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RETHINK

Rethinking the links between farm modernization, rural development and resilience
in a world of increasing demands and finite resources

Case study Small Farms' Development Strategies Latvia

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Summary	4
1. Introduction: definition of the social-ecological system studied	6
1.1 What is the case study about and who are the key actors?	6
1.2 Demands and resource constraints that are addressed	10
1.3 Cross-cutting themes analysed in-depth in the case study	11
1.4 Methodological approach	11
2. Results and discussion: addressing constraints, responding to change	12
2.1 'Resilience'-related findings	12
2.1.1 <i>Adaptability and transformability.....</i>	<i>12</i>
2.1.2 <i>Autonomy and (network) embeddedness.....</i>	<i>16</i>
2.1.3 <i>Development over time and adaptability.....</i>	<i>18</i>
2.1.4 <i>Additional case study-specific issues.....</i>	<i>20</i>
2.2 'Prosperity'-related findings.....	20
2.2.1 <i>Stakeholders' and key actor's views about 'prosperity'.....</i>	<i>21</i>
2.2.2 <i>Technical-entrepreneurial dimension.....</i>	<i>23</i>
2.2.3 <i>Ethical-social dimension.....</i>	<i>27</i>
2.2.4 <i>Political-contextual dimension.....</i>	<i>31</i>
2.2.5 <i>Additional case study-specific issues.....</i>	<i>32</i>
2.3 'Governance'-related findings.....	32
2.3.1 <i>The role of the institutional environment.....</i>	<i>32</i>
2.4 'Knowledge and learning'-related findings.....	35
2.4.1 <i>Knowledge needs in a complex world.....</i>	<i>35</i>
2.4.2 <i>Knowledge sources and the role of knowledge infrastructure, organizations and institutions.....</i>	<i>36</i>
2.4.3 <i>Effective forms of learning and knowledge networks.....</i>	<i>41</i>
2.4.4 <i>Additional case study-specific issues.....</i>	<i>42</i>
2.5 Interrelations between these different dimensions	43
2.5.1 <i>Interrelations between 'knowledge & learning' and 'governance'.....</i>	<i>43</i>
2.5.2 <i>Interrelations between 'prosperity' and 'resilience'.....</i>	<i>44</i>
2.5.3 <i>Contribution of 'knowledge & learning' and 'governance' to 'prosperity' and 'resilience'.....</i>	<i>44</i>
3. Conclusions	45
3.1 What are the main lessons learnt from the case study?	45
3.2 Links between rural development, farm modernization and resilience.....	47
3.3 Importance of conventional understanding of farm modernization.....	48
3.4 Particularly interesting issues for the comparative analysis.....	49
3.5 Implications for future research and policy	50
4. References.....	51
Annex A Characteristics of the sample's farms.....	55
Annex B 2.2.3. Role of public agricultural and rural development policies for prosperity in the CS? Do they have a positive or negative influence?	57

Abbreviations / Acronyms

CS	Case study
CSB	Central Statistical Bureau
EC	European Commission
LAAC	Latvian Association of Agricultural Cooperatives
LAOCC	Latvian Agricultural Organisations' Cooperative Council
LRATC	Latvian Rural Advisory and Training Centre
LSIAE	Latvian State Institute of Agrarian Economics
MA	Ministry of Agriculture
NDP2020	National Development Plan 2014–2020
NRP	National Reform Programme for the Implementation of the EU2020 Strategy
P	Page
RSS	Rural Support Service
UAA	Utilised Agricultural Area

Summary

This case study reveals small-scale farming as an alternative form of sustainable modern agriculture, where farm modernization reinforces rather than hinders sustainable development, rural prosperity and resilience. We explore small farms' development strategies in Latvia focusing on resilience, prosperity and knowledge issues. Small farms, which compose up to 90% of all farms in Latvia, are facing various long-term political, market and socio-demographic pressures, and their number is constantly declining. In this study we focus on the successful examples of small-scale farming and capture their diverse practices of market, territorial, social and political involvement which assure not only their own existence and development but contribute to viable rural communities and sustainable rural development.

The farms selected for the case study are located in Tukums region, which is an average Latvian region, but we use also data from national statistics and surveys, as well as from previous research in other regions for a broader comparison. 20 qualitative semi-structured interviews (farms' life history and socio-biographical approach) with small farmers were carried out. In addition, we used also information obtained at regional and national stakeholder workshops, policy document analysis, and various online resources.

The case study confirms the high diversity of small farms in terms of their socio-economic profiles, which further brings about the diversity in rural areas by ensuring the presence and mixture of various resources (natural, human, economic). Diversity keeps and opens up diverse paths for modernization, especially if we consider it as updating practices and ideas accordingly to the complex modern societal needs and demands: sustainable provision of food, maintenance of rural livelihoods, environmental conservation, sustainable growth... and to which industrial agriculture cannot solely respond.

Although small farms are inclined to follow the modernization paradigm as far as it involves updating technologies, reducing manual work or up-scaling it remains moderate up-scaling and intensification. A minority of small farmers – like, organic farmers or rural lifestyle enjoyers - take a more explicit opposition to intensive modernization of productivism and profit making. There are several overlapping ways of how small farms are breaking away from established hierarchies: through generational change leading to the entrance of young farmers with their new networks, knowledge and innovative ideas; through undertaking new ventures by experienced farmers, which often involve establishing new formal or informal collectives (e.g. vine-growing and wine-making community, lamb growers' cooperative), and through extremely specialised, unique niches. Finally, we discovered also a self-sufficient non-monetary system of agricultural activities providing sustenance to several families.

Small farms tend to be internally diverse. Although they often have one or two major specialisations, they diversify within their specialisation and maintain some minor additional branches f.i., hen, rabbits, bees which are kept mostly for self-consumption or are sold occasionally. There are also very multi-branch small farms *with a little bit from everything* and also very specialised small farms. In addition many small farms develop other economic activities, like processing, retail, tourism, consultancy etc. Off-farm income from another employment or social payments as well as public subsidies are important. This shows the hybrid socio-economic profiles of small-farming families, the linkage and mutual dependence of farming, non-farming and off-farm activities in the situation when none of them provide sufficient income. Farming here serves also for rural attachment of families, maintaining rural areas populated.

Small farms appear as risk mitigators as they have to deal with unstable natural conditions and policy regulations, and to balance possibilities for development and the risk of dependency in relations with banks, retail chains and farmers' collective arrangements. To maintain autonomy, farmers often forego opportunities which require entering uncertain relationships and undertake changes only within the scope and timing allowed by their own funds. However it may also be a limiting strategy, as some farmers decide against expansion, modernisation, or starting a new activity, instead continuing the mode of functioning which has proved to be safe. Autonomy proves to be a strong value at the very core of small farming activities, yet it may also produce limitations.

Small farmers view their work on the farm in very long term, as continuation of what their parents or great-parents did, and as building a foundation to be transferred to their children. The farm was often referred to as a life's work and its abandoning was unimaginable even if the work is very demanding with uncertain outcome. Such positioning of the farm in a timeframe of several generations helps small farmers also to offset the perceived uncertainty and unpredictability and makes the almost inevitable temporary failures and new starts more bearable.

Small farmers appeared to cherish their self-control and autonomy. Typically small farmers lean mostly on their own (production) resources (land, buildings, people working in the farm are family members, own wood is used for heating and building etc) which they put maximally in use. They are multitasking – they can accomplish almost everything on their farms themselves. Also lot of equipment and machinery are made/built by farmers themselves, they try to find most economical and rational solutions. This way farms build their self-sufficiency and resistance to external shocks and changes and contribute also to some socio-economic stability in rural areas.

Despite pre-cautious attitude towards formal and collective commercial relations small farms are involved in rather dense local, national and civic networks, which provide them with opportunities to gain information, learn and also participate in governance. Many of those networks are loose and informal, without strict common objectives, rules or functions and they consist of ad hoc relations which are activated when needs or opportunities present. Whereas national level involvement through professional associations are important for learning and representing small farmers interests, informal local networks are relevant for day-to-day functioning and staying informed about local developments and opportunities. In the situation where formal knowledge institutes only partly respond to small farmers' knowledge needs, informal, tacit and endogenous knowledge serve them as valuable support and source of inspiration and innovation. Practice-based farmers' knowledge is indispensable for successful farming, be it gained by doing or learning from other farmers. Knowing own land, cattle, varieties etc. through long-term personal experience and tested against reality form a sounder and more reliable base for farming.

Small farms illuminate the holistic multi-facet, long-term and multi-level character of prosperity, where farmer, farm, community and territorial levels are interconnected and which is economically, socially, ethically and environmentally balanced. Actually, such a vision coincides a lot with the notion of sustainable rural development. Small farmers interpret prosperity in terms of family well-being, supporting children (ie working for future generations), satisfaction, sufficient level of income, health, self-control, freedom to organise one's own life and work, environmental contributions of farming to the landscape, biodiversity, reproduction of natural resources and contribution to community livelihoods through employment and social relations. This challenges the dominant policy discourse of prosperity and rural development, which emphasises farms' monetary aspects, profitability and income.

1. Introduction: definition of the social-ecological system studied

1.1 What is the case study about and who are the key actors?

In this case study we explore small farms' development strategies in Latvia: how small farmers succeed to build, sustain, and develop resilient farms in dynamic and often inimical context conditions. We capture their diverse practices of market, territorial, social and political involvement which assure not only their own existence and development but contribute to viable rural communities and sustainable rural development. We aim at revealing how small-scale farming represents an alternative form of sustainable modern agriculture, where farm modernization reinforces rather than hinders sustainable development, rural prosperity and resilience.



Picture 1. Farm "Vītoliņi"

Such study focus is grounded in the on-going public, scientific and policy discussions on the need to reorient modern agriculture in more sustainable and resilient pathways and which regard small-scale farming as a just option taking into account its positive role in improving food security, supporting rural employment and economy, providing social, cultural and environmental services (Goering et al 1993, IFAD 2013 ...).

We respond also to the Latvian agricultural reality where 80 to 90% of farms are considered as small (EC 2011; MA 2006; Veveris and Kalis 2011; European Parliament 2013¹), but their role and potential in sustainable rural development remain vastly disregarded and underused. Post-socialism agricultural reform, decollectivisation and land restitution resulted in very fragmented agricultural structure. Small farms were loaded with crucial social functions in rural communities and families during the transition period when other employment and income possibilities were limited in countryside, but rural development policies have failed to create social and economic alternatives or improve the situation of small farmers (Slee 2000). Since public support for agriculture has been introduced in Latvia a couple of decades ago, the most part of it has been directed to modernisation goals and absorbed by a limited number of large farms or companies (in the period 2010-2012 only 2807 farms have received support for modernisation (CSB 2013a)). The EU accession with the harmonisation of national and EU policies has promoted sustainabilisation of Latvian agricultural and rural policies as environmental and social dimensions of agricultural development have been better addressed in policy documents and respective regulations and support

¹ There are several approaches to define small farms which take into account different criteria (EC 2011). In 2013 there were 81,796 farms in Latvia and 76,598 of them were with the standard output till 25.000 EUR (CSB 2013), which accordingly to the European Parliament are considered as small agricultural holdings (European Parliament 2013).

measures have been introduced. However, technological modernisation and productivity have remained the central goals of agricultural policy, justified by the comparatively poor technical equipment, low competitiveness of farms, unequal support level to farmers across the EU member-states and increasing competition in global market. The situation has slightly changed lately as the new national rural development program 2014-2020 proposes support specifically to small-scale farmers (See Annex B). Together with increasing attention to small farms at European and global level (the year 2014 has been designated the "International Year of Family Farming" by the UN, ...) some room for change is opening up and there is a need for a sound knowledge base to build decisions that are better adapted to small farmers' needs.

In order to understand small farms' development and opportunities and challenges they face, small farmers are put in the central place of this study. However, we analyse small farms' development in their relational context and therefore other actors with whom farmers have relations and whose decisions or actions have considerable influence on small farms are also included in the study: they are representatives of local municipalities, researchers, policy makers, agricultural advisors, retailers and processors, consumers, agricultural organizations etc.

What is the spatial and time scale focused on in the case study?

Specifically Tukums municipality (total area 119,152.4 ha) was chosen as the major territory where Latvian small farms were studied more in detail. Tukums represents an average Latvian rural region. 65% of its total land area is farmland and close to 30% are forests and special protected areas; population is decreasing (31,666 in 2015) and population density is 28 persons/km². The region is comparatively close to the capital city of Riga, whose economic proximity is beneficial for the regional economy and also for many farmers, mainly in terms of their market access². In order to increase robustness of the study results and add to their representativeness at national level, local data was compared to and complemented by national level data from statistics and other research (SOLINSA, FOODLINKS, PROAKIS, COFAMI, small farms' survey of LSIAE (LSIAE 2013)) when available, as well as additional small farms from other regions were included in the study.

The research combined historical and foresight perspectives. Small farms' development paths were studied in a historical perspective, tracking them back to the farms' origins (many of them were established during agricultural reform and decollectivisation in the 1990s) and identifying major milestones throughout their development. As almost all the interviewed farmers work on the land which has belonged to their families for several generations (with the interruption during the Soviet period), the interviews provided with some insights from even more ancient period of the farms' history in the pre-Soviet period. In addition to the analysis of retrospective and present developments, farmers' future considerations about their farm's as well as territorial and agricultural development were collected.

Please describe the typical farming system in your case study area and the type of farms your case study focuses on

There are many branches of agriculture developing in Tukums region. The dominant sectors are meat and milk cattle farming and crop farming, the same as

² This may raise the question of the representativeness as economic proximity to urban centres may be advantageous for on- and off-farm diversification. However, this was not unequivocally proved in the case study: several farms in the sample sold their products regularly in urban markets, but the presence of the cities did not play role in their off-farm employment.

in the country in general³. The region stands out with its long tradition of fruit and seedling growing, which explains also the quite high concentration of farms of this specialisation, as well as the presence of several fruit processing companies and a fruit research institute. There are also many niche farms developing in less conventional branches, like, fishery, vineyards, horse breeding. Some farms are diversifying on-farm economic activities (processing, tourism...). Like in Latvia in general, also in Tukums region a dominating majority of farms are small.

