1. Synthesis for general conclusions

Strategies and national laws

Estonia, Latvia and Lithuania share similar recent history, geography and landscape and consequently have similar needs regarding agricultural use of land today. A large percentage of the land is too wet for conventional arable agriculture without draining it first. During the period of Soviet occupation large drainage systems were built in order to dry the land for agricultural use in all three states. Nowadays the draining systems are approaching critical maintenance status and need wide-scale repairing. However, reconstructing the draining systems is expensive and would need large investments that landowners are usually not able to make on their own. Thus, help from the government would be needed to continue with traditional agriculture in these wet areas. The continuing use of peatlands for traditional "dry" agriculture would, however, lead to further loss of soil carbon and mineralization of soil.

In Estonia and Lithuania dual-regime (regulated) reclamation systems are seen as means of saving moisture in the soil during dry summers for traditional agriculture that is causing high GHG emissions in the LULUCF sector.[1] There are also support schemes for retaining or constructing regulated draining systems in Estonia and Lithuania. In Latvia, there is a support scheme for restoring or rebuilding of drainage systems; however, as it does not support building regulated draining systems, the effect on paludiculture is rather negative.

A problem from the perspective of paludiculture is that existing draining systems are connected over property borders which means that activity on one landowners land affects the neighbouring land. Therefore, the neighbours have to agree on how to use the draining systems. If one neighbour wants to restore the natural water regime of the land in order to grow paludiculture plants but the other one needs his/her land to be dry for conventional agriculture, rewetting the land without reaching an agreement is not possible under current national laws.

Unfortunately, there are many contradictions between different strategies in all of the Baltic States, with some being supportive of paludiculture and some working against it. There is an overall tendency in all three countries for more recent national strategies to pay more attention to the need to keep the carbon in the soil. Therefore, recent strategies offer more support for paludiculture but there is a need to remove the contradictions when updating or replacing older strategies that counteract application of paludiculture.

In all three countries the strategies and national regulation foresees restoring exploited peatlands (peat mines), which is an opportunity for paludiculture. Lithuania has gone further than other states, by prohibiting to recultivate exploited peatlands into other land types than wetlands.

[1] The effectivity of dual-regime reclamation systems for reducing GHG emissions and subsidence of soils is under scientific consideration and testing at the moment in Netherlands and Germany. Results so far are not very promising: systems are difficult and costly to install and maintain, effectiveness to reduce GHG emissions is low. Therefore, these probably won't be a bridging technology for peatlands.

1st pillar of CAP

In all three Baltic countries, it is in principle possible to have payments from the 1st pillar also for lands that are wet. In Lithuania, it is allowed to raise the water level to grow paludiculture crops that need higher water level using regulated drainage systems or similar methods. Increasing water levels in arable land or grasslands does not preclude payments from the 1st pillar of CAP. In Latvia, there are two additional circumstances under which the direct payments will not be granted: when the wetland is covered by water for longer than four weeks in a row within the time period from 15th of May to 15th of September. In Estonia, the main question regarding support for paludiculture is whether the crops used are recognized as agricultural crops or the activity is considered other type of agricultural activity according to the EU Regulations. Officials in state authorities have, however, voiced doubts whether constantly wet land can be regarded as suitable for agriculture. In addition, agricultural plants must be sown or planted by June 15th and maintenance and production activities must be finished by August 20th and September 1st respectively. There are narrow exceptions to these deadlines related to e.g. growing of short rotation coppice *Salix*, ecological focus areas (EFA) and grasses grown for energy production.

A general rule is that agricultural areas must be planted with agricultural crops, (including meadows) or kept fallow in order to qualify for the support. The suitable crops are listed in national level rules. In Lithuania, the crops listed could be changed if there is a motivated request from group of farmers. In Estonia, the list is not enclosed, therefore eligibility of crops can be assessed case-by-case. Also, the list contains "grasses" as a general category. For the reason of legal clarity, there is an overall need to expressly include plants considered as paludiculture crops in the national lists.

In all three countries, **standards for good agricultural and environmental condition of land** (GAEC), a subset of cross-compliance requirements, apply. All three countries have put a lot of emphasis on the ban on burning grass and stubs in order to meet the requirements of GAEC 6, but there are almost no other measures for protecting soil carbon.

Greening requirements are similar in all three countries, including:

- the diversification of crops;
- establishing "ecological focus areas" (EFA) and
- the preservation of existing permanent (environmentally sensitive) grasslands.

These requirements can have some positive impact on paludiculture as these foresee the preservation of grasslands and agricultural practices that are beneficial for the climate and the environment. However, requirements for EFA, which is a part of greening requirements, do not entirely support paludiculture as e.g. in Lithuania, EFA requirements related to existence of productive elements and suitable plants are not suitable for paludiculture.

Latvia also requires that a land amelioration system is maintained in the agricultural land, ensuring its activity and maintenance, as well as regulation of land humidity regime.

