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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

GROUNDNUT

UPOV Code: ARACH_HYP

Arachis hypogaea L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from South Africa

to be considered by the

Enlarged Editorial Committee at its meeting
to be held in Geneva, on January 8 and 9, 2014

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Arachis hypogaea L.	Groundnut, Peanut	Arachide	Erdnuß	Cacahuete, Maní

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Arachis hypogaea* L..

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of seed.

2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

1,000 seeds.

The seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority.

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 Number of Growing Cycles

The minimum duration of tests should normally be a single growing cycle.

3.2 Testing Place

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 “Examining Distinctness”.

3.3 Conditions for Conducting the Examination

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

3.3.2 The optimum stage of development for the assessment of each characteristic is indicated by a number in the second column of the Table of Characteristics. The stages of development denoted by each number are described in Chapter 8.2.

3.3.3 Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within the tolerances set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background. The color chart and version used should be specified in the variety description.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 60 plants, which should be divided between at least 2 replicates.

3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 Additional Tests

Additional tests, for examining relevant characteristics, may be established.

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

Further guidance is provided in documents TGP/9 “Examining Distinctness” and TGP/8 “Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability”.

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.1.4 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 20 plants or parts taken from each of 20 plants and any other observations made on all plants in the test, disregarding any off-type plants. In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 1.

4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the second column of the Table of Characteristics (see document TGP/9 “Examining Distinctness”, Section 4 “Observation of characteristics”):

MG: single measurement of a group of plants or parts of plants
MS: measurement of a number of individual plants or parts of plants
VG: visual assessment by a single observation of a group of plants or parts of plants
VS: visual assessment by observation of individual plants or parts of plants

Type of observation: visual (V) or measurement (M)

“Visual” observation (V) is an observation made on the basis of the expert’s judgment. For the purposes of this document, “visual” observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side

comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, "G" provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

4.2 Uniformity

4.2.1 It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.2.2 Uniformity assessment by off-types (characteristics observed on different sample sizes)

In cases where samples of different sizes are used for the assessment of uniformity of different characteristics, guidance should be given for all sample sizes. In such cases, the relevant sample size for each characteristic should be indicated in the Table of Characteristics.

4.2.2.1 Uniformity assessment on all plants in the test

For the assessment of uniformity in a sample of 60 plants, a population standard of 1% and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 60 plants, 2 off-types are allowed.

4.3 Stability

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be further examined by testing a new seed stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

(a) Plant: growth habit (characteristic 1)
(b) Primary branch: flowering pattern (characteristic 9)
(c) Pod: number of kernels (characteristic 12)
(d) Kernel: main color of testa (characteristic 13)
(e) Kernel: presence of secondary color of mature testa (characteristic 14)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 “Examining Distinctness”.

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 States of Expression and Corresponding Notes

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.2.2 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

State	Note
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

State	Note
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 “Development of Test Guidelines”.

6.3 Types of Expression

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 Example Varieties

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

6.5 Legend

(*)	Asterisked characteristic	– see Chapter 6.1.2
QL	Qualitative characteristic	– see Chapter 6.3
QN	Quantitative characteristic	– see Chapter 6.3
PQ	Pseudo-qualitative characteristic	– see Chapter 6.3
MG, MS, VG, VS		– see Chapter 4.1.5

(a) See Explanations on the Table of Characteristics in Chapter 8.1.

(+) See Explanations on the Table of Characteristics in Chapter 8.2.