For the study purposes we defined a preliminary working definition of small farms, which had to be elaborated further on the base of research results. We assumed that both quantitative and qualitative aspects have to be integrated in such a definition. Therefore we took into consideration farm size in terms of hectares and number of livestock, and it had to be farmers' owned and run.

We selected small farms which altogether reflect the regional diversity of agriculture and farmers, and demonstrate in one way or another successful small-farm operation. The small farms included in the sample represented various branches of agriculture, farm economic profiles (semi-subsistence, business oriented⁴), market strategies (diversification, specialisation, cooperation...), farmers' socio-demographic profiles. Bearing in mind that small farms are very different, some common characteristics could be extracted from the sample though. Typically, a small-scale farm is operated by the owners' family. Farmers are the legal owners of land since several generations (except for the long interruption of property rights under the Soviet rule, when many farmers were deported or displaced and their farms collectivised). Family members constitute the major labour force; other relatives or seasonal workers may join them during the harvest period or for some occasional jobs. In many of the farms visited, farming was the only employment for at least one family member, off-farm jobs or income.

Farm sizes in the sample varied from 2 ha to 100 ha. Those variations were related to agricultural branches – bigger were those farms specialised in livestock and grain, smaller were organic farms and also those growing vegetables, fruits, flowers and farms with on-farm processing. Several farmers rent additional farmland in order to increase income from production. (For more detailed descriptions of the studied farms see the Annex A or [the interactive map](#).)

³ In Latvia, 46% of farms are specialized in crop farming, 16 % - dairy farming, 15 % - mixed crop and cattle farming, 7% - mixed crop farming, 6% - grazing cattle farming, 2% - permanent crops and 1 % - vegetables (CSB 2013). The three key agricultural sectors of crop, dairy and grazing livestock farming compose 66% of the total output of agricultural goods at base prices (product subsidies included)(MoA 2013b).

⁴ In some farm classifications, there is made distinction between life-style/hobby farms and business-oriented/income-generating farms. We did not find such distinction appropriate as lifestyle and business oriented aspects were tightly intertwined in all the studied farms. Most of the farms interviewed were lifestyle farms accordingly to the farmers' deep and passionate involvement in farming (but it is more than a hobby), and they were business-oriented and seeking for increasing income from farming activities. We stick with the term "semi-subsistence farm" to denote those farms producing mostly for self-consumption, with poor market involvement, little income from farming, and possible other income. Farming and other income generating activities/statuses (off-farm jobs, pensions...) are often complementary in these farms as none of them separately can ensure sufficient financial security, and provision of food and other resources is a crucial basic reason of their operating (not so much the hobby aspect even if farmers love their work).



Picture 2. The sample of small farms. (Ctrl+click on the picture to load an interactive online map with farm descriptions.)

Cooperation among the farmers found expression as exchange of ideas, information and knowledge, seeds, borrowing or sharing cultivation or harvesting machinery. Few of the farmers interviewed were involved in marketing cooperatives. This goes in hand with the general situation of farmer cooperation in Latvia: there are 110 agricultural marketing cooperatives in the country with around 9000 farmer members (LAAC 2012), which is not much taking into account the total number of 81.7 thousand operating farms (CSB 2013). Many small farmers in the sample were sufficiently equipped: they possessed their own machinery and equipment needed in the farm. This somehow contradicts with the national level data which show that lack of appropriate machinery is seen as a major obstacle for farm development among Latvian small farmers (LSIAE 2013). We explain this by the fact that the case study focuses primarily on successful small farms and which suggests that sufficient equipment is one of the preconditions for success.

Please summarize the key territorial characteristics of the case studied

Type of territory	Agricultural sector	Landscape characteristics	Population	Spatial type
<ul style="list-style-type: none"> - 'Catchment' area of a value-added chain: close neighbourhood with the capital city Riga - Administrative region – Tukums municipality - Landscape: flat areas with some hilly areas and forests 	<ul style="list-style-type: none"> - 50 % of agriculture in the regional economic structure - Average farm size 26.8 ha - Types of production: livestock; milk products; fruits; fruit-trees; fruit processing (candies, marmalade etc.); grain; vine; wool; fish; vegetables 	<ul style="list-style-type: none"> - Land cover: 65% agricultural land, of which 85% arable land, 8% pasture, 5% meadow and 2% orchard; - 30% forests and 5% buildings and engineering assets 	<ul style="list-style-type: none"> - Number of inhabitants: 33,318 - Density: 28 inhabitants per sqkm - Average migration balance is negative, more people are moving out of the region every year - Issues of ageing: demographic burden is 532; rural population: 50% or more (depending on local administrative territory) 	<ul style="list-style-type: none"> - Rural area (95%) with 1 town and 10 small administrative centres

1.2 Demands and resource constraints that are addressed

Small-scale farming represents an alternative to large scale, industrial agriculture which for several decades has been perceived and promoted as a desirable model of agricultural production, but is receiving criticisms due to negative externalities it brings about in social, economic and environmental terms (Goering et al 1993; Woodhouse, 2010 etc.). Small farms address several public concerns and aspirations regarding viable countryside, sustainable farming and food security, quality and diversity. The table below outlines several solutions that small farms offer regarding the defects of agro-industrial mode of production as they are identified in previous studies (Rosset 1999; Altieri 2009; Knickel et al 2009; Cimdiņa and Raubiško 2012; Galli and Brunori 2013 etc).⁵

Agro-industrial production	Small – scale farming
Productivity, specialisation	Multifunctionality, diversification
Uniform technological solutions	Place-specific innovative capacity, local knowledge and know-how
Mechanisation and robotisation	Human work
Highly integrated in / dependent on global markets, high external inputs of limited resources	Autonomy: fewer inputs, less public subsidies, individual distribution channels, diverse income sources
Growing concentration of power in food chains	Wider distributed power with increased agricultural and food independence
Rural unemployment, poverty and desertification	Populated and viable rural communities
Loss of biodiversity, environmental pollution, destruction of rural landscape	Maintenance of biodiversity and rural landscape
Uniformity of food	Food diversity
...	

Despite its sustainability potential, small-scale farming is often perceived in Latvia as a persisting burden. Small farms are estimated by predominantly regarding one, ie economic, dimension in the context of national agricultural productivity, competitiveness and income which all are regarded as unacceptably low. Only 45 % of Latvian farms are market oriented and among the small farms this proportion is even less. Although around half of small farms sell some part of their products, many of them produce primarily for self-consumption (the share of self-consumption in small farms reaches 75%) (LSIAE 2013). The undermodernised state of many small farms is illuminated against the fact that agricultural production in Latvia has not reached the modernisation and industrialisation level of Western Europe countries; therefore its problems are comparatively less evident and pressing and provokes less of public attention. So up-scaling and modernisation are often seen as an unambiguously sound pathway for the national agriculture for the sake of its competitiveness in the global market.

In such context, the major structural barriers that Latvian small farmers face are:

Political: Although public subsidies are available and broadly used by small farmers, their more specific needs and limitations have not been well addressed by the EU and national agricultural policies and regulatory frameworks. So far public support measures have been advantageous primarily for big commercial farms (Veveris and Kalis 2011). Without better adapted support to small farms for investment, cooperation, training, and consultancy their development potential is not fully used and even endangered.

Market: Dominant food market structures, in particular the major processing companies and supermarket chains, and their quality and quantity requirements

⁵ The table presents the dichotomic extremes of industrial and small scale farming, and there are more transitional forms between them.

are not very encouraging for small farmers⁶. Moreover, often they out-ri- val farmers' market initiatives among consumers by setting cheaper prices for end-products.

Socio-demographic: Depopulation of rural areas goes in hand with the aging of farming community. This also means that there may be limited human capacity in small-scale agriculture to introduce changes. Although agriculture is a respected profession, it is not popular among young people in Latvia. In addition, unsatisfactory living conditions in rural areas with limited services and poor employment opportunities are urging many rural residents, especially youngsters, to flee.

All these pressures contribute to the decreasing number of small farms in Latvia (between 2001 and 2013 the number of small farms has decreased for 62.956 or 45% (Pilvere 2013; CSB 2013) and the related loss of certain socio-cultural values (rural and farming life-styles, knowledge, tradition etc.), economic and environmental values they embody.

1.3 Cross-cutting themes analysed in-depth in the case study

The Latvian case study is exploring primarily the Knowledge and learning theme, but also Resilience and Prosperity.

In order to understand the specific development strategies small farms undertake we analyse knowledge and learning processes they use. Three main questions guide Knowledge and learning analysis: What are relevant knowledge sources and networks? What are knowledge, learning and innovation practices? How are learning and knowledge translated into innovations and how do they contribute to resilience?

Within the Resilience theme the case study aims to explore small farms' adaptive strategies in dynamic contexts and building components of small farms' resilience.

At a lesser extent the case will explore the Prosperity theme. Here we focus on the multidimensionality of prosperity and small farms' place-specific development trajectories: how they are embedded in and contribute to local resources and prosperity?

Regarding the Governance theme, our interest is limited to the role of institutional environment, in particular rural and agricultural policies, in small farms' development.

1.4 Methodological approach

We use place-based, multiple-case case study as a general methodological framework to analyse small farm development strategies (Yin 2009). It contains several complementary cases of small farms within a previously defined research territory. The mix of applied methods involves:

Workshops of stakeholder groups: In order to better focus the research on both national and local interests, two stakeholder partnership groups were organized in Latvia at the preparatory stage of field work: one at national and one at local level. The participating stakeholders represented farmers and their organizations, agricultural advisory, national agricultural policy makers, regional governments, researchers and RURAGRI Latvian coordinator. The workshops served both to collect stakeholders' opinions on small farmers' situation and adjust the study to national and local interests.

Qualitative semi-structured interviews (farms' life history and socio-biographical approach) with small farmers: In total, original 20 interviews were carried out. 18

⁶Another problem is that food sector is increasingly bought up and controlled by foreign investors, and they are even less interested in local agriculture and supplies.

of them were in Tukums region, and two for comparative and representative purposes in other Latvian regions. As described above, the respondents were selected so that they illustrate diversity of small farms and their successful strategies.

Statistics and previous research: Tukums' data were complemented and compared with national statistics and data from other research projects where Latvian small farms have been studied (SOLINSA, FOODLINKS, PROAKIS, COFAMI, small farms' survey of LSIAE (LSIAE 2013)).

Policy document analysis: national agricultural and rural policy documents and regional policy documents were reviewed, in particular from the point of view of their influence on small farms.

Literature review.

Review of online resources.

2. Results and discussion: addressing constraints, responding to change

2.1 'Resilience'-related findings



Picture 3. Farm Gaiki. Farm XXX

2.1.1 Adaptability and transformability

Please briefly describe the diversity of activities on-farm

Small farms' activities are diverse and they correlate with the farm family size and the branch of agriculture they work in. The national small farms survey (LSIAE 2013) reveals that the structure of small farms' specializations do not differ considerably from that of large farms, except for dairy farming which small farms choose much less often as their specialisation than big farms. Our case study illuminate that small farms have one or two major specialisations; but they tend to diversify within their specialisation (f.i., growing very diverse varieties of vegetables) and maintain some minor additional branches (f.i., hen, rabbits, bees which are kept mostly for self-consumption or are sold occasionally (and seemed not to be considered as mentioning worth as despite their presence often they were forgotten about during the interviews). However, there are also small farms which have very diverse production *with a little bit from everything* and also very specialised small farms.

Next to agricultural production, small farms develop other on-farm economic activities: almost 40% of small farmers report diversification in terms of providing agricultural services or performing non-farming activities (LSIAE 2013). The farms included in the sample had such non-farming activities as a farm zoo, on-farm

processing of food and non-food products, retail, fishing pond, boating, gardening services, restaurant etc. Some farms were open for public educational events, e.g. a museum of dairy production equipment, workshops for farmers. Small farmers are very welcome for visitors and consumers on farm which serves not only for selling products but also to introduce them with rural lifestyle. In many of the interviewed small farms someone had also paid employment outside the farm, in public or private sector, to ensure some stable income all year long.

On-farm activities may differ along the year: very often all the family members work together in summer period whereas winter period is more dedicated for education, planning of marketing activities and searching for new market possibilities.

Please briefly describe the diversity of farms in the region and/or spatial heterogeneity

Small farms in the case study region are diverse and dynamic. Much of the heterogeneity within the farming system is caused by spatial soil variability. As described above, there is a big variety of branches they have chosen to develop. Nevertheless, there is a similarity of small farms in terms of their daily operation – mostly farm family members work on farm. In some farms there were also paid employees.

Based on resource endowment, dependence on off-farm income and production objectives, farms in the region can be grouped into such farm types: (1) Market-oriented, cash-crops farms; (2) Expanding, medium resource endowment farms; (3) Farms subsidised by off-farm employment and (4) Semi-subsistence farms, partly relying on non-farm activities. In general, non-farming income are important for small-scale farming families: only 26% of Latvian small farms' income come from farming, the rest is composed of off-farm economic activities (50%), agricultural subsidies (18%) and various social allowances (9%) (LSIAE 2013). This shows the hybrid economic situation of small-farming families, the linkage and mutual dependence of farming, non-farming and off-farm activities in the situation when none of them provide sufficient income. Farming here serves also for rural attachment of families, maintaining rural areas populated.

The majority of farms in the region are inclined to follow the modernization paradigm as far as it involves updating technologies and reducing manual work; some farms are considering up-scaling and have made respective investments, but nevertheless it remains moderate up-scaling. But there is also a minority of small farmers who take a more explicit opposition to intensive modernization of productivism and profit making, like those farmers working with organic methods or those who have chosen farming for rural lifestyle and not for business purposes.

Please briefly describe the diversity of economic activities in the region

Economic activities in Tukums region are largely based on agriculture. By main types, almost half (49.5%) of the economically active business entities represented agriculture, forestry and fisheries (CSB). The next large group of business entities involve wholesale and retail trade and repair of motor vehicles and motorcycles (18.2%). The main activities of these two groups include plant production, animal production, hunting and related service activities and retail sales (excluding motor vehicles and motorcycles).

