

Vigour Committee 2005-2006

- **Validated tests**
- **Extending validated tests**
- **Development of new vigour tests**
- **Workshops**

Validated tests(1)

- **Conductivity test for *Pisum sativum***

2nd proficiency test: October 2005

30 laboratories

11 accredited for vigour

11 other accredited laboratories

8 other laboratories

Summary of conductivity data

Laboratories		Lot 1	Lot 2	Lot 3
All (30)	Mean	25.9	29.4	16.8
	SD	2.00	2.46	1.50
Vigour accredited (11)	Mean	25.6	28.5	16.9
	SD	2.11	1.98	1.70
All accredited (22)	Mean	25.8	29.4	16.6
	SD	2.09	2.32	1.59

- **Data analysis**

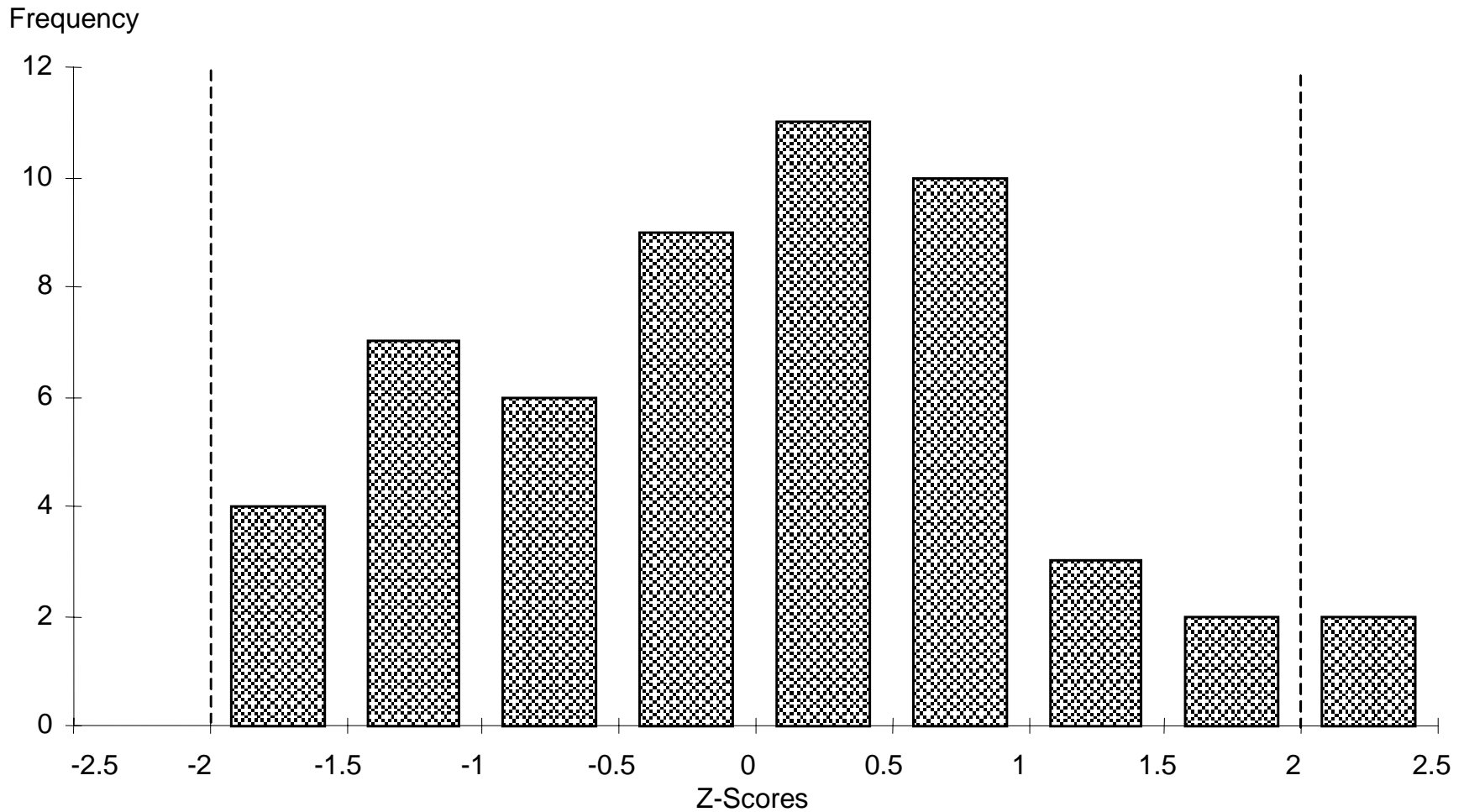
Z scores – can they be applied to conductivity testing?

