**Technical Supplement – Fodder Plant Seeds**

This Technical Supplement specifies the conditions which must be met by seed which is officially certified in Northern Ireland.

1. Conditions to be examined mainly by field inspection - sets out the seed standards which must be examined mainly by crop inspection.
2. Conditions to be examined by seed testing - specifies the standards which must be shown to be met by an Official Testing Station for seed which is to be officially certified in Northern Ireland.
3. Conditions to be examined by inspection of control plots – post control of basic seed of hybrids of swede rape and cereals
4. Other conditions – is a general requirement of seed health, e.g. diseases and harmful organisms.
5. General provisions - Pre-basic seed standards and commercial seed standards.

**CONDITIONS RELATING TO CROPS FROM WHICH SEED IS TO BE HARVESTED**

**Previous cropping**

The previous cropping of the field must not be incompatible with the production of seeds of the species and variety of the crop and the field must be sufficiently free from plants which are volunteers from previous cropping. Please see Annex 1 for further guidance.

**Isolation requirements (Table 1)**

In the case of fodder kale, swede and crops of all other species except field peas and apomictic uni-clonal varieties of smooth-stalked meadowgrass (for which there are no specific standards) the crop must conform to the following standards as regards distances from neighbouring sources of pollen which may result in undesirable foreign pollination:

|  |  |
| --- | --- |
| **Crop** | **Minimum distance** |
| **1** | **2** |
| 1. Fodder kale and swede- 2. for the production of basic seed 3. for the production of CS seed 4. Crops of all other species except field peas and apomictic uni-clonal varieties of smooth-stalked meadowgrass – 5. for the production of seed intended for multiplication, fields up to 2 hectares   Crop | 400 metres  200 metres  200 metres  Minimum Distance |
| 1 | 2 |
| 1. for the production of seed intended for multiplication, fields over 2 hectares 2. for the production of seed intended for the production of fodder plants, fields up to 2 hectares 3. for the production of seed intended for the production of fodder plants, fields over 2 hectares | 100 metres  100 metres  50 metres |

The distances do not apply if there is sufficient protection from any undesirable foreign pollination.

**Varietal identity and varietal purity**

Crops of all species covered by the regulations are required to have sufficient varietal identity and varietal purity. These general requirements are supplemented by specific crop standards for the species. Seed standards for varietal purity examined mainly by field inspection are also prescribed for fodder kale, apomictic uni-clonal varieties of smooth-stalked meadowgrass, swede, field beans and field peas.

**Specific standards for grasses (except smooth-stalked meadowgrass) Alsike clover, birdsfoot trefoil, fodder radish, lucerne, lupins, red clover, sainfoin, trefoil, black medick, vetches and white clover.**

In the case of all grasses (except smooth-stalked meadowgrass) Alsike clover, birdsfoot trefoil, fodder radish, lucerne, lupins, red clover, sainfoin, trefoil, black medick, vetches and white clover, the number of plants of the crop species which are recognisable as obviously not being true to the variety must not exceed –

1. one per 30 square metres for the production of basic seed; and
2. one per 10 square metres for the production of CS seed.

**Specific standards for smooth-stalked meadowgrass**

In the case of smooth-stalked meadowgrass, the number of plants which are recognisable as obviously not being true to the variety must not exceed -

1. for the production of basic seed, one plant per 20 square metres, and
2. for the production of CS seed –
3. except in the case of an apomictic uni-clonal variety, four plants per 10 square metres; and
4. in the case of an apomictic uni-clonal variety, six plants per 10 square metres.

**Species purity**

Plants of other species, the seeds of which are difficult to distinguish from the crop seeds in a laboratory test, must be at a low level.

The following specific species purity standards apply to festulolium and hybrid, Italian and perennial ryegrass. In the case of these species, the number of plants of a Lolium species or festulolium, other than the crop species itself, must not exceed:

1. one per 50 square metres for the production of Basic seed; and
2. one per 10 square metres for the production of CS seed.

**Number of harvest years (hybrid and Italian ryegrass only)**

Crops to produce pre-basic, basic, or CS seed of hybrid or Italian ryegrass must not be used to produce a crop in the second harvest year unless–

1. pre-basic seed was produced in the first harvest year in which case basic seed may be produced in the second harvest year;
2. basic seed was produced in the first harvest year from a crop grown from officially certified pre-basic seed, in which case CS seed may be produced in the second harvest year; or
3. for a tetraploid variety of hybrid ryegrass, CS seed was produced in the first harvest year from a crop grown from officially certified basic seed, in which case CS seed may be produced in the second harvest year.

**Harmful organisms**

The crop shall be practically free from any pests which reduce the usefulness and quality of the seed.

For the presence of Clavibacter michiganensis ssp. Insidiosus (bacterial Lucerne wilt) and Ditylenchus dipsaci (stem and bulb nematode) on Lucernce, the threshold is 0% for pre-basic, basic and CS seed.

**Crop inspection requirements**

Seed crops must be inspected to determine whether they meet the requirements set out in this Technical Supplement and the seed standards which must be determined mainly by crop inspection.

A crop from which basic seed is to be produced must be examined by an official crop inspector. CS, C1 and C2 seed crops in early multiplication must also be inspected by officials. A crop from which CS, C1 or C2 seed is to be produced may be examined by a licensed inspector, provided the seed sown to produce the crop is subject to satisfactory post control.