Among the factors determining successful business development in the region is its geographical location, and the availability and quality of necessary resources - human, natural resources, adequate infrastructure and financial resources. Also the local government use different support tools to create a favourable environment for business development and to foster the competitiveness of enterprises.

Collaboration vs. hierarchies

Local governments are the central institutions in Latvia responsible for local rural development. Management of natural resources and facilitating agricultural development are among many its responsibilities, but often these two receive probably less attention than social services which local governments have to provide, such as education, primary health care, safety, public facilities, recreation, social protection. Local governments are more or less open to residents' demands, and in compliance to their budgets and priorities respond to them. In Tukums region public meetings and discussions are organised regarding various infrastructure and also natural resources management projects. There are local partnerships and action groups established within LEADER program which are good examples of participatory collaborative governance, but they do not focus particularly on natural management and agricultural development. The small farmers interviewed responded positively about local government or did not have any objections or expectations regarding them.

More criticism was expressed about the national government which is responsible for the action plan and the use of EU structural funds in agriculture. Farmers appreciated the possibility to receive support from EU funds, but they thought that the distribution of those funds for various agricultural branches and support action was not always fair, despite the fact that farmer organisations are consulted in political decision making.

Professional farmer associations have good collaboration with the Ministry of Agriculture and they serve as means for participatory governance at national level. These sectoral organisations are quite powerful to direct agricultural development, in particular within their specific agricultural branches. Many of them are active to organize specific learning events, promote certain knowledge (for instance, Fruit growing association is strongly supporting integrated fruit growing), and initiate collective projects. Another form of collective self-organisation are cooperatives, but as said above, Latvian small farmers (and farmers in general) are reluctant to join them. Negative experiences of forced collectivism during the Soviet period, lack of social skills and trust, wish to keep personal control over their work and its quality are among the reasons that this collective governance mechanism is not widely used.

Does the governance system enable social learning?

As outlined just above, small-scale agriculture, viewed broadly as governance of natural resources, in Latvia develops in an interplay of local, national and civic governance activities, all providing their own particular social learning opportunities.

At local level interactions with local governments and other actors are stimulated by geographical and social proximity; farmers often being locals and part of dense local networks. Specifically local governments support small farm development by both structural measures (especially public tenders for services, even if the local government budgets are quite limited) and small ad-hoc actions – e.g. funding participation of a certain farm in an international trade fair. They also provide supportive working and living conditions for small farmers by maintaining rural technical and social infrastructure and stimulating local community life. However, there are few specific measures for agricultural and particularly small farmers' development implemented at local level. Our research data finds evidence to general willingness to support local producers, appreciation showed by local authorities and receiving small ad hoc help, albeit on a small scale which is not decisive for farm development. But we also found several examples when farmers were not interested in local level decisions, as their business niche exceeds local level (e.g. breeding elite horses), or focusses on own consumption (the example of the farmers with the 10 family non-monetary goods exchange system).

Overlaying the local level, the presence of national-level institutions often is more important for farmers: they are institutions like RSS, LRATC (...) that are supporting rural development through implementing financial measures and consulting farmers on issues ranging from policies and application for projects to specific technologies. So virtually all farmers described their relationships with these institutions as regular interactions asking and receiving advice and information; for many these have been crucial in the initial stages of farm development (helping to recognise opportunities, fulfil requirements – both individually and in cooperatives, etc.)

The most relevant channel for representation of interests of small farmers is professional/sectoral associations; most of our farmers are involved in these (and as diversification is quite wide-spread, for many it means involvement in several); although many feel that professional associations tend to favour the interests of large-scale producers, they also feel that „sometimes” the interests of small farms are also taken into account – e.g. as evidenced by 2014 reduction of income tax for employing seasonal workers (Saeima 2013).

Overall, interviews attest to an active involvement of farmers in information exchange on policies and initiatives pertinent to their development: all cite using multiple sources of information and the need to be aware of developments in their sector (many cite the need to know the broader picture as well). There are multiple channels of involvement, the national level (through associations) seeming to be particularly important both for learning and access to other resources, while informal networks on the local level are extremely relevant for day-to-day functioning and staying informed about local developments and opportunities (e.g. new tenders for services, new cooperation ideas appearing).

What is the balance between permanence and change?

Our data shows that subjectively small-scale farmers experience their work and the policy environment as largely unpredictable. Indeed, system change is evidenced by recent major structural influences by introducing the euro (2014), the consequences following Russia's embargo on EU-produced food (2014), the state failure to regulate ownership of farming lands (local owners vs. foreign investors) (see Latvian Farmers' Federation study 2012), and preferential treatment of certain industries (e.g. renewable energy) exacerbating the struggle for land. In part, farmers respond by diversification and experimenting with new specialisation and niches: wine-making, cultivation of fish, on-farm zoos, etc. The impact of the Russian embargo in particular was felt by traditionally "Latvian" branches of agriculture – dairy, vegetables and fruit, and especially pork production. The embargo aggravated competition in these product categories in the neighbouring countries and it was difficult to adjust fast. The heaviest impact was felt by those farms which had recently invested in modernisation and took out bank loans (LOSP 2014).

A more beneficial system-level change has been the increased public awareness of the value of „local food”, which started gradually in mid-2000ies (with Slow Food Riga, introduction of local quality assurance systems). These two developments, however, are very gradual. The local quality assurance scheme is insufficiently used by producers owing to higher administrative costs (LOSP 2014) and is used only by 180 products nation-wide. The value of "local food" finds more visible expression in quite flourishing direct buying movement, popularity of farmers' markets in the capital, "green procurement" by local municipalities (more related to the aftermath of Russian embargo), and the specially designated sections with "farm produce" in major supermarkets.

The previous years have also seen somewhat increased acknowledgement of the value of small and medium-scale farming, linked in public rhetoric mostly to

counteracting the depopulation of countryside (e.g. the new Rural Development Programme for 2014-2020).

System changes are somewhat stabilised by the dense formal (e.g. sectoral associations, cooperatives in certain sectors) and informal networks, the overwhelming prevalence of family farming (Latvian Farmers' Federation 2012), and the deep cultural embeddedness of the idea of self-reliant single farmsteads (part of cultural heritage canon, see Encyclopedia Letonica; Ministry of Culture 2011).

Are there informal networks?

Our data indeed points out to farmers' perceptions of established power relations and hierarchies (e.g. in horse-breeding *„all major players have divided the field already in the 90ies“*; in berry-growing *„those producing juice feel they are superior to those who produce sweets“*, etc.).

It appears that there are at least three ways of breaking away from established hierarchies: through generation change (leading to the entrance of new players, e.g. recent graduates or students of agricultural training institutions with their additional layer of networks); through undertaking new ventures, which establish new relationships where all participants are beginners to an equal degree (e.g. vine-growing and wine-making), and through seeking extremely specialised niches (*„you have to be unique, small and smart“*, as said by a natural sweets maker) – these three may also overlap to a degree. In the first case, the return of young people to the countryside and farms, support for their innovative ideas is the focus of several nation-wide activities (e.g. training and competitions by LRATC, Young Farmers' Association, Farmers' Parliament). Also in our data, the cases of several very young locally and even nationally recognised farmers (*„Sējējs“* prize for a young farmer woman; tourism/goat farm *„Līciši“*) support the assumption that the trend does exist. Second, new ventures by experienced farmers are taking shape, which is evidenced by the establishment of a lamb growers' cooperative (2013) *„Kurzemes jērs“*, a fruit-growers' cooperative (2012), fish farming etc. The third way, development of very specific, even unique products was evident in several cases in cooperation with researchers, e.g. in food technology. Our research also found evidence of a fourth kind of a completely different discourse and practices: a self-sufficient non-monetary system of agricultural activities providing sustenance to about 10 related families. One may argue that this is not likely to ever become mainstream, however it sustains a differing logic and a way of life and thus has its own value. In our opinion the first three routes may indicate the ways that more innovative, alternative modes of farming, knowledge production and even innovation may come to develop.

2.1.2 *Autonomy and (network) embeddedness*

To what extent are farms autonomous? Autonomous in relation to what?

Small farms indeed demonstrate a tendency to be autonomous in many ways. Economically, in most cases there is diversification, making the most of the available assets (e.g. small HES + aquafarming + roadside, restaurant + sawmill; or providing paid services outside of own farming) with direct payments providing a stabilising input, but not a sole source of income. In most cases there are also multiple outlets for produce (direct selling in multiple ways including the internet, various retail arrangements, cooperation, and some export). Several farmers manage the whole production cycle – from growing, processing, packaging to selling. In processing, there are most often used only on-farm or local ingredients. A notably different case appears to be dairy farming, where producers tend to have a single outlet. In terms of knowledge and advice, most informants attested to relying both on state-provided information and on their own information

networks and in particular on peer-to-peer advice and support. In several cases, farmers tended to rely primarily on themselves and/or literature.

Participants of cooperatives have an additional source of autonomy, although they remain a minority. As to innovation in production processes, farmers tend to be constantly improving and experimenting, both to reduce the amount of physical labour (as they grow older) and to develop quality of their produce and respond to new opportunities (*„you have to avoid being depended on one thing“; the lazy ones have to think harder“*, *„always be ready for the next step“*, *„do things that others do not do“*).

What networks and platforms exist in the agricultural/farming community?

The farmers' interview data demonstrate that for engaged individuals, local community groups (parents' associations, women's groups, Mazpulki, choirs...) may be an additional source of strength, while the role of immediate neighbours is somewhat ambivalent.

In many cases informants pointed out that their local community has a lively civic life (friends of the local museum, reading groups, etc.); it has also been noted that these opportunities are less attractive for young people for whom farm life may feel isolated. For active individuals community engagement is both an opportunity to meet people, to find outlets for their farm services (e.g. a dairy equipment museum, a farm zoo, a meadow and facilities for a camp), and to feel a sense of connection.

As to neighbourly help and a general sense of mutual support with neighbours, this did not always seem to be the case. Scarcity of land and ensuing tensions over it, the perception of unequal risks if sharing farm equipment, perception of competition in the same specialism (e.g. dairy farming, fruit growing) and simply difference in luck and prosperity – all contribute to ambivalence in the studied cases.

Neighbours might be a natural source of seasonal/occasional workforce – but mostly it is not so, as (according to popular perception and general experience) unemployment benefit receivers are not interested in work, while successful farmers have no hands to spare. On the other hand, we did find evidence of a kind of social service provision to less fortunate community members: both in providing shelter in exchange of some services, and in sharing excess produce.

Farmers do provide their neighbours with services (especially together with farm equipment) for pay; sometimes they are being granted free use of land that a neighbour is unable to cultivate (although the arrangement may change once the land is made more usable); neighbours may refer potential clients if they themselves do not provide the service (e.g. as with horse riding). However the neighbourly goodwill balance is always somewhat fragile. This is evidenced by several informants pointing out their unwillingness to compete with their neighbours and thus choosing activities enabling them to avoid that, or else relying on further off neighbours for advice and support.

To what extent is the region autonomous? Autonomous in relation to what?

Regarding administrative and financial autonomy, Tukums region operates accordingly to legal frameworks. Under the new administrative arrangements approved in December 2008, Latvia has changed its administrative structure from two-level municipalities to one-level municipalities. The case study region of Tukums is such a recently formed administrative unit. Such amalgamation was intended for more autonomy of local level municipalities in terms of bigger financial resources, political influence, human capital and better service infrastructure. Local authorities have their own responsibilities that they exercise directly and finance from their own resources, and the state's delegated and paid responsibilities. For matters that are not subject to the national legislation, local

authorities are free to implement their own policies. The part of local government income from taxes is composed of 80% of personal income tax collected in its territory, a share of natural resources tax and real estate tax. Local authorities cannot set their own tax rates and altogether they have little direct influence on this source of income.

Regarding market autonomy, Tukums region is quite well integrated with the neighbouring region of the capital city. Entrepreneurs and farmers from Tukums region are using the presence of bigger towns/cities of Riga and Jūrmala. Also some farmers interviewed sold their products regularly in urban markets. But the presence of the cities did not play role in their off-farm employment.

2.1.3 Development over time and adaptability

What are the main tensions, fears, threats and challenges that the farms and/or the region faces?

The national small farm survey (LSIAE 2013) reveal that small farmers see a bunch of problems that hamper their development: taxation policy, poor cooperation and lack of trustable partners, chaotic regulatory framework, high prices of raw material and low prices for agricultural products, high competition in the market, difficulties to export, low purchasing power of local customers and uncertainty about future.

The interviewed farmers pointed to and illuminated more in detail some of them. The main tensions and fears in the farms are connected with the changes in legal requirements which small farms have difficulties to meet, for example the necessity to build manure storages for livestock farms till the 28th of July, 2014 (the ending of the 10 year transition period for Latvia to correspond to the Nitrates Directive of the EC (Council Directive 91/676/EEC). Often such changes require investments that are not affordable for small farmers, many also fear of taking loans in banks that obstruct them from expanding the production capacity or improving the farms actions.

An apple grower at Eglāji especially stressed that it is problematic to participate in project calls because a farmer should mostly invest his money first, but banks assess orchards for the same value as an unprocessed land with bushes, they can't see the value of a farm therefore in many cases loans are not granted.

For some farmers also the land availability causes disturbance, especially if they have had problems with renting land in their previous experience.

Vallieši case: there have been several problems with the leased land, for example in the end of the 90th it was cheated out from Anta, although a huge amount of work was already invested and the land was promised for a long-term lease; also 3 years ago the contract for the land lease was broken. As soon as you fix the problems on the leased land the owners ask a higher price. It is not possible to by an extra land nearby, the land is already mostly sold out.

The interviews were done in spring-summer, 2014 before the Russian embargo of EU products (august, 2014), therefore they did not reflect the stress about the market changes and problems with the demand of products and also the decrease of prices especially for dairy products. At the moment farmers also face the fears about spreading of a pig disease (*Pestis africana suum*) that was not topical a few months before. The risks that the farmers face changes rather fast and they are very much connected with the field of farming. Animal farmers were more subjected to threats and they were more disturbed about the health of animals, potential changes in prices, regulations, land availability, etc. than other farmers.

