

Quality of collected data of needle/leaf loss

"Quality assurance in Germany – different approaches"

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Quality of collected data of needle/leaf loss

Overview

- Results of former studies
- Recent results from several tests in Germany
- Recommendations

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Results of former studies:

- Schöpfer (1983) – sampling error counts only for a small part of the total error; estimation error at about 8 percent.
- Kennel (1983) – standard error at about 10 percent with a certainty of more than 95 percent.
- Köhl (1991) – beneath group effects, special conditions have influence on estimation such as weather conditions, tree species, social class of trees, altitude of site, and level of defoliation.
- Kublin (1987) – Adjustment of subjective error for a region is, if several teams work there.
- J. Innes (1991) – „Differences tended to be consistent,...“ Results after comparing the estimation of 186 trees by teams of different countries.



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Recent results of several tests:

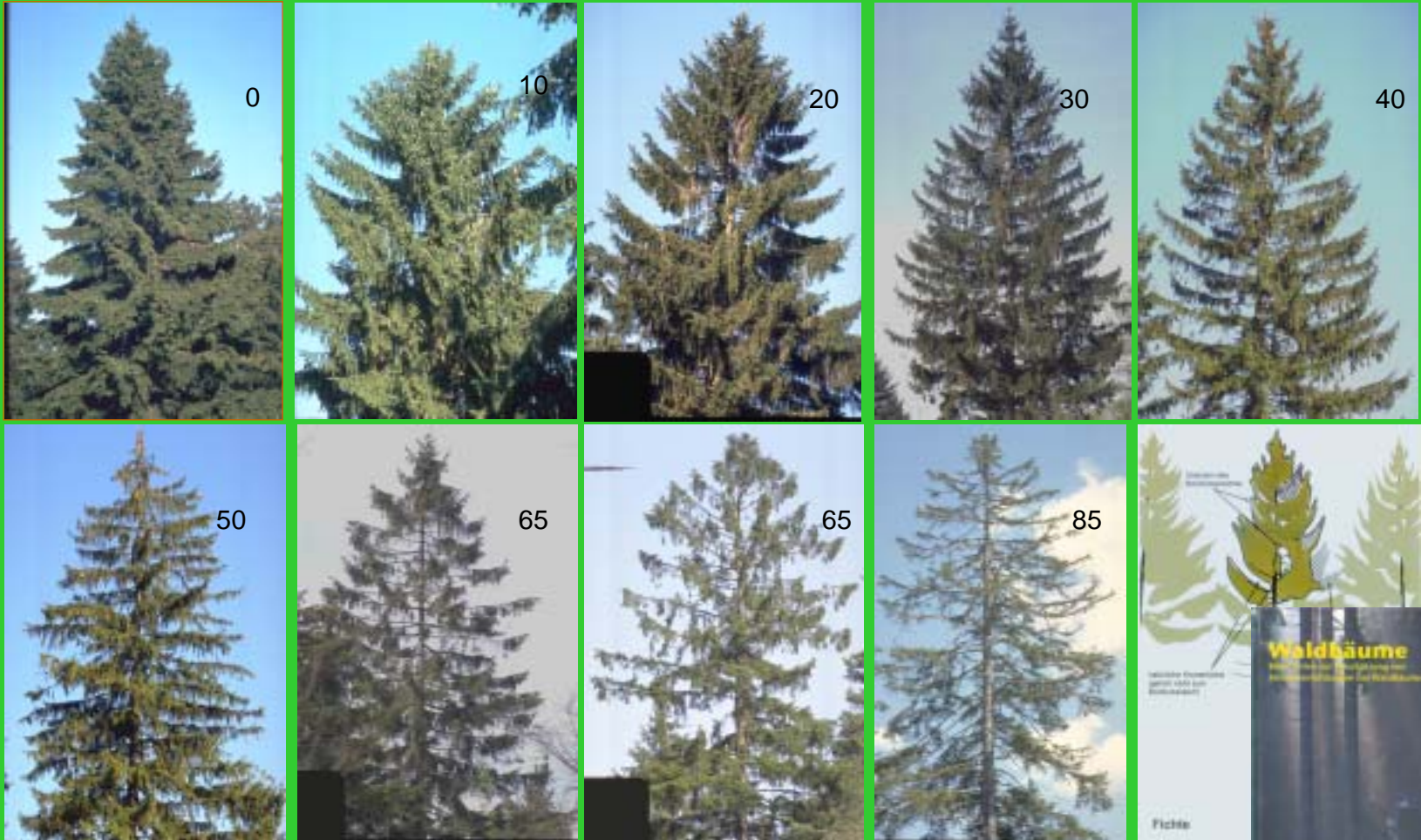
- Comparison of Croco-analysis with estimation results of group working with the German photo guide for crown assessment
- Exploring data of „Länder team“ assessment during inter-calibration courses
- Evaluation of inventory team assessment (first) and control team assessment (second) – a study throughout two countries
- Comparison of 15 „Länder teams“
- (Results of a group of students coming from 30 nations and learning crown condition assessment in 20 minutes)



