

**24th Task Force Meeting of ICP Forests
Larnaca, Cyprus, 24-28 May 2008**

Report
of the
Working Group QA/QC in Laboratories

Nils König
chairperson of the Working Group on QA/QC in Labs



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Göttingen, Germany



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**New mandate for the WG QA/QC in Labs
from the last Task Force Meeting in Zvolen 2007:**

1. Changing of the composition of the Working Group on QA/QC in Labs:
representatives of all the expert panels associated with chemical analyses (EP on Deposition, Soil, Soil solution, Foliar and Litterfall, Air Quality etc.) should be members of the group in the future.
2. Regular meetings of the heads of the laboratories shall be organized by the WG

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2 meetings of the WG took place since the last Task Force meeting in Zvolen 2007:

1. Eger, Hungary, September 2007

(back to back with the Expert Panel Deposition)

2. Florence, Italy, April 2008

(back to back with the Soil Expert Panel)

**All results and presentations
can be downloaded from the
ICP Forests website !**

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At these 2 meetings and in the time between the following 11 topics were handled by the WG:

- 1. The announced paper for all labs/NFC's with all necessary quality checks in labs was developed and discussed. The first version of the paper titled "Quality assurance and control in laboratories – a review of possible quality checks and other forms of assistance" will be presented at the Task Force Meeting in Larnaca (Cyprus), May 2008.**
- 2. The first meeting of the heads of the labs in ICP Forests was discussed and prepared and will take place in Hamburg, June 9th/10th**
- 3. A proposal for a quality program for chemical analyses within the FutMon project was developed and integrated in the FutMon request.**

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At these 2 meetings and in the time between the following 9 topics were handled by the WG:

1. The announced paper for all labs/NFC's with all necessary quality checks in labs was developed and discussed. The first version of the paper titled "Quality assurance and control in laboratories – a review of possible quality checks and other forms of assistance" will be presented at the Task Force Meeting in Larnaca (Cyprus), May 2008.
2. **The first meeting of the heads of the labs in ICP Forests was discussed and prepared and will take place in Hamburg, June 9th/10th**
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3. **A proposal for a quality program for chemical analyses within the FutMon project was developed and integrated in the FutMon request.**

Topic 9

**Meeting of the Working Group QC/QA in Labs
15. April 2008 in Florence, Italy**

Quality Assurance and Control Program in the FutMon-Project

**Ring test program
ICP Forest
2009-2013**

ringtest		year				
		2009	2010	2011	2012	2013
soil		X		X		X
foliar		X	X	X	X	X
water		X	X	X	X	X

Topic 9

**Meeting of the Working Group QC/QA in Labs
15. April 2008 in Florence, Italy**

Quality Assurance and Control Program in the FutMon-Project

Meetings

year

2009 2010 2011 2012 2013

WG on QA/QC (12 persons)		1	1	1	1	1
Meeting of the head of the labs (50 persons)		1		1		1

Topic 9

**Meeting of the Working Group QC/QA in Labs
15. April 2008 in Florence, Italy**

Quality Assurance and Control Program in the FutMon-Project

The **helping program for laboratories with bad ring test results – visits and backvisits of colleagues from laboratories with high quality – is very important to improve the quality of the laboratories. The helping program will be organized by the WG of QA/QC in labs of ICP Forests.**

22 helping visits within 5 years

24th Task Force Meeting of ICP Forests Larnaca, Cyprus, 24-28 May 2008

At these 2 meetings and in the time between the following 9 topics were handled by the WG:

4. The results of the 9th and 10th foliage ring test and the 5th soil ring test were discussed and reviewed.



**24th Task Force Meeting of ICP Forests
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At these 2 meetings and in the time between the following 9 topics were handled by the WG:

- 5. Tolerable limits for ring test results were proposed and discussed. They will be integrated in the quality check paper.**

Topic 2

Meeting of the Working Group QC/QA in Labs 15. April 2008 in Florence, Italy

tolerable limits for ringtests (soil)

Soil Property	Observation Range	Level	RingTest Tolerable limit (% of mean)	Intra-Laboratory Tolerable limit (% of mean)
Moisture content (%)	lower	≤ 1.0	± 25	± 6
	higher	> 1.0	± 15	± 4
pH _{H2O} -	whole	2.0 – 8.0	± 5	± 1
pH _{CaCl2} -	whole	2.0 – 8.0	± 5	± 1
OC g kg ⁻¹	lower	≤ 25	± 20	± 5
	higher	> 25	± 15	± 3
N g kg ⁻¹	lower	≤ 1.5	± 30	± 9
	higher	> 1.5	± 10	± 3
Carbonates g kg ⁻¹	lower	≤ 50	± 130	± 5
	higher	> 50	± 40	± 3

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At these 2 meetings and in the time between the following 9 topics were handled by the WG:

- 6. Consequences for labs with unacceptable ring test results were discussed and a proposal with requalification and helping steps for labs were developed. This proposal will be discussed on the meeting of the heads of the labs in Hamburg 2008.**
- 7. An assistance program for labs with unacceptable results in ring tests was prepared and will be discussed on the meeting of the heads of the labs in Hamburg 2008.**
- 8. Plausible ranges for soil, water and plant analyses within the ICP Forests program were developed and will be integrated in the quality check paper.**

