The following supplement accompanies the article

Information needs, barriers and incentives to adopting climate change mitigation and adaptation actions in boreal agriculture

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Table S1. Farmers and rural stakeholders were asked to evaluate the information needs of the following suggestions which were rated through a 4-point Likert type scale, ranging from high information need (4) to no information need (1).

Crop production in a changing climate:
Novel crop plants
Current crop varieties and extreme weather events
Targeting plant breeding
Oilseed crops
Enhanced pest observation
Novel pests and need for pesticides
Plant disease management
Weed management
Perennial energy crops
Autumn sown winter crops
Livestock production and climate change:
Ruminant feeding
Livestock protein feeding
Targeting animal breeding
Legume crops and protein self-sufficiency
Intercropping and cultivar mixtures
Treatment of livestock outdoor yards
Manure storage and utilization
Manure application methods
Maintenance and improvement of soil fertility in a changing climate:
Improving soil fertility
Soil water management and extreme weather events
Maintenance of soil organic matter
Organic fertilizer products
Plant cover in winter time
Fertilization and timing of extreme weather events
Crop rotation
Undersowing (oversowing)/catch crops
Reduced tillage
Direct seeding
Using biochar
The effect of agriculture on water ecosystems
Diversification and climate change:
Diversity of crop cultivars
Diversity of crop species at the farm level
Functional diversity of cropping system
Pluriactivity of farms
Increasing pluriactivity of rural enterprises as a risk-spreading
Rural tourism and climate change
Diversity and yield security
Landscape diversity: impacts on disease and pests pressure
Buffer zones and wetlands as diversification means

Forestry and climate change:
Forest biomass as a raw material for bioenergy
Emerging pest and disease risks in forestry

Renewable energy:
Energy efficiency on the farm
Heating solutions
The production of biogas
Field based bioenergy opportunities
Bioenergy business: opportunities and challenges
Biomass recycling and re-use on the farm
Farm-level nutrient cycling
The role of rural areas in mitigating climate change
Society's support for renewable energy
Cropland as a carbon sink

Politics and economics and climate change:
Rural policy in the next CAP
Agricultural policy in the next CAP
Greening agricultural policy impacts at farm level
New innovative business opportunities
The farm profitability development

Food production and climate change:
Food carbon footprint
Comprehensive eco-efficiency in the food chain
Local food
The domestic food production
Climate certificates
Global price variation in the effects of food price formation
Food supply and security
Global food security
Consumers' choices and the effects of climate change awareness of consumers to the demand and rural business

Table S2. Examples of the respondents' views on effects of climate change in the near future. Topics referring to fig 2. (Colors indicate the occupational group of the respondent: farmer, farm advisor, other).

Potential for agriculture
Possible increase in mean temperature provides opportunities for arable farming.
Increased use of plants biologically fixing nitrogen.
Species will change.
Diversity issues are highlighted, as well as re-evaluation of domestic forms of production and possibly even the legitimacy of defending of domestic production.

Risks for agriculture
Direct seeding may get worse if the spring is not dry and warm enough.
Crop cultivation, There will be new pests and weeds.
The need for information by advisers will increase. How to adapt the production to the changing climate, weather risks, and the cultivation of appropriate plants. Diseases and pests, management (organic).
Yes, the flood risk preparedness, angle for food production safety eg. Plant diseases.

Potentials in terms of energy options
The use of bioenergy is increasing.
Yes. The need for bioenergy is increasing all the time. Bioenergy production forms must combine wood, biogas, electricity and heat production, and the integration of solar and wind energy productions.

Energy conservation
Yes. We aim to undertake a more closed energy cycle.
Oil dependency should be reduced and performance improved in a sustainable way.

Table S3. Examples of the respondents' views on barriers and incentives for adopting climate change adaptation and mitigations measures. Topics referring to Fig 3 . (Colors as: farmers, farm advisor, other).

The concreteness of information

Too much information so there is not enough energy for adoption of it all. The information is in a format that can be compared to the guidelines of common agricultural support (CAP) which cannot be understood.

Should be able to demonstrate things that are feasible, therefore, so small that a single farm can implement, but it would still be impressive.

Climate change should be able to demonstrate in practice! Through their (farmers) actions. And be able to demonstrate that the future is also the target of their (farmers) currents activities. The farms future, their own children's future, to the transferee future… etc..

The reliability of information

Attitudes, suspicion; researchers are arguing over things and cheatings have happened where the research results have been manipulated. The climate has always changed, sometimes to the other direction.

Difficult to know who to believe and what methods are the most appropriate after all in climate change mitigation, and whether the humankind can do anything about it.

The economic opportunities

Money

Supporting farm biogas, or small-scale heat and power production, like the German model. There would be as much as nuclear power farms in Finland for energy production and at the same time the rearing of livestock emissions would be reduced.

Facts, which can demonstrate that by taking into account the climate change also the basic agricultural production benefit. Profitability of activities / instruments should be clearly visible, consumer behavior and a purchasing boycott / demand boom-ways are probably the most impressive as long as the climate is paid better. Small co-operative type marketing so that consumers have a consumer ring could be an option.

The economic losses

Agriculture is almost unprofitable. There is not enough money for any tasks or measures for which effects can only be seen years later.

More work which will not be paid

Climate change is seen negatively like "green activists" which will lead only to economic losses