

Statistics Committee



Bangkok
Ordinary meeting
2005

GREGOIRE S. LAFFONT J.L. REMUND K. KRUSE M.

Agenda

- STA members and activities (refer to web site)
- Rating ISTA Proficiency Tests on chapter 8
 - Presence/absence of impurities
 - Quantification of impurities
- Seedcalc improvements /workshops
- Questions



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Statistics Committee

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- Chair** Sylvain Grégoire
Vice Kirk Remund
Member Julianna Banyai
Julia Barabas
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Winfried Jackisch
Michael Kruse
Jean-Louis Laffont
Andrew Peace
Petra Remeus
Erhard Thomas

news

ISTA ORDINARY
MEETING 2005
Final Programme
available now!

[More info »](#)

6th ISTA/FAO Workshop
Variety Verification and
GMO Detection
Register Online now!

[More info »](#)

2nd ISTA Moisture
Workshop
Register Online now!

TCOM / STA

Statistics Committee

Introduction

If you are involved in statistics in relation to plants you might be interested to join the Statistics Committee. Of course the scope of activity is related to seed testing. This covers wide areas as all technical activities may benefit from statistics (physiology, pathology, vision recognition, inter-laboratory tests, etc...). Teachers in universities or Agricultural high schools, persons involved in the seed industry, researchers in plant breeding, and many others might be interested in our projects.

The work is made on a voluntary basis. Within the committee some projects are under the responsibility of sub-groups; while for other demands members interact individually with colleagues of other committees.

The aim of the statistics committee is to provide help to all other ISTA committees. Nevertheless the exchange between individuals is fruitful "not only for ISTA work", as the questions are usually also of interest in your own job when you collaborate on a given subject.

Rating GMO Proficiency Tests

- Rating is a general feature of ISTA proficiency tests
 - provided by each technical committee,
 - through the test leader (+chairperson) and ISTA Secretariat
 - with the available assistance of the proficiency test committee and the statistics committee

One test rating	One test Score Value	Overall rating on 6 tests	Range on 6 tests
A	5 points	A	28 – 30 points
B	4 points	B	21 – 27 points
C	3 points	C	16 – 20 points
BMP	0 points	BMP	below 16 points

The current ISTA system rates a Proficiency Test, and a run of 6 tests.

Suggested decoding of rates

- A No problem has been detected in this test.
- B There are small problems, but no specific look or action is suggested to the participant.
- C Problems, ISTA indicates there might be things to consider by the laboratory to explain or correct things.
- BMP Below Minimum of Performance, ISTA indicates the results were poor and the laboratory has to explain or correct

3 rating systems based on miss-classification of presence/absence of impurities on 10 to 30 samples per test

The true value presence/absence is known with great confidence

"For checking genetic purity, 30,000 seeds of the negative seed lot were tested and proved to be negative and 400 seeds from the positive seed lot were individually tested and proved to be positive.

Impurities were individually added, negative samples were prepared and sealed before preparation of samples with impurities.

Rate	Fixed Number of misclassified samples	Rate	Percentage of misclassified samples	Rate	Percentage of misclassified samples
A	0 errors	A	0% - 5%	A	0% - 6%
B	1 or 2 errors	B	>5% - 10%	B	>6% - 20%
C	3 errors	C	>10% - 20%	C	>20% - 30%
BMP	More than 3 errors	BMP	>20%	BMP	>30%

The true value presence/absence is known with great confidence

Missclassifications:

- a positive sample is reported as negative by the laboratory
- a negative sample is reported as positive by the laboratory

Rate	Fixed Number of misclassified samples
A	0 errors
B	1 or 2 errors
C	3 errors
BMP	More than 3 errors

System 1

Rate	Percentage of misclassified samples
A	0% - 5%
B	>5% - 10%
C	>10% - 20%
BMP	>20%

System 2

Rate	Percentage of misclassified samples
A	0% - 6%
B	>6% - 20%
C	>20% - 30%
BMP	>30%

System 3

Computations per rating system

Microsoft Excel - ratinggrid 3 rates.xls

Fichier Edition Affichage Insertion Format Outils Données Fenêtre ?

