

# Potential of Short Rotation Forest and Short Rotation Coppice as additional resource for biomass production in Latvia

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Trees in Latvia are growing well as «element» of:



- **Parks** – a public service nature object, which has a specially established infrastructure and for which regular care and renewal is necessary to preserve or improve the aesthetic, landscape and cultural-historical values of the territory ([Forest law](#)).



- **Forest** – an ecosystem in all stages of its development, dominated by trees the height of which at the particular location may reach at least seven five meters and the present or potential projection of the crown of which is at least 20 per cent of the area occupied by the forest stand; and ) forest land is land covered by forest, land under forest infrastructure facilities, as well as adjacent overflowing clearings, marshes and glades ([Forest law](#)).

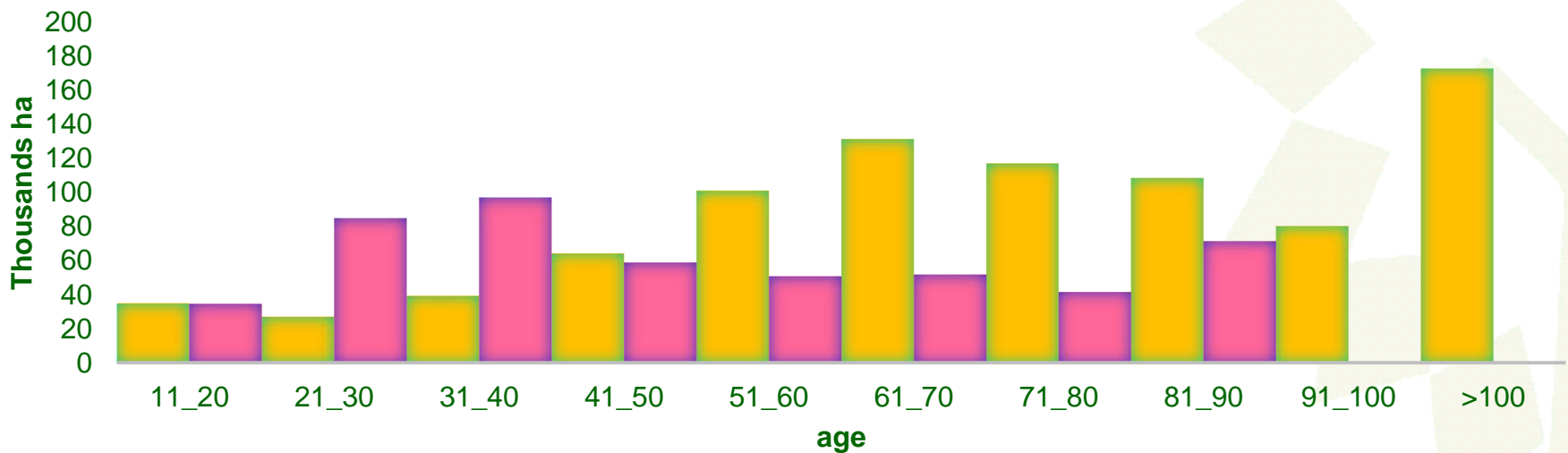


- **Agriculture** – an economic sector that ensures the production of agricultural products and the provision of services related thereto; and rural development – production of non-agricultural products in a rural territory, as well as the provision of services related to the utilisation of water and land resources and the upkeep of the countryside ([On Agriculture and Rural Development](#)).

# Forest and age structure

	Pine	Spruce	Birch
2004-2008	69,2 milj. m <sup>3</sup>	45 milj. m <sup>3</sup>	44 milj. m <sup>3</sup>
2009-2013	77,4 milj. m <sup>3</sup>	49,3 milj. m <sup>3</sup>	48 milj. m <sup>3</sup>
changes	+ 8,2 milj. m <sup>3</sup>	+ 4,3 milj. m <sup>3</sup>	+ 4,0 milj. m <sup>3</sup>

Forest monitoring programm



## Forest

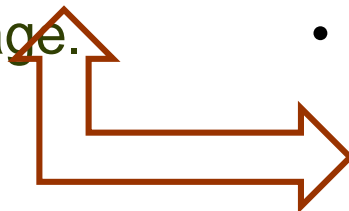
- «ordinary» forest stand – restriction of felling age or dimensions for main tree species,
- plantation forest – forest stands established through afforestation (natural or human made), intended for specific purposes and registered in the State Forest Register - no restriction for felling dimensions or age.

