containers**

11. For the sampling of containers holding at least 100 kilograms of seed, primary samples shall be taken from different horizontal and vertical positions selected at random and the minimum number of primary samples to be taken shall be in accordance with the following table–

<b>Seed lot weight (kilograms)</b>	<b>Number of primary samples to be taken</b>
Up to 500	At least 5
501–3,000	1 for each 300 kilograms but no fewer than 5
3,001–20,000	1 for each 500 kilograms but no fewer than 10
20,001 and above	1 for each 700 kilograms but no fewer than 40

### **Sampling of seed lots intended to be Excepted Seed Marketed in Bulk**

12. Random sampling of seed lots of seed which is intended to be Excepted Seed Marketed in Bulk shall be carried out in accordance with the requirements of this Schedule during the filling of the container used by the final consumer and into which the seed is placed.

### **Sampling from a seed stream**

13. Primary 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. Primary samples of seed shall be taken at regular intervals throughout the processing of the seed lot using the same sampling intensity as specified in paragraph 11 of this Part of this Schedule.

### **Sampling instruments – general**

14. Sampling instruments shall be capable of sampling all parts of the seed lot.

### **Sampling instruments – instruments and methods**

15. Subject to paragraph 16 of this Part of this Schedule, one of the instruments described in paragraph 17 of this Part of this Schedule shall be used, as appropriate to the location of the seed, to draw primary samples in accordance with the relevant methods described in paragraphs 18 and 19 of this Part of this Schedule.

### **Sampling instruments – power to allow other instruments and methods**

16. Where it is not practicable to use any of the instruments described in paragraph 17 of this Part of this Schedule in accordance with the relevant methods described in paragraphs 18 and 19 of this Part of this Schedule, another instrument or method may be used with the written approval of the Scottish Ministers.

### **Sampling instruments – instruments for drawing primary samples**

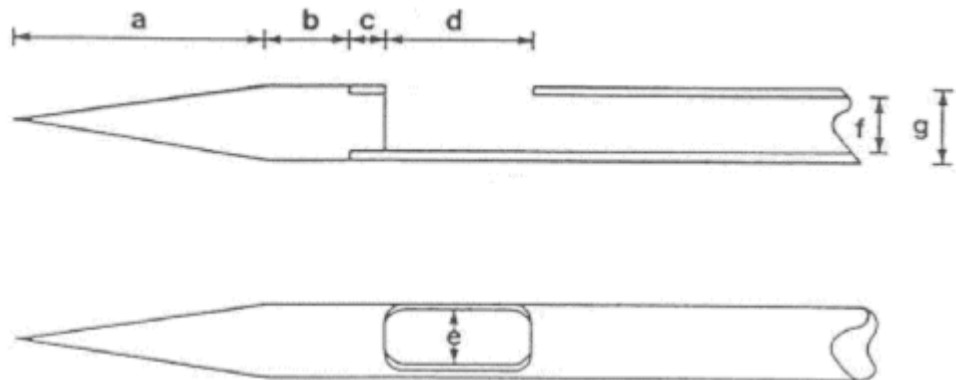
17. The instruments referred to in paragraph 15 of this Part of this Schedule, to be used for drawing primary samples are as follows:–

#### ***Dynamic spear sampler***

- (a) used, in accordance with the methods described in paragraph 19(a) of this Part of this Schedule, for sampling seed lots 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. In sampling seed lots of the species specified in column 1 of the following table a dynamic spear sampler shall have 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 diagrams below of dimensions no smaller than those specified in the corresponding entries in the table:–

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Species of Seed for which dynamic spear sampler can be used	Minimum dimensions in millimetres						
	Point length	Shoulder length	Boss length	Aperture Length	Aperture Width	Bore width	Outside Diameter
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	2	3	4	5	6	7	8
All species other than maize	85	12	10	33	11	13	15
Maize	82	12	13	40	15	17	19