masquer

Commentaire 1

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	0	1	2	3	4	5	6	7	8	9	10	11	
2	0%	100%	-	-	-	-	-	-	-	-	-	A	0 to 5%
3	0%	2%-100%	50%	-	-	-	-	-	-	-	-	B	>5 to 10%
4	0%	1%-99%	16%-100%	100%	-	-	-	-	-	-	-	C	>10 to 20%
5	0%	33%	67%	100%	-	-	-	-	-	-	-	BMP	More than 20%
6	0%	1%-91%	9%-99%	29%-100%	100%	-	-	-	-	-	-	-	-
7	0%	25%	50%	75%	100%	-	-	-	-	-	-	-	-
8	0%	20%	40%	60%	80%	100%	-	-	-	-	-	-	-
9	0%	1%-72%	5%-85%	15%-95%	28%-99%	48%-100%	-	-	-	-	-	-	-
10	0%	17%	33%	50%	67%	83%	100%	-	-	-	-	-	-
11	0%	0%-46%	0%-64%	4%-78%	12%-88%	22%-96%	36%-100%	54%-100%	-	-	-	-	-
12	0%	14%	29%	43%	57%	71%	86%	100%	-	-	-	-	-
13	0%	0%-41%	0%-58%	4%-71%	10%-82%	18%-90%	29%-96%	42%-100%	59%-100%	-	-	-	-
14	0%	13%	25%	38%	50%	63%	75%	88%	100%	-	-	-	-
15	0%	0%-37%	0%-53%	3%-65%	9%-76%	16%-84%	24%-91%	35%-97%	47%-100%	63%-100%	-	-	-
16	0%	11%	22%	33%	44%	56%	67%	78%	89%	100%	-	-	-
17	0%	0%-34%	0%-48%	3%-60%	7%-70%	14%-79%	21%-86%	30%-93%	40%-97%	52%-100%	66%-100%	-	-
18	0%	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	-
19	0%	0%-31%	0%-45%	3%-56%	7%-65%	12%-74%	19%-81%	26%-88%	35%-93%	44%-97%	55%-100%	69%-100%	-
20	0%	0%	9%	18%	27%	36%	45%	55%	64%	73%	82%	91%	100%
21	0%	0%-28%	0%-41%	2%-52%	6%-61%	11%-69%	17%-77%	23%-83%	31%-89%	39%-94%	48%-98%	59%-100%	72%-100%
22	0%	0%	8%	17%	25%	33%	42%	50%	58%	67%	75%	83%	92%
23	0%	0%-26%	0%-38%	2%-48%	5%-57%	10%-65%	15%-72%	21%-79%	28%-85%	35%-90%	43%-95%	52%-98%	62%-100%
24	0%	0%	8%	15%	23%	31%	38%	46%	54%	62%	69%	77%	85%
25	0%	0%-25%	0%-36%	2%-45%	5%-54%	9%-61%	14%-68%	19%-75%	25%-81%	32%-86%	39%-91%	46%-95%	55%-98%
26	0%	0%	7%	14%	21%	29%	36%	43%	50%	57%	64%	71%	79%
27	0%	0%-23%	0%-34%	2%-43%	5%-51%	8%-58%	13%-65%	18%-71%	23%-77%	29%-82%	35%-87%	42%-92%	49%-95%
28	0%	0%	7%	13%	20%	27%	33%	40%	47%	53%	60%	67%	73%
29	0%	0%-22%	0%-32%	2%-40%	4%-48%	8%-55%	12%-62%	16%-68%	21%-73%	27%-79%	32%-84%	38%-88%	45%-92%
30	0%	0%	6%	13%	19%	25%	31%	38%	44%	50%	56%	63%	69%
31	0%	0%-21%	0%-30%	2%-38%	4%-46%	7%-52%	11%-59%	15%-65%	20%-70%	25%-75%	30%-80%	35%-85%	41%-89%
32	0%	0%	6%	12%	18%	24%	29%	35%	41%	47%	53%	59%	65%