## Agriculture land

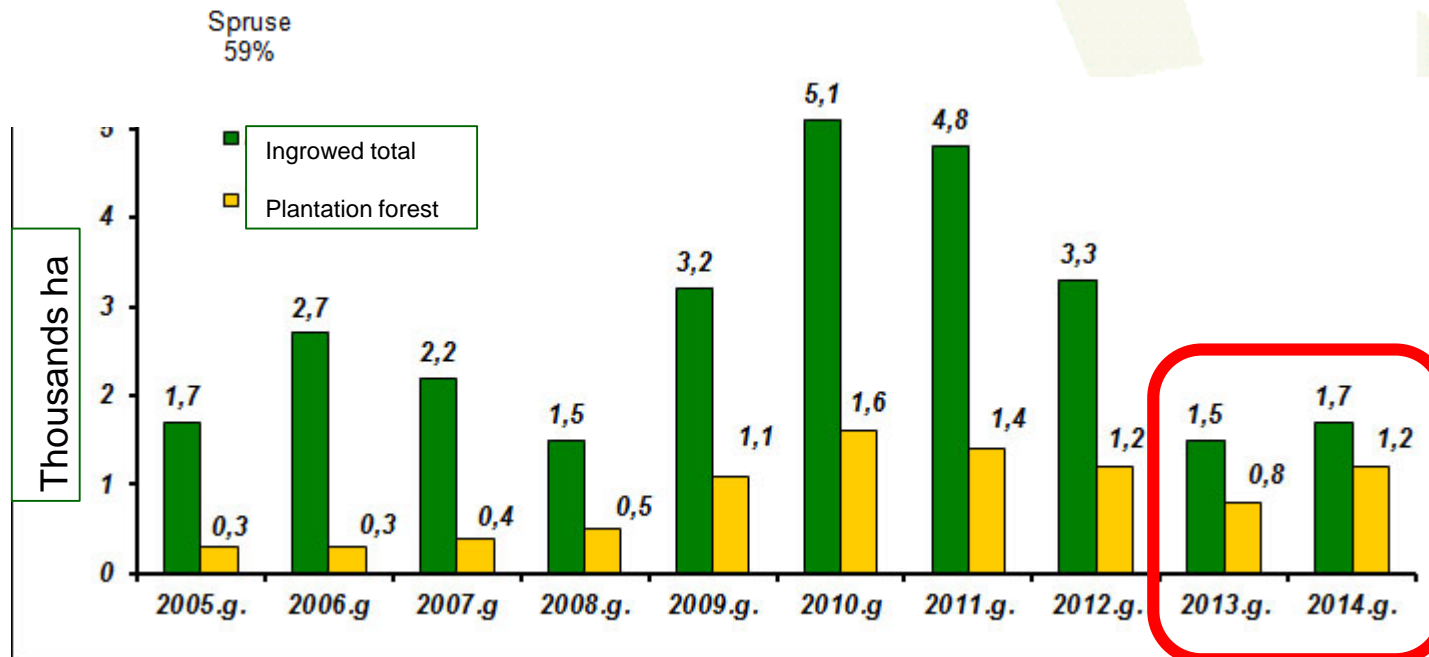
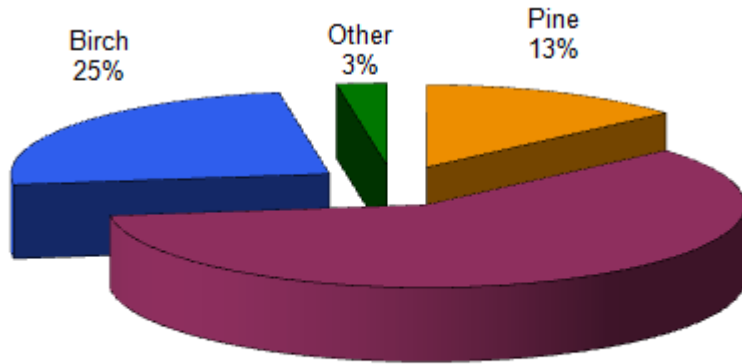
- short rotation coppice rotation period below 15 years (*Salix sp.*, *Populus sp.*, *Grey alder*);
- agroforestry systems not defined in Latvia rules;
- nurseries as special;
- separate trees;
- ecological groups of trees

And ...

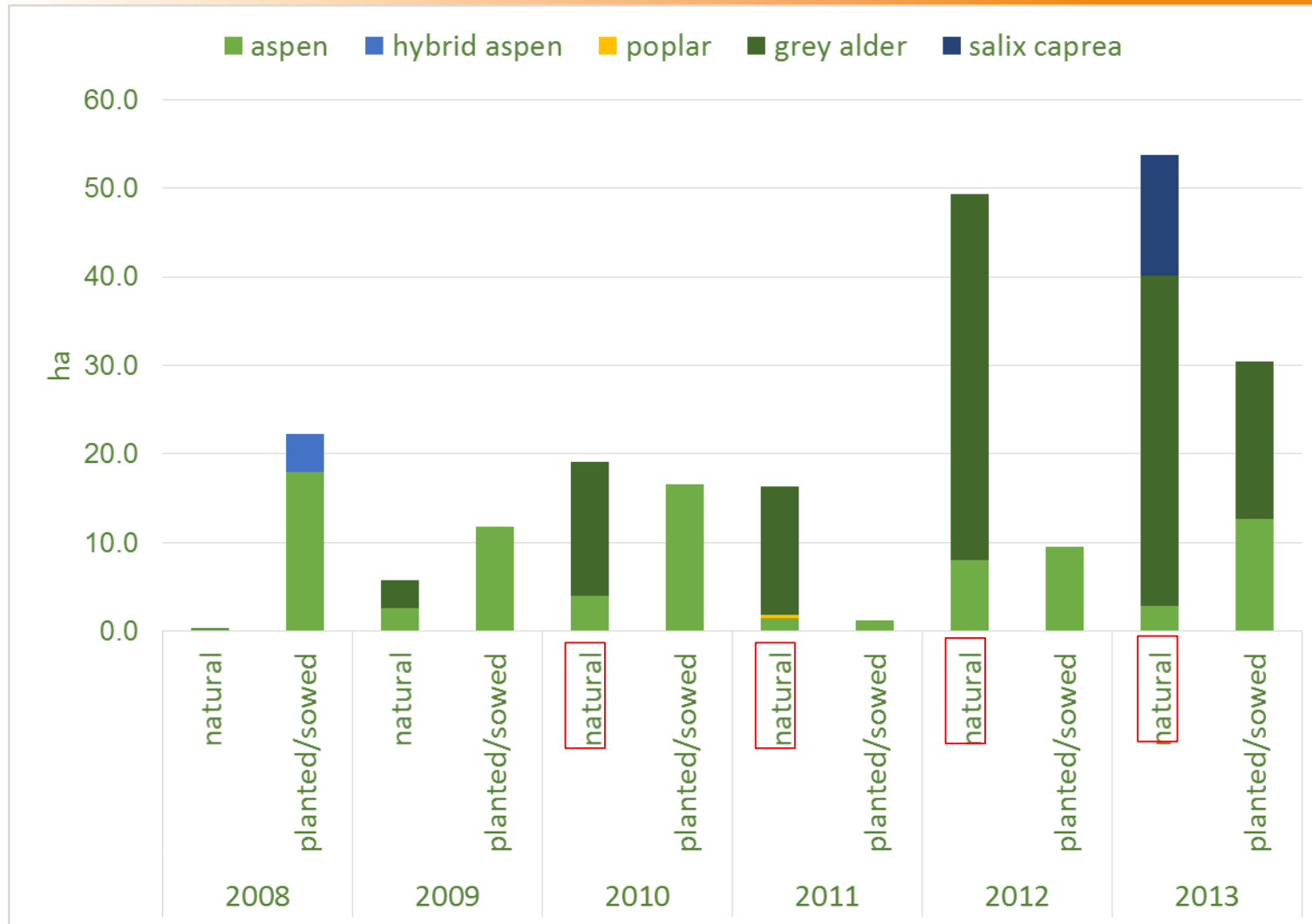
- abandoned agriculture land.....could be registered as plantation forest if fits to definition of forest.