7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. (*)	**61-69 VG**	**Plant: growth habit**	**Plante : port**	**Pflanze: Wuchsform**	**Planta: hábito de crecimiento**		
QN		erect	dressé	aufrecht	erguido	Tufa	1
		semi-erect	demi-dressé	halbaufrecht	semierguido	Sellie	2
		prostrate	étalé	liegend	postrado	Inkanyezi	3
2. (+)	**61-69 VG**	**Plant: density**	**Plante : densité**	**Pflanze: Dichte**	**Planta: densidad**		
QN		sparse	clairsemée	locker	laxa	Mwenje	1
		medium	moyenne	mittel	media	Nyanda	2
		dense	dense	dicht	densa	ARC- Oleic2	3
3. (*)	**61-69 VG**	**Stem: anthocyanin coloration**	**Tige : pigmentation anthocyanique**	**Trieb: Anthocyanfärbung**	**Tallo: pigmentación antociánica**		
QN		absent or weak	absente ou faible	fehlend oder schwach	ausente o débil	Harts, Kwarts	1
		medium	moyenne	mittel	media	Sellie	2
		strong	forte	stark	fuerte	Kanosel	3
4. (*) (+)	**61-69 VG**	**Main stem: presence of flowers**	**Tige principale : présence de fleurs**	**Hauptsproß: Vorhandensein von Blüten**	**Tallo principal: presencia de flores**		
QL		absent	absentes	fehlend	ausentes		1
		present	présentes	vorhanden	presentes	Akwa	9
5.	**65-69 VG**	**Leaf: intensity of green color**	**Feuille : intensité de la couleur verte**	**Blatt: Intensität der Grünfärbung**	**Hoja: intensidad del color verde**		
QN	**(a)**	light	claire	hell	claro	ARC-Opal1	1
		medium	moyenne	mittel	medio	ARC-Oleic2	2
		dark	foncée	dunkel	oscuro		3
6. (*) (+)	**65-69 VG/ MG**	**Basal leaflet: length**	**Foliole de base : longueur**	**Basales Fiederblatt: Länge**	**Foliolo basal: longitud**		
QN	**(a)**	short	courte	kurz	corto	Sellie	1
		medium	moyenne	mittel	medio	Tufa	2
		long	longue	lang	largo	ARC-Opal1	3
7. (*) (+)	**65-69 VG**	**Basal leaflet: position of broadest part**	**Foliole de base : position de la partie la plus large**	**Basales Fiederblatt: Position des breitesten Teils**	**Foliolo basal: posición de la parte más ancha**		
QN	**(a)**	strongly towards apex	fortement vers le sommet	stark zur Spitze hin	fuertemente hacia el ápice	ARC-Oleic2	1
		moderately towards apex	modérément vers le sommet	mäßig zur Spitze hin	moderadamente hacia el ápice		2
		at middle	au milieu	in der Mitte	en la mitad	ARC-Opal1	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
8. (*) (+)	**65-69 VG**	**Basal leaflet: shape of apex**	**Foliole de base : forme du sommet**	**Basales Fiederblatt: Form der Spitze**	**Foliolo basal: forma del ápice**		
PQ	**(a)**	narrow pointed	en pointe étroite	schmal zugespitzt	de punta estrecha	ARC-Opal1, Kwarts	1
		broad pointed	en pointe large	breit zugespitzt	de punta ancha	Akwa	2
		rounded	arrondie	abgerundet	redondeado	ARC-Oleic2	3
		retuse	échancrée	eingedrückt	retuso	Tamrun 96	4
9. (*) (+)	**61-69 VG**	**Primary branch: flowering pattern**	**Branche principale : type de floraison**	**Primärast: Anordnung der Blüten**	**Rama primaria: pauta de floración**		
QL		alternate	alternée	abwechselnd	alterna	ARC-Opal1	1
		sequential	séquentielle	sequentiell	secuencial	Akwa, ARC-Oleic2	2
10. (*) (+)	**88-89 VG**	**Pod: constrictions**	**Coque : étranglement**	**Hülse: Einschnürung**	**Vaina: estrangulamientos**		
QN		absent or very weak	absent ou très faible	fehlend oder sehr gering	ausentes o muy débiles		1
		weak	faible	gering	débiles	ARC-Oleic2	2
		medium	moyen	mittel	medios	ARC-Opal1	3
		strong	fort	stark	fuertes	Inkanyezi	4
		very strong	très fort	sehr stark	muy fuertes		5
11. (*) (+)	**99 VG**	**Pod: reticulation of surface**	**Coque : réticulation de la surface**	**Hülse: Netzmuster auf Oberfläche**	**Vaina: reticulado de la superficie**		
QN		weak	faible	schwach	débil		1
		medium	moyenne	mittel	medio	ARC-Oleic2	2
		strong	forte	stark	fuerte		3
12. (*) (+)	**99 VG**	**Pod: number of kernels**	**Coque : nombre de graines**	**Hülse: Anzahl Samen**	**Vaina: número de semillas**		
QL		two	deux	zwei	dos	Akwa	1
		three or more	trois ou plus	drei oder mehr	tres o más	Kanosel	2
13. (*) (+)	**VG**	**Kernel: main color of testa**	**Graine : couleur principale du tégument**	**Samen: Hauptfarbe der Samenschale**	**Semilla: color principal de la testa**		
PQ		white	blanc	weiss	blanco	White Kayabi	1
		brownish pink	rose brunâtre	bräunlichrosa	rosa amarronado	Akwa, Kwarts	2
		red	rouge	rot	rojo	Harts, Kanosel	3
		purple	pourpre	purpurn	púrpura	Kurorakkasel	4
14. (*) (+)	**VG**	**Kernel: presence of secondary color of mature testa**	**Graine : présence d'une couleur secondaire sur le tégument mûr**	**Samen: Vorhandensein von Sekundärfarbe der reifen Samenschale**	**Semilla: presencia de color secundario en la testa madura**		
QL		absent	absente	fehlend	ausente	Akwa, Kwarts	1
		present	présente	vorhanden	presente	Shimahikari	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
15. (*)	**99 MG**	**Kernel: weight**	**Graine : poids**	**Samen: Gewicht**	**Semilla: peso**		
QN		small	faible	gering	pequeño	Tufa	1
		medium	moyen	mittel	medio	Kanosel	2
		large	élevé	hoch	grande	Rambo	3
16.	**99 VG**	**Shell: thickness**	**Coque : épaisseur**	**Schale: Dicke**	**Cáscara: espesor**		
QN		thin	fine	dünn	delgada		1
		medium	moyenne	mittel	media	Kanosel	2
		thick	épaisse	dick	gruesa	Rambo	3
17.	**MG**	**Time of maturity**	**Époque de maturité**	**Zeitpunkt der Reife**	**Época de madurez**		
(+)							
QN		early	précoce	früh	temprana		3
		medium	moyenne	mittel	media		5
		late	tardive	spät	tardía		7

