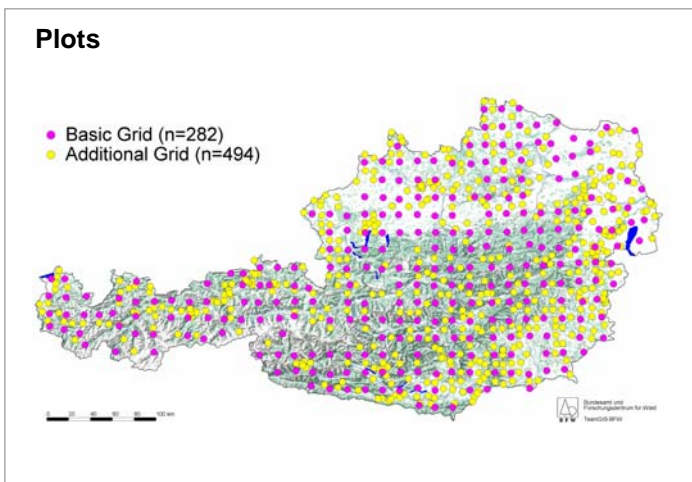


Characterization of the nutrient situation by the Austrian Bioindicator-Grid



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The aim of the monitoring programme is to identify air pollutant impact and nutrient imbalances through foliage analysis and to show temporal and spatial variation. The Bioindicator-Grid was established in 1983 and covers the entire Austrian territory. *Picea abies* which is the main tree species in Austria is mainly used as bioindicator only in the eastern parts. Where *Picea abies* is not dominant, *Pinus sylvestris* is used as the indicator species.



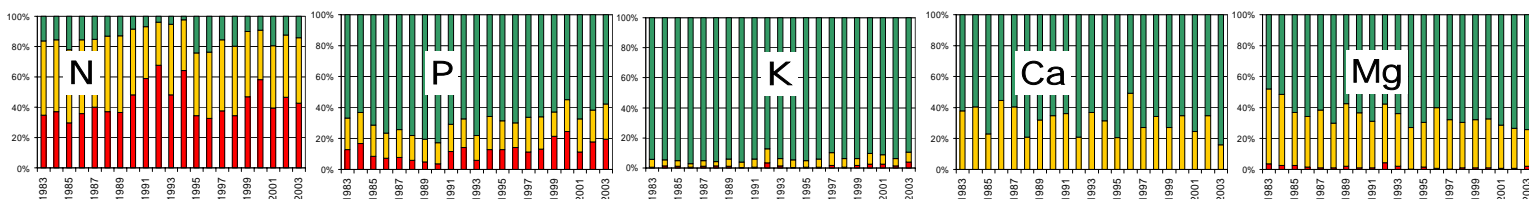
Material and Methods

Analyses: N, P, K, Ca, Mg, Mn, Fe, Zn and S, F, Cl, Pb, Cd.

Specimen bank: About 100 000 samples are stored since 1983.

Online-database: Evaluated and aggregated data (tables, graphics) are available under <http://bfw.ac.at/600/1034.html>. Additional information about the Austrian Bio-Indicator grid is available under <http://bfw.ac.at/600/1491.html>

Development of the nutrient supply (Basic Grid)
(Green: sufficient supply, yellow: not sufficient supply, red: deficiency)



- N deficiency was predominant, P deficiency was found to a less degree. K, Ca and Mg deficiency are negligible.
- Based on the nitrogen content of the needles it could be demonstrated that the development of the supply during three periods varied in the growth areas. The supply was poor especially in growth area 6 („Südliche Randalpen“) in the periods 1985-1990 and 1991-1996, respectively.

Limit values for nutrient supply in needles of *Picea abies* (n.y. 1)

Element	Deficiency	Not sufficient	Sufficient
N (%)	< 1,31	1,31 - 1,50	> 1,50
P (%)	< 0,12	0,12 - 0,13	> 0,13
K (%)	< 0,34	0,34 - 0,42	> 0,42
Ca (%)	< 0,11	0,11 - 0,36	> 0,36
Mg (%)	< 0,08	0,08 - 0,11	> 0,11

Gussone H.A. (1964): Faustzahlen zur Düngung im Walde. Bayer. Landw. Verlag München, Basel, Wien.