# Forest establishment...



<http://www.vmd.gov.lv/en>





# ...support and subsidies..

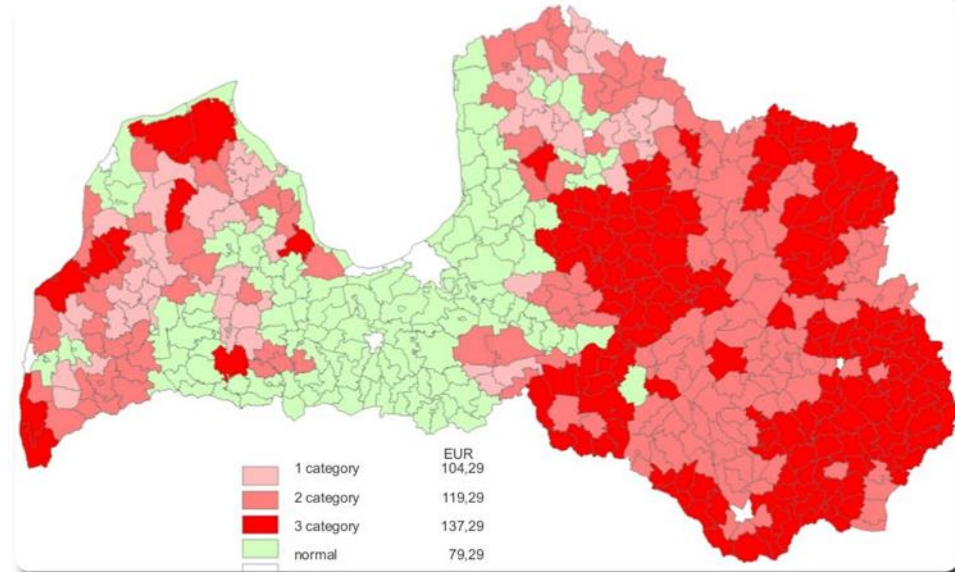
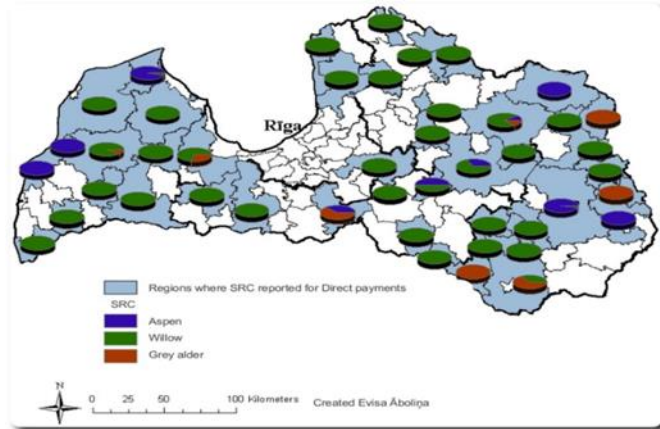
## Forest

- Afforestation of peat lands or bare soils 25 quality points and below;
- improvement of forest value - replacement of low quality forests by more valuable tree species;
- thinning of dense young stands.

## Agriculture

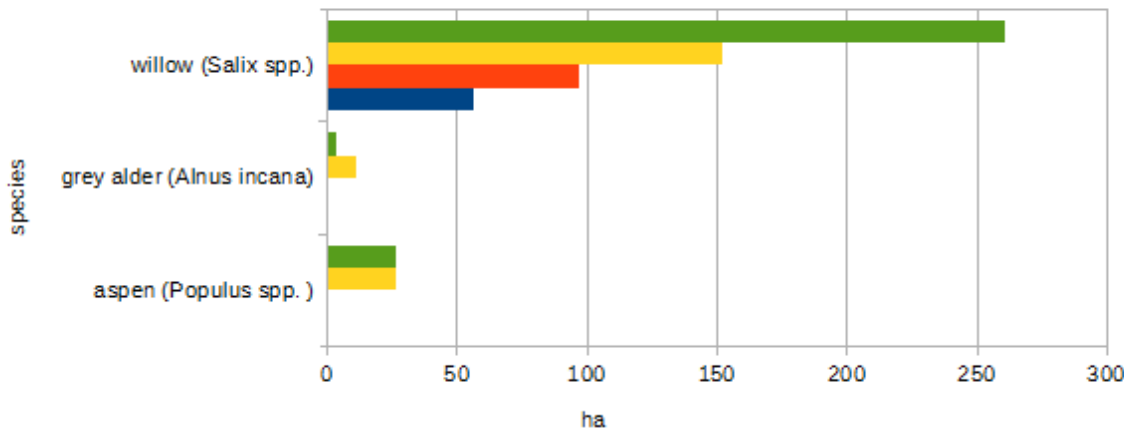
- Common agriculture payments for woody agriculture crops – short rotation coppice, but rotation period 5 years and below;
- support of ecological groups in «greening programm».

# Short rotation coppice...



ha reported for direct payments

■ 2009 ■ 2010 ■ 2011 ■ 2012

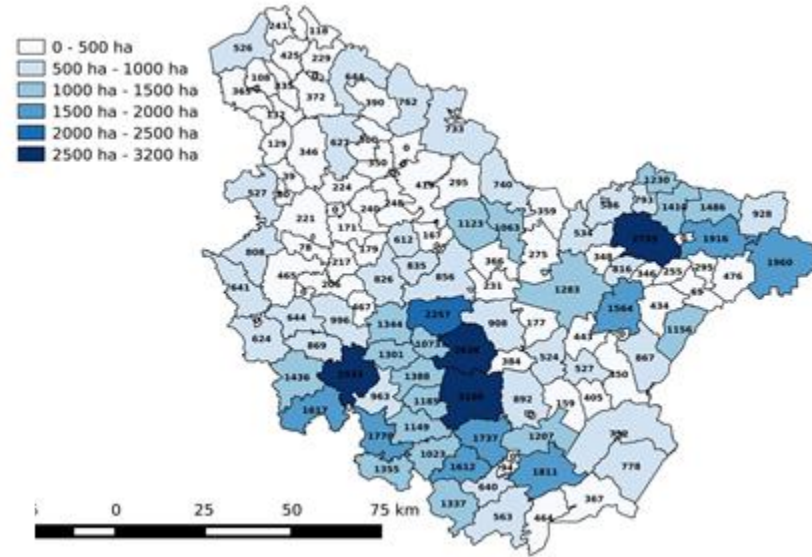




Agriculture lands with quality index lower than 25 points in Latvia 362 733 ha (15%) from 2 353 936 ha