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National „Photo Guide“

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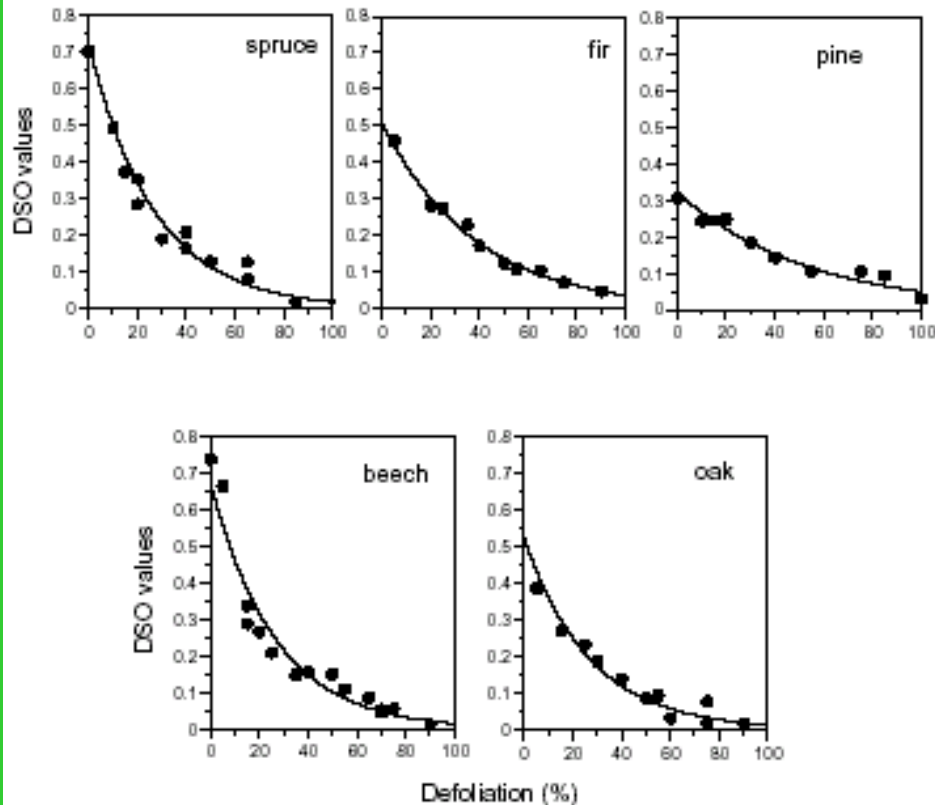


Waldbäume, Bilderserien zur Einschätzung von Kronenverlichtungen bei Waldbäumen Arbeitsgemeinschaft Dauerbeobachtungsflächen, 1997)



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Relations between the defoliation scores and DSO values of the German photo guide.



