SCHEDULE 4

Regulations 2(1), 3, 6(2), 11(1), 12(1), (2) and (3), 21(4) and paragraphs 2, 3 and 4 of Part I of Schedule 2 and paragraphs 6 and 7 of Part II of Schedule 2

REQUIREMENTS FOR BASIC SEED, CERTIFIED SEED, CERTIFIED SEED OF THE FIRST GENERATION, CERTIFIED SEED OF THE SECOND GENERATION, CERTIFIED SEED OF THE THIRD GENERATION AND COMMERCIAL SEED

PART I

CONDITIONS RELATING TO CROPS FROM WHICH SEED OTHER THAN COMMERCIAL SEED IS OBTAINED

Methods of crop testing

1. The Scottish Ministers may ascertain, so far as practicable, whether the requirements for the crop set out in this Part of this Schedule are met by the use of methods which shall include official field inspection of the crop and which may include examination of a control plot sown with a sample from the seed lot sown in the field and the consideration of any other relevant information.

Varietal identity and varietal purity

2. The characteristics used for the determination of varietal identity and varietal purity shall be those to which regard was had when the relevant variety was accepted on to the relevant UK National List, an equivalent list in another EEA State or the Common Catalogue.

Crop inspection

(a) (a) An official examination of the crop shall be made by means of an official field inspection.

(b) The official field inspection shall only be carried out when the cultural condition of the field and the stage of development and condition, including state of health, of the crop are such as to permit suitable checks of varietal identity, varietal purity and species purity to be made.

(c) Subject to paragraphs (d) and (e), at least one official field inspection of the crop shall be carried out.

(d) At least two official field inspections shall be carried out in the case of a hybrid of sunflower.

(e) At least three official field inspections shall be carried out in the case of a hybrid of swede rape and shall be carried out as follows:–

(i) the first official field inspection shall be carried out before the flowering stage;

(ii) the second official field inspection shall be carried out at the early flowering stage; and

(iii) the third official field inspection shall be carried out at the end of the flowering stage.

Harmful organisms in the crop

4. Harmful organisms which reduce the usefulness of the seed shall be at the lowest possible level including in the case of soya bean, *Pseudomonas syringae* pv *glycinea, Diaporthe phaseolorum* var. *caulivora* and var. *sojae, Phialophora gregata* and *Phytophthora megasperma* f.sp. *glycinea*.

Previous cropping

(a) (a) The previous cropping of the field shall not have been incompatible with the production of seed of the species and variety of the crop, and the field shall be sufficiently free from plants which are volunteers from previous cropping.

(b) The crop may be grown only on land which complies with the Scottish Ministers' requirements in respect of previous cropping.

(c) In the case of a hybrid of swede rape the crop shall be raised in a production ground where not less than 5 years have elapsed since plants of cruciferae were last grown.

Isolation distances – general

6. There shall be either a physical barrier or at least 2 metres of fallow ground between the seed crop and any crop likely to cause contamination in the seed.

Isolation distances – minimum distance

7. For black mustard, brown mustard, hemp, sunflower, swede rape, turnip rape and white mustard, the minimum distance from neighbouring crops or plants of other species, or of other varieties of the same species, liable to cross pollinate with the crop shall be the distance specified in column 2 of the following table for the corresponding crop specified in column 1 of the table (which can include any distance of at least 2 metres of fallow ground required under paragraph 6 of this Part of this Schedule):–

Column 1 **Crop**	**Column 2** **Minimum Distance**
(a) (a) Black mustard, brown mustard, dioecious hemp, turnip rape and white mustard–	
(i) for the production of Basic Seed	400 metres
(ii) for the production of Certified Seed(**1**)	200 metres
(b) (b) Monoecious hemp–	
(i) for the production of Basic Seed	5,000 metres
(ii) for the production of Seed of a Certified Generation	1,000 metres
(c) (c) Sunflower–	
(i) for the production of Basic Seed of hybrids	1,500 metres
(ii) for the production of Basic Seed of varieties other than hybrids	750 metres

(**1**) See regulation 3 for the definition of "Certified Seed".

Column 1 Crop	Column 2 Minimum Distance
(iii) for the production of Seed of a Certified Generation	500 metres
(d) (d) Swede rape–	
(i) for the production of Basic Seed of varieties other than hybrids	400 metres
(ii) for the production of Basic Seed of hybrids	500 metres
(iii) for the production of Certified Seed of varieties other than hybrids	200 metres
(iv) for the production of Certified Seed of hybrids	300 metres

but with the approval of the Scottish Ministers these distances may be modified or disregarded if there is adequate protection against undesirable foreign pollen.