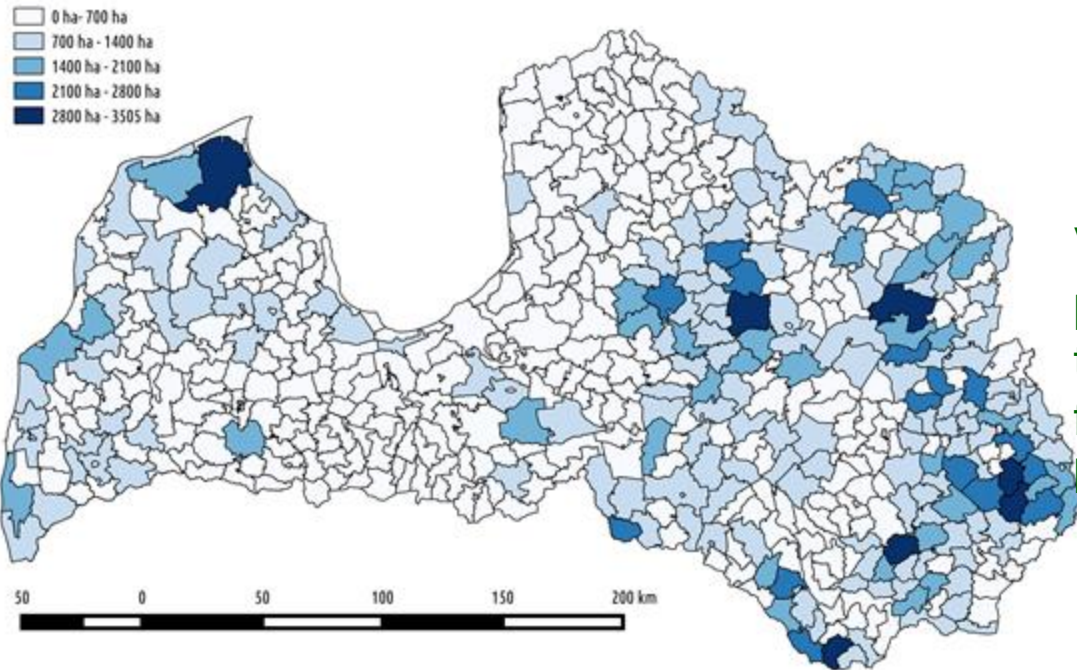
(SRC plus project report in Latvian)

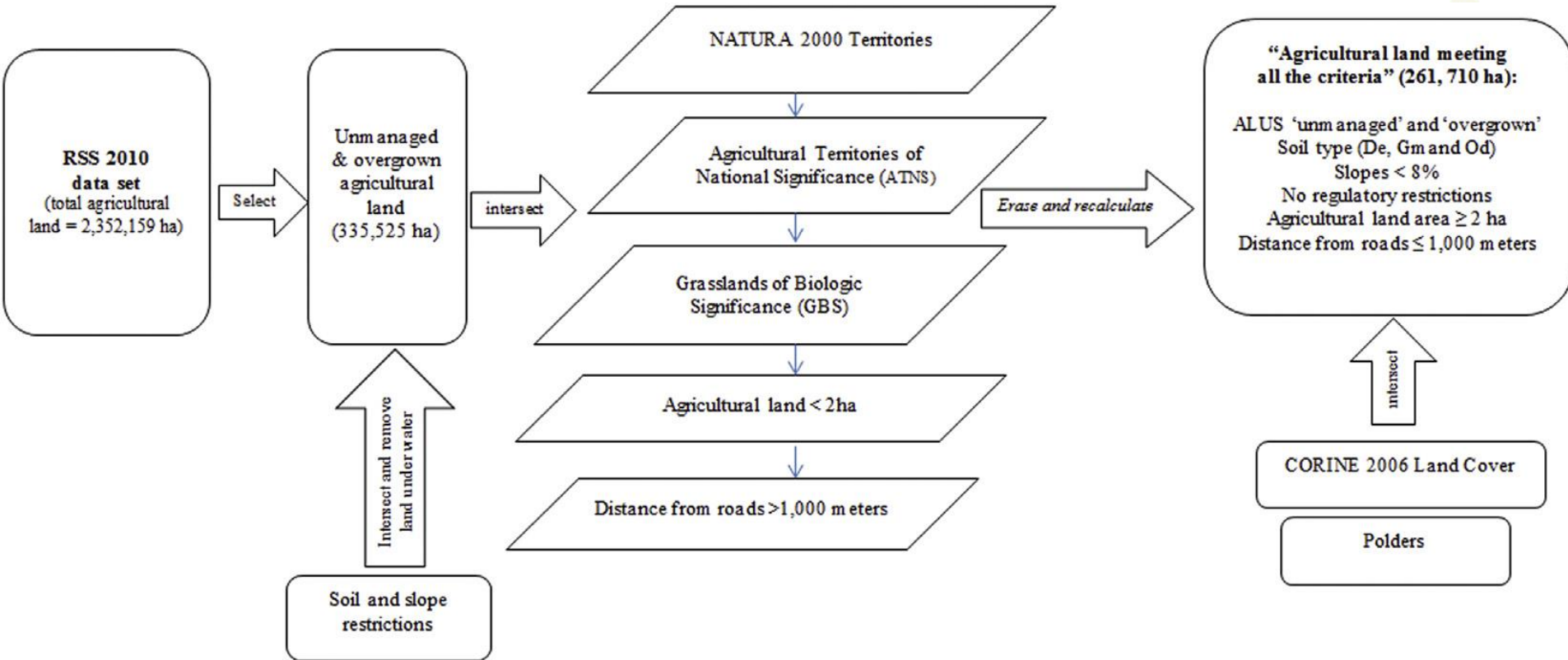
<http://www.srcplus.eu/en/publications.html>



Vidzeme region where SRC promoting company are operating... total agriculture land area 501 880 ha, from that area 87 899 ha (18%) are below 25 quality points...