Good accordance of defoliation values in the photo guide (estimated by working group) and results of Croco-analysis

(M. Dobertin, 2002)

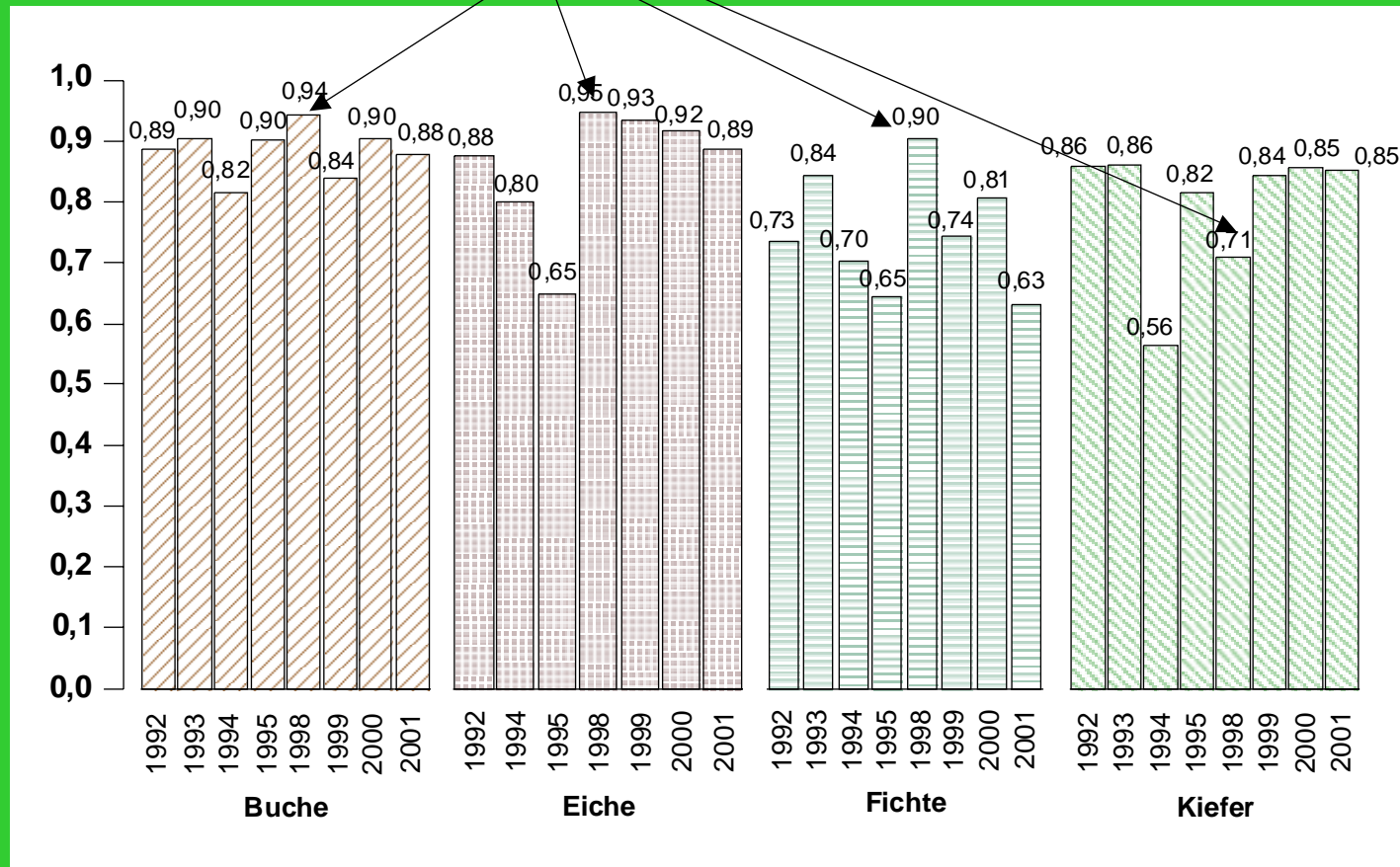
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Exploring data of „Länder team“ assessment
during inter-calibration courses



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(since 1995/1996 photo guide is used)



