

**UNITED KINGDOM NATIONAL LIST/ PLANT BREEDERS RIGHTS TECHNICAL
PROTOCOL FOR THE OFFICIAL EXAMINATION OF DISTINCTNESS, UNIFORMITY AND
STABILITY (DUS)**

FODDER KALE

(Brassica oleracea L.convar.acephala(DC.)Alef.var.medullosa Thell+Var viridis L.)

SECTION A - GENERAL INFORMATION.....	1
1. PURPOSE.....	1
2. SCOPE	1
3. RESPONSIBILITIES	1
4. NON COMPLIANCE WITH THE PROTOCOL.....	2
5. RESPONSIBILITY FOR GM RELEASES	2
6. PROCEDURES FOR GM VARIETIES	2
7. ASSOCIATED DOCUMENTS	3
SECTION B - APPLICATION REQUIREMENTS.....	4
1. PURPOSE.....	4
2. SCOPE	4
3. RESPONSIBILITIES	4
4. RECEIPT OF APPLICATIONS.....	4
5. RECEIPT OF SEED.....	4
6. SEED QUALITY REQUIREMENTS.....	4
7. SEED QUANTITY	4
8. LABELLING REQUIREMENTS, INCLUDING PROVISIONS FOR GM VARIETIES	5
SECTION C – GROWING TEST PROCEDURES.....	6
1. PURPOSE.....	6
2. SCOPE	6
3. RESPONSIBILITIES	6
4. REFERENCE VARIETIES.....	6
5. DESIGN OF TESTS.....	6
6. RECORDS AND RECORDING	7
7. COMMUNICATIONS WITH THE APPLICANT	7
SECTION D - SUMMARY OF DUS CHARACTERISTICS TO BE ASSESSED, METHOD OF ASSESSMENT AND STANDARDS APPLIED.....	8
1. PURPOSE.....	8
2. SCOPE	8
3. RESPONSIBILITIES	8
4. ORGANISATION.....	8
5. DUS CHARACTERISTICS TO BE ASSESSED	8

SECTION E - REFERENCE SEED STOCK MAINTENANCE AND VCU SEED STOCK AUTHENTICATION PROCEDURES	14
1. PURPOSE.....	14
2. SCOPE	14
3. RESPONSIBILITIES	14
4. PROCEDURES FOR REFERENCE SEED STOCK MAINTENANCE	14
5. PROCEDURES FOR VCU SEED STOCK AUTHENTICATION	14
6. PROCEDURES FOR THE INCLUSION OF NEW COMMON KNOWLEDGE VARIETIES INTO THE REFERENCE COLLECTION	15
7. RELEASE OF REFERENCE SAMPLES FOR AUTHORISED PURPOSES	15
SECTION F- PROCEDURES FOR ASSESSMENT OF NEW ADDITIONAL DUS CHARACTERS	16
1. PURPOSE.....	16
2. SCOPE	16
3. RESPONSIBILITIES	16
4. REFERENCE VARIETIES.....	16
5. PROCEDURES	16
SECTION G - PROCEDURES FOR DUS DECISIONS.....	17
1. PURPOSE.....	17
2. SCOPE	17
3. RESPONSIBILITIES	17
4. REFERENCE VARIETIES.....	17
5. DISTINCTNESS.....	17
6. UNIFORMITY	17
7. STABILITY	18
8. DUS REPORT AND VARIETY DESCRIPTION	18
APPENDIX 1.....	19
1. NATIONAL LISTING	19
2. PLANT BREEDERS RIGHTS.....	19

SECTION A - GENERAL INFORMATION**1 PURPOSE**

- 1.1 This Protocol sets out the procedures for conducting tests and assessments in relation to official examinations of DUS, maintenance of reference stocks and verification of VCU submissions of varieties of fodder kale entered for National List (NL) Trials and Plant Breeders' Rights (PBR).

2 SCOPE

- 2.1 These procedures apply to all varieties of fodder kale. Special procedures and responsibilities for Genetically Modified (GM) varieties are set out in Sections A5 and A6.
- 2.2 Except where specified in this protocol or authorised by APHA Varieties and Seeds, only National List candidates, Plant Breeders' Rights candidates, candidates for Foreign Authorities and the reference varieties may be incorporated in the DUS tests.