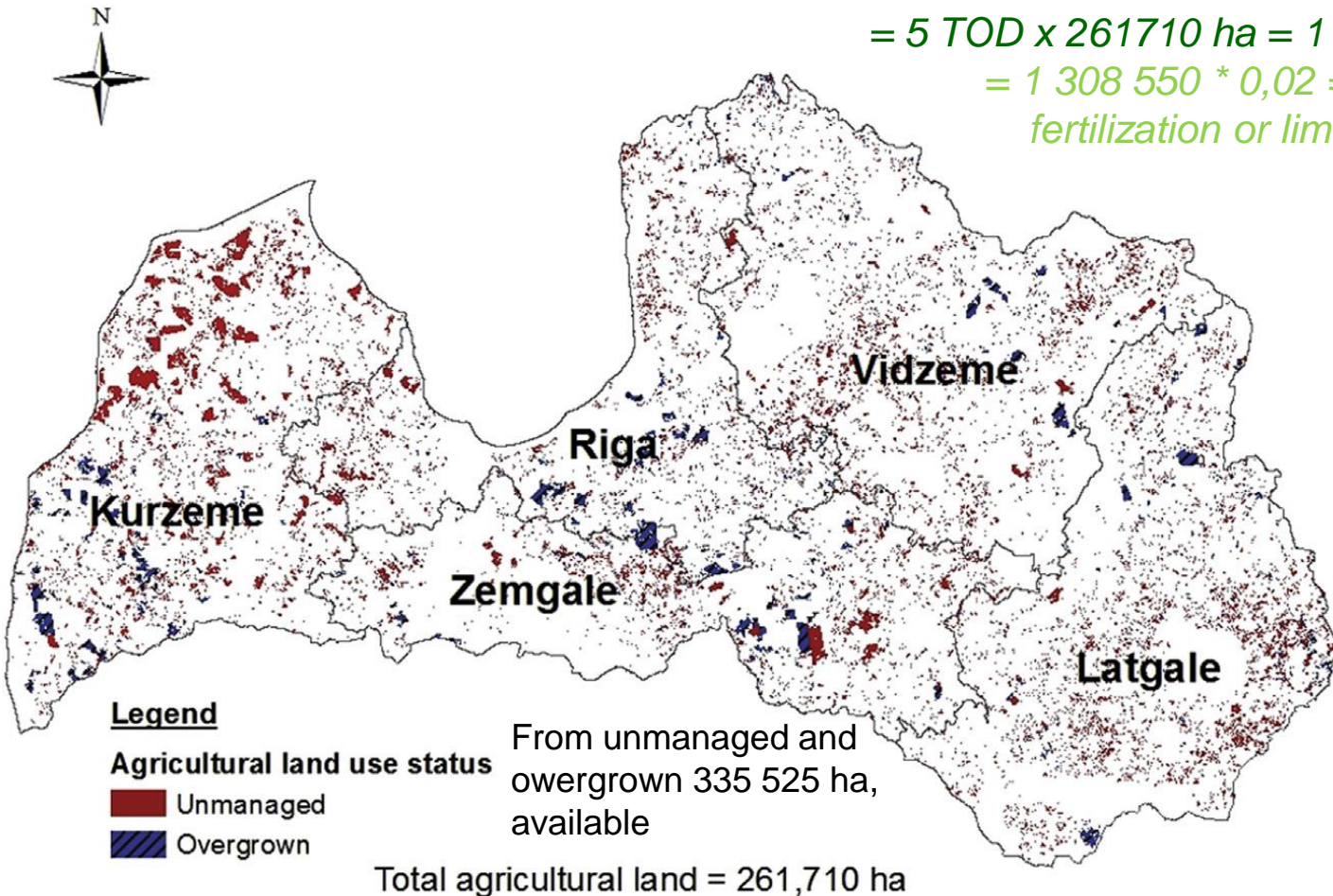
**Theoretically 87899 x 5 ODT = 439495 ODT yearly....**







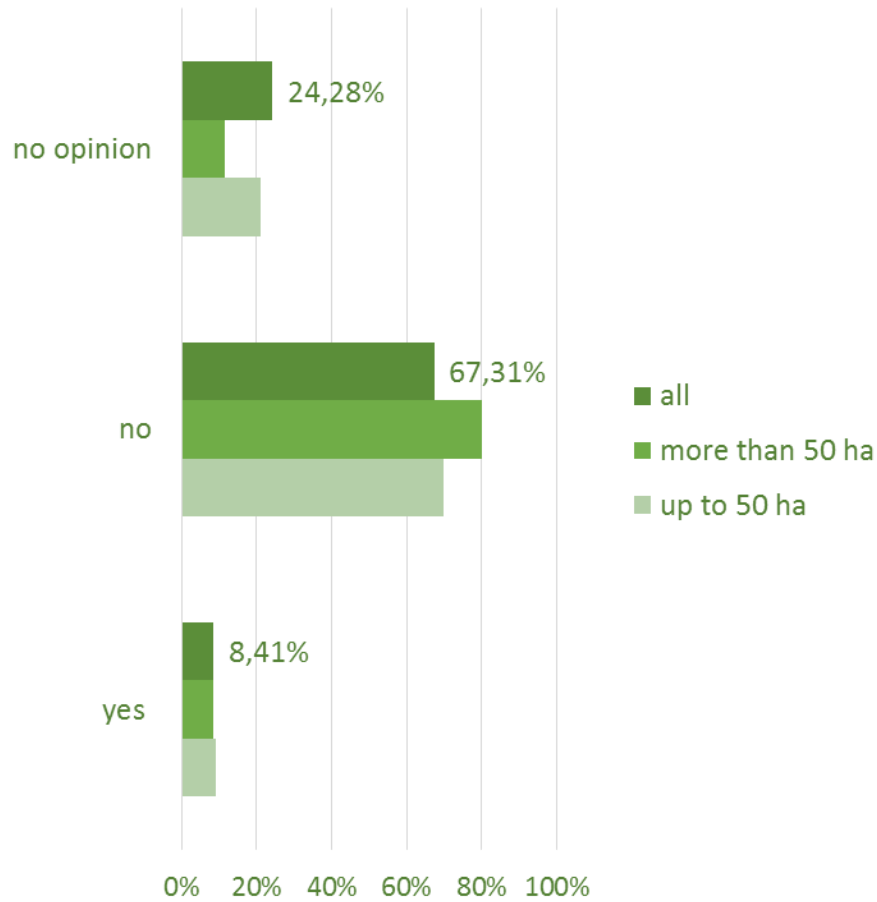
$= 5 \text{ TOD} \times 261710 \text{ ha} = 1\,308\,550 \text{ TOD yearly} ??$   
 $= 1\,308\,550 \times 0,02 = 26171 \text{ T wood ash for}$   
*fertilization or liming of 8723 ha (3 Tha<sup>-1</sup>)*