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

Characteristics containing the following key in the second column of the Table of Characteristics should be examined as indicated below:

(a) Observations on the basal leaflet should be made on a fully developed basal leaflet.

8.2 Explanations for individual characteristics

Ad. 2: Plant: density

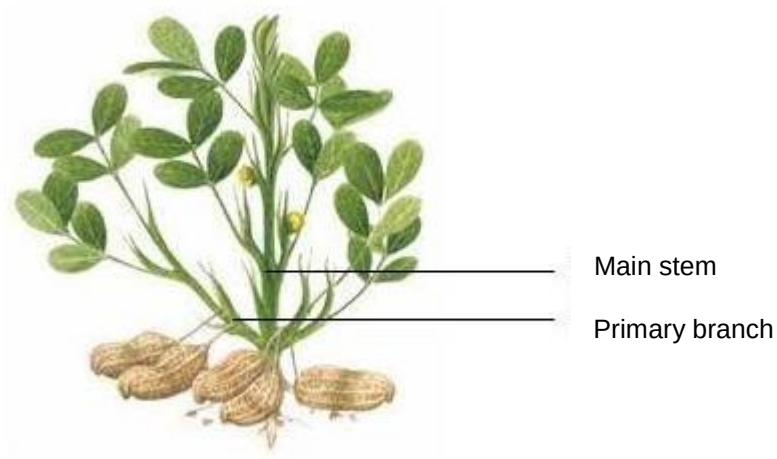
Plant density is a combination of the amount of branching and the number of leaves.

1
sparse

2
medium

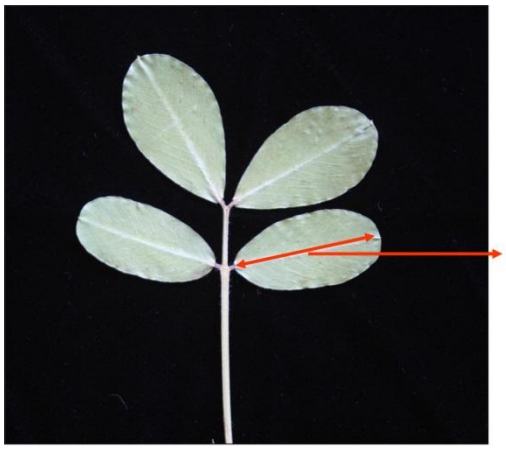
3
dense

Ad. 4: Main stem: presence of flowers
Ad. 9: Primary branch: flowering pattern



alternate (1): nodes with flowers alternating with nodes without flowers
sequential (2): flowers on every node

Ad 6: Basal leaflet: length



Ad 7: Basal leaflet: position of broadest part

1
strongly towards apex

2
moderately towards apex

3
at middle

Ad. 8: Basal leaflet: shape of apex

1
narrow pointed

2
broad pointed

3
rounded

4
retuse

Ad. 10: Pod: constrictions

1
absent or very weak

2
weak

3
medium

4
strong

5
very strong

Ad. 11: Pod: reticulation of surface

A pattern or arrangement of interlacing lines resembling a net on the surface of the pod. The degree of reticulation correlates with the depth of the pattern.