3 RESPONSIBILITIES

- 3.1 The growing tests and assessments in this protocol are carried out under the responsibility of the Secretary of State for Environment, Food and Rural Affairs, Scottish Ministers, the Welsh Ministers and the Minister for Agriculture and Rural Development in Northern Ireland (the National Authorities).
- 3.2 They are supervised, on behalf of the National Authorities, by officials of the Testing Authorities, that is the Animal and Plant Health Agency (APHA), the Scottish Government Agriculture and Rural Development Division (SGARD), the Department of Agriculture and Rural Development for Northern Ireland (DARDNI) and the Welsh Government (WG).
- 3.3 This protocol is authorised by the Plant Variety and Seeds Committee (PVSC). It cannot be amended without their approval. Requests and suggestions for amendment of the protocol should be put in writing to the Plant Variety Rights Office and Seeds Division, either directly or via the Test Centre.
- 3.4 The procedures are administered by:

Varieties and Seeds

Animal and Plant Health Agency

Eastbrook

Shaftesbury Road

Cambridge

CB2 8DR

Tel No 0300 060 0497

Fax No 0300 060 2115

3.5 Test Centre

The DUS growing tests and assessments in this protocol are co-ordinated and carried out by the:

Varieties and Seeds Group

NIAB

Huntingdon Road

Cambridge

CB3 0LE

Tel No 01223 342200

Fax No 01223 277602

3.6 The Test Centre is responsible for providing the appropriate facilities.

4 NON COMPLIANCE WITH THE PROTOCOL

4.1 Where the protocol uses the word “must” for any action then failure to carry out this action will result in non-compliance. Where non-compliance occurs or there are concerns regarding the validity of any data or tests this must be reported to APHA. Where this protocol uses the word “should” for any action this is the method to be followed unless there are clear reasons not to do so which can be justified by the Test Centre as technically sound.

5 RESPONSIBILITY FOR GM RELEASES

5.1 GM Release Consent Holders are responsible for GM releases. All parties involved in DUS work operating under a GM Release Consent must adhere to the instructions of the Release Consent Holder where necessary, to comply with the relevant consent conditions. Where DUS protocol non-compliance occurs, this must be reported to the consent holder and the Test Centre who will notify APHA.

6 PROCEDURES FOR GM VARIETIES

6.1 Applicants intending to enter GM candidates must consult APHA, well in advance of their application, about specific requirements under GM regulations.

6.2 The Test Centre must ensure that no test or trial sites are planted with GM candidates and/or varieties until APHA has given the specific clearances.

7 ASSOCIATED DOCUMENTS

7.1 The following documents are associated with this protocol:

Reference	Title
Fodder kale	United Kingdom National List Trials: Protocol and Procedures for Examining the Value for Cultivation and Use (VCU) of fodder kale
UPOV TG/1/3 19.4.2002	General introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonised Descriptions of New Varieties of Plants. 19.4.2002
UPOV TGP/8/1	Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability. 21.10.2010
UPOV TGP/9/1	Examining Distinctness. 11.4.2008
UPOV TGP/10/1	Examining Uniformity. 30.10.2008
UPOV TC/33/7	Combined Over-Combined Over-Years Criterion for Distinctness (COYD) and Uniformity (COYU). (Revision of document TC/30/4).
Commission Directive	Commission Directive of 2003/90/EC as amended setting out implementing measures for the purposes of Article 7 of Council Directive 2002/53/EC (13 June 2002) as regards the characteristics to be covered as a minimum by the examination and the minimum conditions for examining certain varieties of agricultural plant species.
Council Regulation EC No 2100/94	Council Regulation 2100/94/EC of 27 July 1994 on Community Plant Variety Rights.

SECTION B - APPLICATION REQUIREMENTS**1 PURPOSE**

- 1.1 The purpose of this section is to identify the specific requirements for National List and Plant Breeders' Rights applications.

2 SCOPE

- 2.1 These procedures apply to all applications.

3 RESPONSIBILITIES

- 3.1 The applicants are responsible for ensuring that these procedures are complied with.

4 RECEIPT OF APPLICATIONS

- 4.1 The latest date for receipt of applications for acceptance of a variety onto the National List or for Plant Breeders' Rights, which is set administratively by APHA, is 15 January. Applications received after this date may be considered for inclusion in the current year's tests and trials on a case by case basis.