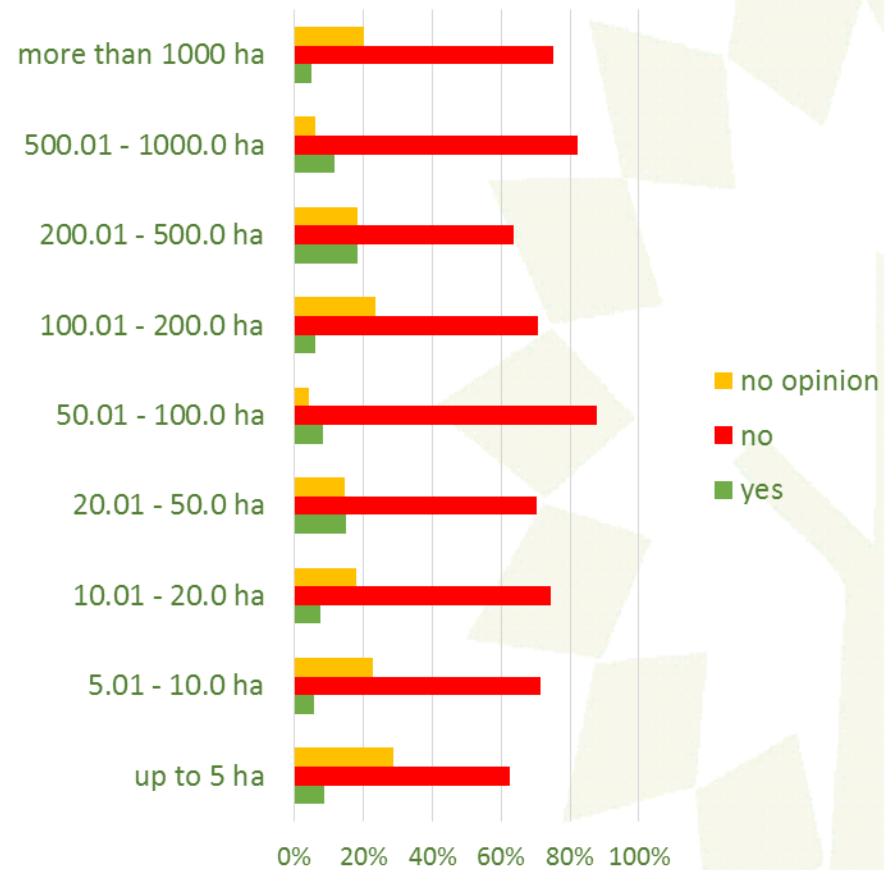
0 35 70 140 Kilometers

Map made by: Evisa Abolina  
Date: May 4, 2012

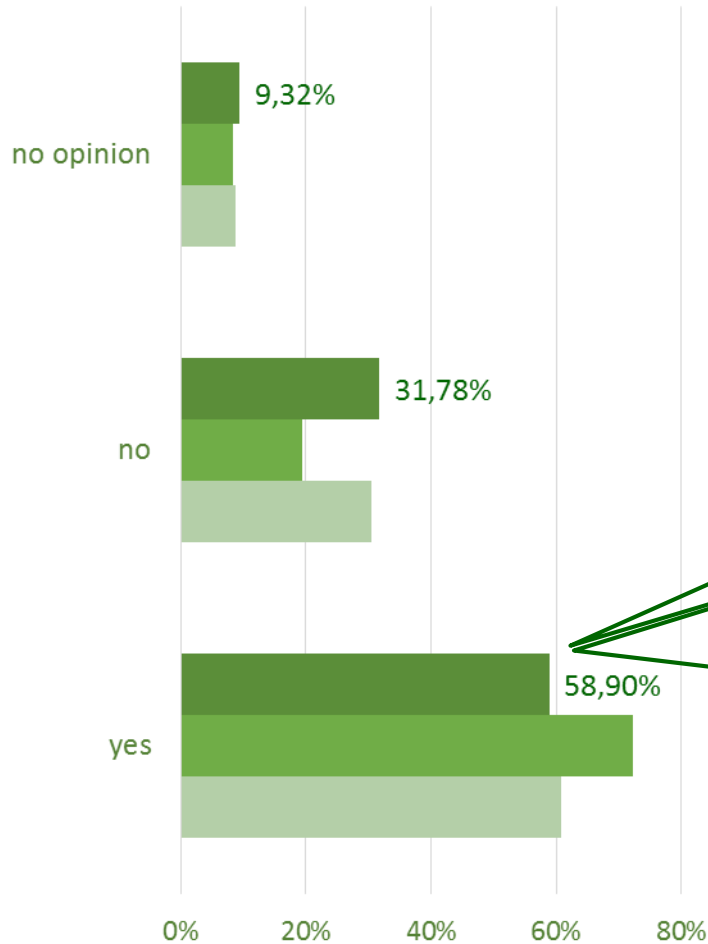
Do you considering oportunity to establish SRC on agriculture land?