What do you think is the main strength of your region?

Tukums region is in a good geographical position, it is well connected to urban areas (the capital Riga is in 68 km, two other cities Jūrmala and Jelgava are even

closer) which provide market, employment, educational opportunities and various services. During the last decades the area around Riga has experienced the largest concentration of population which makes it also socially and economically dynamic region.

There is rich natural and cultural heritage in the region. The region's capital is the picturesque provincial town Tukums; several museums, manor houses, castles are located in the region; forests and specially protected natural areas form almost a third of the region's territory. These qualities together with the nearby Baltic Sea and its beaches make the region attractive also for tourism which is regarded as one of the three main branches of regional economy (the other two are agriculture and manufacturing industry) (Tukuma novada Dome 2011).

Agricultural land is another important natural resource which is maintained in a good condition in comparison to the country in general (Tukuma novada Dome 2011). Agro-environmental conditions (climate, soil, flat or slightly hilly areas) are favorable for agricultural production, especially for orchards and pastures for livestock.

What allowed the farms in your case study to persist, adapt and prosper over the last 50 or 20 years?

There are several, primarily personal, factors which come forefront. First, it is the value of autonomy, expressed by the popular wisdom that it is best to operate on one's own, to be wise and thorough, with farm development perhaps slower, but without taking loans and accomplishing as much as possible using own sources and power. *Rožkalni farmers joined the view that small farms are not only economic entities, but also "a way of life."*

Second, it is a degree of flexibility. The farmers have been able to adapt to the changing policy requirements and the wild free-market conditions prior to Latvia joining the EU. After joining the EU there is more stability and more predictable policy, as well as smaller market fluctuations. Many small farmers have constantly looked for new opportunities for doing business and running the farm better, using the ability to organize their work and using their practical experience, which has been gained over the years,

Third, it is attachment to the place and inherited farm: small farmers expressed that it is very important for their families to keep their heirloom and to take care of property continuing family traditions of agricultural and rural lifestyle. There is deep personal connection and commitment to land, as Jaunrēķi farmer said: *"We have the land and we have to look after it."* In most farms interviewed the young generation living with parents are involved in running the farm business and probably will follow up farming.

Last, but not least, it is mutual learning and the density of various networks linking farmers and enabling them to persist even in difficult situations. (See Chapter 2.4.2 for more detail.)

What are the main sources of resistance to change?

Historically (for more than 50 years of Soviet ruling) mistrust for collective management has been strong, therefore present-day farm owners are holding on to their land and are reluctant to engage in cooperatives, they are trying more to solve everything on their own, this is much due to negative experience in the past (Tisenkopfs et al, 2011). For example, Rožkalni farmers emphasize that *"cooperation experience has been negative, the owners have been involved in the formation of a vegetable cooperative, but the processing company went bankrupt and did not pay them."*

Mistrust in loan institutions is because there has been negative experience, thus people are afraid to take loans for farm development, in order to avoid losing the independence and their farm. Zaļplavnieki farmer stresses out that *"it is hard for*

such young farmers" as himself because they have to work with banks and, if the only thing they have is just a business plan, and have no experience, and no balance, then they can only get a loan if their father gives personal guarantee to the bank.

2.1.4 Additional case study-specific issues

A persistent theme appears to be risk mitigation; as not only are farmers dependent on nature and policy regulations; they also have to balance possibilities for development and the risk of dependency, especially from banks, retail chains and farmers' collective arrangements. Here the value of autonomy and its possibly conflicting levels come into play. To maintain autonomy, farmers are often ready to forego opportunities which would require entering uncertain relationships (e.g. with a bank) and choose to undertake changes only within the scope and timing allowed by their own funds. However it may also be a limiting strategy, as in some cases the farmers would decide against expansion, modernisation, or starting a new activity, instead continuing the mode of functioning which has proved to be safe.

Autonomy is at stake also in decisions in favour or oppose entering collaboration with others, or seeking market channels other than direct (and time-consuming) selling at marketplaces. Thus autonomy is a strong value at the very core of small farming activities, yet it may also produce limitations.

In some cases, financial risks are managed by legal separation of several parts of a farm, or making different strands of activity separate legal entities, within one family. This allows, for example, the husband and the wife to borrow and loan from each other's business/entity, even if the separation is purely technical. Other farmers testify to artful combining of several public support measure instruments, which allows offsetting difficulties with funding at some points. It must be added, of course, that such skills and arrangements are developed only in the cases where it is not "lifestyle" farming, and the owners have commercial goals.

On a different level, interview data also demonstrates that to offset the perceived uncertainty and unpredictability of farmers' life, individuals may start to view their work on the farm on a very broad timescale, seeing their efforts as continuation or restoration of what their parents or great-parents did (fulfilling their dreams, renewing the proud status of farm ownership, continuing a tradition), and as building a foundation to be transferred to their children. In many cases the farm was referred to as a life's work, its relinquishing unimaginable even if the work is very demanding and the outcome uncertain. Thus temporary setbacks are placed in a timeframe of two, three or even more generations, which makes the almost inevitable failures and new starts more bearable.

2.2 'Prosperity'-related findings



Picture 4. Ridelu mill. XXX farm.

2.2.1 Stakeholders' and key actor's views about 'prosperity'

Prosperity has multiple meanings and interpretations in the farmers and other key stakeholders' opinion. This is very much a discursive notion to be analysed in constructionist perspective. The following interpretations and meanings of prosperity are present in farmers' narratives:

- Decent/sufficient level of farm and family income
- Work that has been properly done
- Family well-being
- Quality of life
- Lack of economic problems and difficulties in farm household
- Opportunity for family members to do work that they like
- Savings that ensure (gradual) growth of a farm
- Aesthetic qualities of farming (rural environment, nature, beautiful landscape)
- Psychological and ethical satisfaction with farming and farm life
- Diligence, persistence as qualities that lead to prosperity
- Self-control – ability to control ones work and time

Two definitions of prosperity – personal prosperity and farm prosperity are deeply intertwined. Many interviewees explain this by referring to farming as life-style. Family, income, personal satisfaction, nature, self-control, diligent work and persistency are characteristic reference notions and building blocks for prosperity.

There is a dynamic relationship between economic and ethical and social dimensions of prosperity. Farmers emphasise that sufficient level of income is required to achieve personal and farm prosperity, however, they rarely put profit and income in first place while narrating prosperity. Instead, many farmers admit that *“money is not the main thing; the main is to do your work well”* (Mazvegi). The notion of ‘wealth’ was even perceived as adversary to small farming: *“You cannot get rich with farming but you can sustain your family”* (Mazvegi).

The mainstream political discourse which is supportive to economic development, growth and profitability of farms influences negatively the small-holders' self-assessment of their prosperity. *“I think that high prosperity for small farms is impossible, because Europe puts emphasis on big farms.”* (Dieniņas)

Regarding the main obstacles to ideal prosperity farmers mentioned two hindrances: lack of time (*“We run from early morning till late night.”* (Mazburkas); and credits (*“Loans are tricky, you need them to invest for future, but they are so troubling”*). Many small holders therefore prefer a slow-growth strategy based savings, self-investment and family labour.

Which domains have the biggest influence on prosperity from stakeholder's point of view?

Domains social relationship system	Value (1 low ... 4 high)	Briefly explain / show evidences
Political field	2	Mixed opinions about that. On the one hand farmers complain that policies favour large producers; on the other hand they acknowledge that without EU political support small farms would have been overtaken by large agri-businesses.
Public-administrative field	1	Public administration was not a prominent factor in supporting small farm prosperity.
Civil society	2	The influence of civil society on farm prosperity manifests first of all in knowledge and experience networks that empower farmers. Mutual help, barter, exchange of services and labour is another channel how

		civil society relations contribute to farm prosperity.
Private-entrepreneurial field	2	Farmers membership in producers groups and marketing cooperatives is an important and growing factor that contributes to farm development and future prosperity.

Which are the stakeholders' functions and responsibilities in the CS that need to be met in order to achieve prosperity in agriculture/rural areas – again from the stakeholders' and/or key actors' point of view?

Domain	Functions and responsibilities in the CS
Political field	<ul style="list-style-type: none"> ▪ Recognition of small farm specific construct of prosperity (family well-being, family employment, reproduction of environment and rural livelihood, effects on community well-being) ▪ Recognition that prosperity cannot be interpreted only in economic terms ▪ Addressing small farms with different prosperity policies and measures ▪ Reconsider the political discourse which favours (only) efficiency, profitability meanings of prosperity tailored to big farms.
Public-administrative field	<ul style="list-style-type: none"> ▪ There were very few claims to public administration. Farmers have few contacts with local municipalities: <i>"I haven't had a need to ask them."</i> (Dieniņas) ▪ Farmers are more in contact with Rural Support Service. Few criticisms and specific suggestions were made regarding operation of RSS.
Civil society	<ul style="list-style-type: none"> ▪ Civil society is prominent in building farmers knowledge capacities necessary for farm operation and prosperity. ▪ Women clubs were mentioned in several interviews as key source of knowledge and inspiration.
Private-entrepreneurial field	<ul style="list-style-type: none"> ▪ A proportion of interviewed farmers have recently joined producers cooperatives. This is a new experience and field of knowledge and some advice with regard to cooperative organisation, mutual responsibilities and ways of collective marketing would help farmers to act more efficiently in niche production and marketing chains.

Mention 5 key elements that must be included in a meaningful rural prosperity concept from the stakeholders' and/or key actors points of view (in order of importance):

- (1) 'Prosperity archipelagos, not prosperity islands'. Economic perspective on prosperity creates islands – big profitable farms where intangible and human aspects of prosperity might be overlooked. A more balanced vision supports 'prosperity archipelagos' – a network of small farms that reproduce quality livelihoods.
- (2) Farmers' health, quality of life, self-control, family well-being, contribution to community relations, the environment and local employment are as important aspects of rural prosperity as farm income and profitability.
- (3) Prosperity is not only about money. Quite contrary – for many small farms income is secondary or tertiary aspect of prosperity behind family well-being, self-control and ethical/psychological satisfaction.

- (4) Prosperity is discursive. We have to listen to farmers definitions and interpretations in order to understand it. There is no one model of prosperity.
- (5) Knowledge networks and social relations contribute to farm prosperity through opening access to wider pool of experiences, knowledge and connections that are critically assessed and applied in farm practices.

2.2.2 *Technical-entrepreneurial dimension*

In what ways does the most predominant production strategy in your CS contribute to prosperity in agriculture/rural areas?

- Small-scale farming as a dominant farming type in Latvia provides with work, income and food a considerable amount of rural families. This farm group provides with jobs 79% of all full-time farm employed and cultivates around half of total agricultural land (LSIAE 2013). Often small farms are the only one or one of few employment possibilities in rural areas. (Nevertheless, for many of the interviewed farmers farming was a well-reflected choice and they expressed their devotion and satisfaction in their work.) Therefore small farms perform crucial social and economic functions, and they are important to maintain rural areas populated, socially and economically active, and viable.
- Typically small farmers lean mostly on their own (production) resources (land, buildings, people working in the farm are family members, own wood is used for heating and building etc) which they put maximally in use. This way farms increase their self-sufficiency and resistance to external shocks and changes and contribute also to some socio-economic stability in rural areas. This forms a contrast with export-oriented large specialised operations (and sometimes cooperatives, as well) which took bank loans to modernise and expand and as the result suffered considerable losses (LOSP 2014; LOSP 2015).
- Small farmers are multitasking – they can accomplish almost everything on their farms themselves. Also regarding technical equipment and machinery, many things are made/built by farmers themselves, they try to find most economical and rational solutions. Therefore small farms are more independent and can save on outsourced services.
- A lot of hand work is used in small farms – it saves energy resources as electricity or gas (diesel) and requires less equipment, but it is hard and demanding for the farmers.
- Small farmers use less intensive production technologies, practice multi-cropping and cultivate/ breed diverse varieties, maintain traditional rural landscape and therefore contribute to good environmental conditions. However, they have also difficulties to meet specific environmental regulations: f.i., during the study we heard repeatedly that construction of environmentally- and normative-sound manure storages was problematic for many of small farmers.
- Small farmers lean a lot on local knowledge, gained in practice by themselves or learned from their parents or other farmers, and they develop and transfer this knowledge further. Therefore they put in value and contribute to local human, social and cultural capital.

In what ways does the most predominant processing strategy⁷ (processing, preservation and preparation of agricultural goods and services for intermediate and final consumption) of your CS contribute to prosperity in agriculture/rural areas?

⁷Covering a broad area of postharvest activities, comprising artisanal, minimally processed and packaged agricultural raw materials, the industrial and technology-intensive processing of intermediate goods and the fabrication of final products derived from agriculture (FAO 2008).

- In many of the interviewed farms there was done some processing in the farm; (except for slaughtering, as it requires large investments to establish a slaughterhouse that would match the legal requirements). On-farm processing allows for new expressions of farmers' entrepreneurship and creativity, it adds to their knowledge, as well as it contributes to the diversification of a farm's and local economy and is additional source of employment and income.
- Still, selling produce to processing companies is a common practice in small farms in general. Food processing companies are important for local economy development in terms jobs and income, but also training and financing some local cultural or social activities. However, the interviewed farmers reported the low prices proposed by processing companies (especially those competing in global markets) due to which several of farmers have chosen other, individual market channels or switched to other agricultural branches.
- The processing farmers buy in raw materials also from other local farmers, especially if they do not produce enough themselves to use all the facility's production capacity or to meet the market demand. Therefore they have broader positive local economic and social impact. Farmers' processing seems of particular important in developing some niche products (sea-buckthorn marmalade or goat cheese), where bigger processing companies are not ready to invest. So they contribute also to food diversity.
- Several farmers try to provide a full production cycle – from growing to processing, packaging and preservation of produced goods till sending or selling them in the market. These farmers keep themselves the control over their food chain and receive the full price.
- Processing is simplified to match a small-scale production; farmers use mostly local ingredients and try to avoid food additives. This again means putting in value local resources.
- Mostly farmers are registered as artisanal food producers that ease the production and sanitary requirements.