Analysis completed by Secretariat for 2 testing rounds

Data reviewed by two members of Statistics Committee

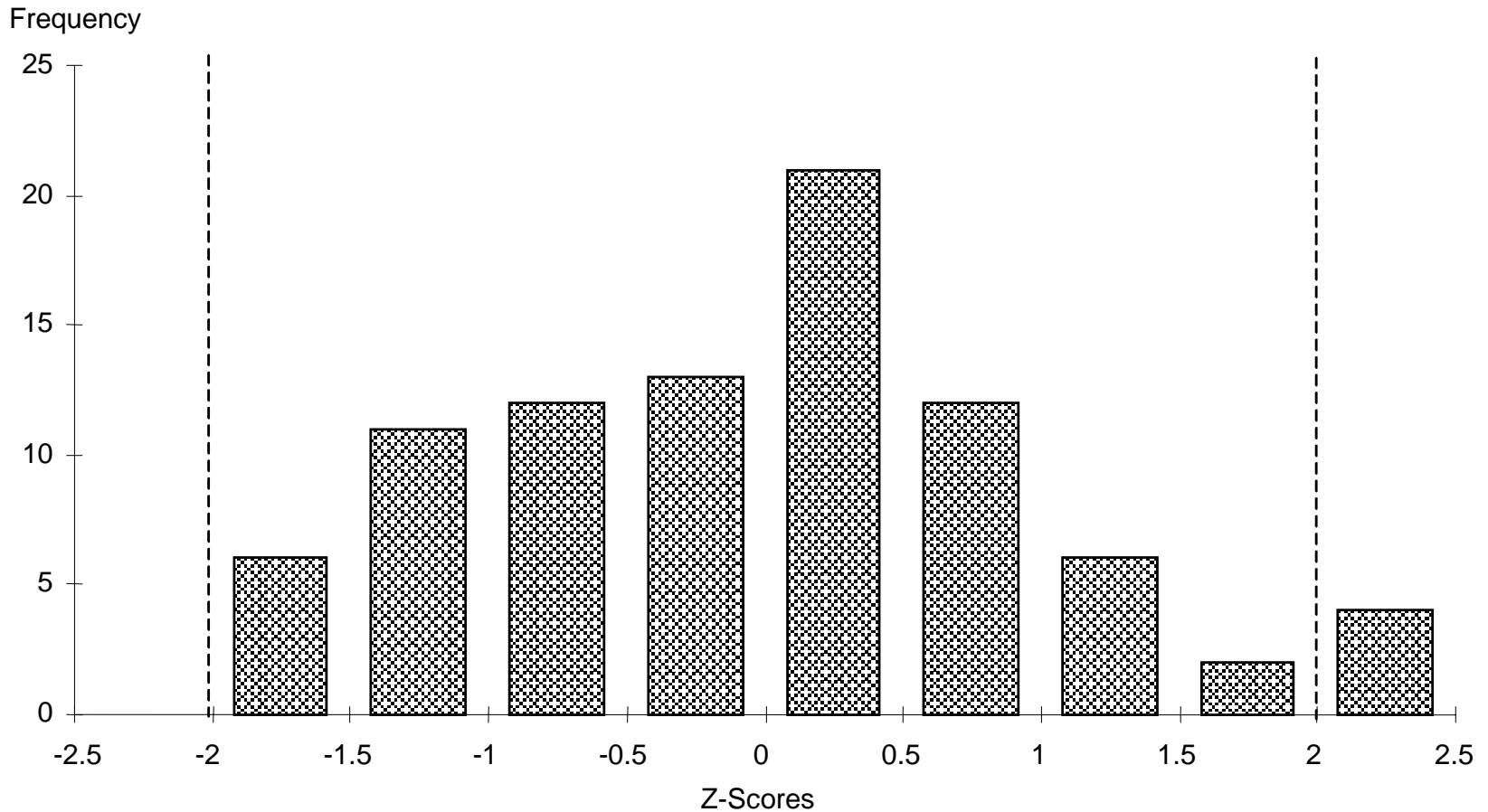
1st proficiency test: 19 labs

Distribution of Z-Scores



2nd proficiency test: 30 labs

Distribution of Z-Scores



Number of laboratories with different ratings in two proficiency test rounds

Lab rating	A	B	C	BMP
1st round	15	4	0	0
2nd round	24	4	1	1

Conclusions:

- **Results of proficiency test for conductivity can be reported using Z-scores and rating system**
- **Continue to monitor test results to ensure normal distribution maintained**

Validated tests (2)

- **Accelerated ageing test for *Glycine max***
 - Possible proficiency test?
 - 20 laboratories expressed interest in participating
 - Survey of equipment: only 8 out of 20 replied
 - Only 3 had full equipment