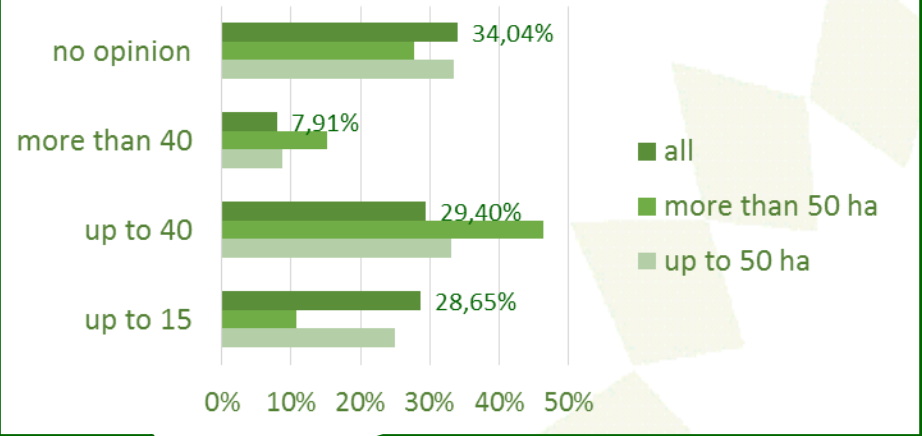
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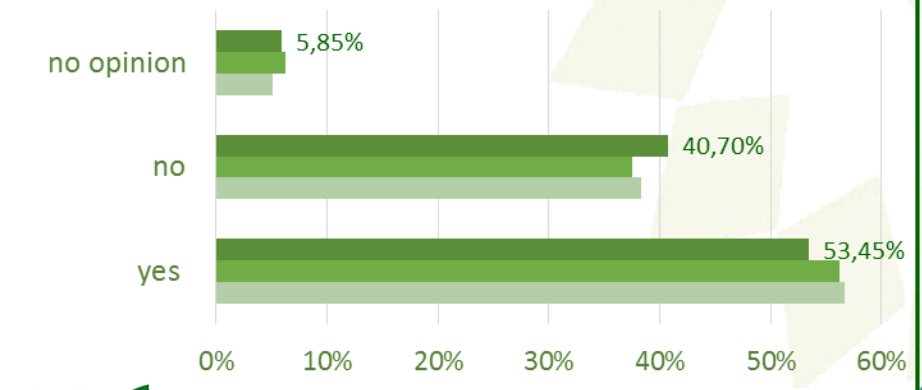
Do you practice coppice forestry?



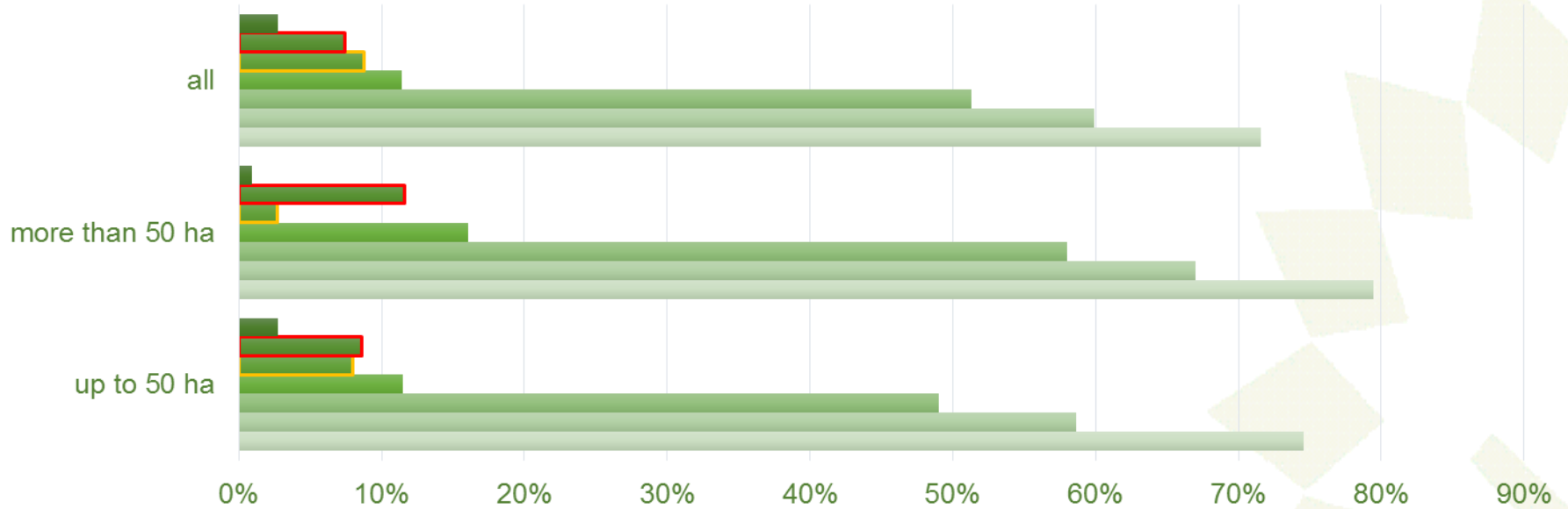
Rotation period for grey alders and aspens ?



Do you use to plant conifers additionally to deciduos coppice?



## Main species growing in coppice forests ?



	up to 50 ha	more than 50 ha	all
no opinion	2,71%	0,89%	2,72%
other	8,64%	11,61%	7,44%
Salix sp. (trees)	7,97%	2,68%	8,73%
Alnus glutinosa	11,53%	16,07%	11,43%
Alnus incana	48,98%	58,04%	51,30%
Populus sp.	58,64%	66,96%	59,93%
Betula sp.	74,58%	79,46%	71,54%