In what ways does the most predominant commercialization strategy of your CS (how a new offering, goods and services, is going to enter the marketplace; manufacturing and distribution, strategic partners, distribution channels, marketing strategies) contribute to prosperity in agriculture/rural areas?

Small farmers use several market channels to sell their products:

- Many of the interviewed farms use local direct distribution channels – like, local market in Tukums or selling on farm. This supports national small farm survey data showing that 55% of small farms sell more than half of their products and their major market channels are regular private customers, like, friends and relatives, middlemen, as well as local direct selling on regional market-places (LSIAE 2013).
- Some use also more distant markets in the larger cities of Rīga, Jūrmala for direct selling, where they participate in farmers markets, festivals, eco-markets.
- Larger farmers who can ensure processing and packaging of products (Līcīši, Eglāji) are selling their production to retail stores through cooperatives (Eglāji) or directly (Līcīši); they also distribute it to the restaurants in Rīga (Līcīši).
- Specialized eco-stores (Liepas marmalades. Gaiķi vegetables).
- Some farmers have websites, but none said that it would help to sell their products significantly, also most of the farmers admitted that their homepages need updating and at the moment they are not very customer-friendly, mostly they are left for farmers kids to administrate.
- Processing companies.

In direct selling small farmers receive the whole share of retail price. It allows for development of trust relations between producers and consumers contributing to their solidarity and long-term relations. Selling for local consumers increase their food choices/ diversity. Other market channels outside the local region provide with more diversity and outlet and income security. Selling through cooperatives

allows to bargain for better price than when farmers sell individually; so, it may mean better and more secure income.

Give five measures adopted in the CS that contribute to a more sustainable use of natural resources.

- The land area these farms own is so small and therefore, they seek to exploit it as rationally as possible, maintaining its fertility by natural means;
- The interviewed small farms have introduced some innovative solutions in their land use, and they do not use heavy machinery and technologies in working their land. The national small farms' survey indicate even insufficient level of technical equipment of these farms, but it may have also some negative consequences on sustainable use of natural resources;
- Small farms are usually engaged in growing non-traditional crops, thus their way of production is not as intensive as that on farms growing traditional crops, and they contribute to biodiversity.
- Small farmers are „close to the nature” they highly value their surroundings – landscape, old trees, wild birds and animals etc. they are willing to compromise in the production efficiency to preserve these values;
- As the use of chemicals is costly, small farmers frequently have a natural or organic farming, even if they don't have a certified organic farm.

How important are different technical-entrepreneurial influences on farm/agricultural prosperity in the CS? (The table contains the researchers' estimations based on the stakeholders' provided information.)

Item	Value (1 low ... 4 high)	Specify the importance / show evidence
Coherent vision and business strategy	3	Most of the farmers did not have a classical business strategy, but they have a coherent vision of their farm development and they combine quite successfully multiple resources at their disposal to ensure their farm development.
Joint effort of reaching a fair distribution of value added in the value chain	2	Mostly the small farmers tried to do everything themselves and some were rather successful in it therefore the high necessity of joining together was not visible
Innovation in goods and services, products, technology, etc.	3	Innovative products – marmalades, goats cheese – highly demanded in the market
Diversification of goods and services	4	Some were specialised, some diversified
Quality of goods and services	3	Mostly high quality was required, but for example in the horse breeding farm (Mazveģi) the horses were rather low quality and sold for low prices
Environmental sustainability of production process	3	Linked to the profitability via the customers' expectations to buy natural products
Production cost reduction	2	Important for some but not for all interviewed farmers for others the quality was prior
Farm profitability	3	The current profitability of the interviewed farms indicates the rational and effective use of the resource thus indicating to the future prosperity. However, most of small farms at national level combine farming and non-farming income.
Resource use efficiency	4	Rational and effective use of all resources was one of the main factors of prosperity, even some farms that had very limited resources were much more prosperous than others with more resources if they had chosen a suitable area of farming and had fully used all their resources
Capacity of individual marketing of goods and services	4	The individual marketing and individual selling strategies were more evident in the interviews, farmers highly valued their independency and stressed that it is hard to join in a cooperation with other growers/ producers
Capacity of collective marketing of goods and services	3	There were some good examples of collective marketing (Kurzemes Jērs) and selling of goods through cooperatives (Eglāji)
Entrepreneurship	4	Similarly to business strategy and efficient use of resources, entrepreneurship was one of the key aspects of prosperity
High technical performance of the production process	1	A lot of hand-labour was used, seldom the processes were Hi-tech
Autonomous reproduction of production factors ⁸	4	Most of the farmers stressed the importance of autonomy and its role in profitable farming – the use of family labour, own breeding/sowing material, own financial resources allows the farms to avoid liabilities thus if affected by changes in the market etc. they can survive
<i>Other (please specify)</i>		

⁸ Independence from input markets: own feed, own family labour, own financial resources, etc.

2.2.3 *Ethical-social dimension*

What intangibles are relevant for prosperity in the CS at community/micro-regional level?

The interviews with small farmers suggest that construction and interpretation of prosperity is multifaceted; there is no one definition of prosperity and in each farm case prosperity is defined and constructed slightly differently. It seems that monetary components such as income, farm profitability etc. are far less emphasised than we expected before the study. The main notions/meanings used in farmers discursive construction of prosperity are: family well-being; supporting children; sufficient level of income (to meet family needs); health; self-control; freedom to organise one's own life and work; environmental contributions of farming (to the landscape, biodiversity, reproduction of natural resources); contribution to community livelihoods (employment, social relations). The farmers provided views and interpretations of prosperity that embrace a variety of meanings, notions and values. The table below summarises some of the more intangible aspects of prosperity (the table contains the researchers' estimations based on the stakeholders' provided information).

(The table contains the researchers' estimations based on the stakeholders' provided information.)

Intangible aspects	Value (1 low ... 4 high)	Briefly explain / show evidences
Development of personal and community values	4	<p>Personal values:</p> <p>Emotional satisfaction - self-fulfilment of being a farmer, doing farm-work well, seeing the fruits of ones' own work;</p> <p>Self-control – being able to decide upon ways of farming and ones' own ways of life;</p> <p>Freedom – a related value emphasised in some interviews: <i>"Freedom to do in family what we want and like."</i> (Gulbji)</p> <p>Efficacy – Reliance on own work, initiative, personal investment</p> <p>Family / marital ties – a strong motivator and factor for prosperous farming</p> <p>Family / children – farm succession motif as strong factor of both prosperity and resilience</p> <p>Family / household economy – self provision of employment, work, income, food, home. Family in different dimensions seems to be very important prosperity factor and dimension in small farms.</p> <p>Health – often mentioned as costs / sacrifices stemming from hard farm work and; health problems perceived as an obstacle to farm prosperity especially among ageing farmers.</p> <p>Time – Lack of time often mentioned as restriction to prosperity. <i>"Long hours"</i> often mentioned in interviews. Time management is tougher in multifunctional and multi-branch farms which take up production and marketing themselves and alone. On a positive side – possibility to control working time, have some free time.</p> <p>Work ethics – diligence, overcoming of difficulties, persistence all are seen as qualities necessary for achieving prosperity</p> <p>Community values:</p> <p>Landscape, environmental care, biodiversity protection – all appraised and reasserted through farming;</p> <p>Local employment – small farmers are aware of their contribution to permanent or seasonal local employment, although not in all cases employment of external labour is fully registered</p> <p>Taxes – <i>"I am among the biggest tax--payers in the community."</i> (Berzgali)</p> <p>Food assistance / mutual help – <i>"We give all products to relatives and friends for free. Sometimes they help us in farm work."</i> (Jaunkreki)</p>
Improved information and knowledge	2	<p>Farms that are involved in various forms of (formal) learning activities tend to demonstrate more confidence about farm prosperity and personal prosperity of a farmer. Discursive construction of prosperity is more embracive and complex, including knowledge.</p> <p>There are two main forms/channels of formal learning:</p> <p>a/ courses, information activities and educational events organised by advisory services, research institutes, and farmers associations;</p> <p>b/ projects that farmers participate and that include a learning / training component.</p>
Mutual learning and	4	Mutual or peer learning is extremely relevant building block for

knowledge exchange		prosperity. Farmers learn informally through associations, women clubs, other farmers, more experienced peers.
Skills and competencies	3	<p>Time management skills are needed to carry out multi-functions and multi-tasks on small farms.</p> <p>Economic management skills in broad sense are essential, but farmers mostly develop these skills by experience and doing.</p> <p>Marketing skills are also obtained mainly through practicing and doing of marketing. Many interviewed farmers lack a solid marketing knowledge, especially about diversity of potential market channels for their produce, and about collective marketing. Some farmers have negative collective marketing experiences through failed cooperatives.</p> <p>Farm strategic planning skills are often developed by intuition. Some advice on this might be helpful for many small farms.</p> <p>Communication skills – in order to get access and make use of relevant knowledge and other resources</p> <p>Reflection and decision making skills – farm solutions are complex and farmers have to weight and reflectively reassess various options: to diversify and how far? To take credits or not? To farm alone or engage in a cooperative, etc.? These choices involve holistic reflection and decision-making.</p>
A strong sense of belonging among the actors involved	2	<p>Farmers who are aware of multiple knowledge networks and are a part of them tend to contextualise themselves in a broader community and perceive themselves as being more prosperous.</p> <p>Accessibility of knowledge and advice seems to interplay with prosperity self-definition: <i>"We have experience and knowledge in fruit-growing in the community, the knowledge of Pure Horticultural Research Centre, advice of specialists is available nearby, I can also consult my colleagues."</i> (Berzgali).</p> <p>Strong social ties locally - friends, relatives, neighbours and mutually rewarding exchange with them (with food, labour, knowledge, experience, social information) also contributes to construction of prosperity.</p>
Other (please specify)		
.....		
.....		

How important are different ethical-social influences on farm/agricultural prosperity in the CS?

(The table outlines the researchers' estimations based on the stakeholders' provided information.)

Items	Value (1 low ... 4 high)	Briefly explain / show evidences
Sensibility and capacity to appreciate values	3	Farmers who are sensitised to societal values develop a more encompassing definition of prosperity.
Trust between key actors and/or stakeholders	2	Farmers who are linked to other stakeholders via trust based relationship have an access to wider pool of knowledge and other resources and these are gradually deployed in practical building of prosperity.
Leadership in the territory / sector	2	Leadership is quite an important factor to become a prosperous farmer (leadership to employ workers, access markets, access knowledge, write project proposals, obtain credits). These leadership qualities are not present fort all farmers. In many small farms 'externally oriented leadership' is substituted by internally oriented self-control and efficacy.
Autonomy in decision making	4	Very important factor for many small farmers. Autonomy is especially emphasised by farmers who are not deeply integrated in value chains and keep marketing diversity under own control.
Negotiation capacity of key actors	1	Interviewed small holders do not demonstrate strong negotiation skills with key actors. Many have negative experiences with cooperatives and mainstream retail channels.
Open attitude to cooperation and joint work	2	Farmers in general are positive about cooperation seeing it as key solution for marketing. But currently only a minority is practically involved in cooperatives. Some are hurt by failed cooperation experiences.
Result orientation	2	Small farmers demonstrate holistic approach to 'result' which is not always measured in pure economic terms. To achieve 'result' farmers have to manage complex production and marketing efforts, especially if they do both only with family labour.
Ability to overcome conflicts and crisis	4	In some farms crisis has occurred when a niche production failed and farmers had to develop another kind of production or diversify. Therefore overcoming production or marketing crisis was beneficial to increased prosperity. The other form of crisis has been related to difficulties to pay back bank loans.
Community promotes and encourages diversity	4	Farming community (neighbours, networks, professional groups) are promoting diversity; through these links farmers learn about diverse new production, environmental, organisational etc. solutions and are encouraged to apply them. (However, there are also professional groups who promote less diverse farming with a strong focus on specialisation, productivity.)
Good local governance and democratic processes	1	Local administrations in most cases are reported as being supportive or neutral to small farmers.
Equitable opportunities for all	1	This aspect was not particularly emphasised in farmers' responses.
<i>Other (please specify) Sustainable rural development policies</i>	4	EU policies were noted as having positive influence on a diversified local development. This is especially the case with EU environmental directives and small/subsistence farm support policies that in farmers' opinion positively influence rural diversity.

2.2.4 Political-contextual dimension

What role do public policies (in particular agricultural and rural development policies) play for prosperity in the CS? Do they have a positive or negative influence?

Positive aspects ⁹	Negative aspects
<ul style="list-style-type: none"> ▪ EU and national funding for direct payments ▪ EU and national funding for rural development ▪ Competent and experienced advisory service, which was established and is partly funded from public funds, is a well-recognised knowledge and information source for farmers ▪ The National Rural Network, which provides information exchange, spreads best practices and experience and provides training ▪ Active agricultural organisations and cooperatives have developed over the last 10 years, also with the help of public support 	<ul style="list-style-type: none"> ▪ Still the strong focus on modernisation and productivity in agricultural policies and funding does not consider and integrate well small farmers' needs and opportunities and broader rural development goals. (F.i., a minority group of mostly big farmers has been profiting from Modernisation measures under Rural Development Program 2007-2013 with modest impact on their economic and rural development (LSIAE, 2011).) ▪ Regulations of food production and distribution (hygiene norms) have been inadequate and discouraging for small-scale operators. ▪ Public policies have not succeeded to stop or reduce considerably rural outmigration and depopulation. ▪ Bureaucratization of farming due to many regulations to follow, norms to meet, accounts, controls, registrations etc. In addition, information about relevant public policies and support measures, regulations do not timely reach all farmers (also not all small farmers themselves actively acquire and use information) who therefore can be penalised.

Please assess the influence that of each of the elements within the political-contextual dimension have on prosperity in your CS (farms/agriculture)

(The table presents the researchers' estimations based on the stakeholders' provided information.)

