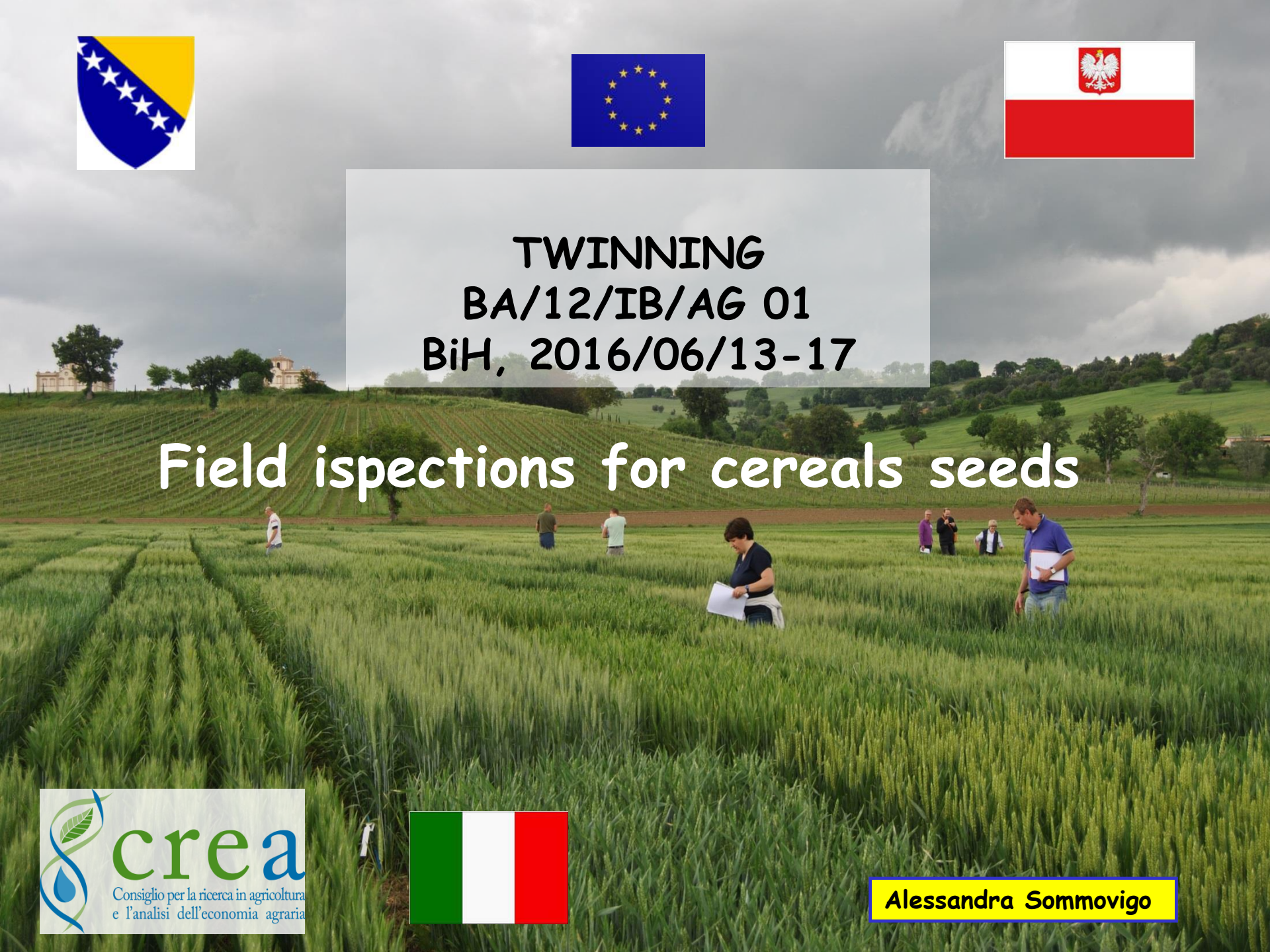
Twinning projekt EU

”Dalje jačanje kapaciteta u fitosanitarnom sektoru iz oblasti sredstava za zaštitu bilja, zdravlja bilja, sjemena i sadnog materijala, uključujući fitosanitarne laboratorije i fitosanitarnu inspekciju”



TWINNING
BA/12/IB/AG 01
BiH, 2016/06/13-17

Field ispections for cereals seeds

crea
Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria

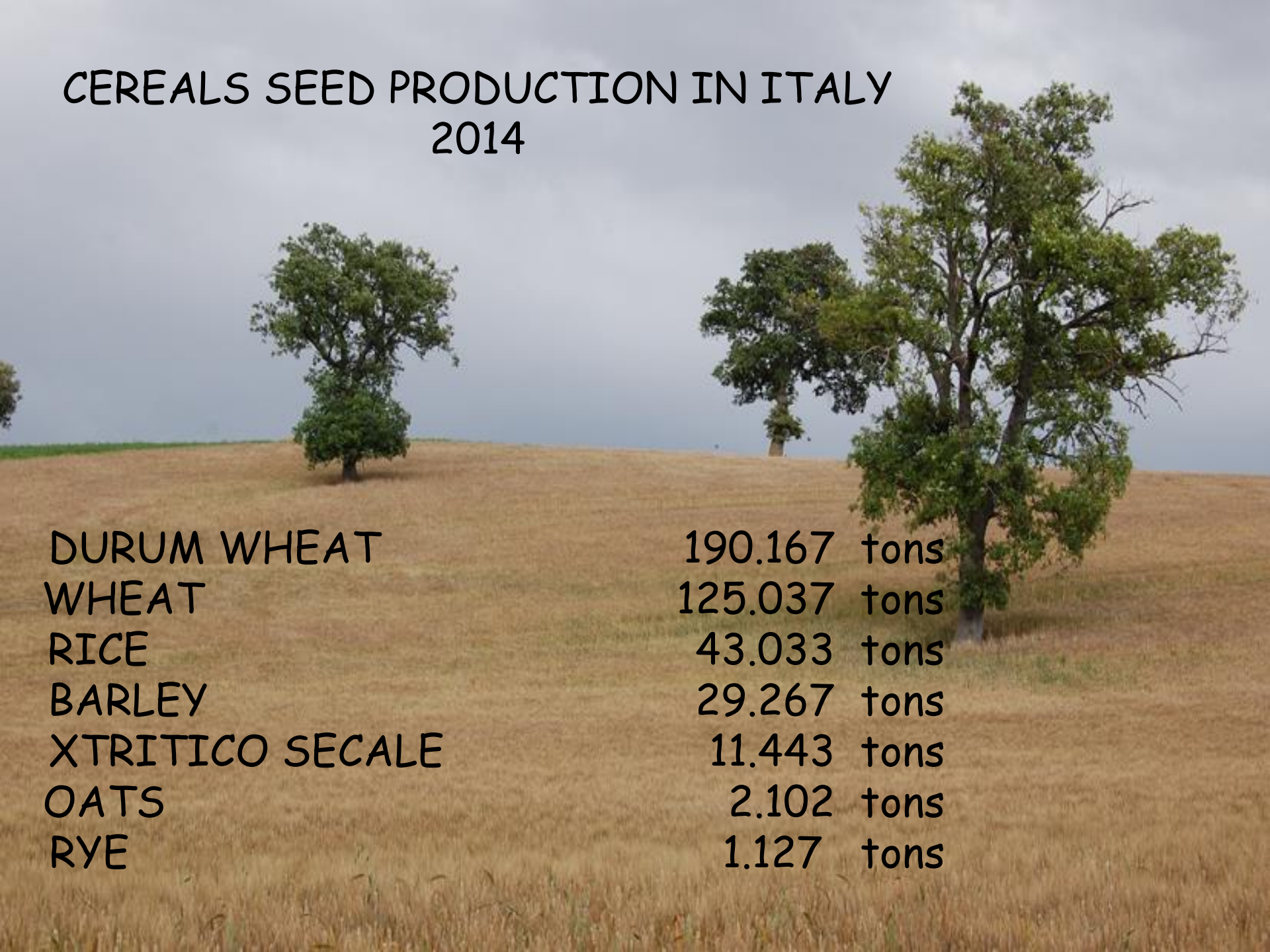
Alessandra Sommovigo


FIELD INSPECTIONS FOR
CEREALS SEED CERTIFICATION

CEREALS SEED MOLTIPLICATION IN ITALY 2015

DURUM WHEAT	71.352 ha
WHEAT	24.511 ha
RICE	10.627 ha
BARLEY	8.377 ha
XTRITICOSECALE	2.482 ha
OATS	941 ha
RYE	415 ha

