

Working Programme of the Flower Seed Testing Committee 2004-2007

ACTIVITY REPORT 2004-2005



Presented by: Rita Zecchinelli

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WG members	16.	Ms. Gyöngyi Ivanovics	HU-Hungary

WORKING PROGRAMME OF THE FLOWER SEED TESTING COMMITTEE 2004-2007

A RULES DEVELOPMENT

A.1-3 Introduction of New Methods

New Species

Rules Changes

B PUBLICATIONS

B.1 Rules accompanying publications

B.2 Training publications on specific seed testing topics

B.3 Scientific information publications

C WORKSHOPS AND SEMINARS

C.1 Training and education workshops

C.2 Seminars

D PROFICIENCY TESTS

E SPECIAL PROJECTS

WP A – RULES DEVELOPMENT

A.1 Introduction of New Methods

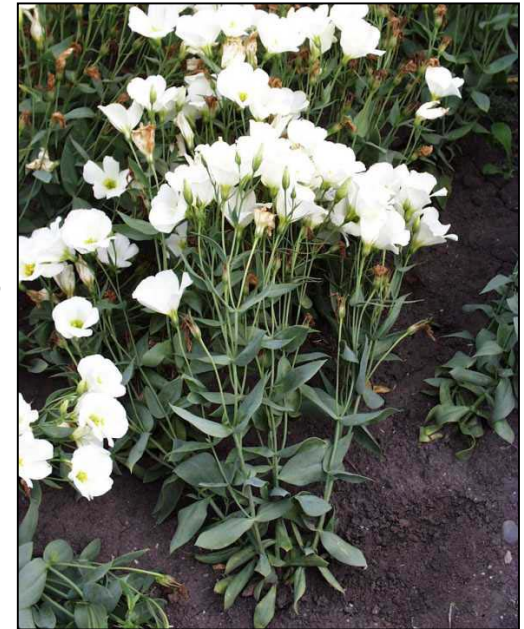
A.2 Introduction of New Species

To provide and introduce laboratory seed testing methods for new species which are tested in the laboratories but not included in the ISTA Rules is a general aim of the committee.

Catharanthus roseus (Madagascar periwinkle)



Eustoma grandiflorum
(Lisianthus)



A.3 Introduction of Rules Changes

Parallel with the preparation of the handbook work sheets.

WP B - PUBLICATIONS



B.1 Rules accompanying publications

Preparation of the first ISTA Handbook on Flower Seed Testing

B.2 Training publications on specific seed testing topics

ISTA Flower Seed Testing Workshop Proceedings Summary will be finalized till 2006.

B.3 Scientific information publications

Presently none.

WP B1 -HANDBOOK

Participation in the work:

1. FSC members -data
2. Working Groups: leader + 6-8 members
3. Chair -draft
4. FSC members –discussion, acceptance
5. ISTA Committee Chairs comments, acceptance
6. ISTA Secretariat -issue

WP B1 - HANDBOOK

Procedure to prepare a working sheet:

1. Determine if the present methods are correct
2. Detect points where changes are needed
3. Proposal for changes
4. Draft text of the working sheet
5. Issue handbook working sheet final version