Analysis of „Konkordanz (Kendall)“ – degree (1 -> total, 0 -> no) of accordance

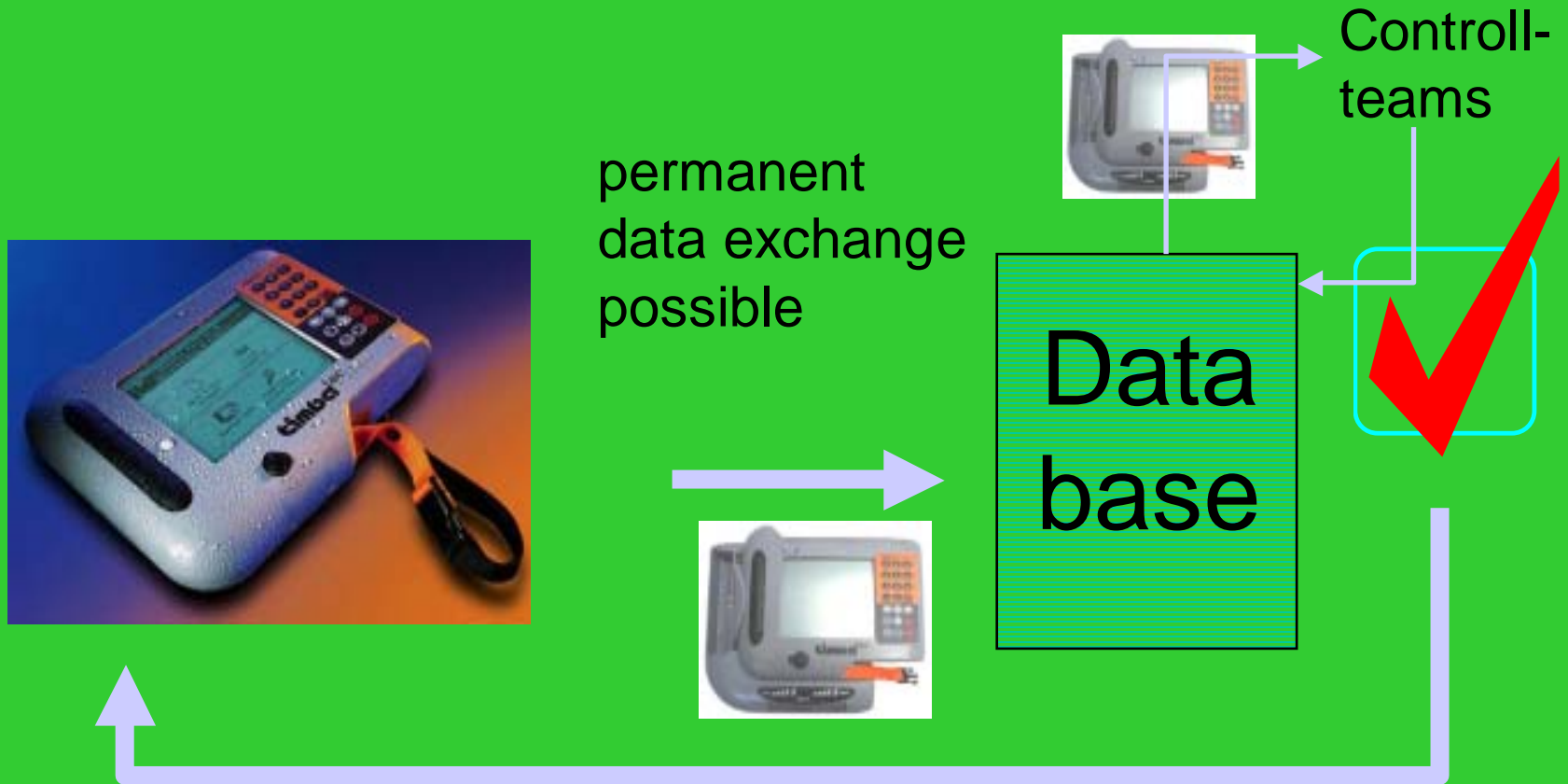


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Evaluation of inventory team assessment (first)
and control team assessment
- a study throughout two „Länder“

