

How two business models respond to current challenges of agrowood production: The case of Brandenburg/Germany.

Sarah Keutmann^{1,2}, Philipp Grundmann^{1,2}, Götz Uckert³

¹Leibniz-Institut für Agrartechnik Potsdam-Bornim (ATB) e.V., ²Humboldt-Universität zu Berlin, ³Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF) e.V.

Facts about Brandenburg:

- Since 2008 fifteen-fold increase of the agrowood acreage (agroforestry systems and short rotation coppice) reaching 1,819 ha in 2013 → leading position of all federal states in Germany
- Especially suitable for agrowood because of its unfavorable agricultural conditions

The two business models:

- Contract farming and independent farming prevail in Brandenburg for agrowood production
- Contracts include the following services by the contract provider:
 1. Payment and organization of planting, harvesting, transport and recultivation
 2. Technical advice for producers
 3. Direct purchase of the raw material to the power plants

Mixed- Methods Approach:

Combination of a qualitative approach and a profitability analysis by a quantitative approach

Qualitative method:

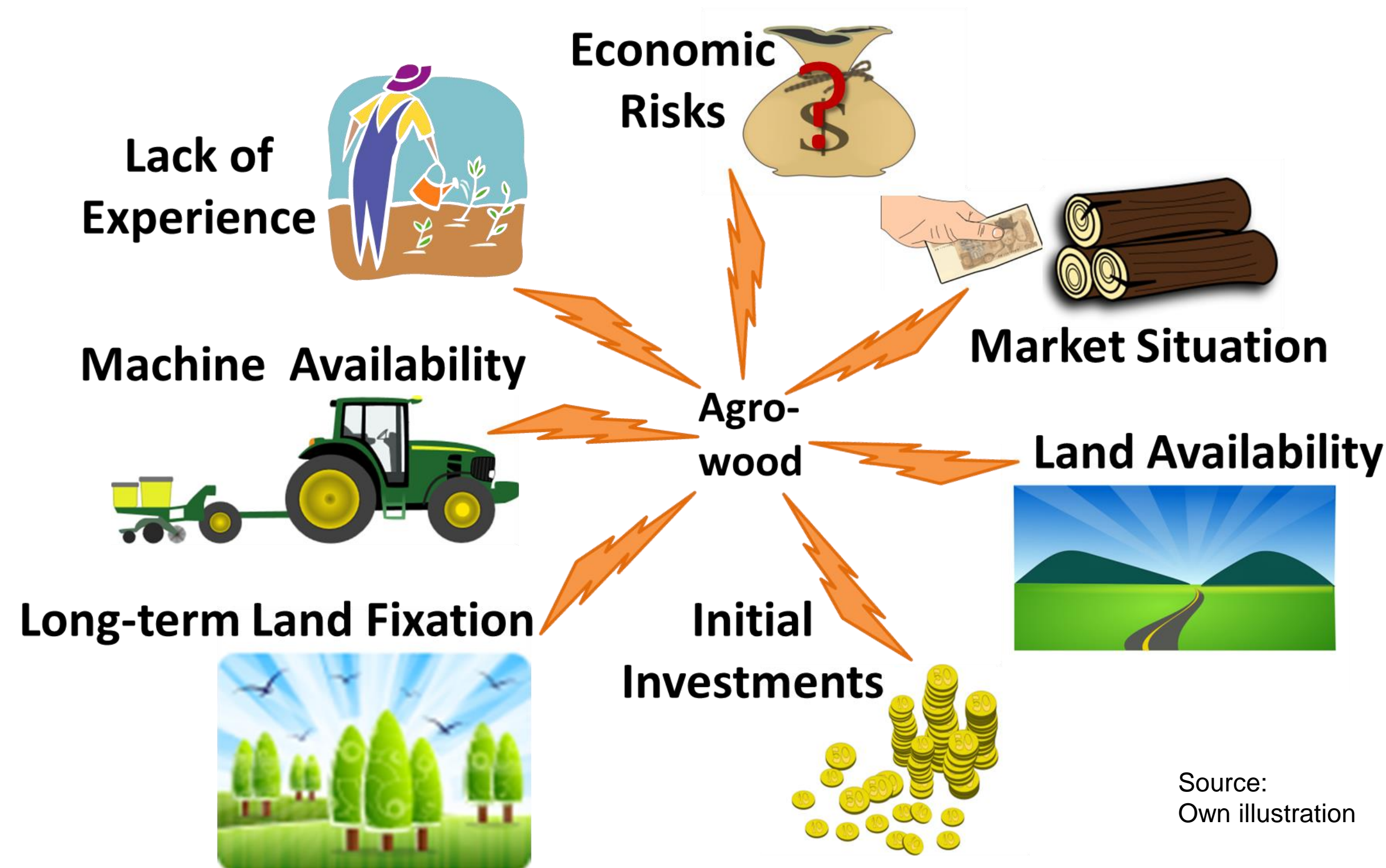
- 32 guided interviews with relevant agrowood actors
- Focused on planting decision processes, challenges of agrowood and business models
- Data were analyzed by the qualitative content analysis