A minimum of one crop inspection is required. Crop inspections must be carried out at a time when the condition and stage of development of the crop permit an adequate examination.

**Pre basic crop standards**

Crops to produce Pre basic seed must meet the standards for Basic seed.

**CONDITIONS TO BE SATISFIED BY THE SEED**

**CONDITIONS TO BE EXAMINED MAINLY BY FIELD INSPECTION**

**Varietal identity and varietal purity**

The seed must have sufficient varietal identity and varietal purity.

**Varietal purity standards for fodder kale, apomictic uni-clonal varieties of smooth-stalked meadowgrass, swede, field beans and field peas (Table 2)**

The following minimum varietal purity standards apply to *fodder kale, apomictic uni-clonal varieties of smooth-stalked meadowgrass, swede, field beans and field peas –*

|  |  |
| --- | --- |
| **Species and category** | **Minimum varietal purity standard**  **(percentage by number)** |
| 1. Fodder kale, apomictic uni-clonal varieties of smooth-stalked meadowgrass and swede – 2. basic seed 3. CS seed | 99.7  98.0 |
| 1. Field beans and field peas – 2. basic seed 3. C1 seed 4. C2 seed | 99.7  99.0  98.0 |

In each case, the minimum varietal purity of seed must be examined mainly in crop inspections.

**CONDITIONS TO BE EXAMINED BY SEED TESTING**

This specifies those seed qualities which must be examined by seed testing (e.g. analytical purity, germination) and the minimum standards which the seed must meet to be officially certified. Seed tests must be done on a representative sample drawn from the seed lot by an official or by a licensed seed sampler. All seed tests may be done by an OSTS or officially Licensed Seed Testing Station. **Seed standards**

**Analytical purity (Table 3)**

The analytical purity standards are as follows:

| **Species** | | **Minimum analytical purity**  **(% by weight)**  EC minimum standard  All Categories | **Minimum analytical purity**  **(% by weight)**  HVS standard  CS only |
| --- | --- | --- | --- |
| Fine grasses –   1. annual meadowgrass 2. brown top 3. creeping bent grass 4. festulolium 5. fine leaved sheep’s fescue 6. hard fescue 7. red fescue (inc. Chewing’s fescue) 8. red top 9. rough- stalked meadowgrass 10. sheep’s fescue 11. smooth-stalked meadowgrass 12. velvet bent 13. wood meadowgrass | 85  90  90  96  85  85  90  90  85  85  85  90  85 | | Not applicable  Not applicable  Not applicable  98  Not applicable  Not applicable  95  Not applicable  Not applicable  Not applicable  90  Not applicable  Not applicable |

|  |  |  |
| --- | --- | --- |
| **Species** | **Minimum analytical purity**  **(% by weight)**  EC minimum standard | **Minimum analytical purity**  **(% by weight)**  HVS standard |
|  | All categories | CS only |
| Fodder grasses –   1. Alaska brome-grass 2. Cocksfoot 3. hybrid ryegrass 4. Italian ryegrass 5. meadow fescue 6. perennial ryegrass 7. rescue grass 8. small Timothy 9. tall fescue 10. tall oatgrass 11. Timothy | 97  90  96  96  95  96  97  96  95  90  96 | Not applicable  90  98  98  98  98  Not applicable  98  98  Not applicable  98 |
| Small seeded legumes   1. Alsike clover 2. birdsfoot trefoil 3. lucerne 4. red clover 5. sainfoin 6. trefoil, black medick 7. white clover | 97  95  97  97  95  97  97 | Not applicable  Not applicable  98  98  98  Not applicable  98 |

|  |  |  |
| --- | --- | --- |
| **Species** | **Minimum analytical purity**  **(% by weight)**  EC minimum standard | **Minimum analytical purity**  **(% by weight)**  HVS standard |
|  | All categories | CS only |
| Large seeded legumes   1. blue lupin 2. common vetch 3. field bean 4. field pea 5. hairy vetch 6. Hungarian vetch 7. white lupin 8. yellow lupin | 98  98  98  98  98  98  98  98 | Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable |
| Crucifers   1. fodder kale 2. fodder radish 3. swede | 98  97  98 | Not applicable  Not applicable  Not applicable |

**Maximum content of seeds of other plant species (Table 4)**

The seed has to meet the following standards or other conditions as regards the maximum content of seeds of other plant species