**Stick samplers**

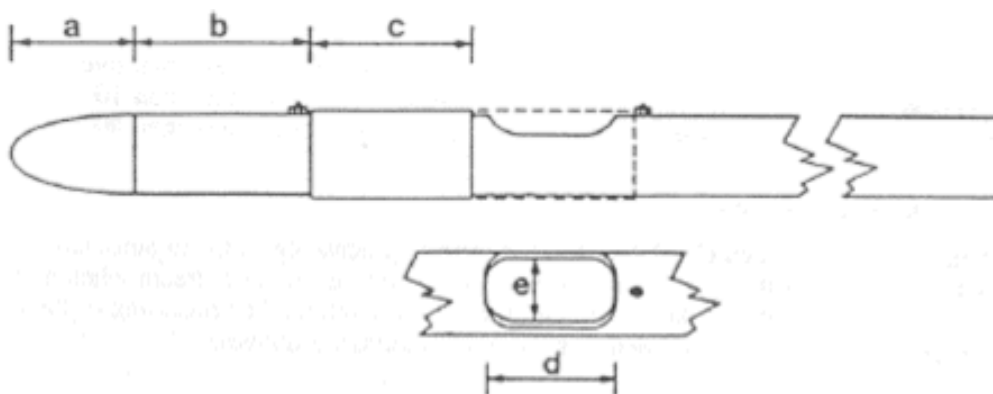
(a) A stick sampler of one of the types described in sub paragraphs (i) and (ii) may, subject to sub paragraphs (i) and (ii), be used if it has an aperture or apertures of sufficient size to allow the unrestricted entry of seed and other particles and is capable of being opened and closed during the sampling procedure as appropriate to the method of use described in paragraph 19(b) of this Part of this Schedule.

**(i) Single chamber type**

Subject to paragraph 14 of this Part of this Schedule, a single chamber type stick sampler may be used to sample seed lots in open sacks or in large containers. In sampling seed lots in open sacks or in large containers, as specified in column 1 of the following table, a single chamber type stick sampler shall have a point length (a), shoulder length (b), sliding sleeve length (c), aperture length (d), aperture width (e) and bore width (f), as shown in the diagrams below, of the dimensions specified in the corresponding entries in the table, or such other dimensions as the Scottish Ministers may approve in writing—

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Type of Container	Dimensions in millimetres					
	Point length	Shoulder length	Sliding sleeve length	Aperture length	Aperture width	Bore width
	(a) 2	(b) 3	(c) 4	(d) 5	(e) 6	(f) 7
Seed lots in sacks	55	25	75	50	22	25
Seed lots in large containers	100	390	63	50	22	30

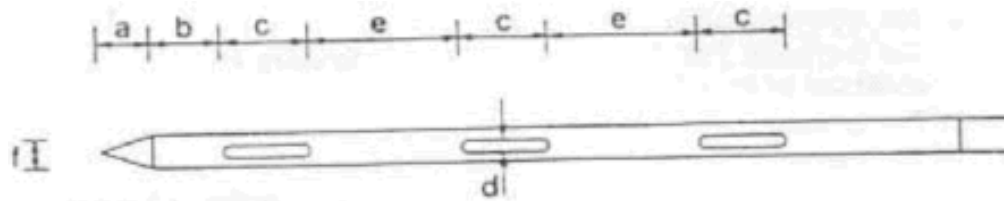


**(ii) Multi-chamber type**

Subject to paragraph 14 of this Part of this Schedule, a multi chamber type stick sampler may be used to sample seed lots in sacks or any other containers. The apertures shall open into chambers which shall be separated from one another by transverse partitions. The multi chamber type stick sampler shall have a point length (a), shoulder length (b), aperture length (c), aperture width (d), aperture separation distance (e) and bore width (f), as shown in the diagram below, of the dimensions specified in the following table or such other dimensions as the Scottish Ministers may approve in writing:-

Dimensions in millimetres					
Point length	Shoulder length	Aperture length	Aperture width	Aperture separation distance	Bore width
(a)	(b)	(c)	(d)	(e)	(f)
60	50	100	15	110	25

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**Cargo sampler**

- (a) Subject to paragraph 14 of this Part of this Schedule, a cargo sampler may be used, in accordance with the method described in paragraph 19(c) of this Part of this Schedule, to sample seed lots in large containers and shall only be used in the vertical position.