# Why SRC is not popular???

Kristaps Makovskis, Dagnija Lazdiņa, Ligita Bite

## ECONOMIC CALCULATION OF SHORT ROTATION WILLOW PLANTATIONS IN LATVIA

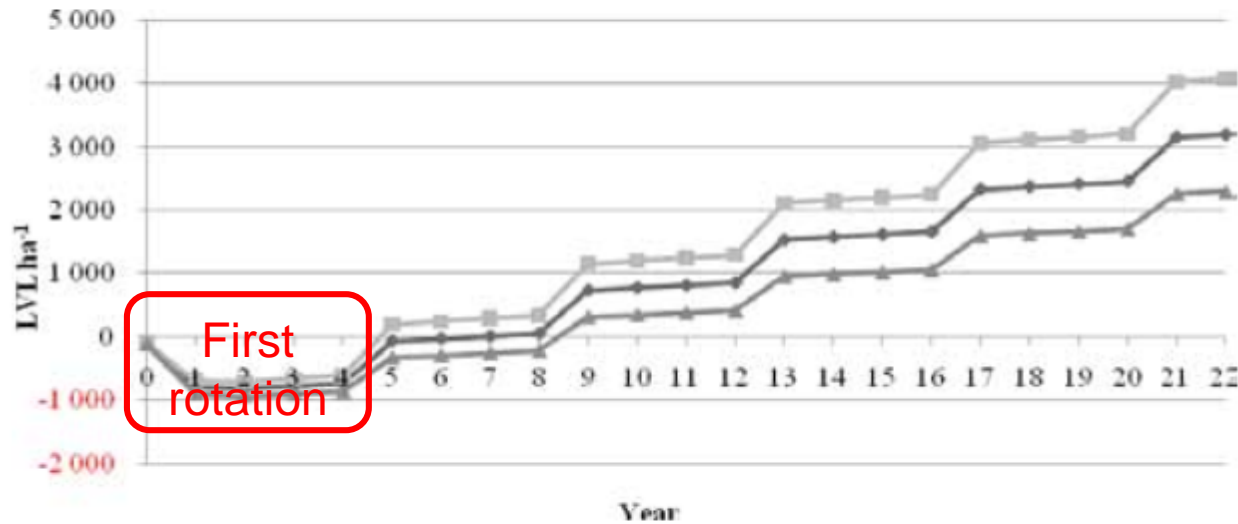
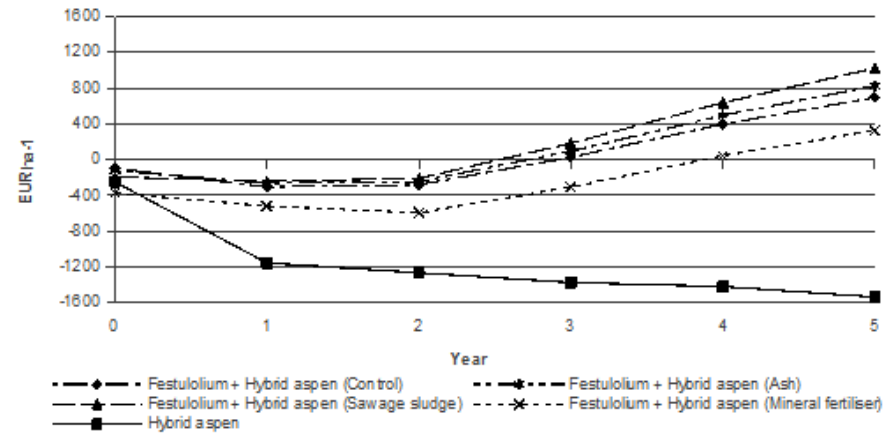
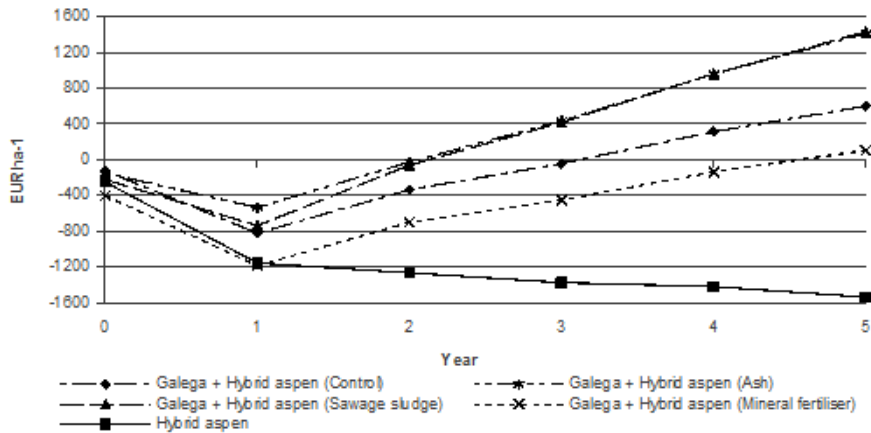


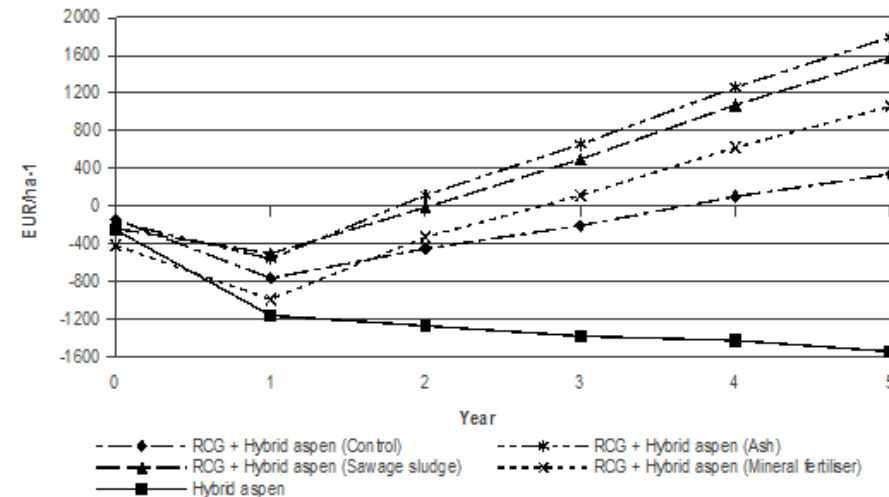
Figure 2. Accumulated cash flow for the project lifetime of 22 years, the payback in standard scenario and pessimistic scenario is in the 9<sup>th</sup> year after the second harvest, in optimistic scenario the payback is after the first harvest in the 5<sup>th</sup> year.

[http://www2.ltu.lv/research\\_conf/Proceedings/18th\\_volume2.pdf](http://www2.ltu.lv/research_conf/Proceedings/18th_volume2.pdf)



The combined growing of trees and grasses on the same area, give possibility to save costs and earn an incomes in first years, which cover starting expenses.

Reed canary grass, festulolium, and galega could be successfully grown for biomass and seed production between trees rows in the agroforestry system in Latvia. The use of different bio-energy and municipal waste products as fertilisers in general provided higher biomass and seed yields.





FOREST & LANDSCAPE



norden

Nordic Energy Research

[http://www.nordicforestresearch.org/wp-content/uploads/2012/07/13\\_Palle\\_Madsen.pdf](http://www.nordicforestresearch.org/wp-content/uploads/2012/07/13_Palle_Madsen.pdf)

## New high-productive species mixtures:

Fast starters - pioners like poplar, aspen, larch alder or birch - mixed with - high-productive climax species (e.g. conifers, beech or lime)

can make forestry high-productive within less than 5 years





## Improvement of trees - breeding and selection:

- choosing of:
  - more adapted,
  - qualitative,
  - productive ones;
- production of crosses between best ones.

**+20 % to base level.**

## Improvement of grow conditions:

- drynage;
- irrigation;
- liming;
- fertilization;
- nutrient recycling and liming by ash from energy wood.

**+10-30% of final product  
biomass.**

# Thank You for attention!