- 4.2 The procedures for the submission of National List and Plant Breeders' Rights applications, technical questionnaires and for payment of administration fees are set out on the GOV website at <https://www.gov.uk/national-lists-of-agricultural-and-vegetable-crops>.

- 4.3 Applicants should notify APHA of special DUS characteristics which may require additional examinations. These claims should, in addition, be noted in the TQ accompanying the application.

5 RECEIPT OF SEED

- 5.1 The latest date for receipt of seed is 15 February and is set administratively by APHA. Seed submissions received after this date will normally be refused. Instructions for the delivery of seed will be made available to applicants by APHA.

6 SEED QUALITY REQUIREMENTS

- 6.1 The seed must satisfy the quality requirements for Basic Seed as laid down in Schedule 4 Part II of the Fodder Plant Seeds Regulations 2002 as amended and equivalent regulations made by Devolved Administrations.

- 6.2 The seed must not be chemically treated. Seed treatment, where appropriate, will be undertaken by the Test Centre. The chemicals applied and rates of application will be determined by the Test Centre.

7 SEED QUANTITY

- 7.1 Single seed submission for VCU and DUS of 600g. To be submitted only in Year 1 as a single sample for testing and storage as definitive stock.

- 7.2 Shortfall in Seed Quantities

Where sufficient seed is unavailable in the first instance a further stock should be supplied in the following year which will be authenticated against the original submission. An additional charge may be applied.

8 LABELLING REQUIREMENTS, INCLUDING PROVISIONS FOR GM VARIETIES

8.1 Applicants **must** clearly label their seed with the following information: -

- Applicant
- Breeder's Reference number or name
- Type of Seed (Combined submission of DUS and VCU)
- Quantity of seed
- Whether it is a parental line

8.2 All packages of GM material must be clearly labelled as "GMO" or "Genetically Modified Organism".

SECTION C – GROWING TEST PROCEDURES**1 PURPOSE**

- 1.1 The purpose of this section is to provide details of the procedures used in the growing tests for DUS analysis.

2 SCOPE

- 2.1 These procedures apply to all varieties of fodder kale.

3 RESPONSIBILITIES

- 3.1 The Test Centre is responsible for conducting these procedures.
- 3.2 The Test Centre will be responsible for ensuring that no material supplied to them is used for any other purpose than the conduct of these procedures or the release of reference samples for authorised purposes. (See Section E7)

4 REFERENCE VARIETIES

- 4.1 The principles governing the selection of reference varieties are set out in Appendix 1.
- 4.2 Seed of reference varieties will be supplied by the Test Centre.

5 DESIGN OF TESTS

- 5.1 The Test Centre is responsible for selecting a suitable site which should be on ground that has normally not had a Brassica crop in the previous five years but may be less where the risk is negligible.
- 5.2 The minimum duration of tests will normally be two similar growing periods but tests may be continued for a third season if required. Tests will be carried out under conditions ensuring normal growth. The size of the plots will be such that plants or parts of plants may be removed for measuring and counting without prejudice to the observations which must be made up to the end of the growing period.
- 5.3 Field husbandry should follow best local practice for all operations and particularly as regards cultivation, drilling, fertiliser and spray application, use of irrigation, and control of pests and diseases.
- 5.4 From information given in the Technical Questionnaire the candidate variety may be grown in a single spaced plant test and compared with other varieties. Fodder kale is not grouped according to any morphological or agronomic properties, therefore all varieties in the reference collection are grown with candidate varieties.
- 5.5 The tests are carried out using a randomised block design, with a plot of each variety present in every block as follows

No. of replicates	3
Plot size	3 rows, 10m long, 50cm apart
Distance between plots	no less than 50cm

Plant spacing within rows	30cm
Number of plants per plot	as above spacing allows but minimum of 20 per plot
Sowing method	drill and thin
Sowing date	normally early to mid May

- 5.6 At the end of the first recording year varieties in tests with possible distinctness problems are identified and in the second year of tests are sown in side-by-side comparison plots. At the end of the second year of tests candidate varieties that are still not distinct may be grown in additional side-by-side comparison plots for which an additional charge will be made to the applicant.