WP B1 - HANDBOOK

GENERAL PART

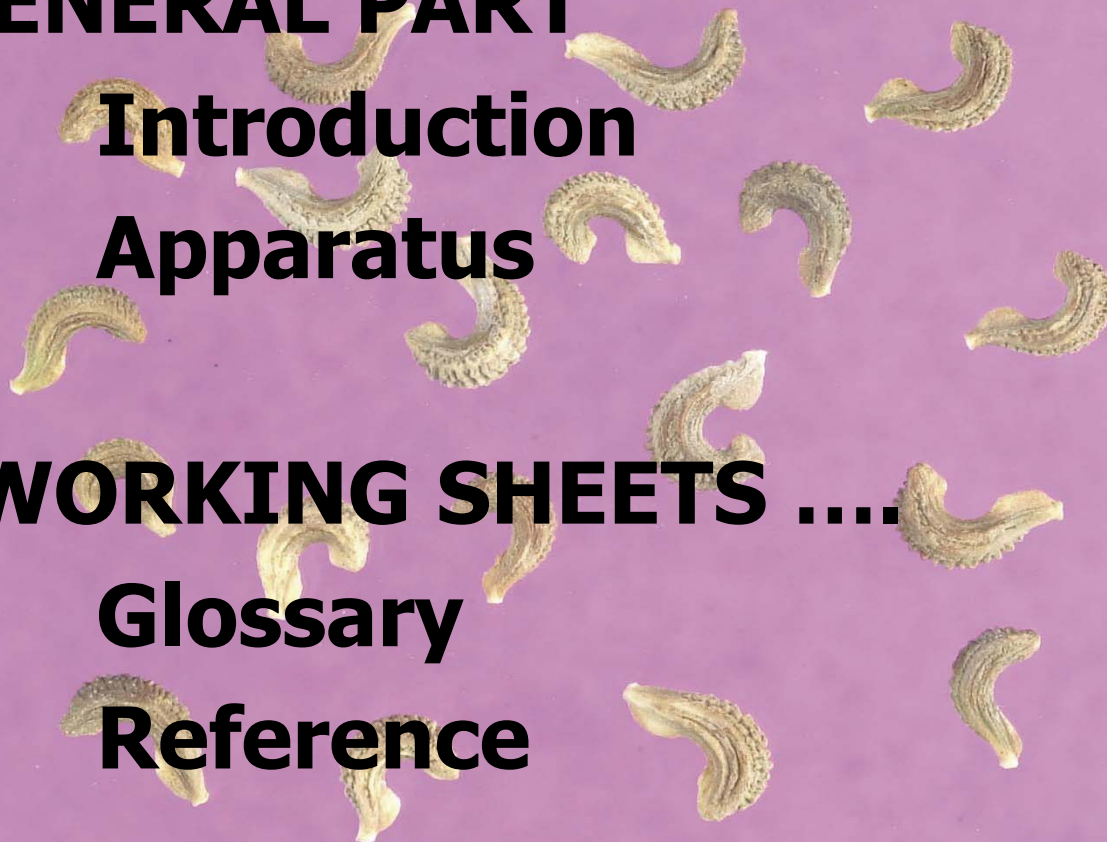
Introduction

Apparatus

WORKING SHEETS

Glossary

Reference



WP B1 - HANDBOOK

WORKING SHEET

1. Seed description (text and photo)
2. 1000 seed weight (data)
3. Purity test (sample size, PSD)

Example taken from:

ISTA Handbook on Flower Seed Testing

ASTERACEAE *Coreopsis*

1. Seed description

Coreopsis basalis

Size: 2,5-3,5 mm x 1,8-2,0 mm. Colour: greyish brown with light brown edges.
Shape: curved both longitudinally and in width. A light wing frames the achene.
Basal end is cut with a light ring around. Top is rounded.
Surface: covered with round warts, which are bigger on the dorsal side.



Coreopsis basalis.
enlarged seeds

Coreopsis grandiflora

Size: 3,0-4,5mm. Colour: dark brown with lighter edges. Shape: oval, often wider than long, very thin, curved. A fine wing edges the sides. Surface: dorsal side is rather smooth, ventral side is covered with pointed, light warts.

Coreopsis tinctoria

Size: 2,0-3,0mm x 1,0-1,2 mm. Colour: black, top and base very light. Shape: elongated oval, very thin, curved longitudinally. Basal end is cut. Ventral side has a dull rib in the middle. Surface: finely lined and covered with short light bristles.



Coreopsis grandiflora:
enlarged seeds



Coreopsis tinctoria:
enlarged seeds

2. 1000 seed weight

Coreopsis basalis: 1,20 g

Coreopsis lanceolata

Coreopsis maritima

Coreopsis tinctoria: 0,28 g

(*Coreopsis grandiflora*: 1,8 g)

3. Purity test

Sample size:

Coreopsis basalis: 5 g

Coreopsis lanceolata: 5 g

Coreopsis maritima: 1 g

Coreopsis tinctoria: 1 g

Type of fruit: achene.

Pure seed definition: PSD 8 Chaffy (ISTA Rules 3.2.1.A.)

Achene with or without wing, unless it is obvious that no seed is present.

Piece of achene larger than one-half the original size, unless it is obvious that no seed is present.

Seed with the pericarp/testa partially or entirely removed.

Piece of seed larger than one-half the original size, with the pericarp/testa partially or entirely removed.

WP B1 - HANDBOOK

WORKING SHEET cont.

4. Germination test

Example taken from:

ISTA Handbook on Flower Seed Testing

ASTERACEAE *Gazania*

4.1. Methods

Substrate	Temperature (C°)	First count (days)	Final count (days)	Additional directions (breaking dormancy, etc..)
TP; BP	20-30; 15	4-7	21	Prechill

4.2. Seedling evaluation

Seedling Type: E; Seedling Group: A-2-1-1-1

4.3. Seedling description

Dicotyledons with epigeal germination, without epicotyl elongation. The shoot system consists of the elongated hypocotyl and two cotyledons with the terminal bud lying between them; there is no epicotyl elongation with the test period; epicotyl and terminal bud are not visible. The hypocotyl elongates and raises the attached cotyledons, which commence photosynthesis and turn green. The root system consists of the primary root, which must be normal and well developed. Secondary roots very rarely develop during the test period, and are not taken into account in seedling evaluation.