Standards for varietal purity

(a) (a) The crop shall have sufficient varietal identity and varietal purity, including–

(i) in the case of a crop of an inbred line, sufficient varietal identity and varietal purity as regards its characteristics; and

(ii) in the case of a crop used for the production of seed of hybrid varieties, sufficient varietal identity and varietal purity as regards the characteristics of the components of the hybrid variety, including male sterility or fertility restoration.

(b) in crops of black mustard, brown mustard and hemp the number of plants of the crop species which are recognisable as obviously not being true to the variety shall not exceed–

(i) one plant in 30 square metres for the production of Basic Seed; and

(ii) one plant in 10 square metres for the production of Seed of a Certified Generation.

(c) in crops of hybrids of sunflower–

(i) the percentage by number of plants which are recognisable as obviously not being true to the inbred line or to the component shall not exceed the percentage specified in column 2 of the following table corresponding to the relevant crop specified in column 1 of the table:–

Column 1 Crop of hybrid of sunflower	Column 2 Percentage by number of plants
(aa) (aa) For the production of Basic Seed–	
(aaA) inbred lines	0.2%
(aaB) simple hybrids–	
(aaBa) male parent, plants which have shed pollen while 2% or more of the female plants have receptive flowers	0.2%

Column 1 **Crop of hybrid of sunflower**	**Column 2** **Percentage by number of plants**
(aaBb) female parent	0.5%
(bb) (bb) For the production of Certified Seed–	
(bbA) male component, plants which have shed pollen while 5% or more of the female plants have receptive flowers	0.5%
(bbB) female component	1.0%

(ii) used for the production of seed of hybrid varieties–

(aa) sufficient pollen shall be shed by the plants of the male component while the plants of the female component are in flower;

(bb) where the female component plants have receptive stigmas, the percentage by number of female component plants which have shed pollen, or are shedding pollen, shall not exceed 0.5%;

(cc) of Basic Seed the total percentage by number of plants of the female component which are recognisable as obviously not being true to the component and which have shed pollen, or are shedding pollen, shall not exceed 0.5%; and

(dd) where a male-sterile component has been used to produce Certified Seed by using a male component which contains a specific restorer line or lines, at least one third of the plants grown from the resulting hybrid shall produce pollen which appears normal in all aspects.

(d) in a case where a male-sterile component is used for the production of seed of a hybrid variety of swede rape the percentage by number of male sterility shall be at least 99% for the production of Basic Seed and 98% for the production of Certified Seed and the level of male sterility shall be assessed by examining flowers for the absence of fertile anthers;

(e) in the case of hybrids of swede rape produced using male sterility the percentage by number of plants which are recognisable as obviously not true to the inbred line or to the component shall not exceed the percentage specified in column 2 of the following table corresponding to the relevant crop specified in column 1 of the table:–

Column 1 **Crop of hybrids of swede rape produced using male sterility**	**Column 2** **Percentage by number of plants**
(i) For the production of Basic Seed–	
(aa) (aa) inbred lines	0.1%
(bb) (bb) simple hybrids–	
(bbA) male component	0.1%
(bbB) female component	0.2%
(ii) For the production of Certified Seed–	
(aa) (aa) male component	0.3%
(bb) (bb) female component	1.0%

Crop conditions for Pre basic Seed

9. For the purpose of determining whether a crop from which Pre basic Seed is to be produced meets the conditions specified in this Part of this Schedule, the crop from which such seed is to be produced shall be treated in the same way as a crop from which Basic Seed is to be produced.

PART II

CONDITIONS RELATING TO BASIC SEED, CERTIFIED SEED, CERTIFIED SEED OF THE FIRST GENERATION, CERTIFIED SEED OF THE SECOND GENERATION, CERTIFIED SEED OF THE THIRD GENERATION AND COMMERCIAL SEED

Standards for varietal purity

(a) (a) The seed shall possess sufficient varietal identity and varietal purity. In particular, seed of the species and category specified in column 1 of the following table shall possess at least the percentage of minimum varietal purity specified in the corresponding entry in column 2 of the table:–

Column 1 **Species and category**	**Column 2** **Percentage of minimum varietal purity**
(i) Flax–	
(aa) (aa) Basic Seed	99.7%
(bb) (bb) Certified Seed of the First Generation	98.0%
(cc) (cc) Certified Seed of the Second Generation(**2**)	97.5%
(dd) (dd) Certified Seed of the Third Generation(**3**)	97.5%
(ii) Linseed–	
(aa) (aa) Basic Seed	99.7%
(bb) (bb) Certified Seed of the First Generation	98.0%
(cc) (cc) Certified Seed of the Second Generation	97.5%
(dd) (dd) Certified Seed of the Third Generation	97.5%
(iii) Soya bean–	
(aa) (aa) Basic Seed	99.5%
(bb) (bb) Certified Seed of the First Generation	99.0%

(**2**) See regulation 3 for the definition of "Certified Seed of the Second Generation".
(**3**) See regulation 3 for the definition of "Certified Seed of the Third Generation".