6 RECORDS AND RECORDING

- 6.1 All records and plot data should be in a form determined and validated by the Test Centre.
- 6.2 Characters, recording details and instructions are given in Section D. Any variant and abnormal plants or plants resulting from an adverse reaction to husbandry practice are recorded but excluded from the sample.
- 6.3 In the first recording year, characters, as indicated in Section D5.1, are measured on all varieties and the data analysed to assess uniformity of the candidate variety and to determine the most similar reference varieties. (For details see Section G).
- 6.4 In the second recording year, characters, as indicated in Section D5.1, are measured on all varieties and the data analysed and, together with those from the first year, used to assess distinctness and uniformity of the candidate variety. (For details see Section G).
- 6.5 In the third recording year, characters, as indicated in Section D5.1 are measured on all varieties and the data analysed and, together with those from the first and second year, used to assess distinctness and uniformity of the candidate variety. (For details see Section G).
- 6.6 If the Test Centre notices unusual or novel characters in candidate varieties a note may be made of these at any time and a photographic record made.

7 COMMUNICATIONS WITH THE APPLICANT

- 7.1 The Test Centre will notify the applicant or his agent of any DUS problems at the earliest practical opportunity through preliminary (1 year) and interim (2 year) reports. All such notifications must be copied to APHA.
- 7.2 If confidentiality considerations allow, the applicant should be informed which variety is similar to his own and be invited to submit any information which may help to distinguish them.
- 7.3 If DUS problems arise, applicants will be invited to visit the DUS tests by arrangement so that the material can be examined and discussions held with the Test Centre.
- 7.4 After each recording season the results are summarised and reported to the applicant and APHA by the Test Centre.

SECTION D - SUMMARY OF DUS CHARACTERISTICS TO BE ASSESSED, METHOD OF ASSESSMENT AND STANDARDS APPLIED

1 PURPOSE

1.1 The purpose of this section is to summarise the characteristics to be assessed.

2 SCOPE

2.1 This section summarises characteristics, states of expression, method of observation and standards required for DUS assessment.

3 RESPONSIBILITIES

3.1 The Test Centre is responsible for co-ordinating the procedures in this summary.

4 ORGANISATION

4.1 The minimum duration of tests to assess characteristics should normally be three growing periods although varieties may be determined DUS after two years of tests. Shorter periods may be applied for assessment of additional characteristics. Additional growing periods may be approved by the UK National List and Seeds Committee.

5 DUS CHARACTERISTICS TO BE ASSESSED

5.1 Routine Characteristics

The following table summarises the DUS characteristics to be routinely examined. There are currently no UPOV or CPVO technical protocols for fodder kale.

G denotes a grouping characteristic

D denotes a characteristic used in the variety description

UK	Character	Material examined	Number of plants or sample size for assessment	Method of assessment and recording	States of expression	D Method and Minimum distance required UPOV TC33/7	U Method UPOV TC 33/7
1	Petiole length	DUS plot	60	Measured (mm)	1=very short 3=short 5=medium 7=long 9=very long	2 @ 5%	Visual test and F3 statistic
2	Leaf blade length	DUS plot	60	Measured (mm)	1=very short 3=short 5=medium 7=long 9=very long	2 @ 5%	Visual test and F3 statistic
3	Leaf blade width	DUS plot	60	Measured (mm)	1=very short 3=short 5=medium 7=long 9=very long	2 @ 5%	Visual test and F3 statistic
4	Leaf lobing	DUS plot	60	Visually scored	1=none 9=many	2 @ 5%	Visual test and F3 statistic
5	Leaf serration	DUS plot	60	Visually scored	1=none 9=much	2 @ 5%	Visual test and F3 statistic

UK	Character	Material examined	Number of plants or sample size for assessment	Method of assessment and recording	States of expression	D Method and Minimum distance required UPOV TC33/7	U Method UPOV TC 33/7
6	Leaf waving	DUS plot	60	Visually scored	1=none 9=much	2 @ 5%	Visual test and F3 statistic
7	Leaf wax	DUS plot	60	Visually scored	1=none 9=much	2 @ 5%	Visual test and F3 statistic
8	Leaf blisters	DUS plot	60	Visually scored	1=none 9=much	2 @ 5%	Visual test and F3 statistic
9	Petiole wing	DUS plot	60	Visually scored	1=none 9-full length of petiole to lamina	2 @ 5%	Visual test and F3 statistic
10	Stem height	DUS plot	60	Measured (cm)	1=very short 3=short 5=medium 7=tall 9=very tall	2 @ 5%	Visual test and F3 statistic
11	Stem diameter	DUS plot	60	Measured (cm)	1=very narrow 3=narrow 5=medium 7=wide 9=very wide	2 @ 5%	Visual test and F3 statistic
12	Stem height/ stem diameter ratio	DUS plot	60	Calculated	1=very small 9=very large	2 @ 5%	Visual test and F3 statistic
UK	Character	Material examined	Number of plants or sample size for	Method of assessment and recording	States of expression	D Method and Minimum	U Method