**Seed stream sampler**

- (b) Subject to paragraph 14 of this Part of this Schedule, a seed stream sampler may be used if it has been approved in writing by the Scottish Ministers and if it uniformly samples the cross section of the seed stream without any loss of the seed and any other particles which enter the seed stream sampler, in accordance with the method described in paragraph 19(d) of this Part of this Schedule. Timing devices shall be attached so that the frequency and duration of sampling can be adjusted to meet the requirements of paragraph 13 of this Part of this Schedule.

**Methods of use of dynamic spear samplers, stick samplers, cargo samplers and seed stream samplers – general**

- 18. All instruments shall be clean before use.

**Methods of use of dynamic spear samplers, stick samplers, cargo samplers and seed stream samplers – specific**

- 19. The methods of using the instruments described in paragraph 17 shall be as follows:–

**Dynamic spear samplers**

- (a) Dynamic spear samplers may be used in one of two ways depending on their length–

- (i) **Method 1**

In the case of a dynamic spear sampler in which the aperture reaches only to the centre of the sack or small container–

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

**(ii) Method 2**

In the case of a dynamic spear sampler in which the aperture reaches to the far side of a sack or small container–

- (aa) the instrument shall be inserted in the manner described in sub paragraph (i) (aa) until its aperture reaches almost to the far side of the sack or container;
- (bb) the instrument shall be tapped and rotated in the manner described in sub paragraph (i)(bb) and then withdrawn at a uniform speed; and
- (cc) the seed and any other particles passing through the instrument shall be collected in a clean container.

***Stick samplers***

(b) The method of using a single chamber type stick sampler and the method of using a multi chamber type stick sampler are as follows:–

**(i) Single chamber type stick sampler**

In the case of a single chamber type stick sampler–

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

**(ii) Multi-chamber type stick sampler**

In the case of a multi chamber type stick sampler–

- (aa) the apertures shall be closed before insertion;
- (bb) the instrument shall be inserted diagonally into sacks or vertically into large containers so that all apertures are fully covered;
- (cc) the apertures shall be opened;
- (dd) the instrument shall be agitated so that seed and any other particles enter the chambers;
- (ee) the apertures shall be closed gently to ensure that trapped seed and any other particles are not broken or damaged;
- (ff) 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
- (gg) if all the chambers are not full, the contents shall be discarded and the procedures specified in sub-paragraphs (ii)(aa) to (ff) shall be repeated.

***Cargo samplers***

(c) In the case of a cargo sampler–

- (i) the lid shall open and close easily;

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- (ii) the instrument shall be inserted with the lid closed to the appropriate primary sampling position which shall be at least 300 millimetres below the surface of the seed lot;
- (iii) the handle shall be raised sufficiently to open the lid;
- (iv) the instrument shall be left in position until the primary sample has been collected;
- (v) the instrument shall be withdrawn and the contents shall be emptied into a clean container; and
- (vi) if all the chambers are not full, the contents shall be discarded and the procedures specified in sub paragraphs (c)(i) to (v) shall be repeated.

#### ***Seed stream samplers***

- (d) In the case of a seed stream sampler, the instrument shall take the number of primary samples necessary for the weight of 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 minimum weight prescribed in paragraph 26 of Part II of this Schedule and not greater than can conveniently be reduced by means of one of the methods of sample reduction specified in paragraphs 22 to 23. 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 sample for moisture tests**

**20.**—(1) Samples of seed for moisture tests shall be drawn in such a way as to minimise exposure to the atmosphere.

(2) Samples so collected for moisture testing shall be submitted intact to the licensed seed testing station or the Scottish Ministers in an airtight container.

(3) Where the sample seed for moisture testing is submitted for testing in a different container from the submitted sample then the sample of seed for moisture testing shall be obtained as follows—

- (a) the composite sample from the relevant seed lot shall be passed through a riffle divider which complies with paragraph 21(a) in accordance with paragraph 22(a) to (e); and
- (b) a clean and dry airtight container shall be passed through the seed in one of the two pans into which the seed was passed until the airtight container is filled with a sample of at least 100 grams.

(4) Where the sample of seed for moisture testing is collected and submitted for testing in the same airtight container as the submitted sample, then the methods of sampling set out in this Part of this Schedule for obtaining the submitted sample shall also be used to obtain the sample submitted for moisture testing.