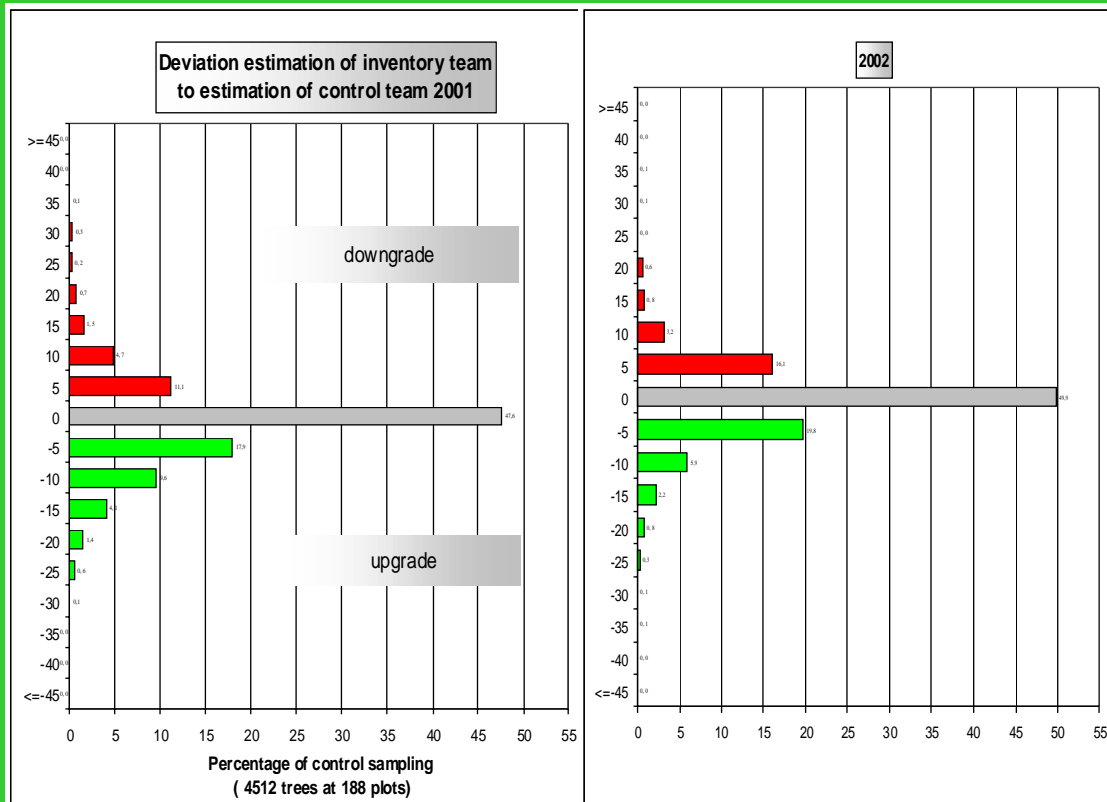
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Evaluation of inventory team assessment (first) and control team assessment



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Evaluation of inventory team assessment (first) and control team assessment