CEREALS SEED PRODUCTION IN ITALY 2014



DURUM WHEAT	190.167	tons
WHEAT	125.037	tons
RICE	43.033	tons
BARLEY	29.267	tons
XTRITICO SECALE	11.443	tons
OATS	2.102	tons
RYE	1.127	tons

CREA SCS STAFF

ADMINISTRATIVE STAFF: 7 PERMANENT UNIT
6 TEMPORARY UNIT

TECHNICAL STAFF: 79 PERMANENT UNIT
57 TEMPORARY UNIT
48 TECHNICAL ADVISORS

EXPERIMENTAL FARMS: 18 AGRICULTURAL WORKERS

2015: 195,000 HECTARES
521,500 TONS
30,000 LAB TESTS
5,000 PLOTS

The cereal seed may not be placed on the market unless it has been officially certified as "basic seed" (or prior generations), "certified seed", "certified seed, first generation" or "certified seed, second generation" and if it isn't met the minimum requirements.

SEED CATEGORIES: → **Control of generation**

Breeder Seed

(not certified seed)

Pre-basic (4G, 3G, 2G)

Basic

Certified seed

Certified seed 1st generation

Certified Seed 2nd generation

crea
Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria

Seed which is marked
has to be one of the listed varieties

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

In Italy, the previous cropping of the field is incompatible if it's a different variety of the same species

OECD SEED SCHEME

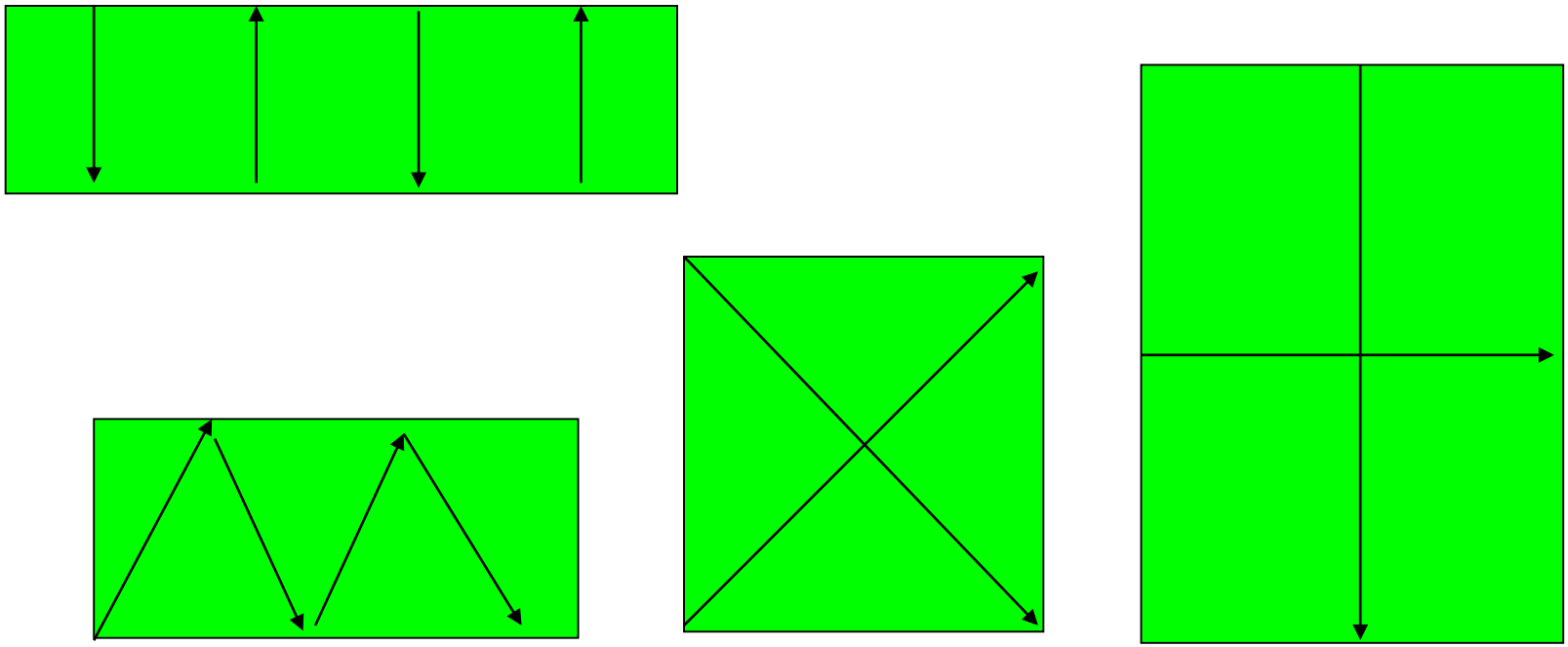
There shall be a
minimum time interval of at least two years
between cereal crops of the same
species. Successive crops of the same variety
and category of seed may be grown
on the same field without any time-interval,
provided that satisfactory varietal
purity is maintained.

The field shall be so cultivated and the crop at such a stage of development as to permit an adequate check of identity and varietal purity and of health status.

The number of field inspections for autogamous species shall be at least one

Control plots grown from samples of the seed used to sow the crop entered for certification should, whenever possible, be available for detailed examination at the time of field inspection of the seed crops. This examination is intended to supplement the examination made for the determination of varietal purity at field inspection.

The size, the number and the distribution of the portions of the field to be inspected in order to examine the satisfaction of the provisions shall be determined in accordance with appropriate methods.



The seed shall have sufficient varietal identity and varietal purity or, in the case of seed of an inbred line, sufficient identity and purity as regards its characteristics.

VARIETAL IDENTITY

- The inspector should verify the varietal compliance throught the comparison with the characters under the official description.