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

**21.** Where the composite sample exceeds the minimum weight prescribed for a sample in paragraph 26 of Part II of this Schedule, any of the following instruments may be used to reduce the weight of the sample—

##### ***Riffle divider***

- (a) (i) 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;
- (ii) there shall be a minimum of 18 chutes, each discharging in the opposite direction to its immediate neighbour; and



- (iii) three (or more) metal collecting vessels (pans) of sufficient depth to prevent seed bouncing out shall be used;

***Centrifugal divider***

- (b) (i) the centrifugal divider shall consist of a hopper from which seed flows on to a shallow cup which is then rotated by an electric motor; and
- (ii) the seed shall be distributed by centrifugal force onto a stationary baffle which divides it into two equal parts which are then discharged through separate spouts. Four metal collecting vessels (pans) of sufficient depth to prevent seed bouncing out shall be used; or

***Other instruments***

- (c) other instruments and methods may be used with the written approval of the Scottish Ministers.

**Method of use of riffle divider**

22. The method of using a riffle divider shall be as follows—

- (a) the riffle divider shall be placed on a firm level surface;
- (b) the riffle divider and pans shall be clean;

***Sample mixing***

- (c) an empty pan shall be placed on each side of the riffle divider to receive the discharge from the chutes;
- (d) the entire composite sample shall be poured evenly into the other pan(s);
- (e) the seed shall then be poured from the pan(s) evenly along the entire length of the hopper;
- (f) the two pans into which the seed has passed shall then be replaced with empty pans;
- (g) the procedures specified in sub paragraphs (e) and (f) shall then be repeated twice to mix the sample thoroughly;

***Sample reduction***

- (h) before reduction, the composite sample shall have been thoroughly mixed using the procedures specified in sub paragraphs (c) to (g). The contents of one of the two receiving pans shall then be set aside. If the seed and any other particles in the second pan is of at least the minimum weight prescribed in paragraph 26 of Part II of this Schedule for a sample, it may be used as a submitted sample. If the weight of seed in the second pan is greater than the minimum weight prescribed in paragraph 26 of Part II of this Schedule for a sample, it may be reduced using the procedures specified in sub paragraphs (i) to (k);
- (i) an empty pan shall be placed on each side of the divider to receive the discharge from the chutes;
- (j) the contents of the second pan shall be poured evenly along the entire length of the hopper;
- (k) the contents of one of the two pans into which the seed and other particles have passed shall then be set aside. If the weight of seed and other particles in the other pan is still greater than the minimum weight prescribed in paragraph 26 of Part II of this Schedule for a sample, it may be used as a submitted sample intact or it may be reduced further using the procedures specified in sub paragraphs (i) to (k);
- (l) if the weight of seed and other particles in either of the two pans set aside in the procedures specified either in sub-paragraph (h) or sub paragraph (k) is less than the minimum weight

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prescribed in paragraph 26 of Part II of this Schedule for a sample, the procedures specified in sub paragraphs (m) to (q) shall be used;

- (m) an empty pan shall be placed on each side of the divider to receive the discharge from the chutes;
- (n) 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;
- (o) 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;
- (p) the contents of the pan removed during the procedure specified in sub paragraph (o) shall be poured evenly along the entire length of the hopper so that two sub-samples of different weights shall be produced;
- (q) the procedures specified in sub paragraphs (o) and (p), when repeated, constitute the process of continuous halving, and shall be repeated using whichever sub-sample is appropriate until sufficient seed and any other particles is obtained in one pan, which, when added to the seed and any other particles set aside during the procedure specified in sub paragraph (n), produces a submitted sample;

***Obtaining more than one submitted sample***

- (r) when two submitted samples are required from one composite sample, one composite sample of at least twice the minimum weight prescribed in paragraph 26 of Part II of this Schedule for a sample shall be obtained using the procedures specified in sub paragraphs (c) to (g) and (h) to (q), as appropriate. The composite sample shall then be divided into two parts by passing it once through the riffle divider; and
- (s) when three submitted samples are required from one composite sample, one composite sample of at least three times the minimum weight prescribed in paragraph 26 of Part II of this Schedule for a sample shall be obtained using the procedures specified in sub-paragraphs (c) to (g) and (h) to (q) as appropriate. A submitted sample shall then be extracted using the procedures specified in sub paragraphs (c) to (g) and (h) to (q), as appropriate. All portions of seed which have been set aside shall then be recombined and two submitted samples shall be obtained from this residue of the composite sample by following the procedure specified in sub paragraph (r).