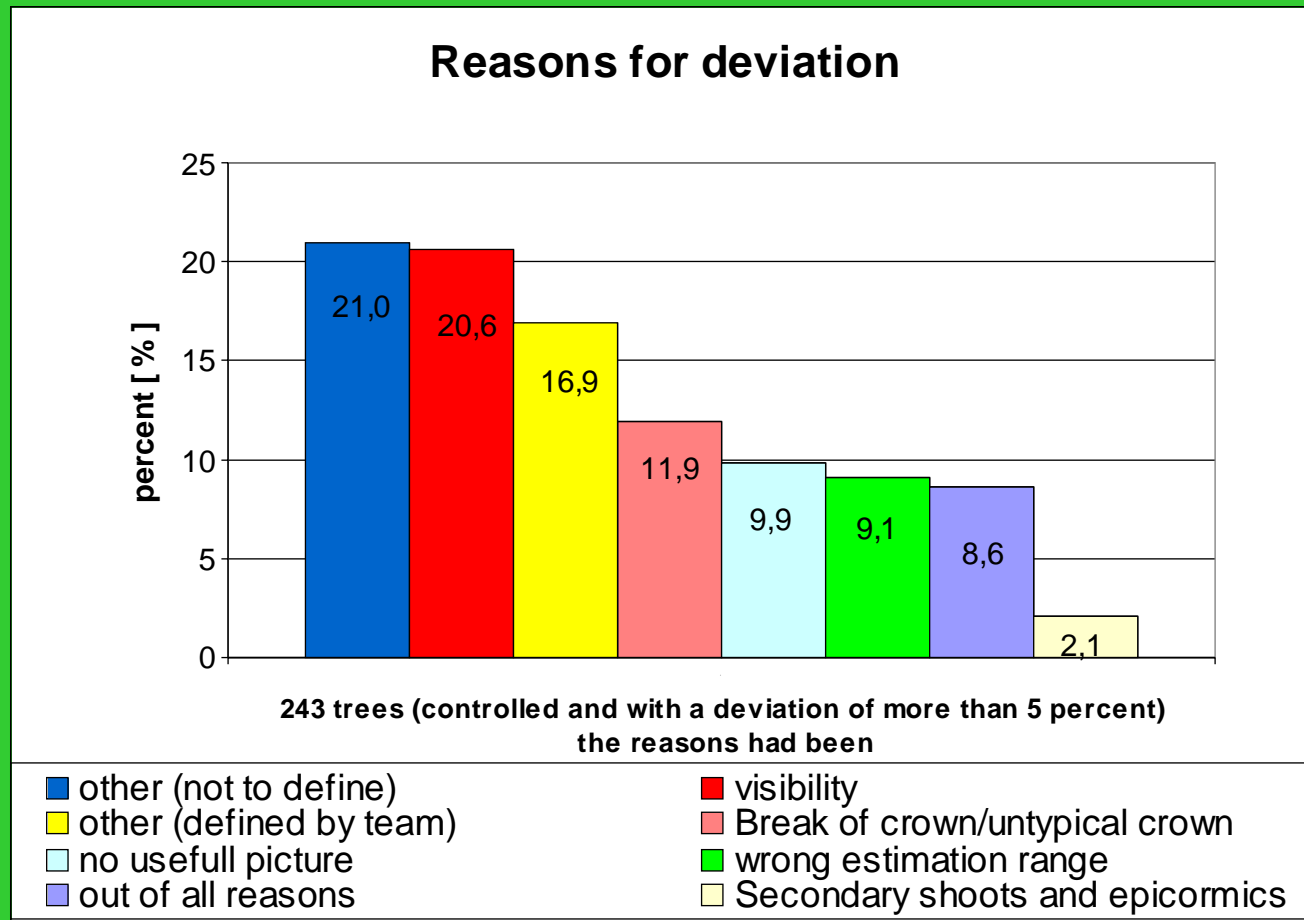
- deviation up to 20+ percent
- upgrades more frequent
- effect of controlling
average 2001: - 1,32%
- average 2002: -0,8%
- (only controlled trees)

-> more effects with intensive training, than with controlling

Different methods (control teams know the results of the inventory team or not) lead to almost the same small differences

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Evaluation of inventory team assessment (first) and control team assessment



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Recommendations:

- only 8,6 percent are „out of all reasons“
- nearly 10 percent have problems with the „estimation range“ -> better training
- nearly 10 percent have problems because of „no useful picture“ -> extending of photo guide
- nearly 50 percent have problems because of „untypical crown“, „epicormics“, „others“
-> clear and useful definitions in the assessment guide

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Comparing the estimation results
of 15 „Länder teams“