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Topic 1**Meeting of the Working Group QC/QA in Labs
15. April 2008 in Florence, Italy****plausible range checks for plant analyses**

Code	Tree species	n	Leaf	Limit	N	S	P	Ca	Mg	K	C
			type								
20	Fagus sylvatica	611	0	low	20,41	1,26	0,89	3,44	0,65	4,81	45
			0	high	29,22	2,12	1,86	14,77	2,50	11,14	55
41	Quercus cerris	37	0	low	12,86	0,91	0,63	4,81	0,98	1,19	45
			0	high	30,79	3,24	2,29	16,49	3,24	15,64	55
46	Quercus ilex	141	0	low	11,95	0,81	0,69	4,00	0,76	3,42	45
			0	high	17,24	1,41	1,22	10,32	2,62	8,46	55
48	Quercus petraea	268	0	low	19,75	1,24	0,90	4,12	1,06	5,86	45
			0	high	29,84	2,01	1,85	10,46	2,26	11,16	55
50	Quercus pyrenaica (Q. toza)	27	0	low	17,85	1,18	1,48	4,60	1,40	3,52	45
			0	high	25,50	2,33	3,12	12,03	3,00	11,81	55

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At these 2 meetings and in the time between the following 9 topics were handled by the WG:

- 9. Important improvements to the EU data reports like the integration of limits of quantification/detection limits, means, coefficients of variation (CV %) or ring test results were discussed and proposed to JRC.**
- 10. Deposition and soil solution data from 6 countries were evaluated under the aspect of integration of DOC in the ion balances.**
- 11. At the COST workshop in Istanbul a presentation about the importance of QA/QC in labs was given.**

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**24th Task Force Meeting of ICP Forests
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1st Meeting of the heads of the labs:

- time: 9th – 10th June 2008
- meeting place: Hamburg, Germany, vTI (former BFH)
- participants: 40 registrations from 18 countries already !

1st Meeting of the heads of the labs

Hamburg, Germany, 9-10 June 2008

Monday, 9.6.08

13:00 - 13:10	welcome and introduction (Nils König, Richard Fischer)	topic
13:10 - 13:30	introduction in the work of the Working Group on QA/QC in Laboratories within ICP Forests (Nils König)	1
13:30 - 14:45	presentation of a compilation of possible quality checks in laboratories (paper of the WG on QA/QC in Labs) (Nils König)	2
14:45 - 15:00	presentation of an excel sheet for control charts (Kirsti Derome)	3
15:00 - 15:30	DOC in ion balances of deposition solutions (Rosario Mosello)	4
15:30 - 15:45	presentation of an excel sheet for ion balances (Rosario Mosello)	5
15:45 - 16:15	coffee break	
16:15 - 17:00	10 th foliar ringtest a.presentation of the ring test results (Alfred Fürst) b.discussion of the ring test results	6
17:00 - 18:00	short presentations of participants about analytical problems in their labs and discussion of specific analytical problems of the labs in ringtests (foliage, water)	7
18:00 - 18:30	quality program in the FutMon project (Nils König)	8
18:30 - 19:00	assistance program for labs with unacceptable results in ringtests	9
20:00	Meeting dinner	

1st Meeting of the heads of the labs Hamburg, Germany, 9-10 June 2008

Tuesday, 10.6.08

9:00 - 10:15	5th soil ringtest a.presentation of the ring test results (Nathalie Cools) b.discussion of the ring test results	10
10:15 -11:00	short presentations of participants about analytical problems in their labs and discussion of specific analytical problems of the labs in ringtests (soil)	11
11:00 -11:15	coffee break	12
11:15 -12:30	tolerable limits for ringtests (soil, water, foliar)	13
12:30 -13:30	lunch	
13:30 -14:00	discussion of possible consequences for a lab after bad ringtest results	14
14:00 -15:00	discussion of the future work of the group of heads of the labs	15
15:00	end of the meeting	

**1st Meeting of the heads of the labs
Hamburg, Germany, 9-10 June 2008**

- Registration is still possible
until June 3rd 2008 !!!**
- All information needed can be
downloaded from the ICP Forests website
(www.icp-forests.org/headlabs.htm)**
- You are invited to offer the participation
to your heads of your labs!**

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European Union/United Nations Economic Commission for Europe
International Co-operative Programme on Assessment and Monitoring of Air
Pollution Effects on Forests

Working Group on QA/QC in Laboratories

Quality Assurance and Control in Laboratories

A review of possible quality checks and other forms of
assistance

ICP Forests Working Group on QA/QC in Laboratories

Authors: N. Clarke, N. Cools, J. Derome, K. Derome, B. De Vos,
A. Fuerst, N. Koenig, A. Kowalska, R. Mosello, G. A. Tartari, E. Ulrich

(Version 1, May 2008)

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**5 different checks
+
excel worksheet
for automatical quality check**

12 different checks

**practical solutions
for contamination problems**

tolerable limits for ring tests

**list of buyable
certified reference materials**

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Future activities of the WG:

- 1. Implementation of the 1st meeting of the heads of the labs in Hamburg, June 2008**
2. Advancement of the quality check paper and integration of the paper into the quality assurance chapter of a new ICP Forests manual
3. Cooperation with the quality committee
4. Preparation of ring tests
5. Next meeting of the WG on QA/QC in Labs in the beginning of 2009 back to back with the kick off meeting of the FutMon project or the next meeting of the quality committee

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