Columns = number of samples misclassified
 Lines = number of samples tested
 Cells = error rate and its confidence interval at 95% obtained from SAS proc freq S. GREGOIRE 2003

One folder per rating system

A	0 to 5%
B	>5 to 10%
C	>10 to 20%
BMP	More than 20%

System 2

Example

Rating system 2

A	0 to 5%
B	>5 to 10%
C	>10 to 20%
BMP	More than 20%

A	B	C	D	E	F
samples	0	1	2	3	4
1	0%	100%	-	-	-
2	0%	50%	100%	-	-
3	0%	33%	67%	100%	-
4	0%	25%	50%	75%	100%
5	0%	20%	40%	60%	80%
6	0%	17%	33%	50%	67%
7	0%	14%	29%	43%	57%
8	0%	13%	25%	38%	50%
9	0%	11%	22%	33%	44%
10	0%	10%	20%	30%	40%

4 mistakes in this proficiency test

Error rate 40%

Confidence interval

[12% - 74%]

=>BMP rating

40%	5
12%-74%	1
36%	4

10 samples in this Proficiency test

All possible combinations of the 3 rating systems for every proficiency test design are available

Rate	Fixed Number of misclassified samples
A	0 errors
B	1 or 2 errors
C	3 errors
BMP	More than 3 errors

Rate	Percentage of misclassified samples
A	0% - 5%
B	>5% - 10%
C	>10% - 20%
BMP	>20%

Rate	Percentage of misclassified samples
A	0% - 6%
B	>6% - 20%
C	>20% - 30%
BMP	>30%

	0%	10%	20%	30%	40%	50%
10	0% 0%-31%	10% 0%-45%	20% 3%-56%	30% 7%-65%	40% 12%-74%	50% 19%-81%
11	0% 0%-28%	9% 0%-41%	18% 2%-52%	27% 6%-61%	36% 11%-69%	45% 17%-77%
12	0% 0%-26%	8% 0%-38%	15% 2%-48%	23% 5%-57%	31% 10%-65%	38% 15%-72%
13	0% 0%-25%	8% 0%-36%	15% 2%-45%	23% 5%-54%	31% 9%-61%	38% 14%-68%
14	0% 0%-23%	7% 0%-34%	13% 2%-43%	20% 5%-51%	27% 8%-58%	33% 13%-65%
15	0% 0%-22%	6% 0%-32%	13% 2%-40%	19% 4%-48%	25% 8%-55%	31% 12%-62%
16	0% 0%-21%	6% 0%-30%	12% 2%-38%	18% 4%-46%	24% 7%-52%	29% 11%-59%
17	0% 0%-20%	6% 0%-29%	11% 1%-36%	17% 4%-43%	22% 7%-50%	28% 10%-56%
18	0% 0%-19%	6% 0%-27%	11% 1%-35%	17% 4%-41%	22% 6%-48%	28% 10%-53%
19	0% 0%-18%	5% 0%-26%	10% 1%-33%	15% 3%-40%	20% 6%-46%	25% 9%-51%
20	0% 0%-17%	5% 0%-25%	10% 1%-32%	14% 3%-38%	19% 6%-44%	24% 9%-49%
21	0% 0%-16%	5% 0%-24%	10% 1%-30%	14% 3%-36%	19% 5%-42%	24% 8%-47%
22	0% 0%-15%	5% 0%-23%	9% 1%-29%	14% 3%-35%	18% 5%-40%	23% 8%-45%
23	0% 0%-15%	4% 0%-22%	9% 1%-28%	13% 3%-34%	17% 5%-39%	22% 7%-44%
24	0% 0%-14%	4% 0%-21%	8% 1%-27%	13% 3%-32%	17% 5%-37%	21% 7%-42%