Column 1 Species and category	Column 2 Percentage of minimum varietal purity
(cc) (cc) Certified Seed of the Second Generation	99.0%
(iv) Sunflower except hybrid varieties and components of hybrid varieties–	
(aa) (aa) Basic Seed	99.7%
(bb) (bb) Certified Seed	99.0%
(v) Swede rape (except hybrid varieties) other than varieties to be used solely for fodder purposes and turnip rape other than varieties to be used solely for fodder purposes–	
(aa) (aa) Basic Seed	99.9%
(bb) (bb) Certified Seed	99.7%
(vi) Swede rape (except hybrid varieties) and turnip rape varieties to be used solely for fodder purposes–	
(aa) (aa) Basic Seed	99.7%
(bb) (bb) Certified Seed	99.0%
(vii) Hybrid varieties of swede rape produced using male sterility and their components–	
(aa) (aa) Basic Seed, female component	99.0%
(bb) (bb) Basic Seed, male component	99.9%
(cc) (cc) Certified Seed	90.0%
(viii) White mustard–	
(aa) (aa) Basic Seed	99.7%
(bb) (bb) Certified Seed	99.0%

(b) Subject to paragraph 11, for the purposes of this paragraph the minimum varietal purity of seed shall be examined mainly in official field inspections carried out in accordance with the conditions specified in Part I of this Schedule.

Standards for varietal purity for hybrid varieties of swede rape

11. In the case of seed of a hybrid variety of swede rape produced using male sterility–

(a) subject to sub paragraph (c), the requirement for sufficient varietal identity and varietal purity shall also apply to the characteristics of its components including male sterility or restoration of fertility;

(b) subject to sub paragraph (d), the seed shall not be certified as Certified Seed unless due account has been take of the results of official post control tests on samples of Basic Seed taken in accordance with regulation 15(1) and carried out during the growing season of the seed for which an application has been made for certification as Certified Seed to

ascertain whether the Basic Seed has met the requirements for Basic Seed specified in these Regulations in respect of varietal identity as regards the characteristics of the components, including male sterility and in respect of the minimum varietal purity;

(c) the varietal purity of a component of the hybrid variety may be assessed by appropriate biochemical methods; and

(d) the standards in respect of the minimum varietal purity laid down in sub paragraph (b) in respect of Certified Seed of hybrids shall be monitored by official post-control tests on an appropriate proportion of samples taken in accordance with regulation 15(1) and appropriate biochemical methods may be used in these official post-control tests.

Parental ratio in production of Certified Seed of hybrids of sunflower

12. Where a female male-sterile component and a male component which does not restore male fertility have been used for the production of Certified Seed of hybrids of sunflower, the seed produced by the male-sterile parent shall be blended with seed produced by the fully fertile parent. The ratio of male-sterile parent seed to male-fertile parent seed shall not exceed two to one.

Further standards and conditions of varietal purity

13. The seed shall, subject to paragraph 14, comply with the following standards and other conditions as regards percentage germination of pure seed, analytical purity and content of seed of other plant species (including *Orobanche* spp.):–

	Minimum germination (% of pure seed)	**Analytical purity**		**Maximum content by number of seeds of other plant species in a sample of the weight specified in column 4 of the table in paragraph 24 of Part II of Schedule 5**						
Species		**Minimum analytical purity (% by weight)**	**Maximum content of seed of other plant species (% by weight)**	**Other plant species (including seed of the species specified in columns 6 to 11)**	**Wild Oat** (*Avena fatua, A. ludoviciana, A. sterilis)*	**Dodder** (*Cuscuta* spp.)	**Wild radish** (*Raphanus raphanistrum*)	**Dock** (*Rumex* spp.) **excluding** *R. crispus*	**Blackgrass** (*Alopecurus myosuroides*)	*Lolium temulentum* (*L. remotum*)
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Black mustard and brown mustard										
– Basic Seed	85	98	0.3	n/a	0	0	10	2	n/a	n/a
– Certified Seed	85	98	0.3	n/a	0	0	10	5	n/a	n/a