1
weak

2
medium

3
strong

Ad. 12: Pod: number of kernels

Varieties with two kernels may occasionally present one or three kernels.

Ad. 13: Kernel: main color of testa

The main color is the color with the largest surface area. In cases where the areas of the main and secondary color are too similar to reliably decide which color has the largest area, the darkest color is considered to be the main color.

Observations should be made on the mature testa.

Ad. 14: Kernel: presence of secondary color of mature testa

Observations should be made on the mature testa, two weeks after harvesting.

Ad. 15: Kernel: weight

Observations should be made on 100 seeds with moisture content at 7%.

Ad. 17: Time of maturity

The time of maturity is when 50% of plants have reached growth stage 85.

Ad. 18: Shell: thickness

Observations should be made 2 weeks after harvesting.

8.3 Growth Stages

Characteristics containing the 2-digit code in the second column of the Table of Characteristics should be examined as indicated below:

Growth stage	Code	Description
0: Germination	00	Dry seed
	01	Beginning of seed imbibition
	03	Seed imbibition complete
	05	Radicle emerged from seed
	07	Hypocotyl with cotyledons breaking through seed coat
	08	Hypocotyl reaches the soil surface: hypocotyl arch visible
	09	Emergence: hypocotyl with cotyledons arising above soil surface (cracking stage)
1: Leaf development (main shoot)	10	Cotyledons completely unfolded[1]
	11	First true leaf (pinnate) unfolded[1]
	12	2nd true leaf (pinnate) unfolded[1]
	13	3rd true leaf (pinnate) unfolded[1]
	1 .	Stages continuous till
	19	9 or more true leaves unfolded[1]. No side shoots visible[2]
2: formation of side shoots	21	1st side shoot visible
	22	2nd side shoot visible
	23	3rd side shoot visible
	2 .	Stages continuous till ….
	29	9 or more side shoots visible
3: Main stem elongation (crop cover)	31	Beginning of crop cover: 10% of plants meets between rows
	32	20% of plants meets between rows
	33	30% of plants meets between rows
	34	40% of plants meets between rows
	35	50% of plants meets between rows
	36	60% of plants meets between rows
	37	70% of plants meets between rows
	38	80% of plants meets between rows
	39	Crop cover complete. 90% of plants meets between rows
5: Inflorescence emergence	51	First inflorescence buds visible
	55	First individual flower buds visible
	59	First flower petals visible. Flower buds still closed
6: Flowering	61	Beginning of flowering
	62	First carpophore pegs visible
	63	Continuation of flowering
	64	First carpophore pegs visibly elongated
	65	Full flowering
	66	First carpophore pegs penetrating the soil
	67	Flowering declining[3]
	68	Tip of first carpophore pegs growing horizontally in the soil
	69	End of flowering
7: Development of fruits and seeds	71	Beginning of pod development: tip of first carpophore pegs swollen (at least twice the original diameter)
	73	Continuation of pod development: beginning of pod filling: first pods have attained final size and are ripening
	75	Main phase of pod development: continuation of pod filling
	77	Advance pod filling
	79	Fresh seeds fill the cavity of the pods which have attained their final size

8: Ripening of fruits and seeds[4]	81	Beginning of ripening: about 10% of pods developed to final size are ripe
	82	About 20% of pods developed to final size are ripe
	83	Continuation of ripening: about 30% of pods developed to final size are ripe
	84	About 40% of pods developed to final size are ripe
	85	Main phase of ripening: about 50% of pods developed to final size are ripe
	86	About 60% of pods developed to final size are ripe
	87	Advanced ripening: about 70% of pods developed to final size are ripe
	88	About 80% of pods developed to final size are ripe
	89	Full maturity: nearly all pods developed to final size are ripe
9: Senescence	91	About 10% of above ground parts of plant dry
	92	About 20% of above ground parts of plant dry
	93	About 30% of above ground parts of plant dry
	94	About 40% of above ground parts of plant dry
	95	About 50% of above ground parts of plant dry
	96	About 60% of above ground parts of plant dry
	97	Above ground parts of plant dead
	99	Harvested product