**Method of use of a centrifugal divider**

**23.** The method of using a centrifugal divider shall be as follows—

- (a) the centrifugal divider shall be levelled prior to use;
- (b) the centrifugal divider and pans shall be clean;

***Sample mixing***

- (c) an empty pan shall be placed under each spout of the centrifugal divider;
- (d) the entire composite sample shall be poured into the centre of the hopper;
- (e) the motor shall be operated so that the seed and any other particles in the sample pass into the pans;
- (f) the motor shall be switched off;
- (g) the two pans containing seed and any other particles shall be removed and replaced by empty ones;
- (h) the contents of both pans removed during the procedure specified in sub paragraph (g) shall be poured together into the centre of the hopper, the seed and any other particles

being allowed to blend as they flow in. The procedures specified in sub paragraphs (e) to (g) shall be repeated;

- (i) the procedure specified in sub paragraph (h) shall be repeated twice to mix the sample thoroughly;

***Sample reduction***

- (j) before reduction, the composite sample shall have been thoroughly mixed using the procedures specified in sub paragraphs (c) to (i). The contents of one of the two receiving pans shall then be set aside. If the seed and any other particles in the second pan is of at least the minimum weight prescribed in paragraph 26 of Part II of this Schedule for a sample, it may be used as a submitted sample. If the weight of seed in the second pan is greater than the minimum weight prescribed in paragraph 26 of Part II of this Schedule for a sample, it may be reduced using the procedures specified in sub paragraphs (k) to (m);
- (k) empty pans shall be placed under the spouts;
- (l) the contents of the second pan shall be poured into the hopper and the procedures specified in sub paragraphs (e) and (f) shall be repeated;
- (m) the contents of one of the two pans into which the seed and any other particles have passed shall then be set aside. If the weight of seed and any other particles in the other pan is still greater than the minimum weight prescribed in paragraph 26 of Part II of this Schedule for a sample, the sample may be used as a submitted sample intact or it may be reduced further using the procedures specified in sub paragraphs (k) to (m);
- (n) if the weight of seed and any other particles in either of the two pans referred to either in sub paragraph (j) or (m) is less than the minimum weight prescribed in paragraph 26 of Part II of this Schedule for a sample, the procedures specified in sub paragraphs (o) to (s) shall be used;
- (o) empty pans shall be placed under the spouts;
- (p) 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 (e) and (f) shall be repeated;
- (q) 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;
- (r) the contents of the pan removed during the procedure specified in sub paragraph (q) shall be poured into the centre of the hopper and the procedures specified in sub paragraphs (e) and (f) shall be repeated so that two sub-samples of different weights shall be produced;
- (s) the procedures specified in sub paragraphs (q) and (r), when repeated, constitute the process of continuous halving, and shall be repeated using whichever sub-sample is appropriate until a sufficient sample is obtained in one pan, which, when added to the seed and any other particles set aside during the procedure specified in sub paragraph (p), produces a submitted sample;

***Obtaining more than one submitted sample***

- (t) when two submitted samples are required from one composite sample, one composite sample of at least twice the minimum weight prescribed in paragraph 26 of Part II of this Schedule for a sample shall be obtained using the procedures specified in sub paragraphs (c) to (i) and (j) to (s) as appropriate. The composite sample shall then be divided into two parts by passing it once through the centrifugal divider; and
- (u) when three submitted samples are required from one composite sample, one composite sample of at least three times the minimum weight prescribed in paragraph 26 of Part

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II of this Schedule for a sample shall be obtained using the procedures specified in sub paragraphs (c) to (i) and (j) to (s), as appropriate. A submitted sample shall then be extracted using the procedures specified in sub paragraphs (c) to (i) and (j) to (s), as appropriate. All portions of seed which have been set aside shall then be recombined and two submitted samples shall be obtained from this residue of the composite sample by following the procedure specified in sub paragraph (t).