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Basic seed** | | CS, C1 and C2 seed  EC minimum standard level | | **CS seed HVS level** | |
|  | Total (percentage by weight) | A single species (content by number in a sample of the weight) | Total (percentage by weight) | A single species (percentage by weight) | Total (percentage by weight) | A single species (percentage by weight) |
| 1. Fine grasses |  |  |  |  |  |  |
| 1. Fine grasses other than—   Festolium  Red Fescue  Smooth-stalk meadowgrass | 0.3 | 20 | 2.0 | 1.0 | Not applicable | Not applicable |
| 1. Festulolium | 0.3 | 20 | 1.5 | 1.0 | 1.5 | Not applicable |
| **Species** | **Basic seed** | | CS, C1 and C2 seed  EC minimum standard level | | **CS seed HVS level** | |
|  | Total (percentage by weight) | A single species (content by number in a sample of the weight) | Total (percentage by weight) | A single species (percentage by weight) | Total (percentage by weight) | A single species (percentage by weight) |
| 1. Red fescue (inc. Chewing’s fescue) | 0.3 | 20 | 1.5 | 1.0 | 1.5 | 0.5 (note (b) and (m)) |
| 1. Smooth-stalked meadowgrass | 0.3 | 20 | 2.0 | 1.0 | 1.5 | 0.5 (note (e)) |
| 2. Fodder grasses |  | (note (a)) |  |  |  | (notes (f), (h) and (l)) |
| 1. Fodder grasses other than –   Alaska brome-grass  Rescue grass  Tall oatgrass | 0.3 | 20 | 1.5 | 1.0 | 1.5 | 0.5 |
| **Species** | **Basic seed** | | CS, C1 and C2 seed  EC minimum standard level | | **CS seed HVS level** | |
|  | Total (percentage by weight) | A single species (content by number in a sample of the weight) | Total (percentage by weight) | A single species (percentage by weight) | Total (percentage by weight) | A single species (percentage by weight) |
| 1. Alaska brome-grass and rescue grass | 0.4 | 20 | 1.5 | 1.0 | Not applicable | Not applicable |
| 1. Tall oatgrass | 0.3 | 20 | 3.0 | 1.0 (note (g)) | Not applicable | Not applicable |
| 3. Small seeded legumes |  |  |  |  |  |  |
| 1. Alsike clover, and trefoil, black medick | 0.3 | 20 | 1.5 | 1.0 | Not applicable | Not applicable |
| 1. Birdsfoot trefoil | 0.3 | 20 | 1.8 | 1.0 (note (i)) | Not applicable | Not applicable |
| **Species** | **Basic seed** | | CS, C1 and C2 seed  EC minimum standard level | | **CS seed HVS level** | |
|  | Total (percentage by weight) | A single species (content by number in a sample of the weight) | Total (percentage by weight) | A single species (percentage by weight) | Total (percentage by weight) | A single species (percentage by weight) |
| 1. Lucerne, red clover and white clover | 0.3 | 20 | 1.5 | 1.0 | 1.5 | 0.5 |
| 1. Sainfoin | 0.3 | 20 | 2.5 | 1.0 | 1.5 | 0.5 |
| 4. Large seeded legumes |  |  |  |  |  |  |
| 1. Large seeded legumes other than vetches | 0.3 | 20 | 0.5 | 0.3 (note (j)) | Not applicable | Not applicable |
| 1. Vetches | 0.3 | 20 | 1.0 | 0.5 (note (k)) | Not applicable | Not applicable |
| **Species** | **Basic seed** | | CS, C1 and C2 seed  EC minimum standard level | | **CS seed HVS level** | |
|  | Total (percentage by weight) | A single species (content by number in a sample of the weight) | Total (percentage by weight) | A single species (percentage by weight) | Total (percentage by weight) | A single species (percentage by weight) |
| 5. Crucifers | 0.3 | 20 | 1.0 | 0.5 | Not applicable | Not applicable |

**The following notes apply:**

|  |  |
| --- | --- |
| (a) | For basic seed of cocksfoot, festulolium, fine leaved sheep’s fescue, hard fescue, hybrid ryegrass, Italian ryegrass, meadow fescue, perennial ryegrass, red fescue (inc. Chewing’s fescue), sheep’s fescue, tall fescue and tall oatgrass, the maximum number of seeds of a single species must not exceed 20 in a sample of the weight specified for the sample search for other plant species. However a maximum total of 80 seeds of Poa spp. in a sample is not regarded as an impurity. |
| (b) | In the case of a sample of HVS level CS seed of red fescue, there must be no more than a total of 4 seeds of ryegrass, cocksfoot and meadow fescue in a sample of the weight specified for the sample to search for other plant species. |
| (c) | In the case of basic seed of annual meadowgrass, rough-stalked meadowgrass, smooth-stalked meadowgrass and wood meadowgrass, the maximum total content of seeds of Poa spp, other than the species being examined, must not exceed one in a sample of 500 seeds. |
| (d) | In the case of a sample of CS seed of annual meadowgrass, rough-stalked meadowgrass, smooth-stalked meadowgrass and wood meadowgrass, a maximum total of 0.8% by weight of seeds of other Poa spp in the sample is not regarded as an impurity. |
| (e) | In the case of a sample of HVS level CS seed of smooth-stalked meadowgrass, a maximum of 0.4% by weight of seed of other meadowgrasses is not regarded as an impurity. |
| (f) | In the case of a sample of HVS level CS seed of meadow fescue and tall fescue, there must be no more than –  (i) 0.3% by weight of rough-stalked meadowgrass, or  (ii) 0.3% by weight of ryegrass,  in the sample. |
| (g) | In the case of a sample of CS seed of tall oatgrass, the condition that the weight of a single plant species in the sample must not exceed 1.0% does not apply to seeds of Poa spp. |
| (h) | In the case of a sample of HVS level seed of hybrid ryegrass, Italian ryegrass and perennial ryegrass, there must be no more than –  (i) 0.4% by weight of annual meadowgrass, or  (ii) 0.3% by weight of rough-stalked meadowgrass,  in the sample. |
| (i) | In the case of a sample of CS seed of birdsfoot trefoil, a maximum total of 1% by weight of seeds of red clover in the sample is not regarded as an impurity. |
| (j) | In the case of a sample of C1 seed of a lupin, a maximum total of 0.5% by weight of seeds of field bean, field pea, or vetch seed or another species of lupin in the sample is not regarded as an impurity. |
| (k) | In the case of a sample of C1 seed of a vetch, a maximum total of 0.5% by weight of seeds of field bean, field pea or lupin seed or another species of vetch seed in the sample is not regarded as an impurity. |
| (l) | In the case of a sample of HVS level CS seed of small Timothy and Timothy, there must be no more than 0.3% by weight of Agrostis spp. in the sample. |
| (m) | In the case of a sample of HVS level CS seed of red fescue, there must be no more than 0.3% by weight of rough-stalked meadowgrass |