			assessment			distance required UPOV TC33/7	UPOV TC 33/7
13	Leaf blade length/ leaf blade width ratio	DUS plot	60	Calculated	1=very small 9=very large	2 @ 5%	Visual test and F3 statistic
14	Petiole length/ leaf blade width ratio	DUS plot	60	Calculated	1=very small 9=very large	2 @ 5%	Visual test and F3 statistic
15	Total leaf length	DUS plot	60	Calculated	1=very short 3=short 5=medium 7=long 9=very long	2 @ 5%	Visual test and F3 statistic
30	Leaf colour	DUS plot	60	Visually scored	1=light green 9=dark green	2 @ 5%	Visual test and F3 statistic
31	Leaf anthocyanin	DUS plot	60	Visually scored	1=none 9=deep colour	2 @ 5%	Visual test and F3 statistic
32	Petiole habit	DUS plot	60	Visually scored	1=prostrate 9=erect	2 @ 5%	Visual test and F3 statistic
33	Number of leaf scars	DUS plot	60	Visually scored	1=few 9=many	2 @ 5%	Visual test and F3 statistic

UK	Character	Material examined	Number of plants or sample size for assessment	Method of assessment and recording	States of expression	D Method and Minimum distance required UPOV TC33/7	U Method UPOV TC 33/7
34	Leaf scar prominence	DUS plot	60	Visually scored	1=flush 9=prominent	2 @ 5%	Visual test and F3 statistic
35	Internode length	DUS plot	60	Visually scored	1=short 9=long	2 @ 5%	Visual test and F3 statistic
36	Stem shape	DUS plot	60	Visually scored	1=round 9=angular	2 @ 5%	Visual test and F3 statistic
37	Stem colour	DUS plot	60	Visually scored	1=light green 9=dark green	2 @ 5%	Visual test and F3 statistic
38	Stem anthocyanin	DUS plot	60	Visually scored	1=absent 9=deep colour	2 @ 5%	Visual test and F3 statistic
39	Stem branching	DUS plot	60	Visually scored	1=absent 9=profuse	2 @ 5%	Visual test and F3 statistic
40	Stem appearance	DUS plot	60	Visually scored	1=smooth 9=ridged	2 @ 5%	Visual test and F3 statistic

The following table summarises the additional flowering characteristics which have been approved by the NLSC and can be examined at the request of the applicant where necessary to establish Distinctness. A fee may be charged for examination of these characteristics as advised by APHA.

UK	Character	Material examined	Number of plants or sample size for assessment	Method of assessment and recording	States of expression	D Method and Minimum distance required UPOV TC33/7	U Method UPOV TC 33/7
94	Days to 10% flowering from 1 January	DUS plot	60	Number of days	1=very early 9=very late	2 @ 5%	Visual test and F3 statistic
95	Days to 50% flowering from 1 January	DUS plot	60	Number of days	1=very early 9=very late	2 @ 5%	Visual test and F3 statistic
50	Height at flowering	DUS plot	60	Measurement (cm)	1=very short 9=very tall	2 @ 5%	Visual test and F3 statistic
65	Flower colour	DUS plot	60	Visually scored	1=light yellow 9=dark yellow	2 @ 5%	Visual test and F3 statistic
66	Flower petal length	DUS plot	60	Measurement (mm)	1=very short 3=short 5=medium 7=long 9=very long	2 @ 5%	Visual test and F3 statistic
67	Flower petal width	DUS plot	60	Measurement	1=very short 3=short 5=medium 7=long 9=very long	2 @ 5%	Visual test and F3 statistic

SECTION E - REFERENCE SEED STOCK MAINTENANCE AND VCU SEED STOCK AUTHENTICATION PROCEDURES**1 PURPOSE**

- 1.1. This section sets out the procedures for reference seed stock maintenance and VCU seed stock authentication.