Extending validated tests to new species

(1) Conductivity test:

- *Phaseolus vulgaris* (green / French bean)
- *Brassica napus var oleifera* (oilseed rape)

(2) Accelerated ageing test

- maize

(1) Conductivity test

- ***Phaseolus vulgaris* (green / French bean)**
 - **5 laboratories (AU, FR, GB, IT, NZ)**
 - **6 seed lots**
 - **3 repeat test runs**
 - **Same protocol as used for *Pisum sativum***

Lot	Laboratory					
	1	2	3	4	5	Mean
A	25.1 (5)	28.8 (5)	28.9 (5)	25.6 (5)	26.5 (5)	27.0^d
B	24.2 (6)	26.9 (6)	27.2 (6)	24.1 (6)	25.1 (6)	25.5^e
C	36.2 (1)	40.7 (1)	42.5 (1)	37.3 (1)	38.8 (1)	39.1^a
D	32.2 (2)	35.5 (2)	38.4 (2)	31.6 (2)	32.8 (2)	34.1^b
E	28.1 (4)	31.5 (3)	33.1 (3)	27.9 (3)	29.7 (3)	30.1^c
F	28.4 (3)	31.4 (4)	32.6 (4)	27.3 (4)	29.2 (4)	29.8^c
Mean	29.1^D	32.5^B	33.8^A	29.0^D	30.1^C	