Items	Value (1 low ... 4 high)	Specify the importance
Domestic market	4	Products produced by small farms are mainly sold in the local market
International market	4	Sale prices of agricultural products and prices of material resources depend on the prices of corresponding products in the world market
National grants	1	National subsidies are available in minimal amounts
International grants (including EU)	1	Small farms lack capacity to use international grants (including EU grants)
Rural development policy of the EU	3	The implementation of rural development policies in Latvia provides opportunities to develop small farms; still they have some deficits as outlined above
Other European policy	2	There are possibilities to use ESF activities for employment and

⁹ See more details for each bulletpoint in the Annex B

		training
Competitiveness at national level	3	It is important that small farms are able to compete in the domestic market, as their output quantities are small
Competitiveness at international level	3	International competitiveness makes it necessary to take into consideration the prices of agricultural products and resources set by international markets
Biodiversity, environment	3	Small farms make a significant contribution to biodiversity development un environment preservation
Technological change (new technologies)	2	Technological solutions can help to reduce costs, yet, small farms usually lack capacity to introduce new technologies and to efficiently exploit them
Legal frameworks and regulation	4	A stable business environment is one of the key preconditions for the development of small farms as well
Knowledge and information	4	Knowledge and information allow making right decisions in farm development
Solidarity in society with agriculture/rural areas	2	The role and contribution of small farms to social development in rural areas is underestimated
Other (please specify)		
.....		
.....		

2.2.5 Additional case study-specific issues

The dominant policy discourse of prosperity overemphasising farm profitability, income and monetary aspects neglects the small-holders actual construction of prosperity which is much more embracive and economically, socially, ethically and environmentally balanced. We have to bring more light and policy attention to 'moderate' and socially sustainable definitions of rural prosperity based on small farm study. In small farm segment there are strong infusive links between prosperity, resilience and knowledge and learning that are to be explored more in-depth.

2.3 'Governance'-related findings



Picture 5. Saulgriezi farm. Mazburkas farm.

2.3.1 The role of the institutional environment

The National Development Plan 2014–2020 (NDP2020) (2012) is hierarchically the highest national-level medium-term planning document in Latvia. NDP2020 is

closely related to the Sustainable Development Strategy of Latvia until 2030 (Latvia2030) and the National Reform Programme for the Implementation of the EU2020 Strategy (NRP). The Government-approved guiding principle of an "economic breakthrough" and the three priorities – "Growth of the National Economy", "Human Securability" (a form of resilience) and "Growth for Regions" – form a coherent system that fits a sustainable planning approach as well as the structure defined in Latvia2030 and the NRP.

The measures and activities of Latvia's Rural Development Programme 2014-2020 (2014) affect the achievement of all the three NDP 2020 priorities, by the planned investments in the following NDP 2020 action domains (Latvijas lauku attīstības..., 2014):

- highly efficient production of competitive goods and internationally competitive services;
- an excellent entrepreneurship environment;
- cooperation of individuals, their cultural and civic engagement as the basis for their affiliation to Latvia;
- promotion of economic activity in the regions – the use of potential of territories;
- availability of services to create more equal opportunities for jobs and living conditions;
- sustainable management of natural and cultural capital.

Identify and rank the Top 3 goals (based on your own assessment) for agricultural and rural development

Agricultural development	Rural development
<ul style="list-style-type: none"> • To promote the efficient use of resources • To increase the viability of agricultural holdings and the competitiveness of all kinds of agricultural activity in all the regions • To promote the organisation of the food chain, including processing and marketing of agricultural products, animal welfare and risk management in agriculture 	<ul style="list-style-type: none"> • To promote the transfer of knowledge and innovation in agriculture and forestry and in rural territories • To restore, maintain and enhance the ecosystems related to agriculture and forestry • To contribute to social inclusion, poverty reduction and economic growth in rural areas

Compile a table with information on the three strategies that have received most funding within the agricultural and rural development programme in the most recent funding period:

Goal	Budget
2007-2013	2007-2013 (financial obligations as of 1 June 2014) <i>(authors' calculations based on the Rural Support Service, 2014)</i>
<ul style="list-style-type: none"> • Modernisation of agricultural holdings 	<ul style="list-style-type: none"> • Public funding was EUR 368.9 mln or 26.2% of the total financial obligations for rural development
<ul style="list-style-type: none"> • Payments due to unfavourable conditions in other territories 	<ul style="list-style-type: none"> • Public funding was EUR 274.5 mln or 19.5% of the total financial obligations for rural development
<ul style="list-style-type: none"> • Agro-environmental payments 	<ul style="list-style-type: none"> • Public funding was EUR 194.0 mln or 13.8% of the total financial obligations for rural development
2014-2020	2014-2020 (planned funding) <i>(authors' calculations based on Latvia's Rural Development..., 2014)</i>
<ul style="list-style-type: none"> • Investments in material assets, which include investments in agriculture and food processing and in developing agricultural and forestry infrastructures 	<ul style="list-style-type: none"> • Public funding : EUR 489.1 mln or 32% of the total financial obligations for rural development. Small farms and young farmers are among priorities. 14% (EUR 68.6 mln) are aimed for small farms (with annual turnover up to EUR 70,000) to support investments in farm restructuring, diversification and increasing production efficiency (purchasing machinery, equipment, construction of production units) (Latvijas lauku attīstības ... 2014a).

<ul style="list-style-type: none"> • Payments to farms with natural constraints 	<ul style="list-style-type: none"> • Public funding : EUR 267.5 mln or 17.5 % of the total financial obligations for rural development
<ul style="list-style-type: none"> • Organic farming 	<ul style="list-style-type: none"> • Public funding : EUR 151.9 mln or 9,9% of the total financial obligations for rural development

Are the top three goals (as named above) coherent with the allocation of the highest amount of funding (as named above)? If not could you explain why?

Allocation of funding for agricultural and rural development priorities is quite coherent with the goals, especially regarding agriculture. 72% of small farmers have received some support within Rural Development Programme since 2004 (LSIAE 2013).

Since 2007 the first priority set in the Rural Development Programme has been modernisation and investments in agricultural enterprises which is well reflected in the distribution of funds.¹⁰

The significance of "Payments due to unfavourable conditions in other territories" (LFA) is understandable, as the purpose of these payments is to promote the maintenance of rural landscape, to provide and promote sustainable agricultural activities by environmentally friendly agricultural methods in the territories where agricultural activity is disadvantaged. They correspond to agricultural, but also to rural development top goals. In the period 2007-2013 in Latvia, LFA areas covered 72.7% or 1.81 mln ha of UAA, which included arable land, meadows, pastures, permanent crops, and this was a relatively easy-to-receive kind of support. Therefore, among farmers, it was the favourite kind of support: 63% of small farms evaluate LFA payments as important (Pilvere et al 2012; LSIAE 2013).

Agro-environmental payments in the period 2007-2013 were much broader in scope than support for "Organic farming" in the period 2014-2020, as they included such measures as "Development of organic farming", "Maintaining biodiversity in grassland", "Establishment of buffer belts", "Preservation of genetic resources of farming animals", "Introducing and promoting integrated horticulture" and "Stubble field in winter period". 35% of small farmers estimates these payments as important to them (LSIAE 2013).

Have governmental policies encouraged or supported the organization and development of the governance partnership in your case study?

There is some funding attributed to facilitate horizontal and vertical cooperation in agricultural and food sector (farmers' cooperatives, knowledge and technology platforms...), and professional associations are consulted in policy- and decision making. Still not all actors are evenly involved in governance processes. Inter-sector and cross-sector cooperation, ie among processing enterprises, farmers and retailers and cooperation between scientific institutions and rural entrepreneurs remains rather scarce and occasional.

¹⁰ In order that the indicator for the period 2007-2013 is comparable with that for the period 2014-2020 regarding support measure "Investment in material assets", a funding of EUR 86.9 mln intended for agricultural processing and a funding of EUR 53.8 mln for infrastructure with regard to the development and adjustment of agriculture and forestry, which make up EUR 509.6 mln – 4,2% more than as planned for the period 2014-2020 – have to be added to the financial support for farm modernisation.

2.4 'Knowledge and learning'-related findings



Picture 6 . xxx farm. Jaunkreki farm.

2.4.1 Knowledge needs in a complex world

What knowledge needs are manifest and/or a particular focus in the CS?

(The table presents the researchers' estimations based on the stakeholders' provided information.)

Type of knowledge	Rank Top 3	Specify deficits more precisely for Top3
Technical knowledge and skills		
Marketing knowledge and skills	2	It was agreed among various stakeholders that "there is no problem to produce something, but to sell it", to know and use appropriate market channels, prepare offer (National seminar). Among the interviewed farmers more specifically the IT skills regarding marketing were lacking – development of homepages, working with social networks etc.
Management knowledge and skills		
Farm strategic planning knowledge and skills		
Cooperation, networking, social skills	1	Knowledge deficits depending on a person – in some cases these skills were sufficient and even excellent, but some farmers lacked them and it was evident in their farming
<i>Other (please specify)</i> Entrepreneurship	3	Skills to generate and implement ideas, self-confidence, daring to do new things, scenario building

What challenges or opportunities at farm/ community level do they address? And: How, by whom are they defined?

The need for cooperation and marketing knowledge addresses small farmers' difficult access to the market and their vulnerable position in it. The possession of good cooperation and networking skills allow the farmers to join in their production/ procession or marketing strategies thus allowing to work more effectively and strengthen their market involvement. These skills also assure a good exchange of knowledge/ experiences between the farmers or farmers and local government/ associations/ policy makers and promotes therefore diffusion of good practices and innovations and contributes to more inclusive development. Entrepreneurship is mostly needed in a farm level to ensure innovation, updating

or renovation of practices, broadening vision and knowledge about possible farm development pathways, therefore contributing also to flexibility, resilience.

2.4.2 Knowledge sources and the role of knowledge infrastructure, organizations and institutions

What knowledge sources/actors are used to meet the needs referred to in the previous section?

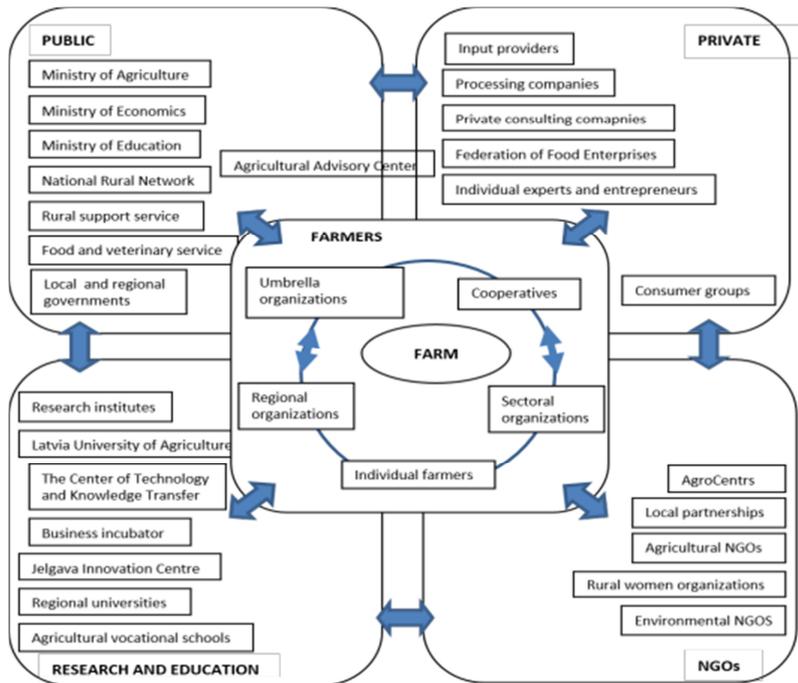
Checklist on knowledge sources and infrastructure; identify the Top 5: 1., 2., ... 5.

Knowledge sources	More specifically:				
Farmers:	1) Own experience, learning by doing	2) Other farmers	3) Farmer organizations, cooperatives		Other (please specify):
AKIS:	5) Agricultural advisory	(Agricultural) schools	Research institutes, scientists		Other (please specify):
Market actors:	4) Consumers, their organizations	Suppliers	Processors	4) Retailers	Other (please specify):
Civil society :	Local community groups	Environmental NGOs	LEADER groups		Other (please specify):
Administrative bodies:	Local municipality	Regional government	National government, ministries and public bodies	EU institutions	Other (please specify): 5) Rural Support service
Other (please specify): 2) marketing and business consultants					

Why are the sources you ranked specifically relevant? (Do they correspond best to particular knowledge needs? Are they the only sources available? ...)

The Figure 1 outlines the whole agricultural knowledge system and networks in Latvia.

Figure 1. Knowledge actors in agriculture



Source: Adapted from Šūmane et al. (2014)

There are varying degrees of accessibility and trust (which is based to a considerable extent on an actor's estimated expertise) which is needed for learning and which influence what sources farmers use. The intensity of farmers' engagement with various actors differs.

On a daily basis, farmers are more engaged with their closer network – family members who expose more influence on their learning habits and what and how is learned. Young farmers are influenced in their learning choices by their parents as farmers, especially when they are working on the same farm or taking over parents' farms (*Saulgrieži farmer develops her greenhouse farming next to her parents' greenhouses; Līciši farmer has chosen university program in relation to her mother's started goat farm; Galvenieki farmer applies her mother's and grandmother's methods*). Spouses transfer and maintain learning interest and habits to each other (*"Vilis was fanatic. He was going to all kind of training seminars, on cranberry or blueberry growing or whatever. Wherever there was some seminar we were attending, at Jelgava agricultural university or any of those producer organisations where we were members. Just out of curiosity. We went everywhere."* Gaiki).

The next learning circle is that of peers – other farmers with whom farmers exchange opinions, share their knowledge, ask for and provide with advice on regular base. Especially farmers – experts in their field or knowledge leaders are trusted knowledge sources. Also neighbouring farmers with whom farmers have more regular interactions impose more on learning new ideas and practices.

Professional associations, cooperatives and also agricultural advisory centre accumulate specific expertise and provide long-term solid knowledge support. Farmers receive there regular training opportunities and individual advice. Professional organisations form also platforms for social interactions and learning from peers. Sporadic focused learning networks are established during temporary training courses, visits abroad etc. They are initiated by professional associations, agricultural advisory service and may be ensured in cooperation with other public or private bodies.

