

Fast WOOD

Regeneration of black locust stands for preferably energy wood production



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Within a statewide practical experiment these investigations aim at recommendations for an efficient management and regeneration of *Robinia pseudoacacia* forests. Therefore, we evaluate the biomass increment in short rotation depending on site potential, stand structure and genotype.

Demonstration plots were established on quite typical forest sites after clear cut with the following management variants:

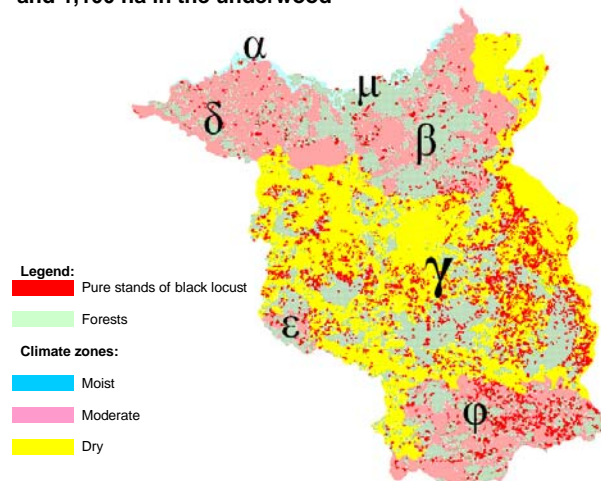
- **Coppice (rotation 1 year)** for energy wood production only
- **Coppice (rotation 2 years)** for energy wood production only
- **Coppice (rotation 4 years)** with residual standards for high quality timber production
- **High forest (rotation > 20 years)** reference and trees for seed collection

Thereby, the energetically usable biomass potential of approx. 8,000 ha black locust stands in the Federal State of Brandenburg is evaluated. Together, demonstration plots for short rotation management as well as seed collection are established.

This case study is part of an interdisciplinary research project evaluating and optimizing the biomass increment of energy wood (FastWOOD) funded by the National Agency for Renewable Resources (FNR).

Black locust stands in the State of Brandenburg

Currently approx. 7,600 ha in the upper crop and 1,100 ha in the underwood



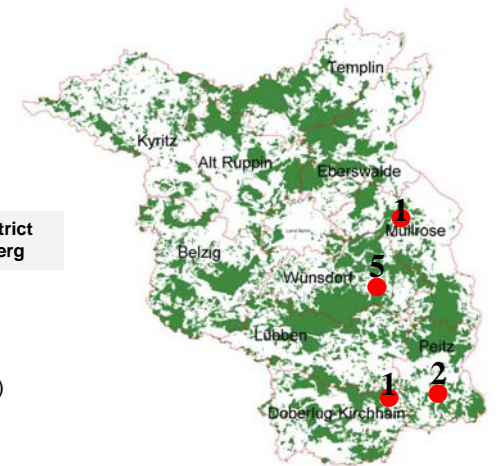
The experimental design is based on IUFRO International Guidelines for Forest Monitoring. It covers 9 experimental sites with 4 management variants each.

For each variant, there were selected three experimental plots of three different ages on three sites.

Age (+/- 5 years)	Forest district Müncheberg	Forest district Schwenow	Forest district Drebkau	Forest district Senftenberg
20		19 (K2)	20 (k. A.) 22 (k. A.)	
40		45 (Z2) 45 (Z2)		43 (Z2)
60	56 (M2)	62 (M2) 65 (M2)		
Total:	1	5	2	1

Forest site: Z2 (poor); M2 (moderate); K2 (rich); k. A. (not determined)

Experimental Plots



Location and number of experimental plots in the State of Brandenburg

Current progress of work

After inventory of the mature stands we cut off 324 probe trees for dendrometrical, wood-physical and genetical analysis. In a next step stands clear felling and detailed forest site survey was realized and coordinates of residual stumps were scaled. Meanwhile, the one-year old growth by stump sprout and root suckers has been harvested.



Plot Drebkau 1
Mature stand before utilization



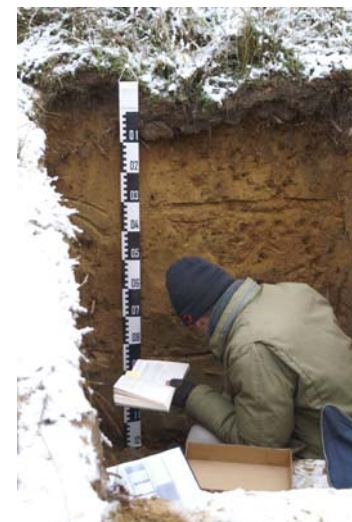
Plot Drebkau 1
After clear cut in 2009



Plot Drebkau 1
Branchwood for chipping



Plot Drebkau 1
One-year old growth



Forest site survey according to German Soil Classification Scheme (AG Boden 2005)



Manual harvest of one-year old growth

FNR Project FastWood - Harvest yield from source stands in March 2009

Experimental plot	Area (m ²)	Circumference of the area (RM)	Harvest yield per ha (m ³)	Total harvest yield (m ³)	stemwood (m ³)	industrial wood (m ³)	stakes (m ³)	fire wood (m ³)	chips (m ³)	Chips (stère)
Drebkau 1	5746,6	460,6	135,7	78,0			29,99		48,00	120,00
Drebkau 2	4456,8	210,7	206,5	92,0		2,15	38,44	13,44	38,00	95,00
Schwenow 1	10034,8	287,7	207,8	208,5	1,93		104,50		104,00	260,00
Schwenow 2	4411,3	287,7	279,2	123,16			10,83		52,00	130,00
Schwenow 3	3871,8	204,8	144,9	56,09			6,56	2,59	26,94	50,00
Schwenow 4	9665,6	275,9	199,6	192,95			74,65	18,30	100,00	250,00
Schwenow 5	3382,8	213,5	660,4	223,4	7,27	151,14	12,99		52,00	130,00
Müncheberg	5732,8	330,3	174,1	99,80	19,40		27,73		49,00	122,50
Senftenberg	8440,6	362,0	274,1	231,38				159,38	72,00	180,00
TOTAL:	55743,1	2633,1	234,20	1305,3	28,6	320,6	380,7	40,4	535,0	1337,5

Future progress of the project

During the next years the experimental plots will be harvested regularly. Following analysis and documentation of the results for practical application will be realised. Moreover, a scientific cooperation with the Chinese Academy of Forestry (CAF), Beijing is established comparing the growth potential and site adaptation of black locust in times of climate change.

This topic has already been content of a Bachelor thesis at the University of Erfurt (mentor: Prof. Dr Heinsdorf), supervision of further theses is planned (TU Dresden or HNE Eberswalde).

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