High vigour

Low vigour

Coefficient of variation for whole experiment = 4.3%

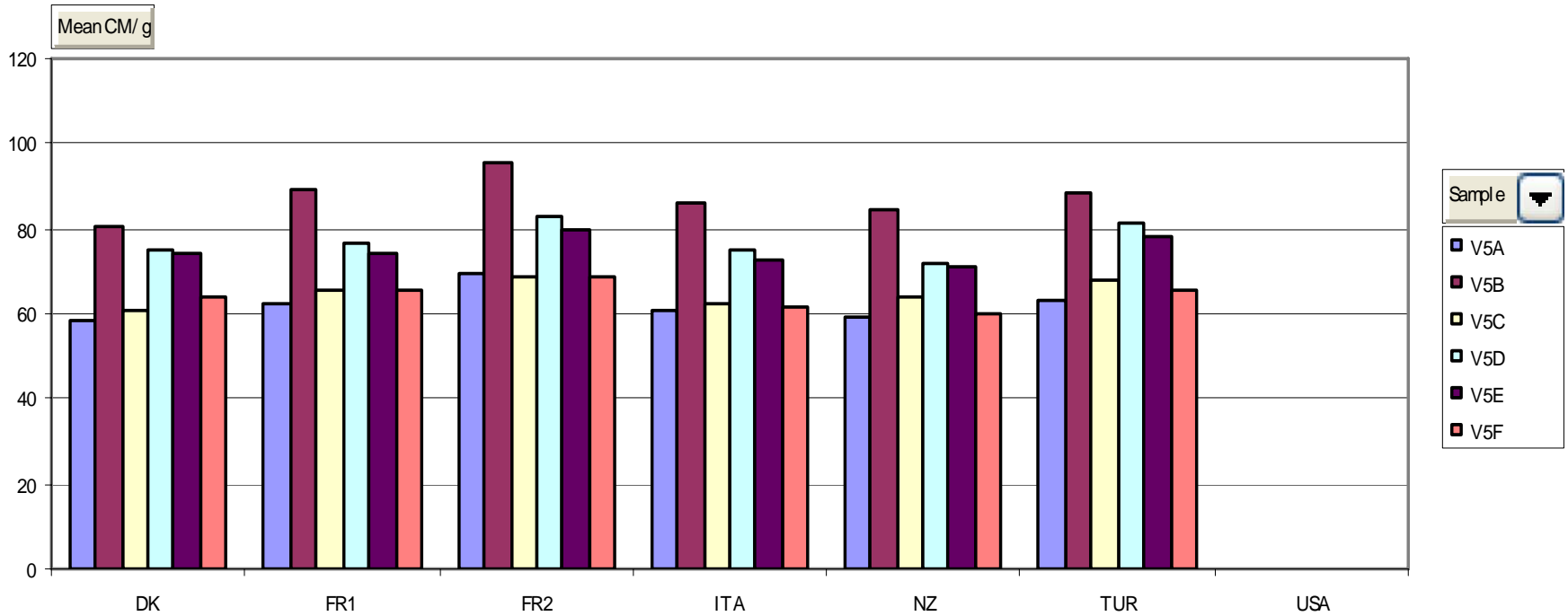
In a column, values followed by different letters are significantly different $p \geq 0.05$

In a row, values followed by different upper case letters are significantly different $p \geq 0.05$

- ***Brassica napus var oleifera* (oilseed rape)**
 - Another dicotyledon species
- **WG leader: Marie-Helene Wagner, France**
 - 8 laboratories
 - 6 samples
 - 3 runs
 - 4 replicates of 50 seeds in 50ml deionised water;
20°C for 16h