Quantitative method:

- Modeling approach for calculating agrowood scenarios using annuities varying in yields and prices including shock incidences
- Comparison of both business models by 69 calculation cycles
- Model parameters related to risks were iteratively processed.

Qualitative method: Challenges and responses

Challenges of agrowood perceived by actors



Responses of business models to the challenges

Responses gradually shown according to their weight:

🔥🔥🔥 = very critical; 🔥🔥 = critical ; 🔥 = less critical

Risks and challenges	Independent production	Contractual production
Economic Risks	🔥🔥🔥	eliminated
Market Situation	🔥🔥🔥	eliminated
Land Availability	🔥🔥	🔥🔥
Initial Investments	🔥🔥🔥	eliminated
Fixation of Land	🔥🔥	🔥🔥
Machine Availability	🔥🔥	eliminated
Lack of Experience	🔥	🔥

Source: Own Data

➡ Contracts are affirmed to eliminate economic, trade and machinery related constraints, secure long-term income and increase creditworthiness of producers.

➡ Independent producers are acknowledged to have the burden of higher risks, but may benefit from potential price increases and governmental support programs.

Quantitative method: Profitability of both business models

Scenario	Costs (EoS)	Yield [t/a]	Price [€/t atro]	Var 1	Var 2	Var 3
Advantage of contract model	Advantage of independent production					
Reference A (yearly payment of €)	low	10	120	331 (rot. 3 yrs)	300 (rot. 4 yrs)	271 (rot. 5 yrs)
Reference B (yearly payment of €)	high	12	120	334 (rot. 3 yrs)	303 (rot. 4 yrs)	274 (rot. 5 yrs)
Progressive Yield (10 t)	low	6 - 12	120			
Progressive Yield (12 t)	high	7,2 – 14,4	120			
Price Increase (2 %)	low	10	from basis:	80 €	100 €	120 €
Price Increase (2 %)	high	10	from basis:	80 €	100 €	120 €
Price Shocks (minus 33 %)	low	10	120	1 x 80 €	2 x 80 €	3 x 80 €
Price Shocks (minus 8,3 %)	low	10	120	1 x 100 €	2 x 100 €	3 x 100 €
Price Shocks (minus 8,3 %)	high	12	120	1 x 100 €	2 x 100 €	3 x 100 €
Price Increase (2 %) + Price Shocks	high	12	basis 100 €:	1 x -8,3%	2 x -8,3%	3 x -8,3%
Price Increase (2 %) + Price Shocks	high	10	basis 120 €:	1 x -8,3%	2 x -8,3%	3 x -8,3%
Price Increase (2 %) + Price Shocks	high	10	basis 100 €:	1 x -8,3%	2 x -8,3%	3 x -8,3%

➡ The results of calculations are well corresponding to a risk avoidance behavior of the farmers. As long positive market and production experiences lack evidence possible higher profit margins were willingly shared in contractual relationships.