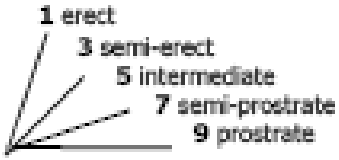
CPVO Nº	UPOV Nº	Characteristics	Stage,[1] Method	Examples[2]	Note
8.	8.	Culm: glaucosity of neck	60-69		
		absent or very weak	B; VG	Goelent; Adonis	1
		weak		Soissons; Ventura	3
		medium		Haven; Attis	5
		strong		[illegible]	7
		very strong		[illegible]; Wim	9
9.	9.	Plant: length (stem, ear, awns and scurs)	75-92		
		very short	B; MG	Courtot; Briscard	1
		short		Konsul; Remus	3
		medium		Sideral; Ventura	5
		long		Boxer; Adonis	7
		very long		Aladin; Vitus	9
10.	10.	Straw: pith in cross section (halfway between base of ear and stem node below)	80-92		
(+)		absent or very thin	A; VG	Boregar; SW Kadrilj	1
		medium		Provinciale; Tybalt	2
G		very thick or filled		Camp Remy; Azurite	3
11.	11.	Ear: shape in profile	92		
(+)		tapering	A; VG	Mejpner; Filou	1
		parallel sided		[illegible]	2
		semi-clavate		[illegible]	3
		clavate		Beauchamp; Prinqual	4
		fusiform		Declic; Nandu	5

CPVO Nº	UPOV Nº	Characteristics	Stage,[1] Method	Examples[2]	Note
4.	5.	Time of ear emergence (first spikelet visible on 50% of ears)	50-52		
		very early	B; MG	Britta; Florence Aurore	1
		early		Recital; Remus	3
		medium		Astron; Paros	5
		late		Moulin; Vitus	7
		very late		Beaver; -	9
5.	6.	Flag leaf: glaucosity of sheath	60-65		
(+)		absent or very weak	B; VG	Cargo; Adonis	1
		weak		Heiduck; Ventura	3
		medium		Agent; Hanno	5
		strong		Orestis; Prinqual	7
		very strong		Haven; Wim	9
6.	[illegible]	Flag leaf: glaucosity of blade (lower side)	60-65		
		absent or very weak	A; VG	Shamrock; -	1
		weak		Valoris; Josselin	3
		medium		Pauillac; Tecnico	5
		strong		Cezanne; Torka	7
		very strong		Charger;	9
7.	[illegible]	Ear: glaucosity	[illegible]		
		absent or very weak	B; VG	Soissons; Adonis	1
		weak		Sarant; Ventura	3
		medium		Contra; Paros	5
		strong		Niklas; Combi	7
		very strong		Boxer; Wim	9

VARIETAL IDENTITY

DURUM WHEAT, WHEAT

Ad 2: Plant: growth habit

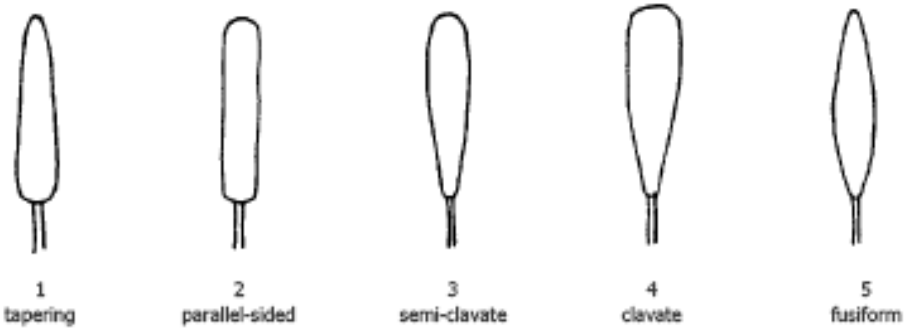


both durum wheat and wheat

The growth habit should be assessed visually from the attitude of the leaves and tillers. The angle formed by the outer leaves and the tillers with an imaginary vertical axis should be used.

only soft wheat

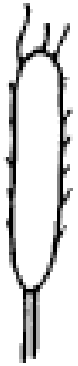
Ad 11: Ear: shape in profile



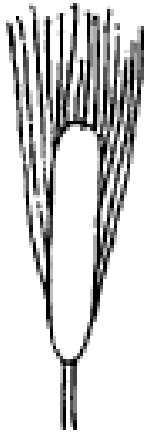
Soft wheat

Ad 14: Awns or scurs: presence

1
both absent



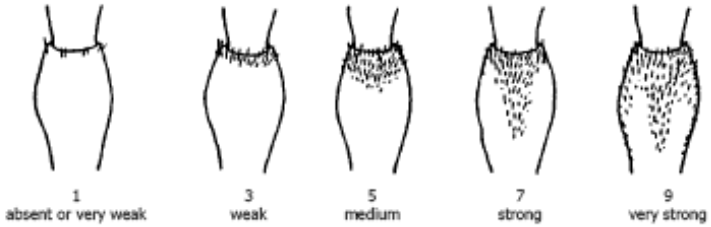
2
scurs present



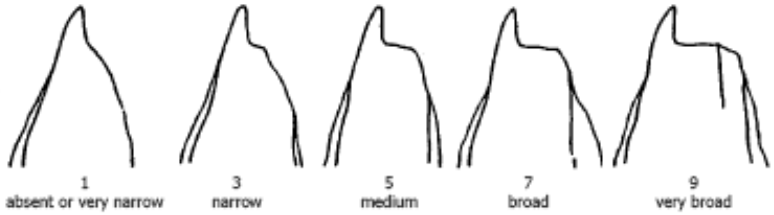
3
awns present

Soft wheat

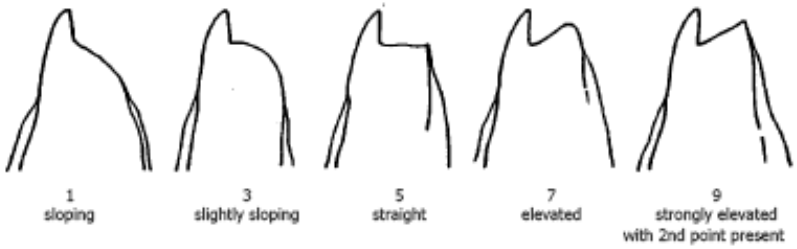
Ad 17: Apical rachis segment: hairiness of convex surface



Ad 18: Lower glume: shoulder width (spikelet in mid-third of ear)

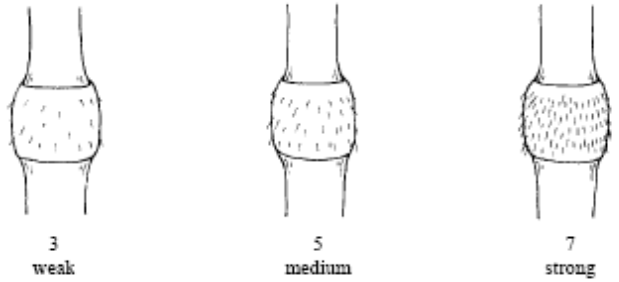


Ad 19: Lower glume: shoulder shape (spikelet in mid-third of ear)

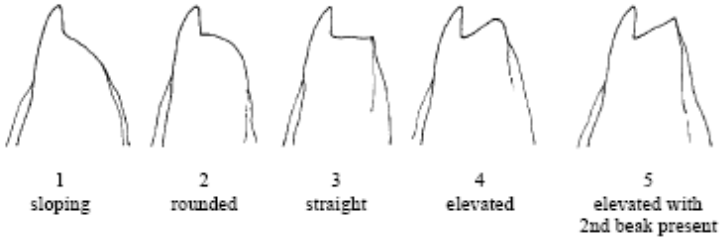


Durum wheat

Ad 7: Culm: hairiness of uppermost node



Ad 13: Lower glume: shape of shoulder (spikelet in mid-third of ear)



Ad 14: Lower glume: shoulder width (spikelet in mid-third of ear)

Soft wheat

Ad 21: Lower glume: beak shape (spikelet in mid-third of ear)

1 straight | 3 slightly curved | 5 moderately curved | 7 strongly curved | 9 geniculate

Ad 22: Lower glume: extent of internal hairs (spikelet in mid-third of ear)

3 weak | 5 medium | 7 strong

Durum wheat

Ad 16: Lower glume: shape of beak (spikelet in mid-third of ear)

1 straight | 2 slightly curved | 3 moderately curved | 4 strongly curved

Soft wheat

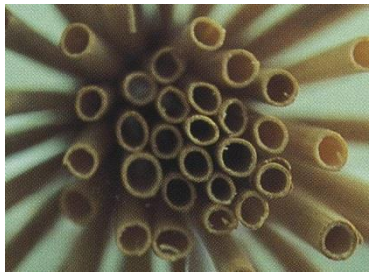
Ad 10: Straw: pith in cross section (half way between base of ear and stem node below)

All stems of the plant should be checked and the strongest expression per plant recorded.