Comparison of lots within laboratories

Run (All) ▾

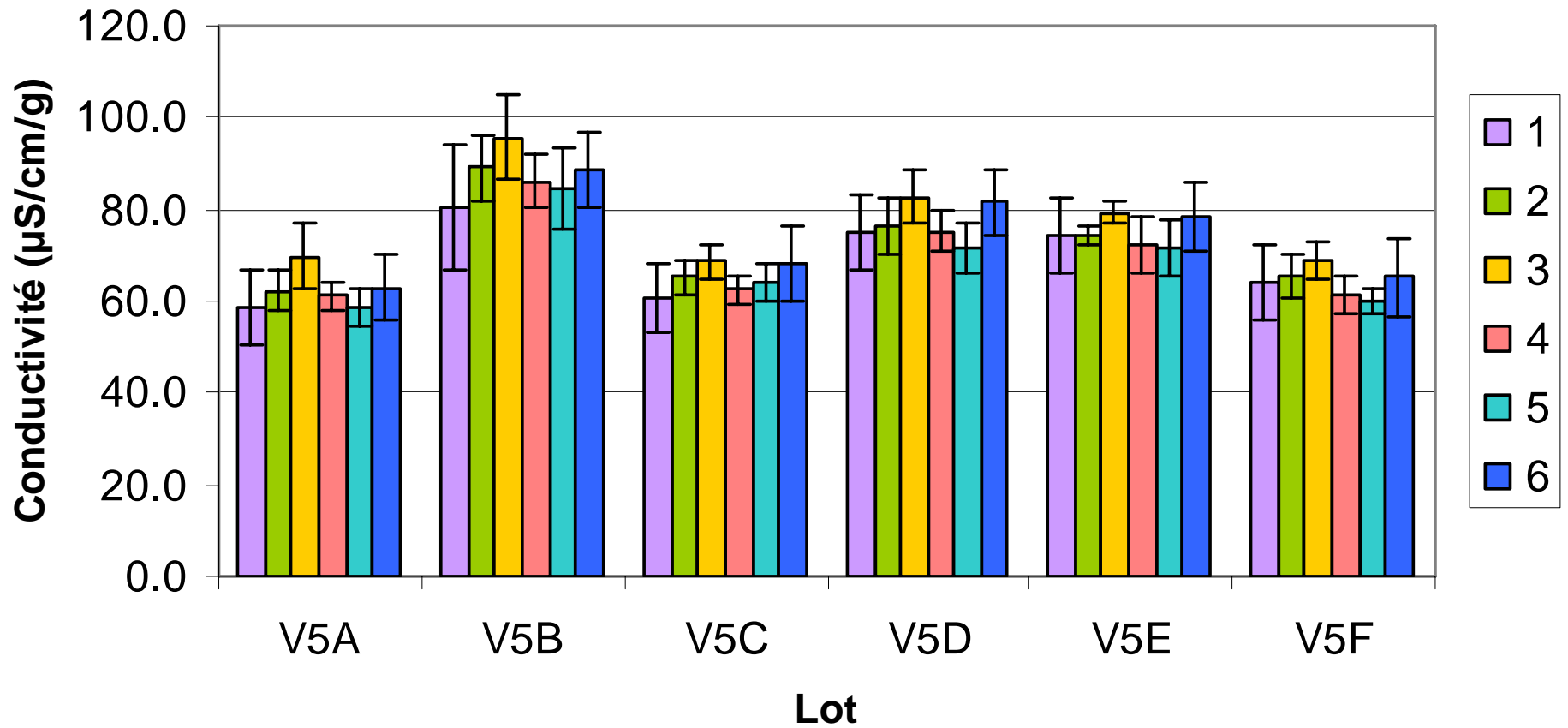


Sample ▾

- V5A
- V5B
- V5C
- V5D
- V5E
- V5F

Lab ▾

Comparison of laboratories



Conclusions

- **The Conductivity test applied to bean and oilseed rape is**
 - Repeatable
 - Reproducible
- **Relationship to field emergence and / or storage potential should be examined next.**

(2) Accelerated ageing test

- ***Zea mays* (Maize)**
- **Working group leader: Rasha El Khadem**
 - **8 laboratories (AT, FR, IT, KR, NZ, 3 x US)**
 - **5 seed lots**
 - **Samples to be sent out in July 06**

Development of new vigour tests

- **Controlled deterioration test validation**
 - Preparation in progress
- **Rate of germination as a vigour test**
 - 4 laboratories (GB, FR, DK, IR)
 - Maize: 3 ongoing projects
 - One 'in press' in SST

- **11 seed lots**
- **Germination in rolled towels at 13°C and 20°C**
- **Germination counted every 6h (13°C) or daily (20°C)**
- **2 assessments of germination**
 - **Just germination (appearance of radicle)**
 - **Germination (2mm radicle)**
- **Calculation of mean germination time (MJGT, MGT)**
- **Emergence in field soil**

Rate of germination and vigour

	MJGT	MGT
Final emergence	-0.495	-0.633*
Mean emergence time (MET)	0.646*	0.749**
Mean seedling length	-0.635*	-0.780**
CV seedling length	0.641*	0.700*

Workshops

- **May 2006**
- **SNES, Angers**
- **Contributors**
 - **Dennis TeKrony**
 - **Stan Matthews**
 - **Sylvie Ducournau**
 - **Marie-Helene Wagner**
 - **Alison Powell**



- **21 participants**
- **15 countries**
 - **ISTA labs (9)**
 - **Seed companies (7)**
 - **Universities/research (4)**
 - **FAO (1)**



We worked hard!



**We climbed the tower
of the Chateau
d'Angers**

**– a vigour test for
participants**



**And relaxed at the
Cointreau Museum!**