**Standards for *Rumex* spp. (docks and sorrels) (Table 5)**

The seed is required to meet the following standards with regard to the content of seeds of *Rumex* spp. (commonly known as docks and sorrels) other than *Rumex acetosella* (commonly known as sheep’s sorrel) and *Rumex maritimus* (commonly known as golden dock) –

|  |  |  |  |
| --- | --- | --- | --- |
| **Species** | **Maximum permitted by number in a sample (see Table 9)** | | |
|  | **Basic seed** | **CS, C1 and C2 seed**  EC minimum level | **CS seed**  HVS level |
| Fine grasses   1. Fine grasses other than –   annual meadowgrass;  festulolium;  fine leaved sheep’s fescue;  hard fescue;  red fescue (inc. Chewing’s fescue);  sheep’s fescue; and  smooth-stalked meadowgrass   1. annual meadowgrass 2. red fescue (inc. Chewing’s fescue) 3. fine leaved sheep’s fescue, hard fescue, sheep’s fescue and festulolium 4. smooth-stalked meadowgrass | 1  1  2  2  1 | 2  5  5  5  2 | Not applicable  Not applicable  5  Not applicable  2 |
| **Species** | **Maximum permitted by number in a sample (see Table 9)** | | |
|  | **Basic seed** | **CS, C1 and C2 seed**  EC minimum level | **CS seed**  HVS level |
| Fodder grasses   1. fodder grasses other than–   Alaska brome-grass  rescue grass  small Timothy  tall oatgrass  Timothy   1. Alaska brome-grass 2. rescue grass 3. small Timothy 4. tall oatgrass 5. Timothy | 2  5  5  2  2  2 | 5  10  10  5  5  5 | 5  Not applicable  Not applicable  4  Not applicable  4 |
| Small seeded legumes   1. Alsike clover 2. birdsfoot trefoil 3. lucerne 4. red clover | 3  3  3  5 | 10  10  10  10 | Not applicable  Not applicable  10  10 |
| **Species** | **Maximum permitted by number in a sample (see Table 9)** | | |
|  | **Basic seed** | **CS, C1 and C2 seed**  EC minimum level | **CS seed**  HVS level |
| 1. sainfoin 2. trefoil, black medick 3. white clover | 2  5  5 | 5  10  10 | 5  Not applicable  10 |
| Large seeded legumes | 2 | 5 | Not applicable |
| Crucifers   1. fodder kale 2. fodder radish and swede | 3  2 | 10  5 | Not applicable  Not applicable |

**Standards for *Alopecurus myosuroides* (blackgrass) and *Elytrigia repens* (couch) (Table 6)**

The seed is required to meet the following standards with regard to the content of seeds of *Alopecurus myosuroides* (commonly known as blackgrass and called “blackgrass” in the following table) and *Elytrigia repens* (commonly known as couch and called “couch” in the following table).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Basic seed**  Maximum content by number in a sample of the weight specified in table 9 | | CS seed EC minimum standard level  Maximum percentage by weight | | **CS seed HVS level**  Maximum content by number in a sample of the weight specified in table 9 | |
|  | Couch | Blackgrass | Couch | Blackgrass | Couch | Blackgrass |
| 1. Fine grasses –   1. fine grasses other than –   festulolium  fine leaved Sheep’s fescue  hard fescue  red fescue (inc. Chewing’s fescue)  sheep’s fescue  smooth-stalked meadowgrass | 1 | 1 | 0.3 | 0.3 | Not applicable | Not applicable |
| 1. festulolium 2. fine leaved Sheep’s fescue | 5  5 | 5  5 | 0.5  0.5 | 0.3  0.3 | 10  Not applicable | Not applicable  Not applicable |
| **Species** | **Basic seed**  Maximum content by number in a sample of the weight specified in table 9) | | CS seed EC minimum standard level  Maximum percentage by weight | | **CS seed HVS level**  Maximum content by number in a sample of the weight specified in table 9 | |
|  | Couch | Blackgrass | Couch | Blackgrass | Couch | Blackgrass |
| 1. hard fescue 2. red fescue (inc. Chewing’s fescue) 3. Sheep’s fescue | 5  5  5 | 5  5  5 | 0.5  0.5  0.5 | 0.3  0.3  0.3 | Not applicable    10  Not applicable | Not applicable  10  Not applicable |
| (g) smooth-stalked meadowgrass | 1 | 1 | 0.3 | 0.3 | 3 | 3 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Basic seed**  Maximum content by number in a sample of the weight specified in table 9 | | CS seed EC minimum standard level  Maximum percentage by weight | | **CS seed HVS level**  Maximum content by number in a sample of the weight specified in table 9 | |
|  | Couch | Blackgrass | Couch | Blackgrass | Couch | Blackgrass |
| 2. Fodder grasses |  |  |  |  |  |  |
| 1. Fodder grasses other than –   Alaska brome-grass  cocksfoot | 5 | 5 | 0.5 | 0.3 | 10 | 10 |
| rescue grass |  |  |  |  |  |  |
| small Timothy |  |  |  |  |  |  |
| tall oatgrass |  |  |  |  |  |  |
| Timothy |  |  |  |  |  |  |
| 1. Alaska brome-grass, rescue grass and tall oatgrass | 5 | 5 | 0.5 | 0.3 | Not applicable | Not applicable |
| 1. cocksfoot | 5 | 5 | 0.3 | 0.3 | 10 | 10 |
| 1. small Timothy and Timothy | 1 | 1 | 0.3 | 0.3 | 10 | 10 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Basic seed**  Maximum content by number in a sample of the weight specified in table 9 | | CS seed EC minimum standard level  Maximum percentage by weight | | **CS seed HVS level**  Maximum content by number in a sample of the weight specified in table 9 | |
|  | Couch | Blackgrass | Couch | Blackgrass | Couch | Blackgrass |
| 3. Small seeded legumes as follows –  Lucerne  red clover  sainfoin  white clover | Not applicable | Not applicable | Not applicable | Not applicable | 10 | 10 |