1
absent or very thin

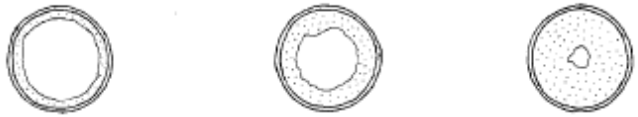
2
medium

3
very thick or filled



Durum wheat

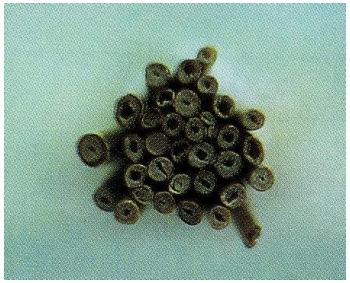
Ad 18: Straw: pith in cross section (half way between base of ear and stem node below)



3
thin

5
medium

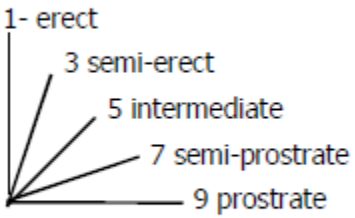
7
thick



VARIETAL IDENTITY

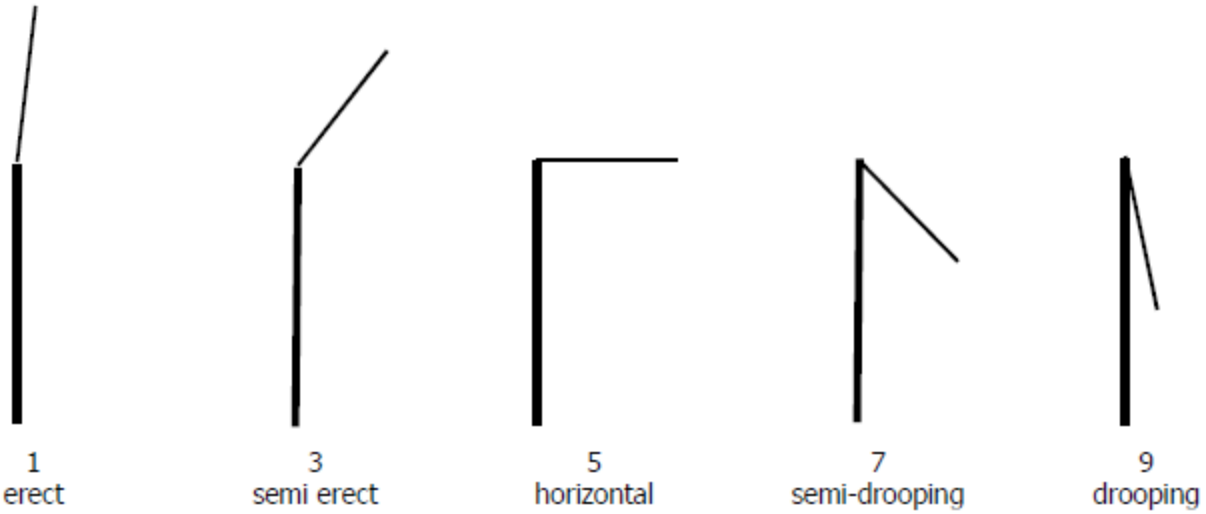
BARLEY

Ad 2: Plant: growth habit



The growth habit should be assessed visually from the attitude of the leaves and tillers. The angle formed by the outer leaves and the tillers with an imaginary vertical axis should be used.

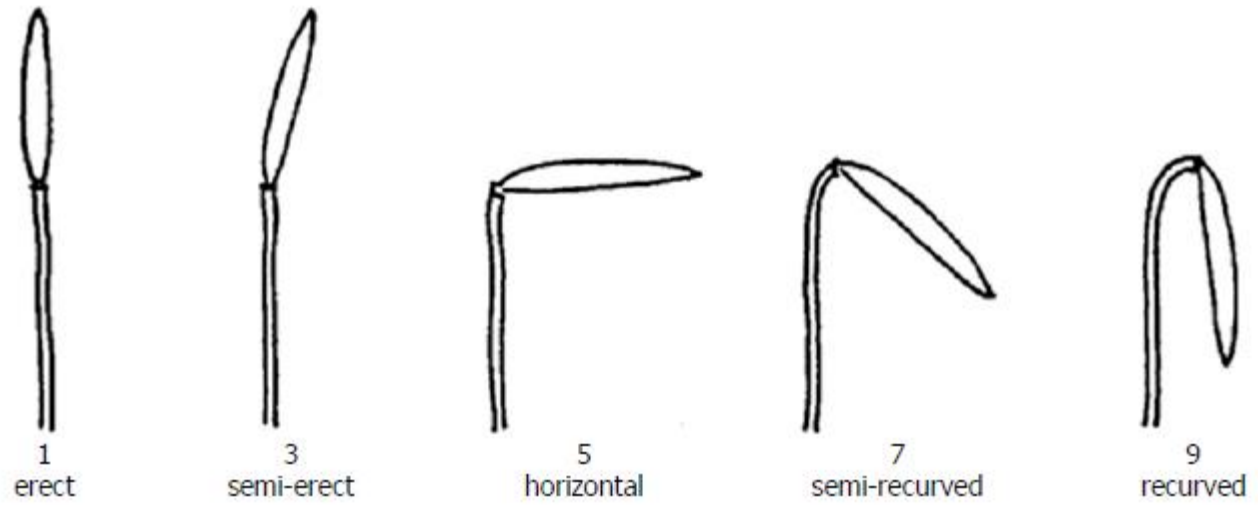
Ad 5: Flag leaf: attitude



Flag leaf attitude is sensitive to the stage of plant development. Therefore, observation at the appropriate stage (BBCH 49 – 51) is of particular importance.
Flag leaf attitude relates to the angle between the main axis (stem) and the flag leaf blade. The expression of the majority of plants should be recorded without considering individual plants which may express a different attitude.

9.	**10**	**65-75**	**Ear: glaucosity**
QN	**(*)**	**B; VG**	absent or very weak
			weak
			medium
			strong
			very strong

Ad 10: Ear: attitude



Ad 13: Ear: shape

3
tapering

5
parallel

7
fusiform

Ad 16: Awn: length compared to ear

3
short

5
medium

7
long

The state "medium" means that the length of the awns is equal to that of the ear.