Formal education institutions - 10 agricultural vocational schools and the agricultural university - are well referred to. They are frequented mostly by younger farmers for formal professional education; however, several experienced older farmers had finished or were considering following a complete university or professional programs in agriculture, which points also to the importance of life-long learning. (Latvia University of Agriculture propose life-long learning and other agricultural training and consultations, and farmers who had followed them were satisfied by their quality.) Many small farmers did not have professional agricultural education or had only finished separate agricultural courses. (Only 28% of all Latvian farmers have professional agricultural education (CSB, 2013b).) Formal education is recognized as useful for general knowledge and understanding, but farmers stressed that it is not sufficient and need to be complemented by knowledge derived from practical experience.

Research institutes and researchers were contacted on individual base more often by farmers who have scientific background or other personal link to research community. Researchers are accessible also in public events, like training courses, lectures, practical demonstrations etc. and publications. Fruit growers referred positively to their research institutes which are known for their openness towards practitioners.

Controlling, service and financial institutions, market actors and consumers add each to farmers' learning and knowledge in their field of expertise. This involves mainly informal and social learning from experience.

When specific knowledge is needed, like book-keeping, accountancy or project preparation, some farmers do not learn it but instead pay professional experts to accomplish these tasks.

What (multi-actor/stakeholder) learning networks are present in your CS (farmers' networks, farmers-AKIS networks, mixed multi-actor networks)? What is their contribution to farmers' learning?

As described above, small farmers are engaged in broad multi-actor networks consisting of diverse formal and especially informal relations. Those networks involve, in different compositions: family members living and working on- or off-farm, other farmers and farmer organizations, farmer and non-farmer neighbours, agricultural advisors, various state institutions related to agriculture, service providers (agricultural, book-keeping, financial etc), agricultural schools and university, researchers, local governments, consumers, agricultural and non-agricultural NGOs, banks.

All these relations create a space for social learning. However, although small farmers are operating and learning in multi-actor environment, many of those networks are loose and often also informal formations, consisting of ad hoc relations which are activated when needs or opportunities present. Most of them do not have any formal institutionalised framework, like common objectives, rules, functions. Various kinds of projects (research, marketing, educational) provides a platform for those diverse relations for a more focused, targeted action and learning. Such projects are of limited duration, but they may strengthen links among actors and motivate them for further common cooperation. Farmer organisations, also advisory service and researchers seem to be central actors in creating such multi-actor learning spaces.

Are some knowledge sources/actors strikingly missing? Why?

Rather than the absence of some knowledge sources or actors, there is limited capacity for some knowledge actors to create knowledge and problems in ensuring smooth knowledge flow among actors.

Accordingly to some experts' estimations, national agricultural research, due to very poor public funding, is not able to create the necessary local knowledge for producers (LSIAE 2013). Although most of main agricultural sectors are included

in agricultural education programs, in some, for instance, fruit growing there is missing professional education. (The fruit growers association and also fruit research institutes make their efforts to respond to farmers' knowledge needs.) There are less formal knowledge sources for various niche producers. Also farms who diversify their economic activities point to knowledge shortcomings (Krūzmētra et al 2012). However, the majority of farmers do not note a knowledge deficit (LSIAE 2013).

Problems in knowledge flow relates to knowing the relevant knowledge source (*many small farmers do not know about the national agricultural advisory service*), being connected (*better are doing those farmers who have more contacts that can ensure them with knowledge support; poor cooperation between agricultural schools and farmers*) and providing-receiving *"fast, timely, appropriate"* knowledge (Rethink local seminar). Timely knowledge particularly regards the changing regulatory and support frameworks of food production and distribution. Problems in knowledge circulation point that knowledge brokering could be improved and better targeted to facilitate knowledge exchange. Specific brokering efforts are needed also to facilitate practical application of knowledge.

What is specifically the role of informal, tacit and endogenous knowledge sources: local, community, farmers', traditional, other non-codified knowledge? How are they manifest in the case?

In a decreasing proportion, but still a majority of Latvian small and medium farmers (64%) (LSIAE 2013) have only practice-based agricultural knowledge with no formal agricultural education. 74% of small and medium farmers acknowledge that their own practice-based experience is their major source of knowledge for farming (LSIAE 2013).

Informal knowledge sources often are the initial motivators and guides into agriculture for young and new farmers. Several current small farmers have grown up on countryside or farms where they have got familiar with farming practices by working themselves or watching others doing. This experience and acquired knowledge and skills in young years have been crucial for them to appropriate farming as their life choice later. For some farmers that knowledge and skills have helped their return to farming even after long periods passed in the city; others continue to use, in creative ways, their parents and grand-parents knowledge. *For instance, Lidija prepares traditional medication from herbs and another farm resources as her mother and grandmother did.* (Jaunkreki)

Informal, tacit and endogenous knowledge continue to serve as valuable support and source of inspiration and innovation also when farmers are settled down. It was widely recognised among farmers, also those with formal agricultural education, that practice-based farmers' knowledge is indispensable for successful farming, be it gained by doing or learning from other farmers. Knowing your own (land, cattle, varieties...) and knowledge which is gained in (long-term) personal experience and tested against reality form a sounder and more reliable base for farming.

So Līga prefers to keep on with reproducing their own goats rather than buying them in from elsewhere as the "foreigners" tend to be with defects, illnesses which manifest themselves only in longer term.

Lidija and Arnolds have learned to use various local on-farm resources: land, forest, biodiversity in innovative ways. Through learning from other, ancient wisdom and own creativity they find new ways of application for those resources. They are transformed into products such as herbal teas, salves, jams, compost etc. which are shared also among relatives and friends. (Jaunkreki)

Peer's knowledge, learning from other farmers' experience, learning by seeing how they are doing is another trusted source. This farmers' informal and tacit knowledge is transferred during conversations or more formal discussions, other presence meetings or just by living besides and seeing what is happening on the neighbouring farm. Often neighbouring farmers or other trusted peers who have

already positive experience give new farming ideas (*sheep idea for Jaunkreki farmers, strawberry seedlings for Gaiki farmer were offered by their neighbours*) and/or provide some guidance (*Berzgali's orchards are regularly visited by recognised farmers-experts who have a look around and give him some advice*). Present face-to-face meetings, direct contact which allows for developing trust is crucial to transfer informal, tacit knowledge.

Informal knowledge sources also remedy shortcomings in formal knowledge system. Many small farmers develop niche production where formal knowledge, advisory or manuals are not always available and so farmers are obliged to learn by doing or from other peers. Despite good agricultural science traditions and several cooperative initiatives between researchers and practitioners, the capacity of formal research to create the necessary knowledge remains limited as national public funding for research in Latvia is poor, equipment needs to be modernised, and research is fragmented between short-term projects (PVNPC 2011; Kārklīņš 2012); also for this reason the role of informal knowledge and knowledge sources remains substantial.

How do the various knowledge sources named above contribute to ensuring innovation and resilience?

Each of the knowledge sources has its own specificity, and altogether they provide knowledge diversity that is important for small farms' innovation and resilience. Individual learning from own experience, literature, internet sources and other media was very common practice among small farmers to find new solutions for their farms. On the other hand, farmers' experiences manifest that new ideas and knowledge are spread and put into practice through social networking. Good communication and interaction among knowledge actors improve their accessibility to new knowledge and better solutions. In particular, farmers adopt more easily new ideas and practices which are known to, accepted and applied by other farmers; they imitate peers' positive experience as it is more reassuring than testing something unknown.

Vītoliņi farmer started shearing and dehorning goats as she has learned it from her American peers, among other goat-keeping things. This farm was the only one in Latvia practicing that. Later, however, she had to abandon this practice when joining another reference group, that of organic agriculture which prohibits them. (Vītoliņi)

Vītoliņi example shows also that diverse knowledge sources may mean also conflicting knowledge and contesting well-established farmers' practices. Especially such knowledge clashes were identified between farmers' practical knowledge based on their experience and seemingly out-of-context knowledge of good agricultural practices as they are presented in regulations of food production and distribution. Farmers referred to several examples when regulatory knowledge contradicts to their knowledge, is not understandable to them and not justified by their practical knowledge, and demands particular efforts (both cognitive, financial and practical) to adopt it. Conflicting knowledge can both open and close the space for innovation and novelties; it demands flexibility from farmers to assume and work it out for their use.

For instance, the ban to sell home-made products in shops is discouraging for small farmers to produce and diversify simple on-farm processing; on the other hand, it urges them to look for new market channels, like direct selling and on-farm selling, or expand processing. (Liepas)

External knowledge provide with new, different impetus for farm development, but local endogenous knowledge allows for optimal use of local resources and discovering new their applications which reduces dependence from external inputs and increases farm's autonomy. Synergy of external and local knowledge allows for better application of external knowledge to local situation, reducing failures and potential damages.

2.4.3 *Effective forms of learning and knowledge networks*

What forms and practices of learning can you observe in your CS?

There is a great diversity of learning forms and practices that small farmers use to access knowledge they need or are interested in. They involve both formal learning practices: professional education, various lectures, training courses and study tours organised by agricultural advisory, universities or associations in cooperation with other experts, and informal forms: learning by doing, self-education (literature, online information), learning from peers in informal or formal meetings, learning by watching them doing or visiting their sites (farm, processing, market places etc.), individual consultations with other farmers, advisors, researchers or other experts. Formal and informal learning are often mixed together, as formal learning occasions are used also for informal conversations and exchanges of information, knowledge and experience.

Learning form seems not to be as important as the source and content of knowledge: small farmers appreciated the most learning "from life" - knowledge which is based on their peers' or their own real-life experience, practical knowledge which is tested against the reality. Training courses and visits to exchange experience abroad often provide with very new insights and stimulating ideas; even if they are not directly applicable to local situations. Direct interaction with the knowledge source, especially if it accompanied by practical demonstrations, is more effective as it allows for adapting knowledge flow and learning accordingly to specific needs; it is indispensable for learning tacit knowledge.

What modern communication tools and infrastructures are used by farmers in their learning practices?

Mobile phones and personal computers are major ICT devices used by small farmers for learning purposes. (However, internet accessibility is still problematic in many rural households.) Phones are crucial for maintaining links and exchanges with relevant peers, as well as for communication with advisors, various service providers and customers. Internet is used for searching information, ideas, and experts' opinions. Some farms have established webpages to communicate to consumers (Gulbji, Vitolini); others do not find it useful. E-mailing is used both to receive and deliver information and advice. Although there is increasing use of modern ICT, there are still comparatively few online learning or advisory services developed. None of small farmers interviewed mentioned that they have used the existing ones.

It can be noted here that online tools themselves are an object of learning. Services for administrative procedures, like submission of applications for subsidies, are increasingly made electronic. However, they do not help much farmers with poorer computer skills, in places with bad internet coverage and connection and also due to technical problems in the very programs.

What lessons can be drawn on the conditions of successful learning in agricultural contexts from your case?

There are interrelated personal and structural preconditions for successful small farmers' learning. Personal curiosity and willingness to learn seems central for searching for new knowledge and adopting it in behaviour. Farmers stressed and proved by their life stories that learning is permanent life-long process. Although they are learning also just out of their interest, continual updating of knowledge, learning new things is a necessity to ensure not even farm's flexibility and innovation, but to maintain daily operation. Such a necessity stems from rapidly changing contexts (markets, regulatory, territorial, relational etc.) which ask for

active learning positions to adapt oneself to them. To be informed and updated means also to not miss some opportunities and avoid penalties and damages.

Although determined individuals will find out what they are looking for, learning efforts are more productive when there are encouraging structural opportunities. They relate firstly to social learning infrastructure: links to and accessibility of peers and other experts and more formal training, existence of collective organisations and other platforms to interact and learn. Small farmers often expressed their natural need to share, give their knowledge, which involves thinking about collective not only individual benefit. The importance of formal learning and knowledge centres (research centres, universities, innovation and technology centres etc.) relates also to their capacity to accumulate well-established and innovative local and global knowledge and practices and communicate them centrally. Networking, openness and willingness to share knowledge allows circulation and spread of ideas and practices. Demonstration of knowledge in practice and practicing under the guidance of more experienced farmers or other experts creates reliable learning environment.

Successful learning infrastructure demands also some technical elements: learning and assistance tools and support, like equipment, libraries, internet access, phone, also roads to get till learning activities etc.

2.4.4 Additional case study-specific issues

Small farmers often have direct links with consumers and clients which provide farmers with opportunities to teach consumers about the specific products and services they are buying and also give more general insights and knowledge about farming, rural life-styles, values etc. thus strengthening urban-rural and producers-consumers link and solidarity. (Mazburkas, Vītoliņi, Gaiķi)

Our case study is focused on Tukums region which is an epicentre of Latvian fruit growing with comparatively long traditions in fruit-growing, well established research institutes and practitioners. It means that there is available scientific and practical expertise on place. Researchers are open and farmers share their knowledge among themselves. *"At any time we can find a person who would come and give us some advice."* (Berzgalis) Such territorial concentration provides with idea and knowledge spill-over to other businesses related to orchards – seedling, arborist, fruit processing businesses.

Small farmers witness how knowledge has been locked in into certified expertise. There are several practices that farmers might and would like to perform themselves but they cannot (like vaccination herds), as one has to be certified to do that.

The case illuminated a bit also on relation between human knowledge and computer knowledge. Knowledge is increasingly stored and produced by machines. They might ease some procedures and increase accountability, but they apply standardized solutions for diverse real-life situations which may pose problems. *Agricultural data center changed their computer system which is calculating and registering pedigree cattle. The new system has "lost" several Līcīši goats which now are registered as anonymous "XX", despite the fact that under the previous system they have been recognized as pedigree goats since eight years. Such a loss means also financial loss for Līcīši farmer as she cannot receive subsidies for those anonymous goats.* (Līcīši)

2.5 Interrelations between these different dimensions



Picture 7. Xxx farm. Xxx farm.