**Standards for *Melilotus* spp. (sweet clover) in seed of small and large seeded legumes**

The basic seed of small and large seeded legumes is required to be free from seeds of *Melilotus* spp. (commonly known as sweet clover), in a sample of seed of the weight specified. However, in the case of Alsike clover, birdsfoot trefoil, lucerne, red clover, trefoil, black medick and white clover, one seed of sweet clover in a sample of the specified weight is not regarded as an impurity where a second sample of twice that weight is free from any sweet clover seed.

In the case of CS, C1 and C2 seed of small and large seeded legumes, any sweet clover seed in a sample must not exceed 0.3% by weight.

**Standards for *Avena fatua*, *Avena sterilis* (includes seeds previously known as *Avena ludoviciana*) (commonly known as wild oats)**

The seed of all fodder plant species is required to be free from seeds of wild oats, in a sample of seed of the weight specified in Table 9. However, in the case of basic and CS seed of Alaska brome-grass, rescue grass and tall oatgrass, a maximum of 2 wild oat seeds in a sample of the weight specified in is not regarded as an impurity where a second sample of the same weight is free from any wild oat seeds.

**Standards for Cuscuta spp. (commonly known as dodder)**

The seed of all fodder plant species is required to be free from seeds of dodder in a sample of seed, except –

1. In the case of minimum level CS seed of fine grasses, fodder grasses, fodder kale and swede, the presence of one seed of dodder in a sample is not regarded as an impurity where a second sample of the same weight is free from any dodder seed.
2. In the case of minimum level CS seed of Alsike clover, birdsfoot trefoil, trefoil, black medick, lucerne, red clover and white clover, or C1 seed of Lucerne *Medicago sativa,* the presence of one seed of dodder is not regarded as an impurity where a second sample of the same weight is free from any dodder seed.

**Additional standards for lupins**

It is a requirement that the percentage by number of bitter lupins in a sample of seed of a sweet lupin variety must not exceed –

1. 1% in the case of basic seed; and
2. 2.5% in the case of C1 seed.

It is also a requirement that, in the case of C1 seed, the percentage by number of seeds of another colour in a sample of seed of a bitter lupin variety must not exceed 2%. In the case of C1 seed of lupins, other than bitter lupins, the percentage by number of seeds of another colour in a sample must not exceed 1%.

**Standards for *Raphanus raphanistrum* (commonly known as wild radish) or *Sinapis arvensis* (commonly known as charlock) in seed of crucifer (*Brassicaceae*) species.**

In the case of crucifers, the percentage by weight of wild radish or charlock in a sample of seed must not exceed 0.3%.

**Germination (Table 7)**

A germination test is required to establish whether seed meets the following minimum percentage germination:

|  |  |  |
| --- | --- | --- |
| **Column 1**  **Species**  **(all categories)** | **Column 2**  **Minimum germination**  **(% of pure seed)** | **Column 3**  **Maximum hard seed content**  **(% pure seed)** |
| 1. Fine grasses -   1. annual meadowgrass 2. brown top 3. creeping bent grass 4. festulolium 5. Fine leaved sheep’s fescue 6. hard fescue 7. red fescue (inc. Chewing’s fescue) 8. red top 9. rough-stalked meadowgrass 10. sheep’s fescue 11. smooth-stalked meadowgrass 12. velvet bent 13. wood meadowgrass | 75  75  75  75  75  75  75  80  75  75  75  75  75 | Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable |
| 2. Fodder grasses –   1. Alaska brome-grass 2. Cocksfoot 3. hybrid ryegrass 4. Italian ryegrass 5. meadow fescue 6. perennial ryegrass 7. rescue grass 8. small Timothy 9. tall fescue 10. tall oatgrass 11. Timothy   3. Small seeded legumes –   1. Alsike clover 2. birdsfoot trefoil 3. lucerne 4. red clover 5. sainfoin 6. trefoil, black medick 7. white clover | 75  80  75  75  80  80  75  80  80  75  80  80  75  80  80  75  80  80 | Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  Not applicable  20  40  40  20  20  20  40 |
| 4. Large seeded legumes –   1. blue lupin 2. common vetch 3. field bean 4. field pea 5. hairy vetch 6. Hungarian vetch 7. white lupin 8. yellow lupin | 75  85  80  80  85  85  80  80 | 20  20  5  Not applicable  20  20  20  20 |
| Crucifers –   1. fodder kale 2. fodder radish 3. swede | 75  80  80 | Not applicable  Not applicable  Not applicable |