	0%	10%	20%	30%	40%	50%
10	0% 0%-31%	9% 0%-45%	18% 3%-56%	27% 7%-65%	36% 12%-74%	45% 19%-81%
11	0% 0%-28%	8% 0%-41%	17% 2%-52%	25% 6%-61%	33% 11%-69%	42% 17%-77%
12	0% 0%-26%	8% 0%-38%	15% 2%-48%	23% 5%-57%	31% 10%-65%	38% 15%-72%
13	0% 0%-25%	8% 0%-36%	15% 2%-45%	23% 5%-54%	31% 9%-61%	38% 14%-68%
14	0% 0%-23%	7% 0%-34%	13% 2%-43%	20% 5%-51%	27% 8%-58%	33% 13%-65%
15	0% 0%-22%	6% 0%-32%	13% 2%-40%	19% 4%-48%	25% 8%-55%	31% 12%-62%
16	0% 0%-21%	6% 0%-30%	12% 2%-38%	18% 4%-46%	24% 7%-52%	29% 11%-59%
17	0% 0%-20%	6% 0%-29%	11% 1%-36%	17% 4%-43%	22% 7%-50%	28% 10%-56%
18	0% 0%-19%	6% 0%-27%	11% 1%-35%	17% 4%-41%	22% 6%-48%	28% 10%-53%
19	0% 0%-18%	5% 0%-26%	10% 1%-33%	15% 3%-40%	20% 6%-46%	25% 9%-51%
20	0% 0%-17%	5% 0%-25%	10% 1%-32%	14% 3%-38%	19% 6%-44%	24% 9%-49%
21	0% 0%-16%	5% 0%-24%	10% 1%-30%	14% 3%-36%	19% 5%-42%	24% 8%-47%
22	0% 0%-15%	5% 0%-23%	9% 1%-29%	14% 3%-35%	18% 5%-40%	23% 8%-45%
23	0% 0%-15%	4% 0%-22%	9% 1%-28%	13% 3%-34%	17% 5%-39%	22% 7%-44%
24	0% 0%-14%	4% 0%-21%	8% 1%-27%	13% 3%-32%	17% 5%-37%	21% 7%-42%

	0%	10%	20%	30%	40%	50%
10	0% 0%-31%	9% 0%-45%	18% 3%-56%	27% 7%-65%	36% 12%-74%	45% 19%-81%
11	0% 0%-28%	8% 0%-41%	17% 2%-52%	25% 6%-61%	33% 11%-69%	42% 17%-77%
12	0% 0%-26%	8% 0%-38%	15% 2%-48%	23% 5%-57%	31% 10%-65%	38% 15%-72%
13	0% 0%-25%	8% 0%-36%	15% 2%-45%	23% 5%-54%	31% 9%-61%	38% 14%-68%
14	0% 0%-23%	7% 0%-34%	14% 2%-43%	21% 5%-51%	29% 8%-58%	36% 13%-65%
15	0% 0%-22%	7% 0%-32%	13% 2%-40%	20% 4%-48%	27% 8%-55%	33% 12%-62%
16	0% 0%-21%	6% 0%-30%	13% 2%-38%	19% 4%-46%	25% 7%-52%	31% 11%-59%
17	0% 0%-20%	6% 0%-29%	11% 1%-36%	17% 4%-43%	22% 7%-50%	28% 10%-56%
18	0% 0%-19%	6% 0%-27%	11% 1%-35%	17% 4%-41%	22% 6%-48%	28% 10%-53%
19	0% 0%-18%	5% 0%-26%	10% 1%-33%	15% 3%-40%	20% 6%-46%	25% 9%-51%
20	0% 0%-17%	5% 0%-25%	10% 1%-32%	14% 3%-38%	19% 6%-44%	24% 9%-49%
21	0% 0%-16%	5% 0%-24%	10% 1%-30%	14% 3%-36%	19% 5%-42%	24% 8%-47%
22	0% 0%-15%	5% 0%-23%	9% 1%-29%	14% 3%-35%	18% 5%-40%	23% 8%-45%
23	0% 0%-15%	4% 0%-22%	9% 1%-28%	13% 3%-34%	17% 5%-39%	22% 7%-44%
24	0% 0%-14%	4% 0%-21%	8% 1%-27%	13% 3%-32%	17% 5%-37%	21% 7%-42%

Summary of presence/absence rating for PT04

50 laboratories

Comparison of the 3 Rating Systems for the Laboratories participated in ISTA Proficiency Test 4 only