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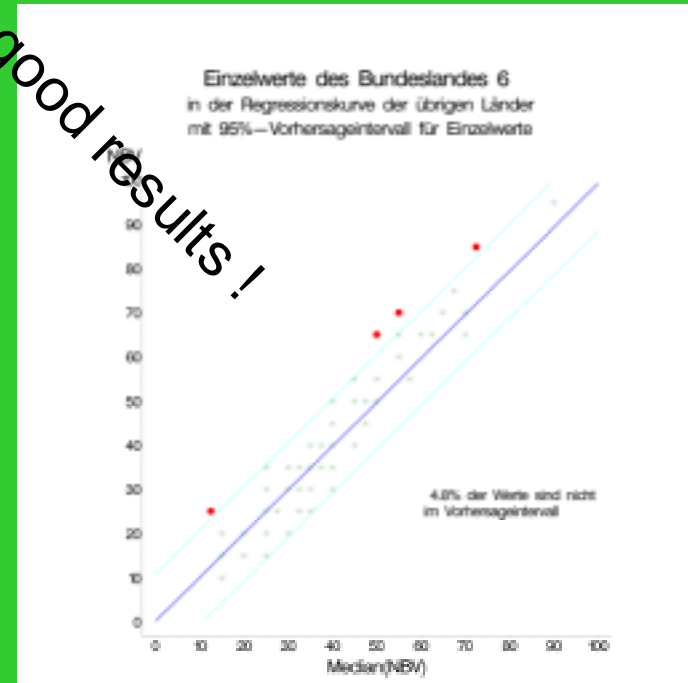
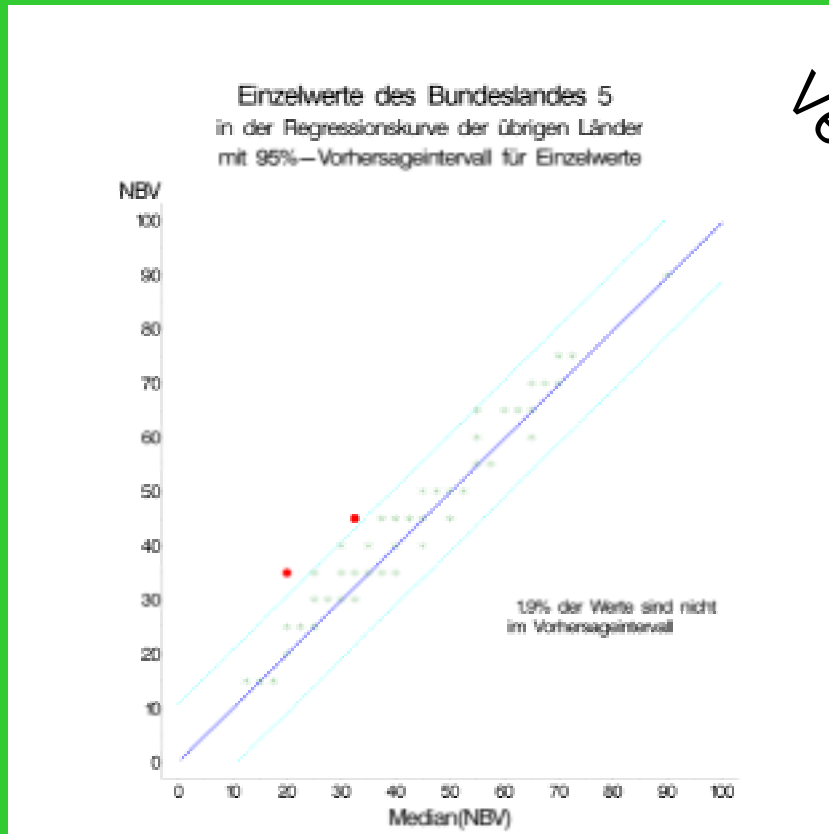
Comparing of 15 „Länder teams“



- 100 trees (beech)
- different situations
- ages between 130 and 170
- different locations
- different co-symptoms like fruiting et cetera
- no „fine tuning“ ahead

Eichhorn, J., Paar, U., 2002

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Very good results !

Most teams (10 of 15) produced results with more than 95 % of the estimated defoliation values in a range of +/- 10 percent (only one team with less experience has less than 90 percent).

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Problems still exist with:

- beeches with destroyed crown structure (Roloff degree 2/3)
- beeches with defoliation values in a range of 45- 50 percent.

Recommendation:

- > enhancing of photo guide especially with pictures of those tree types
- > it might be more difficult to estimate in this range than at the borders



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Recommendations

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- Photo guides are very useful and should be a base investment.
- Photo guides should take special problems into account (e.g. special crown structures, fruiting, et cetera).
- Intensive Training is necessary at the beginning of the inventory
- Controlling has less effect on the result of an inventory, if it is done only as a second estimation.
- Controlling is useful if it is done especially at the beginning of the inventory to avoid „wrong working teams“ and as a second training if necessary.
- Clear rules which are easy to keep in mind are very helpful for the teams.

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Visual assessment of crown condition is

- an estimation
- should be not overstressed (especially if there are only small changes)
- produces remarkable good values for observing in nature
(not all values coming out of the laboratories are as exact as these results)
- is cheap and easy to learn
- gives an solid overview
- should be necessarily continued in the future

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