Ad 18: Rachis: curvature of first segment

1
absent or
very weak

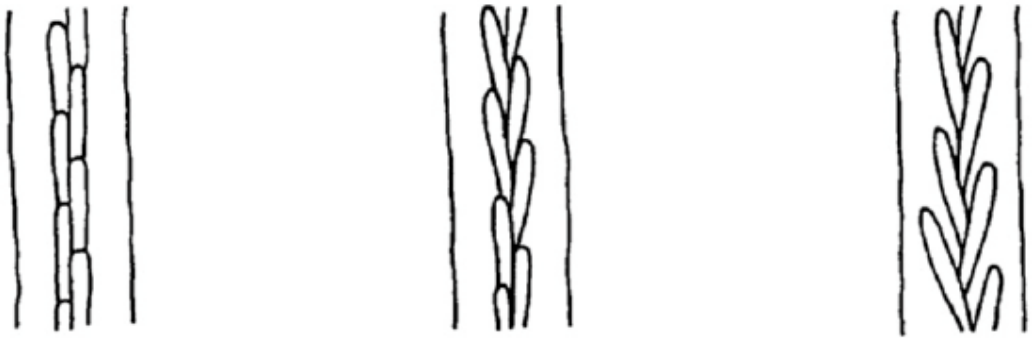
3
weak

5
medium

7
strong

9
very strong

Ad 20: Sterile spikelet: attitude (in mid-third of ear)

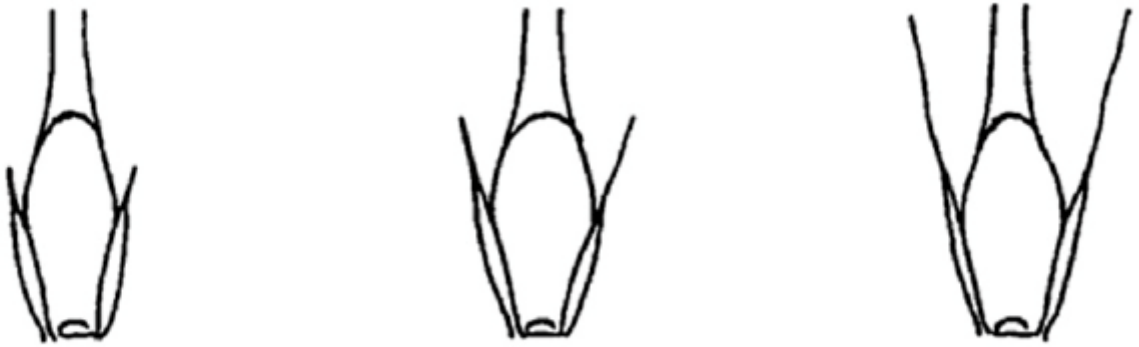


1
parallel

2
parallel to weakly divergent

3
divergent

Ad 21: Median spikelet: length of glume and its awn relative to grain



1
shorter

2
equal

4
much longer

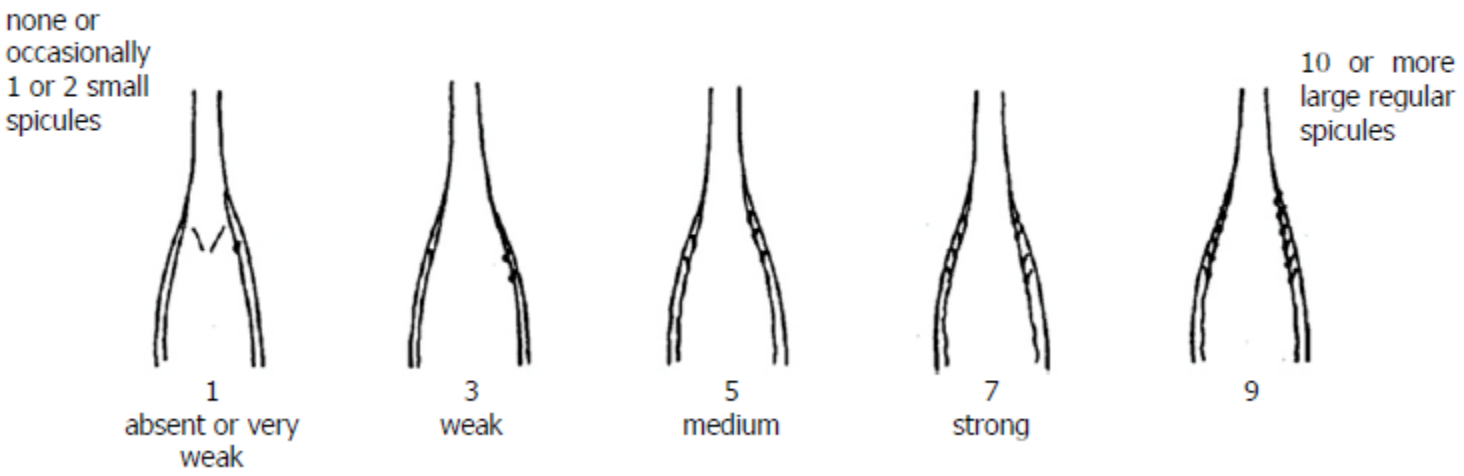
Ad 22: Grain: rachilla hair type

1
short

2
long

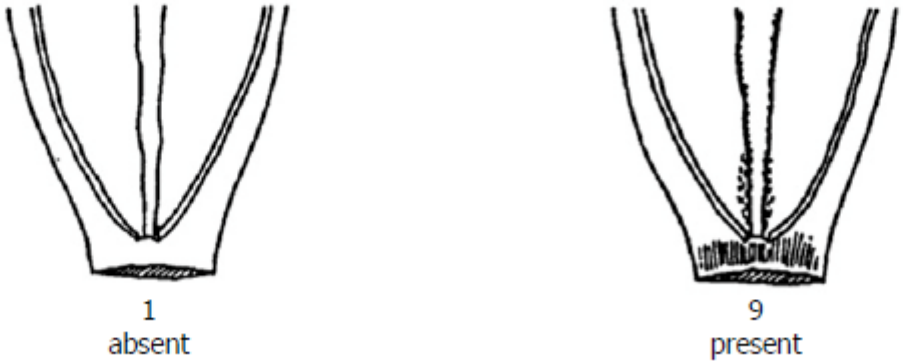
24.	**24.**	**80-85**	**Grain: anthocyanin coloration of nerves of lemma**
QN		**B; VG**	absent or very weak
			weak
			medium
			strong
			very strong

Ad 25: Grain: spiculation of inner lateral nerves of dorsal side at lemma

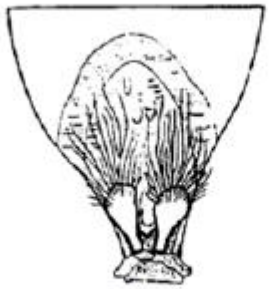


Ad 26: Grain: hairiness of ventral furrow

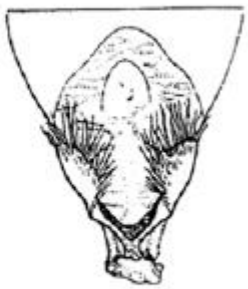
It is of particular importance to have installed the light source at the right place. A very little number of hairs should be assessed as "present".



Ad 27: Grain: disposition of lodicules



1
frontal



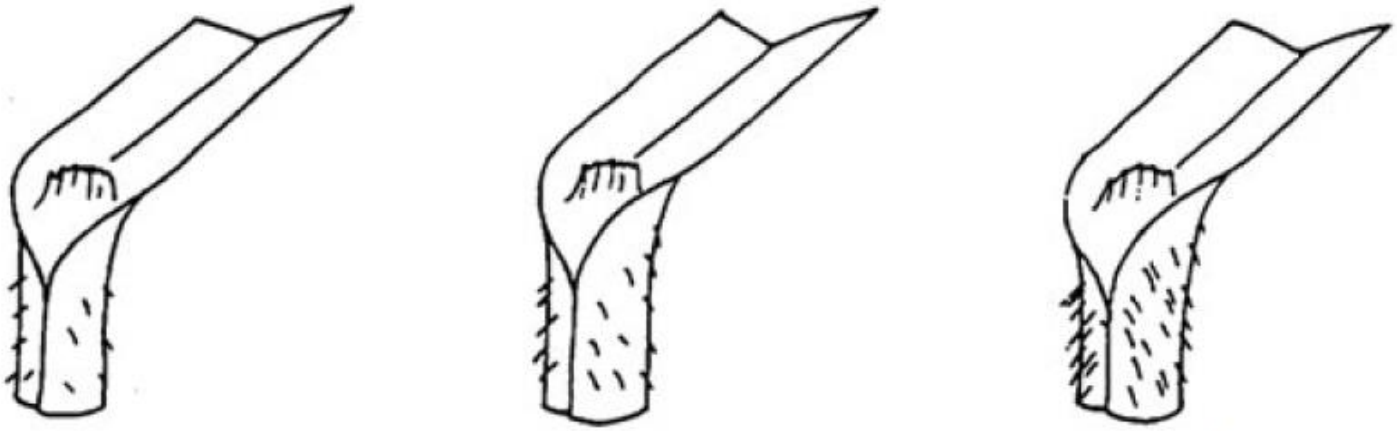
2
clasping

4.	**4.**	**45-49**	**Flag leaf: intensity of anthocyanin coloration of auricles**	
QN	**(*)**	**B; VG**	absent or very weak	
			weak	
			medium	
			strong	
			very strong	

