



TOPICS FOR MASTER- THESIS

RESEARCH AREA I: FOREST GROWTH AND ENVIRONMENT

- 1) Growth reaction of cherry (*Prunus avium*) and silver fir (*Abies alba*) on summer drought in the foothills of the Black Forest, Schönberg. (Spiecker).
- 2) Tree-ring structure and phenology: Retrospective analysis of wood anatomical parameters and long-term phenological data at the International Phenological Garden "Liliental" (Kaiserstuhl) (material exists for the tree species *Picea abies*, *Pinus sylvestris*, *Robinia pseudoacacia*, *Quercus sp.*, *Prunus avium*, *Betula sp.*, *Populus sp.*, *Tilia sp.*) (Kahle).
- 3) Effects of *Lymantria dispar* infestation on tree ring structure in different stem heights and in branches of oaks (Spiecker, in collaboration with Forest Research Station Freiburg, FVA).
- 4) The growth decline of Norway spruce in the Ore Mountains in the 1980s: Phenomenon and potential causes (Spiecker/ Kahle).
- 5) High- resolution dendrometer measurements of cherry on agroforestry research plots near Breisach (Spiecker).
- 6) Growth reaction of young cherry, ash, oak and sycamore after the drought 2003 (Spiecker).
- 7) Comparative study of growth reactions of various Douglas fir provenances and Norway spruce on adjacent sites (Spiecker).
- 8) Site classification and site productivity on selected sites in China (BMBF-project, Spiecker).
- 9) Reconstruction of the growth development of spruce trees growing on rocks and/or dead wood in the Black Forest: How long does it take for the roots to reach the soil (Kahle).
- 10) Environmental control of stem hydrology and growth dynamics of European Beech tree compartments (Stangler).
- 11) Climate-related Xylogenesis of Scots Pine on a dry site in the Rhine-valley (Stangler).
- 12) Wood formation dynamics in Douglas Fir provenances (Stangler/ Montwe).
- 13) Seasonal growth dynamics of Norway spruce, silver fir and European Beech in different elevation sites of the Black Forest (Stangler).
- 2) Investigations on the effect of artificial pruning of broadleaved species- Branch occlusion, impact of pruning technique on discoloration etc. on an agroforestry site in Breisach as an example (Spiecker).
- 3) Artificial pruning of broadleaved tree species to control and accelerate natural pruning on selected sites (Spiecker in collaboration with Günther Hepfer Altenkirchen, Ichenheim).
- 4) Options for improving high- value timber production with oaks by artificial pruning (two sites: Schutterwald/ Rhine valley and agroforestry plot in Breisach) (Spiecker).
- 5) Controlling diameter growth of oaks in the Ukraine (in collaboration with the State Forest Technical University, Lviv) (Spiecker).
- 6) Dynamics of diameter growth and self-pruning in a mixed broadleaf thinning experiment in the Rieselfeld, Freiburg (Spiecker).
- 7) Effects on release on self- pruning and diameter growth of oaks in a thinning experiment in the Mooswald (Spiecker).
- 8) Effects of release on self- pruning and diameter growth in a mixed broadleaf thinning experiment in the Kaiserstuhl (Spiecker).
- 9) Effects of release on self pruning and diameter growth of beech in a thinning experiment at the Schönberg (Spiecker).
- 10) Determination of the optimal height of the crown base derived from the timber diameter- price- relations, using oak as example (Spiecker).
- 11) Light models for valuable tree species: Analyses of species-specific crown shade cast (Experimental area: Breisach, Kaiserstuhl) (Morhart/ Sheppard).
- 12) Impact of (different) pruning (methods) on shade cast of valuable trees. Light measurements before and after pruning measures (Sheppard/ Morhart).
- 13) Growth models of broadleaved tree species as walnut, cherry, *sorbus*- species and chestnut, deduction of species- specific management guidelines ().
- 14) Impact of different pruning systems on branch morphology of cherry trees (demonstration plot Breisach, Kaiserstuhl) (Sheppard/ Morhart).
- 15) Assessment and modeling of NTFP yield derived from Wild Cherry/Walnut/*Sorbus spp.*/Sweet Chestnut (Sheppard/ Spiecker).
- 16) Terrestrial laser scanners as tool for the evaluation of different pruning methods and their effects on growth (Hackenberg/ Morhart/ Spiecker).
- 17) Determination of the optimal time of harvesting of a Douglas fir stand in a private forest in the black forest (Spiecker).

RESEARCH AREA II: TREES AS NATURAL RESOURCE AND CARBON STORAGE



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- 18) Short-, medium- and long-term effects of manipulated nitrogen deposition on the tree-ring density of Norway spruce at the Pfalzgrafeweiler fertilization experiment (Spiecker/Kahle).
- 19) Determination of optimal spacing for planting Caribbean pine in Minas Gerais / Brazil at Faber Castel enterprise - pencil production - (Spiecker).

RESEARCH AREA III: TREES AS ARCHIVE OF ENVIRONMENTAL CONDITIONS

- 1) Dendrochronological dating of beaver's lodges in the natural reserve "Wurzacher Ried" (Kahle, in cooperation with Dr. Thomas Kaphegyi, Chair of Landscape Management).

RESEARCH AREA IV: METHODS OF FOREST GROWTH RESEARCH

- 1) Comparative study on the crown development of differentially released future crop trees on IWW demonstration plots (Spiecker).
- 2) Using repeated terrestrial laser scanning for the analysis of the crown development of differentially pruned open-grown valuable broadleaved species on an agroforestry plot in Breisach (Kretschmer/ Spiecker).
- 3) Optimization of wide-spacing for the production of valuable timber using the example of the agroforestry plot in Breisach (Spiecker).
- 4) Comparative study on tree-ring density profiles measured with a resistograph and measured based on HF- densitometry, a method developed at the chair of forest growth (Wassenberg/ Spiecker).
- 5) Assessment of bark features, relevant for timber quality of beech using terrestrial laser scanning- data base structure (Kretschmer).
- 6) Cross-dating using artificial intelligence methods: Comparing precision and performance with conventional methods (Kahle).
- 7) Evaluation of height growth models for the analysis of growth trends of forest trees (Kahle).

Your favorite topic is not listed yet? Discuss your ideas with Prof. Heinrich Spiecker!