In order to determine whether seed satisfies the applicable germination standard set out in column 2 of the above table—

1. any fresh and healthy seed which does not germinate after pre-treatment can be regarded as seed which has germinated; and
2. any hard seed present not exceeding the amount shown in column 3 of the table can be regarded as seed which is capable of germination.

**OTHER CONDITIONS**

**Harmful organisms**

It is also a condition that the seed shall be practically free from pests which reduce the usefulness and quality of the seed. . There are no tests prescribed for harmful organisms. However, persons entering seed for certification must confirm that this condition is met.

For the presence of Clavibacter michiganensis ssp. Insidiosus (bacterial Lucerne wilt) and Ditylenchus dipsaci (stem and bulb nematode) on Lucernce, the threshold is 0% for pre-basic, basic and CS seed.

Additional measures against Regulated Non-Quarantine Pests (RNPQ)

|  |  |  |
| --- | --- | --- |
| RNPQ | PRE-BASIC, BASIC AND CERTIFIED SEEDS OF… | ADDITIONAL MEASURES TO ENSURE RNQP REQUIREMENTS ARE MET |
| Clavibacter michiganensis ssp. insidiosus, | Lucerne | (a)the seeds originate in areas known to be free from Clavibacter michiganensis spp. insidiosus;  or  (b)the crop has been grown on land on which no previous Medicago sativa L. crop has been present during the last three years prior to sowing, and no symptoms of Clavibacter michiganensis ssp. insidiosus are observed during field inspection at the site of production or no symptoms of Clavibacter michiganensis ssp. insidiosus have been observed on any Medicago sativa L. crop adjacent to it, during the previous cropping;  or  (c)the crop belongs to a variety recognised as being highly resistant to Clavibacter michiganensis ssp. insidiosus and the content of inert matter shall not exceed 0,1 % by weight; |
| Ditylenchus dipsaci, | Lucernce | (a)no symptoms of Ditylenchus dipsaci have been observed at the site of production during the previous cropping and no main host crops have been grown during the two preceding years on the site of production and appropriate hygiene measures have been taken to prevent infestation of the place of production;  or  (b)no symptoms of Ditylenchus dipsaci have been observed at the site of production during the previous cropping and no Ditylenchus dipsaci has been found by laboratory tests on a representative sample;  or (c)  the seeds have been subjected to an appropriate physical or chemical treatment against Ditylenchus dipsaci and have been found to be free of this pest after laboratory tests on a representative sample. |

**GENERAL PROVISIONS**

**Pre-basic seed standards**

Pre-basic seed must meet the standards for Basic seed.

**Exceptions to the conditions prescribed for commercial seed of annual meadowgrass, Hungarian vetch and sainfoin (Table 8)**

Commercial seed of annual meadowgrass, Hungarian vetch and sainfoinis required to meet the conditions that apply to CS seed except:

1. The minimum analytical purity of Commercial Seed of Hungarian vetch is 97.0%.
2. Commercial seed has to conform to the standards prescribed in the following table as regards the maximum content of seeds of other plant species.

|  |  |  |
| --- | --- | --- |
| **Species** | **Total content of seed of other plant species**  (percentage by weight) | **A single species**  (percentage by weight) |
| Annual meadowgrass  Hungarian vetch  Sainfoin | 3.0  2.0  3.5 | 2.0  1.5  2.0 |

1. For Hungarian vetch, a maximum total of 6% by weight of other species of vetch seed is not regarded as an impurity.
2. For annual meadowgrass, a maximum total of 10% by weight of other species of meadowgrass is not regarded as an impurity.

**LOT AND SAMPLE WEIGHTS (Table 9)**

This table shows the maximum weight of a seed lot, the minimum weight of an official sample and the minimum weight of seed which must be examined to determine other seed content.