Species	Minimum germination (% of pure seed)	Analytical purity		Maximum content by number of seeds of other plant species in a sample of the weight specified in column 4 of the table in paragraph 24 of Part II of Schedule 5						
		Minimum analytical purity (% by weight)	Maximum content of seed of other plant species (% by weight)	Other plant species (including seed of the species specified in columns 6 to 11)	Wild Oat (*Avena fatua*, *A. ludoviciana*, *A. sterilis*)	Dodder (*Cuscuta* spp.)	Wild radish (*Raphanus raphanistrum*)	Dock (*Rumex* spp.) excluding *R. acetosella*)	Blackgrass (*Alopecurus myosuroides*)	*Lolium* spp. excluding *L. temulentum*
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Flax	92	99	n/a	15	0	0	n/a	n/a	4	2
Hemp	75	98	n/a	30	0	0	n/a	n/a	n/a	n/a
Linseed	85	99	n/a	15	0	0	n/a	n/a	4	2
Soya bean	80	98	n/a	5	0	0	n/a	n/a	n/a	n/a
Sunflower	85	98	n/a	5	0	0	n/a	n/a	n/a	n/a
Swede rape and turnip rape										
– Basic Seed	85	98	0.3	n/a	0	0	10	2	n/a	n/a
– Certified Seed	85	98	0.3	n/a	0	0	10	5	n/a	n/a
White mustard										
– Basic Seed	85	98	0.3	n/a	0	0	10	2	n/a	n/a
– Certified Seed	85	98	0.3	n/a	0	0	10	5	n/a	n/a

Further provisions relating to varietal purity

(a) (a) The presence of one seed of dodder (*Cuscuta* spp.) in a sample of–

(i) black mustard;

(ii) brown mustard;

(iii) flax;

(iv) linseed;

(v) swede rape;

(vi) turnip rape; or

(vii) white mustard,

shall not be regarded as an impurity where a second sample of the same weight is free from any seeds of dodder.

(b) The determination of total content of seed of other plant species by number need not be carried out in the case of hemp seed unless there is doubt whether the conditions laid down in column 5 of the table in paragraph 13 have been satisfied.

(c) Subject to sub paragraph (d), hemp seed shall be free from *Orobanche* spp..

(d) The presence of one seed of *Orobanche* spp. in a sample of 100 grams of hemp seed shall not be regarded as an impurity where a second sample of 200 grams is free from any seed of *Orobanche* spp..

Harmful organisms in the seed

(a) (a) Harmful organisms which reduce the usefulness of the seed shall be at the lowest possible level.

(b) Subject to sub paragraph (c) in any sample of seed of the species specified in column 1 of the following table:–

(i) harmful organisms of the type specified in columns 2 and 3 of the table shall not exceed the percentage by number of seeds specified in the relevant corresponding entry of the table; and

(ii) the number of sclerotia or fragments of sclerotia in a sample of the weight specified in column 4 of the table specified in paragraph 24 of Part II of Schedule 5 shall not exceed the number specified in the relevant corresponding entry in column 4 of the following table:–

	Harmful organisms **Maximum percentage by number of seeds contaminated by harmful organisms (total per column)**		*Sclerotinia sclerotiorum***(maximum number of sclerotia or fragments of sclerotia in a sample of the weight specified in Column 4 of paragraph 24 of Part II of Schedule 5)**
Species	*Botrytis***spp.**	*Alternaria***spp.,***Ascochyta linicola***(syn.***Phoma linicola),***Colletotrichum lini,***Fusarium***spp.**	
1	**2**	**3**	**4**
Flax	5	5	n/a
Hemp	5	n/a	n/a
Linseed	5	5	n/a
Sunflower	5	n/a	10
Swede rape	n/a	n/a	10
Turnip rape	n/a	n/a	5
White mustard	n/a	n/a	5

(c) Notwithstanding the provisions of sub paragraph (b), in any sample of flax seed, the maximum percentage by number of seed of *Ascochyta linicola* (syn. *Phoma linicola*) shall not exceed 1%.

(d) In the case of soya bean seed–

(i) within a sample of at least 5,000 seeds per seed lot which is subdivided into 5 sub samples, the maximum number of sub-samples which are found to be contaminated by *Pseudomonas syringae* pv. *glycinea* shall not exceed 4;

(ii) where suspect colonies are identified in all five sub-samples referred to in sub paragraph (i) appropriate biochemical tests on the suspect colonies isolated on a preferential medium for each sub-sample may be used to confirm the conditions specified in sub-paragraph (i);

(iii) the maximum number of seeds contaminated by *Diaporthe phaseolorum* shall not exceed 15%; and

(iv) the percentage by weight of inert matter shall not exceed 0.3%.

PART III

OFFICIAL EXAMINATIONS USED TO ASCERTAIN WHETHER A CROP OR SEED LOT MEETS THE CONDITIONS RELATING TO BASIC SEED,

CERTIFIED SEED, CERTIFIED SEED OF THE FIRST GENERATION, CERTIFIED SEED OF THE SECOND GENERATION, CERTIFIED SEED OF THE THIRD GENERATION AND COMMERCIAL SEED

Methods for official examinations

16. All official examinations used to ascertain whether crops or seed lots meet the standards specified in this Schedule shall be carried out in accordance with current international methods.