2 SCOPE

- 2.1 These procedures apply to all reference collection varieties and VCU seed submissions where the VCU seed has not been taken from the same bulk as the seed used for the DUS test.

3 RESPONSIBILITIES

- 3.1 The Test Centre is responsible for conducting these procedures.

4 PROCEDURES FOR REFERENCE SEED STOCK MAINTENANCE

- 4.1 The seed sample submitted with the successful or pending application is considered to be the definitive stock of the variety. Subject to meeting the required quality standards a small portion of the seed is sown for observations and measurements. The remainder is dried and stored under controlled and monitored refrigerated conditions as part of the official reference collection.
- 4.2 If during the normal tests there is any evidence that a seed stock is deteriorating in storage, or that stocks are under 100 grams, a request should be made to the maintainer asking for a replacement stock (500g) of the variety. This replacement stock must be authenticated against the definitive reference sample.
- 4.3 Plots will be established from any replacement reference seed sample to be authenticated and compared visually with the definitive seed over a maximum of two recording seasons. Plots must be examined through all the growth stages from early habit to full harvest ripeness. If the new seed sample cannot be visually distinguished from the reference seed it will be accepted as representing the variety. It will then be considered as the definitive seed and substituted for the existing definitive seed in the reference collection.
- 4.4 In the event of the replacement sample not meeting the required acceptance standards, an additional replacement sample is requested. Plots will be established from any additional replacement seed sample and compared over a maximum of two recording seasons. If the additional replacement sample does not meet the acceptance criteria set out in 4.3, the variety will be deleted from the reference collection.

5 PROCEDURES FOR VCU SEED STOCK AUTHENTICATION

- 5.1 Evidence will be requested from the breeder of the relationship between the VCU seed sample and the definitive DUS seed sample. Plots will be established from any VCU seed sample to be authenticated and compared visually with the definitive stock over the recording season.
- 5.2 The plots must be examined from establishment, through flowering to maturity.

- 5.3 If the new seed sample cannot be visually distinguished from the reference stock it will be accepted as representing the variety
- 5.4 If the VCU seed sample can be visually distinguishable from the definitive stock in the authentication plots then it will not be accepted as representing the candidate variety.

6 PROCEDURES FOR THE INCLUSION OF NEW COMMON KNOWLEDGE VARIETIES INTO THE REFERENCE COLLECTION

- 6.1 When a new variety enters into common knowledge such that it must be included in the reference collection, a request will be sent by the Test Centre to the Testing Authority which has added this variety to its National List for the supply of at least 50g of seed of the definitive sample. This seed will then be used to validate a larger sample (500g) of seed from the breeder. The standards for this validation will be as for VCU seed stock authentication (see E5).

7 RELEASE OF REFERENCE SAMPLES FOR AUTHORISED PURPOSES

- 7.1 A maximum of 50g of seed of reference samples can be supplied by the Test Centre, on request, to UK, EU and UPOV DUS Testing Authorities and UK, EU and OECD Seed Certification Agencies, provided the recipient is notified in writing that this material, or any material derived from it, must not be supplied to a Third party or used for any other purpose than as a reference for official DUS testing or seed certification.
- 7.2 Provision of reference samples, other than in 7.1, to any other parties must be authorised by APHA.

SECTION F- PROCEDURES FOR ASSESSMENT OF NEW ADDITIONAL DUS CHARACTERS

1 PURPOSE

- 1.1 This Section sets out the procedures for assessment of new additional DUS characters for varieties of fodder kale entered for National List trials and PBR.

2 SCOPE

- 2.1 These procedures apply to applications where new additional DUS characteristics which have not been approved by the NLSC are requested for use for determinations of DUS.

3 RESPONSIBILITIES

- 3.1 The Test Centre is responsible for liaising with the applicant to produce a proposed procedure for the conduct of new tests. This procedure must ensure that Distinctness, Uniformity and Stability will be assessed.
- 3.2 All new additional characteristics must be authorised by the National List and Seeds Committee.

4 REFERENCE VARIETIES

- 4.1 The reference varieties will include only those varieties from which the candidate variety is not distinct, as well as other appropriate varieties for control purposes.
- 4.2 Seed of reference varieties will be supplied by the Test Centre.