VARIETAL IDENTITY

OAT

Ad 2: Lowest leaves: hairiness of sheaths

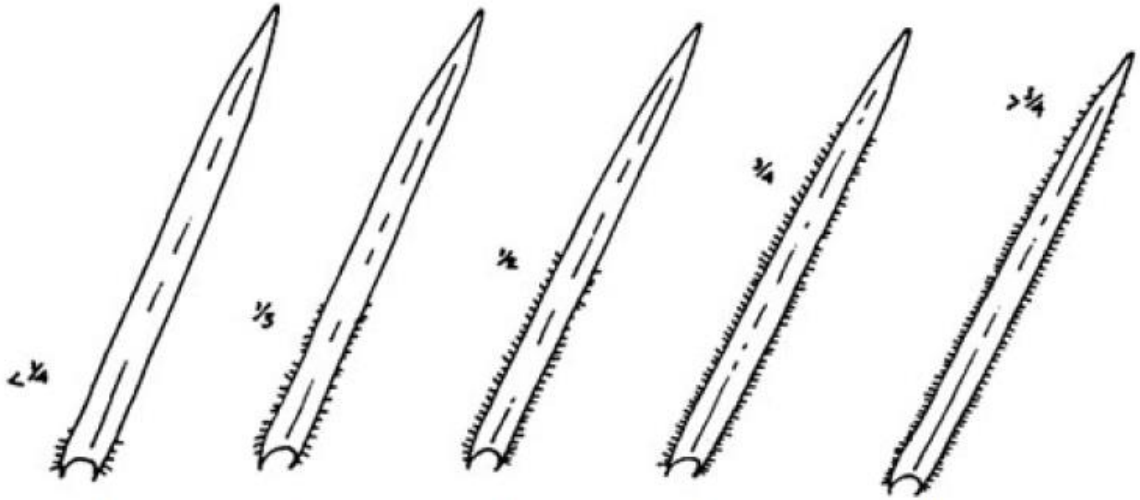


3
weak

5
medium

7
strong

Ad 3: Leaf blade: hairiness of margins of leaf below flag leaf



1
absent or
very weak

3
weak

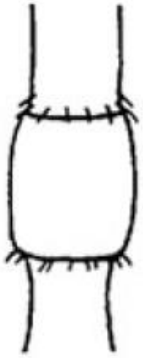
5
medium

7
strong

9
very strong

Ad 7: Stem: intensity of hairiness of uppermost node

3
weak



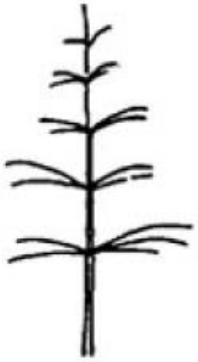
5
medium

7
strong

Ad 8: Panicle: attitude of branches

1
erect

3
semi-erect

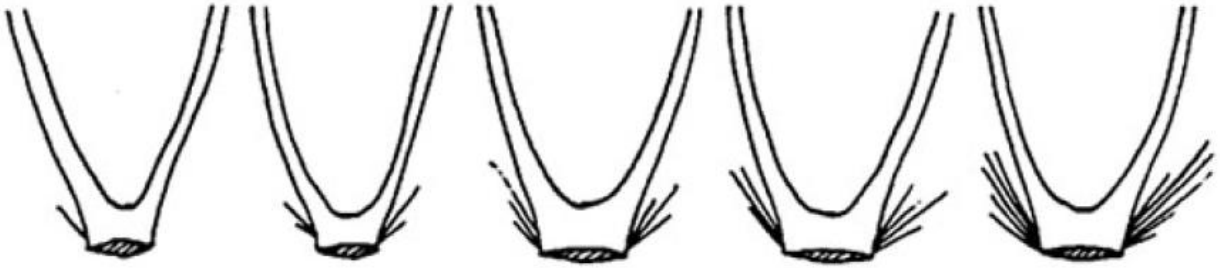


5
horizontal

7
drooping

9
strongly drooping

Ad 19: Primary grain: hairiness of base



1
absent or very weak

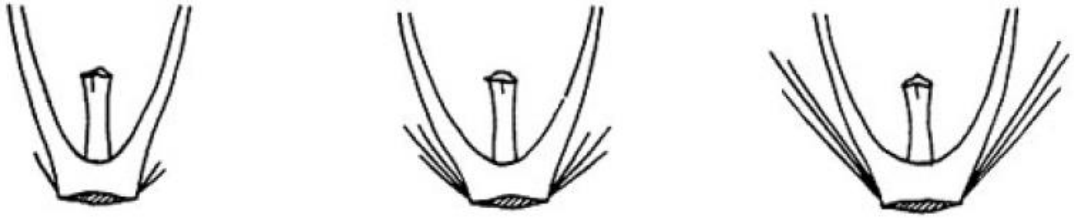
3
weak

5
medium

7
strong

9
very strong

Ad 20: Primary grain: length of basal hairs