2.5.1 *Interrelations between 'knowledge & learning' and 'governance'*

Although governance was not analysed in detail in this case study, the gathered information allows for some conclusions of the interrelations between knowledge and learning and governance. Farmers' good level of knowledge allows them for more independence in decision-making and better management of their farm. Knowledge and learning are intertwined with professional networking, which is a form of collective self-organisation where some norms, acceptable behaviours are developed. It is evident that more knowledgeable and respected farmers are better placed to influence other behaviours. Professional networks are also linked to broader policy-making networks through which small farmers have opportunities to influence agricultural policy. However, as small farmers are scattered among many professional organisations and do not have a single body representing their own interests, their policy influence often depends on how much their position is supported by other farmers.

2.5.2 Interrelations between 'prosperity' and 'resilience'

The family focussed model of prosperity increases farm resilience by grounding farm activities in a broader set of values and by personalising rationale of economic activity. Rewarding work and income allow successful and knowledgeable small farmers to attain satisfactory quality of life and material standard of living which also provides stimuli and motivation to continue with farming. The interest of the majority of the small farmers interviewed to transmit their farms to children suggests that they value this activity and its economic and social gains. Self-control and self-reliance as important characteristics of prosperity contribute also to resilience making it more reliant on family resources and less exposed to external and often risky resources (e.g. credits).

Prosperity that is not only measured by productive assets and market performance but include also social components such as family labour, work ethics, accumulated knowledge and experience, ties with community tend to lead to a more gradual growth model of small farms which is less exposed to external risks. This increases resilience. Many interviewed farmers said they develop their farms step by step: *"We use own savings, try to enlarge the land area by few hectares a year, do everything by ourselves"* (Saulgrieži).

Small farmers demonstrate resilience activities in many ways by:

- Niche production protecting from shocks in mainstream product sectors and markets;
- Diversification of production and multi-branch farm activities
- Differentiated marketing channels (farmers markets, direct sales, sales through cooperatives, contracts with regional retail chains)
- Doing marketing by farmers themselves, thus taking control over (short) market chains
- Gradual growth strategy reliant on endogenous and farm based resources
- Precarious attitude to bank loans
- Continuous learning: rising competence, knowledge and skills by formal learning but even more so through informal knowledge sharing
- Specific learning of good examples from other farmers as far as they concern critical decisions about on-farm innovation, niche specialisation etc. Trans-border issue specific learning from farmers in other countries has been cited as very helpful (Pilsētnieki).
- Farm reputation / 'brand' building – in several cases we observed that small farms pay special attention to relations with clients, develop own labels, communicate with consumers through webpages seeing reputation as important resilience factor

For small farms resilience and prosperity have several common (intangible) dimensions and attributes. For example personal qualities and ethical values such as diligence and hard-working were described as rewarding both for family prosperity and farm resilience. Overcoming of various crisis and difficulties in farm evolution was mentioned as inherent quality to provide farm resilience.

2.5.3 Contribution of 'knowledge & learning' and 'governance' to 'prosperity' and 'resilience'

Small farms' histories show that they are operating in very dynamic and not very advantageous contexts. Many of them have changed their specialization, modes of farming, markets etc. even for several times due to pressing market, political or personal situations; many other small farms are being abandoned. In the context of limited external public support and exclusive market structures small farmers have learnt to do and manage on their own. They are well aware of the changing and unpredictable character of their working environment and therefore better prepared to face and deal with changes. (However, while such an uncertainty is accepted regarding weather and other natural conditions, more consistency is expected from politics and market actors.)

When analysing the successful small farms, it becomes evident that the capacity for learning, active learning attitude (curiosity and readiness to learn) is one of the cornerstones of their resilience. Ongoing learning and updating knowledge prepares small farmers for better manoeuvring in dynamic contexts: it helps them to be aware of available alternative choices and opportunities when facing disturbances and make sounder decisions to survive and develop, as well as to gain and maintain prosperity. Our studied small farms were engaged in permanent change process introducing various kinds of novelties, improvements, recombinations, innovations in order to both meet their ambitions and persist.

In particular, small farms rely a lot on local knowledge and know-how which have been developed on the base of interactions with and within the specific local setting. Learning by doing on their farms provides small farmers with intimate knowledge of their farm's agrarian, ecological, economic and social specific characteristics and functioning that allows them to anticipate and navigate cleverly. Social networking through which new ideas and other farmers' tested knowledge are diffusing is important for resilience, especially for introducing more radical changes and ensuring transformability.

Knowledge on itself without supportive environment (technical infrastructure, regulatory frameworks, logistics, organisational structures...) and other necessary resources (funding, labour...) may not be sufficient to innovate and maintain resilience.

3. Conclusions



Picture 8. Jaunkreki farm. Xxx farm.

3.1 What are the main lessons learnt from the case study?

The sector of small farms is dynamic, with a considerable diversity of farms and their development strategies in terms of their economic, territorial and social involvement. Small farms witness many alternative pathways of modern agriculture which are put into practice through many kinds of diversification, different actor network configurations and social relationships (especially we point at professional non-commercial and informal networking and new links between producers and consumers), creative recycling or bricolage (using maximally existing resources) and intimate knowing and responsible long-term attachment to their farm and its surroundings.

There is a mixture of structural and personal factors influencing small farms' operation in modernisation conditions. The dominating focus on technological modernisation in agriculture with a single production efficiency goal (Darnhofer et al 2013) has created and maintained policy, market and financial structures which are less advantageous for small farmers. Although lately policy efforts have been made to better address small farmers' needs (Rural Development Programme

2014-2020 involves support measures that address specifically small farms in order to improve their market involvement, see Annex B), and various alternative market structures are put in place, primarily with consumers' and farmers' involvement, but also with the support of public bodies and local municipalities. There are many creative and entrepreneurial spirits among small farmers who find their way to develop their farms successfully; but there are also many who for various reasons keep on with a passive and submissive position and many other who abandon farming altogether. This can be, at least partly, explained by the individualistic strategies small farmers practice.

Individualism, self-sufficiency, autonomy in various expressions is a common small farmers' characteristic as they rely firstly on own resources and limited external inputs. The strong value of autonomy may have also a somewhat limiting effect on risk-taking and opportunity-taking. In the meantime, successful small farmers are quite well involved in all kind of professional and non-professional formal and informal networks which have a considerable influence on their farms' decisions and development paths (and rural development in general). Small farms have a significant role in maintaining and developing urban-periurban-rural and producer-customer links and solidarity through all kinds of direct selling, educative events on farms, on-farm services. This aspect of small farm activity seems to be insufficiently visible and acknowledged. There is also some dependency of small farms on public support: direct payments and other public funding increase security and development potential for those farmers who receive them (as noted above, subsidies compose 18% of small farms income; 90% of small farmers evaluated direct payments as important, and other public funding was said to be important by 35% to 72% of farmers (LSIAE 2013)).

Many small farms are also agricultural business units, but not only; that would be a much too narrow their characterization. As the research illuminates, small farms are performing as important social and environmental functions in rural areas. Small farms show that prosperity may consist of a range of economic, ethical and social dimensions. Although a sufficient level of income is required to achieve personal and farm prosperity, small farmers often put forefront personal satisfaction from well done and loved work, family well-being and quality of life, and well cared nature. (This disputes the dominant policy discourse of prosperity, which emphasises farms' monetary aspects, profitability, income.) Rational grounds and emotional and ethical values (including ecological considerations) are intertwined in small farms' decision-making. Small farmers have a long-term engagement, often for several generations, with their farm resources and they are naturally disposed to take care of those resources in the best way possible.

To ensure their farm development small farmers are involved in constant learning and innovation or renovation process. Many kinds of knowledge sources and learning modes are used, but in particular, local, traditional, practiced-based knowledge are put in value in small farms, and farming family stands out as a core learning network. The wish to share knowledge with other farmers and the respect and appreciation of other farmers' knowledge once again points to the importance of farmers' social networks, social learning and solidarity in dissemination of new practices. Altogether the diversity of knowledge sources and practices stems also from the fact that farmers need to be knowledgeable and skilful regarding many issues, which include not only farming, but also management, marketing, social networking and cooperation, project writing and implementation, policy regulations, public support, accountancy and other. We can talk of bureaucratization of farming as farmers spend considerable time to inform themselves about regulations, legal norms etc. and doing paper work. Increasing standardization and certification of knowledge and skills which assign knowledge-rights to a number of experts or strict regulations is another limiting factor for small farms operation.

3.2 Links between rural development, farm modernization and resilience

Our study confirms various contributions of small farms to rural development and resilience. Firstly, they maintain rural areas populated and socially and economically animated. In some occasions it may be a forced outcome as farming is almost only job solution in scarce employment possibilities. However, for most of the small farmers interviewed farming was a deliberate choice of their conviction. The link between small farms and populated rural areas stems also from small farms' moderate level of modernisation, which demands people's presence and where humans are not substituted by machines. Small farms provide jobs, income and food for farming families and other rural households (which is of considerable importance in the situation when no or few alternative employment possibilities exist), nourish rural communities' social and economic life and contribute to the maintenance of rural technical and social infrastructure.

Small farms demonstrate that agriculture and agricultural modernisation should not be regarded and measured only along economic dimensions. Small farms perform important social and environmental functions in rural development and strengthening rural resilience. Work in small farms is often effort-demanding, but rewarding; it provides with opportunities human creativity and entrepreneurship to express themselves, often in disadvantageous rural contexts. At rural community level small farms also provide a sort of social rehabilitation opportunities, giving ad hoc or seasonal employment to socially disadvantaged locals; they may also help community members by offering free produce and in some cases, a whole non-monetary economy grows around a local farm. Small farms maintain also environmental values, like rural landscape, biodiversity, reduced consumption of materials and energy. These intrinsic social and environmental dimensions of small farms' cannot be withdrawn without distorting their substance.

Small farms provide alternatives to the predominant "strong" modernisation strategy in agriculture. They practice a reasonable, moderate modernisation where new, but less intensive technologies are adapted and in a way that do not provoke radical changes and disruptions in local natural and social structures. So do traditions, values and emotions still have their place next to more rational calculations when taking farming decisions. We may argue that there is a mixture of lifestyle-values and rational reasoning underlying development decisions, even in advanced and successful small farms. (Still, many small farms can be estimated as non-modern or under-modernised as they do not possess sufficient simple technical equipment and facilities that would ease their working, f.i., machinery for reducing manual work and working load, ICT for improving connections to other farmers or consumers).

Small farmers not only uptake new technologies and ideas (i.e. use modernisation), they also contribute to modernisation, by creatively adapting existing technological solutions to local conditions and co-developing new technologies with researchers, by spreading their expertise through peer-to-peer learning, and by creating new products (e.g. organic berry-based baby-food). This strand of activity is perhaps not much reflected in traditional perception (image) of small farming.

Small farms are a source of diversity. In their diversity small farms ensure also the diversity, the presence and mixture of various resources (natural, human, economic), in rural areas. Diversity keeps up and opens up diverse paths for modernisation. Especially if we consider modernisation as updating practices and ideas accordingly to modern societal needs and demands, which are complex: sustainable provision of food, maintenance of rural livelihoods, environmental conservation, sustainable growth... and to which industrial agricultural model cannot solely respond.

However, diversity can strengthen adaptive capacity only if some coherent connectivity, coordination and integration of the various elements is applied (Darnhofer et al 2014). At community level farmers' networks in various

configurations (from a farming family and informal peer networks till, less popular though, formal cooperatives and multi-actor networks) serve as a means to ripen and gear new solutions for alternative modernisation. Those networks are learning loci where various knowledge and new ideas cross and blend and sifted against local, practice-based experiences and values are transformed into innovations. Through those networks new alternative practices also disseminate (e.g. an organic sweets producer not only buys berries and fruit from other farmers, but encourages them to grow organic, and/or try out new varieties, thus promoting their diversification and greening). Those new practices accumulating have broader socio-economic effects, and small farms are involved in reorganization of modern food-chains. Small farms are contributing to keeping local control over food production, maintaining food diversity, strengthening links of producers - consumers and rural - urban through improving their mutual knowledge and solidarity and therefore adding to resilient society.

3.3 Importance of conventional understanding of farm modernization

How dominant is the 'modernization paradigm' in the (official) advisory and extension services? (esp.: purchase inputs from markets (fertilizer, pesticides, etc.), sell commodities (large uniform batches of crops/milk), focus on maximizing productivity (high yield), scale increase and/or specialization seen as necessary to ensure economic viability, adopt latest technology, relevant knowledge is provided by scientists)	
	Very dominant: there is a clear view that there is <u>one</u> right way to do things
x	Dominant: most elements are promoted, but a few not because they are not suited to the area (which elements are not suited?)
x	Mixed: some elements are promoted, others not; it mostly depends on the individual farm
	The various elements of the modernization paradigm play a minor role in the technical and economic advice provided

What shares of farms implement most of the elements of the modernization paradigm?	
x	0 - 25%
	25 - 50%
	50 - 75%
(x)	75 - 100% (As outlined in the report, most of the small farms follow a moderate modernisation paradigm where new (not obligatory latest) technologies are adopted in order to reduce work load and manual work, increase land area when possible and available, purchase some inputs from market, use also scientists knowledge when appropriate etc. But it remains modernisation at small scale, with limited intensification and no ambition to engage in kind of industrial modern agriculture.)

Are there 'alternative' networks/associations that promote a 'different' way to farm? (e.g. use on-farm resources as far as possible (animal feed, nutrient cycles, crop rotations), low-external inputs, reduce cash flow, on-farm processing, direct-marketing, promote knowledge exchange between farmers ('extension agents' are facilitators rather than providers of knowledge/solutions),	
	Yes, there are 3+ different networks promoting a variety of approaches. They are well established, everybody knows about them (e.g. through fairs, events, publish newsletters/magazines)
x	Yes, there are 1-2 networks. They are well-established and active (at fairs, events, publish newsletters/magazines)
	Yes, there are 1-2 networks, but they are struggling or emerging, and not very visible (i.e. many/most farmers are not aware of them)
	No, a farmer who would search for a 'different' way to farm would not find a network in the region. But there are a few individual farmers who are 'different' and who could share their experience.