[1] Leaves are counted from the cotyledon node (= node 0)
[2] Side shoot development may occur earlier; in this case continue with principal growth stage 2
[3] Only for varieties with a determinate flowering period
[4] Criteria of maturity: Pericarp hard, with distinct texture, can be split open easily

9. Literature

Munger, P., Bleiholder, H., Hack, H., Heß, M., Stauss, R., van den Boom T., Weber, E., 1998: Phenological Growth Stages of the Peanut plant (*Arachis hypogaea* L.): Codification and Description according to the BBCH Scale – with figures. *Journal of Agronomy and Crop Science* 180 (2): 101–107.

Pittman, Roy N., editor 1995. United States Peanut Descriptors. U.S. Department of Agriculture, Agricultural Research Services, ARS-132.

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

	Application date: (not to be filled in by the applicant)

TECHNICAL QUESTIONNAIRE
to be completed in connection with an application for plant breeders' rights

1. Subject of the Technical Questionnaire

1.1 Botanical name	*Arachis hypogaea* L.
1.2 Common name	Groundnut

2. Applicant

Name	
Address	
3.Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

[#]4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]
(please state parent varieties)

(……..……..…) x (……..……..…)
female parent male parent

(b) partially known cross [ ]
(please state known parent variety(ies))

(……..……..…) x (……..……..…)
female parent male parent

(c) unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

4.1.3 Discovery and development [ ]
(please state where and when discovered and how developed)

4.1.4 Other [ ]
(please provide details)

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

(a) Self-pollination [ ]
(b) Cross-pollination
(i) population [ ]
(ii) synthetic variety [ ]
(c) Hybrid [ ]
(d) Other [ ]
(please provide details)

4.2.2 Vegetatively propagated varieties [ ]

4.2.3 Other [ ]
(please provide details)

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5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

	Characteristics	Example Varieties	Note
5.1 (1)	**Plant: growth habit**		
	erect	Tufa	1[ ]
	semi-erect	Sellie	2[ ]
	prostrate	Inkanyezi	3[ ]
5.2 (9)	**Primary branch: flowering pattern**		
	alternate	ARC-Opal1	1[ ]
	sequential	Akwa, ARC-Oleic2	2[ ]
5.3 (12)	**Pod: number of kernels**		
	two	Akwa	1[ ]
	three or more	Kanosel	2[ ]
5.4 (13)	**Kernel: main color of testa**		
	white	White Kayabi	1[ ]
	brownish pink	Akwa, Kwarts	2[ ]
	red	Harts, Kanosel	3[ ]
	purple	Kurorakkasel	4[ ]
5.5 (14)	**Kernel: presence of secondary color of mature testa**		
	absent	Akwa, Kwarts	1[ ]
	present	Shimahikari	9[ ]

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6. Similar varieties and differences from these varieties

Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example	*Kernel: size*	*small*	*large*

Comments:

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[#]7. Additional information which may help in the examination of the variety

7.1 In addition to the information provided in sections 5 and 6, please provide information concerning commercial grouping:

Commercial grouping	**Example varieties**	
Spanish	Sellie	[ ]
Valencia	Kangwane Red	[ ]
Virginia	Inkanyezi	[ ]
Runner		[ ]

7.2 Are there any special conditions for growing the variety or conducting the examination?

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

A representative color image of the variety should accompany the Technical Questionnaire.

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

If the answer to (b) is yes, please attach a copy of the authorization.

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

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9. Information on plant material to be examined or submitted for examination.

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

(a) Microorganisms (e.g. virus, bacteria, phytoplasma) Yes [ ] No [ ]

(b) Chemical treatment (e.g. growth retardant, pesticide) Yes [ ] No [ ]

(c) Tissue culture Yes [ ] No [ ]

(d) Other factors Yes [ ] No [ ]

Please provide details for where you have indicated “yes”.

……

9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?

Yes [ ]
(please provide details as specified by the Authority)

No [ ]

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant’s name

Signature Date

[End of document]