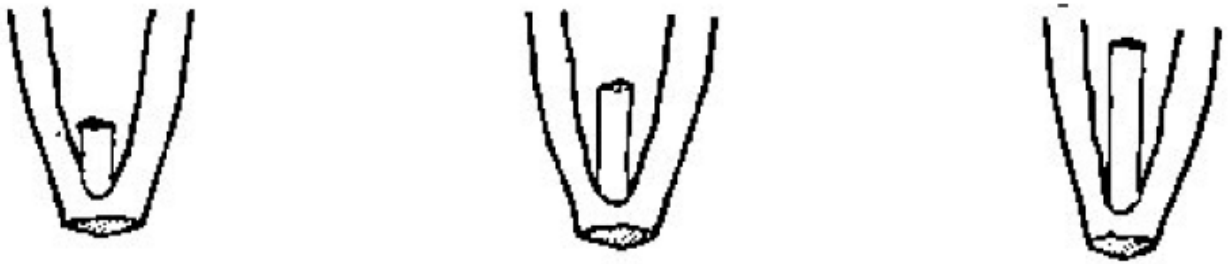


3
short

5
medium

7
long

Ad 21: Primary grain: length of rachilla



3
short

5
medium

7
long

VARIETAL IDENTITY
XTRITICOSECALE

Ad 11: Stem: density of hairiness of neck

1 absent or very weak

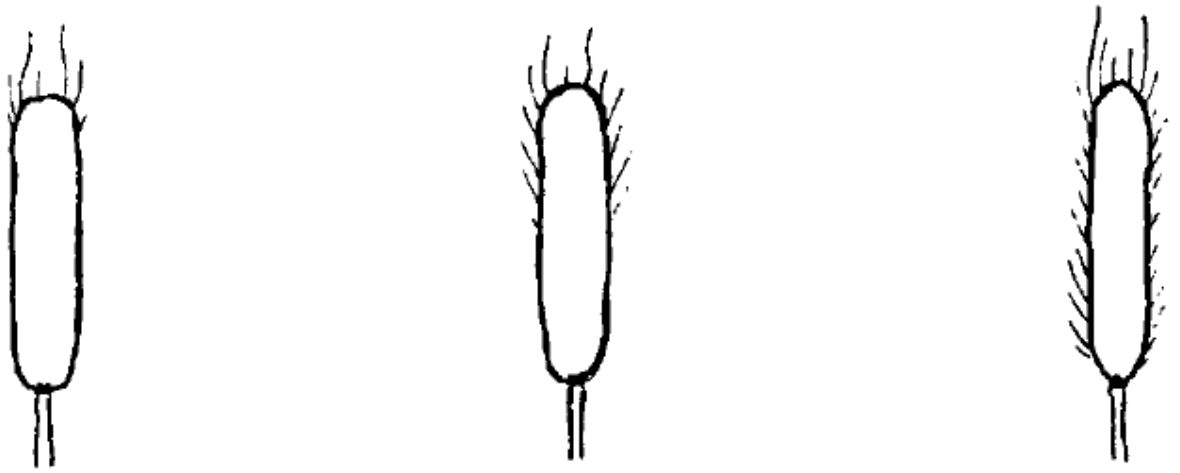
3 weak

5 medium

7 strong

9 very strong

Ad 13: Ear: distribution of awns

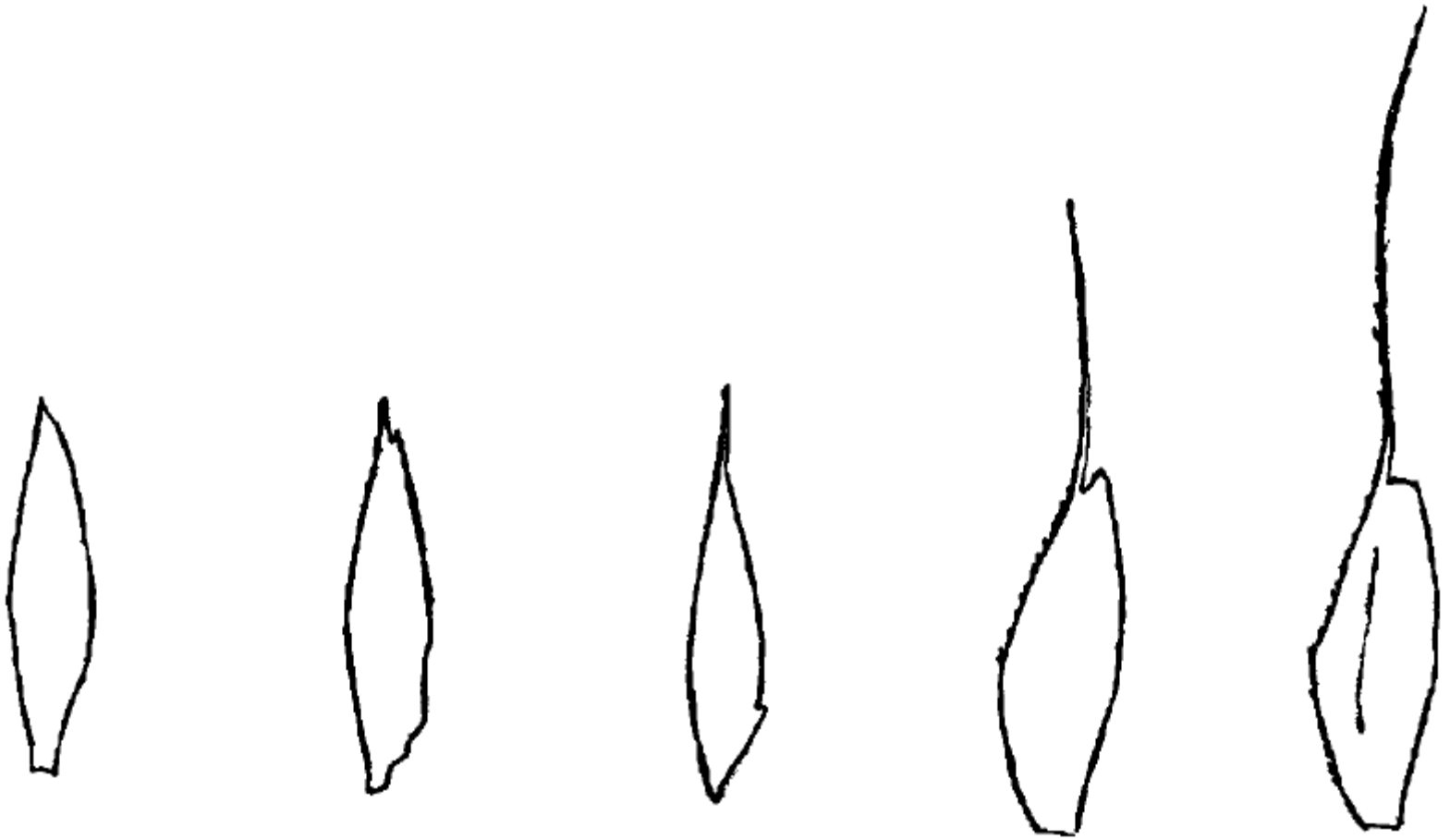


1 tip awned

2 half awned

3 fully awned

Ad 15: Lower glume: length of first beak



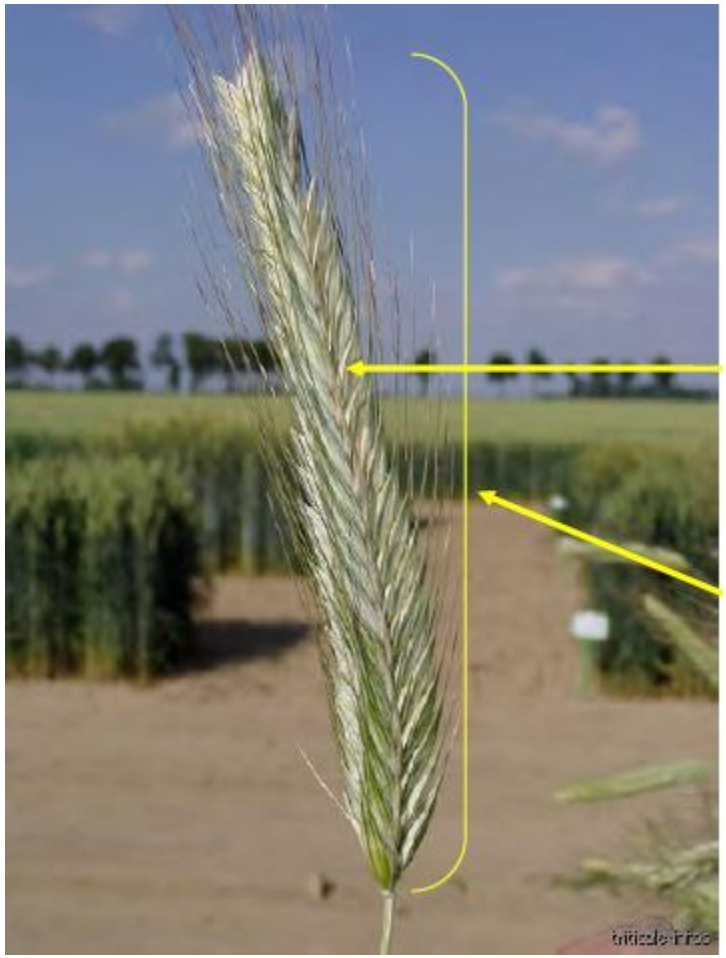
1
very short

3
short

5
medium

7
long

9
very long



EAR CHARACTERS:

- Glaucosity
- Density
- Distribution of awns
- Lenght of awns (above the tip of ear)
- Lenght of ear (excluding awns)

The seed of the species listed below shall conform to the following other standards or conditions:

***Avena nuda, Avena sativa, Avena strigosa, Hordeum vulgare, Oryza sativa, Triticum aestivum, Triticum durum, Triticum spelta* other than hybrids in each case:**

Category Minimum varietal purity (%)

Basic seed 99,9
Certified seed, 1st generation 99,7
Certified seed, 2nd generation 99,0

Mainly self-pollinating varieties of xTriticosecale

Category Minimum varietal purity (%)

Basic seed 99,7
Certified seed, 1st generation 99,0
Certified seed, 2nd generation 98,0

VARIETAL PURITY

DURUM WHEAT, WHEAT, BARLEY, OATS, SPELTA (other than hybrids)

Varietal purity in field inspections:

Prebasic and basic seed	**999,5 ‰**
Certified seed, 1st generation	**999,0 ‰**
Certified seed, 2nd generation	**997,0 ‰**

For cross-pollinating varieties of *Secale cereale* and *x Triticosecale*, the number of plants of the same species which are recognisable as being not true to the variety concerned shall not exceed:

Basic Seed 1 in 30 sq. m

Certified Seed 1 in 10 sq. m

TABLE TO DETERMINATE MAXIMUM NUMBER OF OFF-TYPES RELATED TO EARS per SQUARE METER

Superficie oggetto del campionamento mq 200 Numero di spighe o pannocchie per mq	Numero massimo di spighe o pannocchie di altre varietà o tipi macroscopicamente disgiuntivi della varietà coltivata					
200	27	48	88	124	202	400
300	40	72	132	189	303	600
400	53	96	176	248	404	800
500	65	120	220	315	505	1000
600	80	144	264	378	906	1200
Valori di purezza varietale	999,5	999	998	997	995	990

Category minimum varietal purity

Ears per m^2

Maximum number of off type

The seed crops of self-fertilising species shall conform to the following standards as regards distances from neighbouring sources of contamination:

Crop	Minimum distance
for the production of basic seed	8 m
for the production of certified seed	4 m

The seed crops of self-fertilising species shall be isolated from other cereal crops by a definite barrier or a space sufficient to prevent mixture during harvest.

Seed crops of cross-pollinating species, and of mainly cross-pollinating varieties of triticale (*x Triticosecale* Wittm.) shall be isolated from all other crops of rye and triticale respectively by:

Crop	Minimum distance
for the production of basic seed	300 m
for the production of certified seed	250 m

Seed crops of self-pollinating varieties of triticale shall be isolated from all other crops of triticale by:

Crop	Minimum distance
for the production of basic seed	50 m
for the production of certified seed	20 m

These distances can be disregarded if there is sufficient protection from any undesirable foreign contamination.

HYBRED CEREALS

Seed crops to produce Certified Seed of a hybrid variety of wheat, barley, oats or rice shall be isolated from sources of contaminating pollen. The female seed parent must be not less than 25 metres from any other variety of the same species except from a crop of the male pollen parent.

A distance of not less than 100 metres may be considered to permit modification of the requirements of 9.6 below in respect of the determination of varietal purity.

HYBRID CEREALS

Seed crops to produce the Basic seed components and Certified seed of a hybrid variety of rye or a hybrid variety of Triticale shall be isolated at every stage of seed production from sources of contaminating pollen that might result in undesirable foreign pollination. The minimum isolation distances shall be as follows:

	Minimum distance
for the production of basic seed:	
• where male sterility is used	1.000 m
• where male sterility is not used	600 m
for the production of certified seed	500 m

Diseases which reduce the usefulness of the seed, in particular Ustilagineae, shall be at the lowest possible level.

SEED TRANSMITTED DESEASES
Minimum requirements

PATHOGENS	Tollerance
Ustilago tritici	0
Ustilago nuda,U. hordei	0
Claviceps purpurea	traces
Tilletia spp	0
Fusarium spp.	traces
Helinthosporium spp.	traces

Ustilago spp.

Tilletia spp

Helminthosporium spp.

FIELD INSPECTION N.	SPECIE VARIETY	FIELD/LOT N.

NAME OF THE APPLICANT	
FARMER (NAME)	FIELD ADDRESS

SOWN SEED CATEGORY

Field positions	Ha	Previous crops	Isolation	Varietal purity	Off types (% and description)	Other species (% and description)	Plant deseases	Crop damages (hail etc.)	Approved (ha)	Disapproved (ha)	Production estimate (t/ha)
TOTAL								TOTAL			

SEED GROWN CATEGORY

CATEGORY	LOT NUMBER	SELLING SEED COMPANY

LABELS WITHDROWN

SPACE FOR THE OFFICE

Other varieties:

Same variety not intended for seed production:

Signature of the certifier:

Signature of the applicant:

DATE OF FIELD INSPECTION:

Ergot is considered either in field inspections or in lab test

Cereals other than hybrids of *Secale cereale*:
— basic seed, 1
— certified seed, 3
Hybrids of *Secale cereale*:
— basic seed, 1
— certified seed, 4 (*)

(*) The presence of five sclerotia or fragments of sclerotia in a sample of the prescribed weight shall be deemed to be in conformity with the standards, where a second sample of the same weight contains not more than four sclerotia orfragments of sclerotia.

Avena fatua, *Avena sterilis*, *Lolium temulentum*, *Raphanus raphanistrum*, *Agrostemma githago*, *Panicum* spp. are also considered in lab tests.

Avena fatua ***Avena ludoviciana*** ***Avena sterilis***

Raphanus raphanistrum

Agrostemma githago

Lolium temulentum

Panicum spp

SEED SAMPLING

OBJECT

To obtain a representative sample of a size suitable for the appropriate seed tests
When the sample originates from a seed lot: the test results reflect the average quality of the seed lot

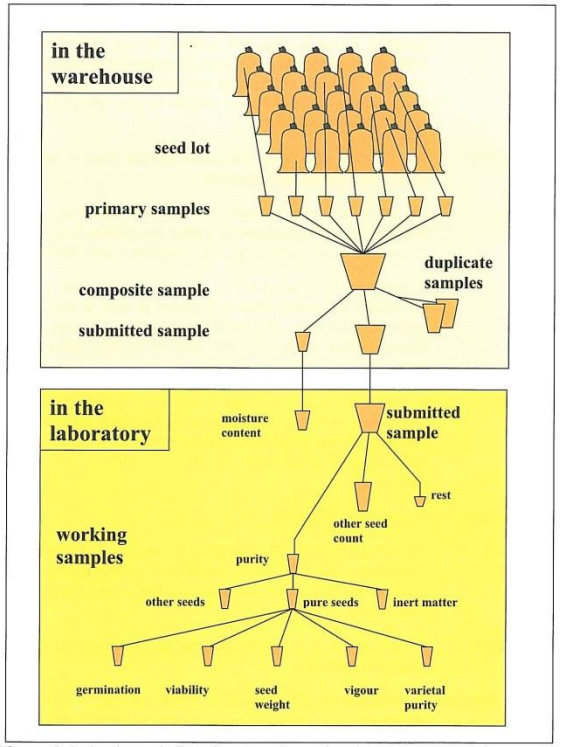


Figure 2.1: A schematic flow diagram of samples showing names of the samples according to the ISTA Rules. This flow scheme is not fixed and is neither indicating correct sampling intensity nor size relations between the samples; it is only to visualize an example for the flow of samples in seed testing. For any seed lot the flow will depend on the tests requested by the applicant and on the laboratory organization.

The seed lot must be physically identifiable by labelling of the containers

The seed lot shall be practicable

The seed lot shall be so arranged that each part of seed lot is accessible

The certifier takes 3 samples per lot of seed

LAB TESTS

CLIMATIC ROOM

POST CONTROL