Type of Abnormality	Frequency
0 OVERALL ABNORMALITIES	
0 The seedling	
00/01 Deformed	XX
00/03 Releases the cotyledons before the primary root from the seed coat	XX
00/06 Yellow or white	X
00/08 Glassy	XX
00/09 Decayed	XXX
1 ABNORMALITIES OF THE ROOT SYSTEM	
11 The primary root	
11/01 Stunted	XX
11/03 Retarded	XX
11/04 Missing	XXX
11/07 Trapped in the seed coat	XX
11/12 Decayed as a result of primary infection	XXX
2 ABNORMALITIES OF THE SHOOT SYSTEM	
21 The hypocotyl	
21/1 Short and thick	X
21/04 Split right through	X
21/11 Glassy	XX
21/12 Decayed as a result of primary infection	XX
22 The terminal bud and the surrounding tissue	
	-
3 ABNORMALITIES OF THE COTYLEDONS AND PRIMARY LEAVES	
31 The cotyledons – apply the 50% rule	
31/03 Broken or damaged	X
31/04 Separate or missing	XX
31/05 Discoloured or necrotic	X

Normal and abnormal seedlings of *Gazania rigens*

Asteraceae *Gazania*



Normal seedlings



11/07 Primary root trapped in the seed coat



11/04 Primary root missing



21/12 Hypocotyl decayed as a result of primary infection



31/05 Cotyledons are discoloured or necrotic



00/08 Glassy seedling



00/09 Decayed as a result of primary infection

WP B1 - HANDBOOK

WORKING SHEET cont.

5. Tetrazolium test (not included in every ws)

Example taken from: 

ISTA Handbook on Flower Seed Testing
ASTERACEAE *Calendula*

Tetrazoliumtest for evaluating seed viability

1. Species / Genus : *Calendula* spp., Asteraceae; pot-marygold.
Method explained by *Calendula officinalis*.



: Seed tissue (lateral view): length 10-20 mm

2. Instruments : Beakers (4 x 50 ml), little bowl, racer blades, dissecting needle, dissecting needle (lancet tip), scalpel, filter paper, forceps, support for evaluation, binocular.

3. Treatment before staining : Soak 18 hours in water at 20 °C.
4. Preparation for staining : Cut fruit (achene) and seed coat at the distal end and expose seed, remove seed coat to expose embryo.

5. Staining time (TZ = 1,0 %, 30°) : 4 hours.

6. Preparation for evaluation : None.

7. Evaluation (Maximum area of unstained, flaccid or necrotic tissue permitted) : $\frac{1}{3}$ radical, measured from the radical tip, $\frac{1}{3}$ distal area of cotyledons, $\frac{1}{2}$ if superficial.

8. Remarks : None.

Fig. 1: Preparation step(s)

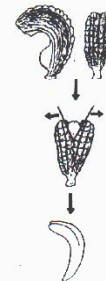


Fig. 2: Evaluation, examples of none viable seeds.



WP B1 - HANDBOOK

WORKING SHEET cont.



6. *Seed-borne diseases (list)



7. *Literature*



*not included in every ws

WP B1 - HANDBOOK

Accepted working sheets:

Asteraceae: <i>Calendula, Gaillardia, Tagetes</i>	2001
Balsaminaceae: <i>Impatiens</i>	2001
Caryophyllaceae: <i>Dianthus</i>	2001
Violaceae: <i>Viola</i>	2001
Primulaceae: <i>Cyclamen</i>	2002
Solanaceae: <i>Petunia</i>	2002
Asteraceae: <i>Ageratum, Callistephus, Coreopsis, Cosmos, Gazania, Dahlia, Zinnia</i>	2003



WP B1 - HANDBOOK

Draft work sheets:

Asteraceae: *Aster, Bellis, Centaurea,*
Helichrysum, Rudbeckia

2004

Next in 2005 :

Scrophulariaceae: *Antirrhinum*

Amaranthaceae: *Celosia*

Lamiaceae: *Salvia*

Acanthaceae: *Thunbergia*

Verbenaceae: *Verbena*



WP C – WORKSHOPS AND SEMINARS

C.1 Training and education workshops

Flower Seed Testing Workshop is planned.



C.2 **Seminars:** not planned.

WP D – PROFICIENCY TESTS

ISTA PROFICIENCY TEST ROUND 05-1 - *Zinnia elegans*

65 participants (92 labs ISTA accredited/44 labs accredited for flower species)

3 lots

Test: germination (replicates of 25/50 seeds each recommended)

Distribution: February 2005

Deadline: May 2nd, 2005

Zinnia elegans



Normal seedlings



21/12 Hypocotyl decayed

FUTURE

Continue Handbook with work sheets of:

Gypsophila, Portulaca, Tropaeolum, Eschscholzia

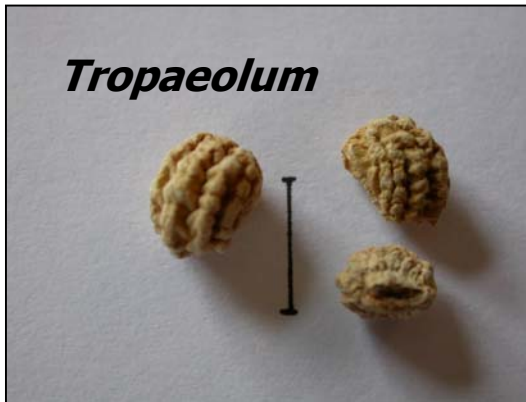
Gypsophila



Portulaca



Tropaeolum



Eschscholzia



FUTURE

Workshop in 2006

Location: Italy (?)

Period: May-June 2006 (?)





GRAZIE!!!

THANK YOU!!!