

International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests of UN/ECE in co-operation with the EU

Minutes of the 8th Forest Foliar Expert Panel Meeting

1. The 8th Forest Foliar Expert Panel meeting took place from 28th to 29th April 2003 in Prague/Czech Republic.
2. 18 participants from 15 countries attended the meeting (Annex 1).
3. The meeting adopted the attached agenda (Annex 2).
4. Mr. Raitio updated the Panel on current progress with the adoption of the new EU framework and implementation of the forthcoming regulations. The effects of the possible delay of adopting the new regulations on the monitoring activities at Level II network was discussed. Some countries have difficulties in financing the mandatory Level II foliar sampling this year. After detailed discussion, the Panel decided to ask ICP-Forests to send a letter to the NFCs to carry out the mandatory foliar survey of the Level II plots also in this critical year.
5. Mr. Raitio reported the activities of the expert panel since the 7th meeting in Tampere:
 - The 5th ring test was organised and the results were evaluated and published.
 - According to the decision of the 7th EP-Meeting, the laboratory numbers used to conceal the identity of the national laboratories participating in the ring test were decoded for the internal use for the expert panel.
 - Finland and Austria evaluated in close cooperation their Level I data sets in 1987-2000. The results will be published in the Forest Condition Technical Report 2003 and also in the Executive Report 2003.
 - The chairperson of the expert panel participated in the “Workshop on Elaboration and Development of Forest Monitoring in East Asia” in Seremban, Malaysia in December 2002.
 - The web pages of the FFCC internet site were updated and additional section for the use of the Expert Panel established.
 - The Foliar Forest Coordinating Centre supported some laboratories in the improvement of the quality of their foliar analysis.
6. Mr. Fürst, in the absence of Mr. Bartels, presented the results of the 5th ring test. In general, the results show good analytical quality in the participating laboratories. After some discussion, the Panel decided to reduce the tolerable concentration values for zinc, manganese and copper.

The new values for zinc and manganese are $\pm 15\%$ and for copper $\pm 20\%$. The Panel also discussed the difficulties that some laboratories in using new laboratory equipment and lack of experienced technical staff. Good analytical quality can only be obtained by daily practice and by good quality control. This quality practice must become a tradition for each laboratory and for each member of the staff too.

7. Due to the retirement of Mr. Bartels from the Panel, FFCC indicated its willingness to organise the next ring test. Mr. Fürst presented his thoughts on organising the 6th ring test using a web-based interface to an Oracle database. Data input and validation will be made by the participating laboratories via the internet. In such a manner, the work of the FFCC with the ring test would be significantly reduced. The results of the ring test will be evaluated according to DIN 38402/42. Mr. Fürst's suggestions with regard to the organisation of the new ring test was strongly supported by the Panel.

Thus, the Panel proposed the following timetable:

- Inform the participating labs and preparation of the web-page (May 2003)
- Submission of the ring test samples (August 2003)
- Input of the analysis results (October-December 2003)
- Deadline of data input (end of December 2003)
- Evaluation according to DIN 38402/42 (January/February 2004)

The ring test samples will comprise of two broadleaf and two conifer needle samples. Finland will prepare one new Scots pine sample, while source of remaining samples is to be decided.

The panel decided to send a questionnaire to participating laboratories to obtain information about the status of their quality control systems. Furthermore, the Panel highlighted the importance of knowing which laboratories will analyse Level II samples 2003.

8. Mr. Raitio gave an overview of QA/QC-Procedure of different steps in plant analysis. After detailed discussion, the panel highlighted the important role of QA/QC in sampling and pre-treatment.

The Panel made the following recommendations to NFCs in order to improve the national QA/QC procedures:

- National written guidelines
- Suitably trained personnel for sampling and pre-treatment
- Cross checking the foliar sampling procedure

The panel highlighted that the ring test cannot be the only QA/QC procedure. Therefore, the analysing laboratories must use a "local reference material", prepared by the laboratory itself, to assess the accuracy and precision of laboratory test procedures over time.

9. Mr. Raitio gave an overview of possible methods for the interpretation and the data processing of the foliar survey. He also introduced the concept of nutrient profiles and the use of neural networks (SOM/Self Organizing Maps) to process the foliar data.

The panel highlighted the importance of national, regional and European wide evaluations of the Level II foliar data. The Panel suggested that pilot projects evaluating such data be included in the national programmes of Forest Focus.

10. Mr. Fürst gave an overview about the activities of FFCC since the last meeting, especially about the updated EP-Web-pages and proposed future activities.
11. Mr. Raitio presented the results of the pilot study “Forest nutrition at the Finnish and Austrian Level I plots in 1987-2000” highlighting the importance of the dry mass of the foliage to interpret the foliar survey results.
12. Mrs. Mankovska gave a presentation entitled “Atmospheric Deposition of Heavy Metals in Slovakia Studied by the Moss Bio-monitoring Technique, Neutron Activation Analysis and Flame Atomic Absorption”.
13. The participants warmly thanked the Forestry Development Department of the Ministry of Agriculture and the Forestry and the Game Management Research Institute of the Czech Republic for the generous subsidy of the Expert Panel meeting and, in particular, Mr. Bohumir Lomský and his co-workers.