|  |  |  |  |
| --- | --- | --- | --- |
| **Species** | **Maximum weight of a lot** | **Minimum weight of a sample to be drawn from a lot** | **Weight of a sample for determining other seed content** |
|  | (tonnes) | (grams) | (grams) |
| 1. Fine grasses –   1. annual meadowgrass      1. brown top 2. creeping bent grass 3. festulolium 4. fine leaved sheep’s fescue 5. hard fescue 6. red fescue (inc. Chewing’s fescue) 7. red top 8. rough-stalked meadowgrass 9. sheep’s fescue 10. smooth-stalked meadowgrass 11. velvet bent 12. wood meadowgrass | 10\*  10\*  10\*  10\*  10\*  10\*  10\*  10\*  10\*  10\*  10\*  10\*  10 \* | 50  50  50  200  100  100  100  50  50  100  50  50  50 | 10  5  5  60  30  30  30  5  5  30  5  5  5 |
| 2. Fodder grasses -   1. Alaska brome-grass 2. Cocksfoot 3. hybrid ryegrass 4. Italian ryegrass 5. meadow fescue 6. perennial ryegrass 7. rescue grass 8. small Timothy 9. tall fescue 10. tall oatgrass 11. Timothy | 10\*  10\*  10\*  10\*  10\*  10\*  10\*  10\*  10\*  10\*  10\* | 200  100  200  200  100  200  200  50  100  200  50 | 200  30  60  60  50  60  200  10  50  80  10 |
| 3. Small seeded legumes –   1. Alsike clover 2. birdsfoot trefoil 3. lucerne 4. red clover 5. sainfoin – 6. fruit 7. seed 8. trefoil, black medick 9. white clover | 10  10  10  10  10  10  10  10 | 200  200  300  300  600  400  300  200 | 20  30  50  50  600  400  50  20 |
| 4. Large seeded legumes –   1. blue lupin 2. common vetch 3. field bean 4. field pea 5. hairy vetch 6. Hungarian vetch 7. white lupin 8. yellow lupin | 30  30  30  30  30  30  30  30 | 1,000  1,000  1,000  1,000  1,000  1,000  1,000  1,000 | 1,000  1,000  1,000  1,000  1,000  1,000  1,000  1,000 |
| 4. Crucifers –   1. fodder kale 2. fodder radish 3. swede | 10  10  10 | 200  300  200 | 100  300  100 |

1. The maximum weight of a lot may be exceeded by up to 5%.
2. These are the minimum sample weights specified in the directive. Where samples are drawn by licensed seed samplers, the minimum weight will normally be twice that shown, because of the need to provide for reserve portions. Details are given in Instructions to Licensed Seed Samplers.
3. The maximum weight of a seed lot of a mixture is 10 tonnes, except where more than 50% of the mixture consists of a species of seed for which the maximum weight of a seed lot is 30 tonnes, then the maximum lot weight is 30 tonnes. \*See also (d) below.
4. For fodder grass species (*Poaceae (Gramineae*)) a maximum seed lot weight of 25T may apply.

**To market at the higher (25T) lot weight you must have prior approval from the Department**.

**LIMITS OF VARIATION (Table 10)**

The limits of variation prescribed for civil liabilities are as follows.

|  |  |  |
| --- | --- | --- |
| **Germination** | | |
| Stated minimum percentage of germination | Limit of variation  % | |
| 99-100 | 2 | |
| 97-98 | 3 | |
| 94-96 | 4 | |
| 91-93 | 5 | |
| 87-90 | 6 | |
| 82-86 | 7 | |
| 76-81 | 8 | |
| 69-75 | 9 | |
| 65-68 | 10 | |
| Analytical purity - grasses | | |
| Stated minimum percentage of analytical purity (expressed to one decimal point) | | Limit of variation  % |
| 99.9 - 100 | | 0.2 |
| 99.7 -99.8 | | 0.4 |
| 99.5-99.6 | | 0.5 |
| 99.3-99.4 | | 0.6 |
| 99.0-99.2 | | 0.7 |
| 98.8-98.9 | | 0.8 |
| 98.3-98.7 | | 0.9 |
| 98.0-98.2 | | 1.0 |
| 97.5-97.9 | | 1.1 |
| 97.0-97.4 | | 1.2 |
| 96.5-96.9 | | 1.3 |
| 96.0-96.4 | | 1.4 |
| 95.0-95.9 | | 1.5 |
| 94.0-94.9 | | 1.6 |
| 93.0-93.9 | | 1.7 |
| 92.0-92.9 | | 1.9 |
| 91.0-91.9 | | 2.0 |
| 90.0-90.9 | | 2.1 |
| 88.0-89.9 | | 2.2 |
| 86.0-87.9 | | 2.4 |
| 84.0-85.9 | | 2.5 |
| 82.0-83.9 | | 2.6 |
| 80.0-81.9 | | 2.8 |

|  |  |
| --- | --- |
| Analytical purity – legumes and crucifers | |
| Stated minimum percentage of analytical purity (expressed to one decimal point) | Limit of variation  % |
| 99.9 - 100 | 0.2 |
| 99.8 | 0.3 |
| 99.6-99.7 | 0.4 |
| 99.3-99.5 | 0.5 |
| 99.0-99.2 | 0.6 |
| 98.5-98.9 | 0.7 |
| 98.3-98.4 | 0.8 |
| 97.5-98.2 | 0.9 |
| 97.0-97.4 | 1.0 |
| 96.5-96.9 | 1.1 |
| 95.5-96.4 | 1.2 |
| 95.0-95.4 | 1.3 |
| 94.0-94.9 | 1.4 |
| 93.0-93.9 | 1.5 |
| 92.0-92.9 | 1.6 |
| 91.0-91.9 | 1.7 |
| 90.0-90.9 | 1.8 |