5 PROCEDURES

- 5.1 Details of the proposed special test or assessments will be submitted to the NLSC to consider the feasibility of setting up a test acceptable to the UK Authorities. The applicant will be advised by APHA of arrangements and costs.
- 5.2 The NLSC will consider the results of the commissioned test or trial when reaching its recommendation on the granting of Plant Breeders' Rights and/or National Listing.
- 5.3 Where the test for a character is approved by the NLSC it should be subsequently listed in Section D5.1 or 5.2 as appropriate.

SECTION G - PROCEDURES FOR DUS DECISIONS**1 PURPOSE**

- 1.1 This section sets out the procedures for assessing DUS decisions on varieties of fodder kale.

2 SCOPE

- 2.1 These procedures apply to all varieties of fodder kale entered for National List and Plant Breeders' Rights tests and those being tested for Foreign Authorities.

3 RESPONSIBILITIES

- 3.1 The Test Centre is responsible for applying the criteria for DUS, set out in this procedure.
- 3.2 The Test Centre is responsible for producing the DUS reports in accordance with these procedures and for ensuring that they are in accordance with the UPOV Guidelines.

4 REFERENCE VARIETIES

- 4.1 Appendix I sets out which varieties are considered as reference varieties for these procedures.
- 4.2 All reference collection varieties are grown each year and compared to varieties in test.

5 DISTINCTNESS

- 5.1 The standard applied for distinctness over two years of test is a clear and consistent difference between the candidate variety and each of the reference varieties in at least one character. This difference must be repeated in the same direction in 2 years out of 2 at a significance level of $P=0.05$, or repeated in the same direction in 2 years out of 3 at a significance level of $P=0.05$, with a non-significant difference in either direction in the other year.
- 5.2 The standard applied over three years of test is as described in 5.1.
- 5.3 Where varieties are grown in close proximity under the same conditions, and a direct comparison can be made, distinctness can be determined on the basis of visual observation. Characters are recorded using the notes to represent states of expression (see Section D). In these circumstances the basis for distinctness will be clearly recorded.

6 UNIFORMITY

- 6.1 Uniformity is assessed for all characteristics used to establish Distinctness.
- 6.2 6.2 Any variant plants (off-types) are identified by visual assessment in the field and are marked for a decision on omission for recording depending upon incidence across replicates. Care is taken to ensure that the plants that are counted are not the result of any non-genetic factors such as environment, pest or disease or husbandry. The number of variants should not normally exceed 3%.

6.3 After the variants have been excluded, the characteristics listed in Section D5 are used to assess the uniformity of the remaining plants.

7 STABILITY

7.1 A variety is considered sufficiently stable when there is no evidence to indicate that it lacks stability indicated by a significantly high F3 or fails to conform to the essential characteristics of its description in different submissions or in different tests.

8 DUS REPORT AND VARIETY DESCRIPTION

8.1 Upon completion of the DUS examination the DUS Summary report will be submitted to APHA by the specified date. This report will specify all non-routine characteristics for establishing distinctness.

8.2 The final DUS report, including the full variety description, will be submitted to APHA by the specified date. The characteristics to be used in the description are identified in Section D.

APPENDIX 1.**REFERENCE COLLECTION VARIETIES****1 NATIONAL LISTING**

- 1.1 The DUS reference collection, for NL purposes, for any given category of plant variety comprises the following at the time when the application for the candidate is made:
- 1.1.1 All other candidate varieties already in DUS test in the UK, or entering testing at the same time as the candidate, including those being tested for other Member States.
- 1.1.2 All varieties on the UK National List and varieties on the EC Common Catalogue whose seed is known to be certified or marketed in the UK.
- 1.1.3 Varieties nominated by the authorities concerned where tests are done for other Member States.
- 1.1.1.4 Any varieties nominated by the applicant as being comparable i.e. known to be similar.
- 1.1.1.5 Any other varieties considered to be comparable i.e. known to be similar by the appropriate Test Centre or DUS Centre Group.

2 PLANT BREEDERS RIGHTS

- 2.1 The DUS reference collection, for PBR purposes, for any given category of plant variety comprises the following at the time when the application for the candidate is made:
- 2.2 All other candidate varieties already in DUS tests in the UK, or entering DUS testing at the same time as the candidate, including those being tested for other Member States or the Community Plant Variety office (CPVO).
- 2.3 Varieties protected in the UK, EC or in a UPOV Member State, which are known to be similar to the candidate variety.
- 2.4 Other available comparable varieties in common knowledge.