

# Together towards bioeconomy

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#### Luke in a nutshell

- Natural Resources Institute Finland (Luke) is a research and expert organization
- Expertise in renewable natural resources and sustainable food production.
- Luke provides innovative solutions for new business opportunities based on natural resources.
- Our strengths are in sustainable production and use of natural resources and thorough knowledge of bio-based raw materials.



#### LUKE Natural Resources Institute Finland -new but long traditions

1898 MTT Agrifood Research Finland is founded

**1917** Finnish Forest Research Institute (Metla)



Finnish Game and Fisheries Research Institute (RKTL)



Information Centre of the Ministry of Agriculture and Forestry (Tike)

2015

MTT, Metla, RKTL and Tike's statistic services are merged. Natural Resources Institute Finland (Luke) is formed.



#### Personnel



**1284** Employees

**30%** Doctoral degree

**45** Professors

**51** Average age, y

#### **Personnel groups**



- Directorate 20
- Scientists 621
- Other experts 285
- Research support personnel 391

December 2017





Utsjok

#### Luke is located throughout Finland

#### Land fragmentation in Finland -experiences and iniatives



# Land fragmentation in Finland -history and current situation: land



# Land fragmentation in Finland -Background

-Fast development in farm structure during EU-membership (1995-2016)

-Almost half of the farms have quitted production (95 562  $\rightarrow$  49 982 farms)

-Average size of active farms has almost doubled (23 ha  $\rightarrow$  44 ha)

→Same land area (2,24 million ha) is/will be farmed by fewer and growing active farms

## Land fragmentation in Finland -Land ownership

-Also, we can see another change; separation between land ownership and farming

-As farms quit, they usually rent land to active farms rather than sell it

-Growth of active farms is mostly based on renting land

-Today, active farms rent 800 000 ha of Jand from 400 000 land owners ces Institute Finland

# Land fragmentation in Finland -Main problems

-Short contracts, often 5 years or less, combined with risk of contract not renewed

-This reduces incentives to invest on land productivity; e.g. liming and drainage, land owners not interested in paying them

-"Cost fear" of land owners; also costs of land consolidation; we should improve land ownership together with land parcels



## Land fragmentation in Finland -Main problems

-Farm growth has not fixed the main problem; Finnish land parcels are still only 2,5 ha; growing farms still operate on same "ancient" land structure not best for utilising modern production technology

-Also, land is not often available nearby; this increases traffic, emissions, labour costs but also clearing land for farming purposes (total area 85 400 ha in period 2000-2011, 25 % on peatland= greenhouse gas emission risk) Land fragmentation in Finland -Land consolidation –what has been done

-Organised by National Land Survey of **Finland (Maanmittauslaitos)** 

-After 2000, 55 agricultural land consolidation projects are finished including total area 67 500 ha (mostly **agricultural land**)

-At the moment ongoing land consolidation projects in 37 areas (58 900 ha total)



#### Land fragmentation in Finland -Current status



Land fragmentation in Finland -Land consolidation –what has been done

-Key findings after land consolidation projects; in most cases physical parcel size doubled

-After 15 years size had remained same (or increased slightly)→permanent change



Land fragmentation in Finland -Land consolidation –new flexible solutions

-Land consolidation projects are traditionally large areal, also including other than active farms and necessary road and drainage improvements, 3-5 year duration

-New, more flexible products launched for farmers; in farmer-based land consolidation, willing farmers' (e.g. neighbours) land is reorganised with only 1-3 year duration, road and drainage not included Land fragmentation in Finland -Land consolidation –social benefits

-Traditionally, land consolidation projects are justified by agricultural benefits

-More emphasis; besides agriculture, what are total social benefits of better land structure in land consolidation areas?

-Energy consumption, environment, areal vitality (tax revenues, new businesses, etc.), social effects (population change, willingness to continue farming etc.)



Land fragmentation in Finland -Land consolidation -social benefits

-For this purpose, Luke and National Land Survey of Finland are starting a project;

"Social effects of land consolidation projects in Finland, starting 7/2018 and finishing 4/2019)





Land fragmentation in Finland -Land consolidation –social benefits

-We use agricultural statistics, farmer surveys and tax statistics (2000-2016)

→agricultural effects; how farm structure and their productivity has changed in land consolidation areas, e.g. is there higher productivity change compared to other nearby, non-consolidated areas?



# Land fragmentation in Finland -Land consolidation –social benefits

-Other than agricultural effects; first part is to find out where to find appropriate statistics and what key indicators could be used for environment, areal vitality and social effects

-Second part is to apply developed indicators for study areas -1 municipality (Sievi) where almost all the agricultural land has been re-arranged -compared to 3 nearby municipalities no actions Land fragmentation in Finland -Land consolidation -new digital solutions

-Besides starting research project focusing on total social benefits, Luke is also preparing research plan focusing on new digital solutions to improve land ownership, structure and rental markets

-The main objective is to enhance farm ownership structure by getting land to "active hands"



Land fragmentation in Finland -Land consolidation –new digital solutions

-Motives and needs of passive landowners are studied that more desirable options can be provided; e.g. selling land, changing agricultural land to forest or new forms of ownership

-Also, land structure and location are improved by offering landowner and farmer-based solutions



Land fragmentation in Finland -Land consolidation –new digital solutions

-For this purpose, new digital platform (PELTORI) will be developed where landowners and farmers meet to find optimal solutions

-Research plan accepted (funded by Ministry of Agriculture and Forestry) for second round, if funded, project will start in April 2019