|  |  |
| --- | --- |
| **Contents of seeds of other species in grasses** | |
| *Stated maximum percentage of seed of other species (expressed to one decimal point)* | *Limit of variation*  *%* |
| 0.0 | 0.2 |
| 0.1 | 0.3 |
| 0.2 | 0.4 |
| 0.3 – 0.4 | 0.5 |
| 0.5 – 0.6 | 0.6 |
| 0.7 – 0.9 | 0.7 |
| 1.0 – 1.2 | 0.8 |
| 1.3 – 1.7 | 0.9 |
| 1.8 – 1.9 | 1.0 |
| 2.0 – 2.4 | 1.1 |
| 2.5 – 2.9 | 1.2 |
| 3.0 – 3.4 | 1.3 |
| 3.5 – 3.9 | 1.4 |
| 4.0 – 4.9 | 1.5 |
| 5.0 | 1.6 |

|  |  |
| --- | --- |
| **Contents of seeds of other species or varieties in legumes and crucifers** | |
| *Stated maximum percentage of seeds of other species (expressed to one decimal place)* | *Limit of variation*  *Per cent* |
| 0.0 | 0.1 |
| 0.1 – 0.2 | 0.3 |
| 0.3 – 0.4 | 0.4 |
| 0.5 – 0.6 | 0.5 |
| 0.7 – 0.9 | 0.6 |
| 1.0 – 1.4 | 0.7 |
| 1.5 – 1.7 | 0.8 |
| 1.8 – 2.4 | 0.9 |
| 2.5 – 2.9 | 1.0 |
| 3.0 – 3.4 | 1.1 |
| 3.5 – 4.4 | 1.2 |
| 4.5 – 4.9 | 1.3 |
| 5.0 – 5.9 | 1.4 |
| 6.0 – 6.9 | 1.5 |
| 7.0 – 7.9 | 1.6 |
| 8.0 – 8.9 | 1.7 |
| 9.0 – 9.9 | 1.8 |
| 10.0 | 1.9 |

|  |  |
| --- | --- |
| **Number of seeds of other plant species** | |
| Stated maximum number of seeds of other species | Limit of variation  Number |
| 0 | 1 |
| 1 | 3 |
| 2 | 4 |
| 3 – 4  4 | 5 |
| 5 – 6 | 6 |
| 7 – 8 | 7 |
| 9 – 11 | 8 |
| 12 – 14 | 9 |
| 15 – 17 | 10 |
| 18 – 21 | 11 |
| 22 – 25 | 12 |
| 26 – 29 | 13 |
| 30 – 34 | 14 |
| 35 – 40 | 15 |
| 41 – 45 | 16 |
| 46 – 50 | 17 |
| 51 – 57 | 18 |
| 58 – 64 | 19 |
| 65 – 71 | 20 |
| 72 – 79 | 21 |
| 80 – 87 | 22 |
| 88 – 95 | 23 |
| 96 –100 | 24 |

**PROCEDURES FOR CERTIFICATION OF HYBRID SWEDE**

## 1. Introduction

Seed of hybrid swede varieties can be certified under The Seed Marketing Regulations. The procedures for certification and early multiplication have the same basis as conventional varieties, with additional requirements for parental lines following those for hybrid oilseed rape.

**2. Certification of a seed lot**

Seed lots are certified in the same way as conventional varieties.

#### 3. Control plots

Samples of all multiplication seed lots should be sent to OSTS for control plots. OSTS will acknowledge the receipt of samples of breeders’ seed. Samples are needed of:

1. The male sterile line (female line) - FM
2. Maintainer of the male sterile line - MT
3. Restorer/male pollinator - RE

#### Cert 5s should be annotated FM, MT or RE as appropriate to identify samples of parental lines of hybrid varieties.

The closing date for receipt of samples is **31 August.**

Control plots will be drilled in September and again in May/June, allowing both vegetative and flowering characters to be assessed. Male sterility will be assessed where appropriate.

**4. Crop entries**

Crop entries are made in the same way and to the same closing date as conventional varieties. The Cert2 forms should state ‘hybrid swede’ and be annotated FM, MT or RE as appropriate to identify parental lines in the same way as Cert5s.

#### 5. Crop inspection

Crops entered to produce pre-basic/basic seed, and all crops of varieties in early multiplication, are inspected by official inspectors. CS crops of listed varieties may be inspected by licensed inspectors. Full details are given in the crop inspection procedures.

Isolation distances for field grown crops are the same as for conventional varieties:

1. Crops entered to produce basic seed 400 metres
2. Crops entered to produce CS seed 200 metres

These isolation distances can be disregarded where seed is produced in glasshouses or polytunnels. They must be adequately sealed to protect against undesirable pollen and parent lines must be produced in separate glasshouses or polytunnels.

Crops will have a first inspection during late autumn and a second inspection during flowering. For CS crops, a final inspection is required to confirm removal of the pollinator.

The varietal purity standard for crops entered for basic seed is 99.7%. Any male fertile plants present in the male sterile crop are counted as varietal impurities. Male sterility is assessed during flowering.

For crops entered to produce CS seed, the varietal purity standard is 98.0% but this cannot be assessed directly in the seed crop. Instead, strips of the two parent lines are assessed against the standard for 99.7% standard for basic seed. Samples of CS seed may be grown in post-control plots as part of the 5% check carried out on final generation seed.

#### 6. Labelling of seed

Seed should be labelled in the same way as hybrid oilseed rape varieties.