The main gaps of the 1st pillar of CAP with regard to paludiculture are:

- national lists of crops do not include paludiculture plants or includes only some (Lithuania, Estonia);
- current practice of the EFA requirement is dominated by productive elements of the EFA - nitrogen-containing plants and fallow are not suitable for paludiculture (Lithuania);

- amelioration of organic soils is directly counteracting the requirement of GAEC 6 as organic matter is not preserved but lost from peat soils under these regulations (Latvia and Estonia);
- deadlines for maintaining the agricultural land effectively eliminate the possibility to gain support for crops which do not need sowing/planting, maintaining or harvesting every year or in the summer season (e.g. reed, cattail) (Estonia);
- rules on maintaining soil carbon do not address the issue of peat soils;
- grasslands with peat soil outside the Natura 2000 areas are not directly protected by the "greening rules" in neither of the countries; additionally in Estonia the areas inside Natura 2000 areas, where the soil is not 100% peat soil, but mixed, are also not protected.

2nd Pillar of CAP

Support mechanisms under the 2nd Pillar of CAP are very different in all three countries, as they are based on country-specific Rural Development Plans. Some of these have positive, some negative impact on preserving organic matter in the soils and on paludiculture. In all three countries, a support scheme for constructing or rebuilding drainage systems is available. Unfortunately, these supports have more of a negative impact, considering the effect of drainage from the perspective of maintaining carbon in the soil. Only in Estonia and Lithuania the support can also be used for building potentially paludiculture-friendly regulated drainage systems. Regulated systems are, however, more expensive and complicated to build, thus these are less popular among the applicants.

The main impacts of the different support mechanisms in Lithuania are following:

- The requirements for support mechanisms in "Agri-environment and climate" measure have positive effect on preserving organic matter in the soils covered by perennial grasses
- The requirements of the Natura 2000 support measure contribute to the conservation of the environment (including the conservation of wet peatlands that potentially could be used for paludiculture). However, the measure is focused on passive preservation, also the harvesting times are not suitable for all paludiculture crops. Therefore, the effect of this measure on paludiculture is rather neutral.
- Support for agricultural water management measure encourages the renovation of the drainage engineering infrastructure. As a result, the support encourages continuation of traditional agriculture and leads to futher loss of soil carbon.

The main impacts of the different support mechanisms in Latvia are following:

- The rules of applying environmentally friendly methods in horticulture can have a beneficial effect on the implementation of paludiculture as it also provides support for the use of peatlands where peat has been extracted, e.g. for growing cranberries.
- The measure "Investments in tangible assets" supports among other activities restoring or rebuilding of drainage systems which has negative impact on soil carbon and spread of paludiculture.

The main impacts of the different support mechanisms in Estonia are following:

- Environment-friendly management support (EFMS) currently provides only minimal indirect support to spread of paludiculture, by somewhat incentivising establishment of permanent

grasslands (where crop rotation rules do not apply) and requiring some vegetation cover over winter period.

- The regional soil protection support scheme reduces carbon emissions from peat soils somewhat by requiring (almost permanent) grass coverage.
- The environment-friendly gardening support scheme would directly support growing of one potential paludiculture crop – cranberries.
- The semi-natural communities' maintenance support scheme provides incentives to maintain semi-natural communities (some of which are on peat soils) as it partially covers the additional costs and loss of profit resulting from use of specific maintenance methods and characteristics of the lands.
- Investment support for development and maintenance of agricultural and forestry infrastructure could have either positive or negative impact on paludiculture, depending on which type of systems are (re)constructed or renewed with the support. In theory, the support may be applied for to redesign and construct existing systems into dual-regime regulated systems, however, this is not a common practice (and support rates are lower for construction of new systems). As the support scheme incentivises and supports continuing use of existing drainage systems, it has mostly an opposite effect to supporting paludiculture,

The main gaps of the different support mechanisms in Lithuania are following:

- The requirements for support mechanisms in "Agri-environment and climate" measure are aimed at conservation, not economic activity, which makes it difficult to find plants that grow naturally in wetlands and have an economic value. It is even more difficult to find such plants whose production would be more profitable for applicants than the current payment.
- The Natura 2000 support measure is focused on passive preservation. There may be a problem with the timing of harvesting.

The main gaps of the different support mechanisms in Latvia are following:

- Applying environmentally friendly methods in horticulture is not effective at the moment as there are no paludiculture plants on the list of supported plants.

The main gaps of the different support mechanisms in Estonia are following:

- The EFMS support scheme does not directly tackle the issue of soil carbon, especially in peat soils. However, this can be somewhat explained with the existence of a separate soil protection support scheme.
- The regional soil protection support scheme does not cover environmentally sensitive permanent grasslands (grasslands in Natura 2000 areas with 100% peat soil). Also, it does reduce emissions, but without requiring raising the water level, this effect is limited (land impacted by drainage will most likely continue to be CO2 source). Moreover, although the support scheme covers large grasslands, fruit trees and berries, it does not cover potential paludiculture crops (presuming the latter would be considered agricultural crops rather than grass).
- The Environment-friendly gardening support scheme does not give preferential treatment to cranberries, which as the practice shows, is an unattractive culture, at least for this support scheme.

- The Semi-natural communities' maintenance support scheme has two gaps in practice. On one hand, quite extensive administrative burden (with two agencies, the payment agency as well as Environmental Board, involved). On the other hand, the support only partially covers the additional costs and loss of profit, meaning the farmers on such land are still relatively uncompetitive.
- Investment support for development and maintenance of agricultural and forestry infrastructure incentivises and supports traditional (drained) use of peat soils and does not provide support for farmers interested in paludiculture

2. Recommendations for improved legislatory and framework conditions for paludiculture in Baltics

Cross-Baltic

- Clearly listing some paludiculture crops (e.g. like reed, cattail, peatmoss) as agricultural crops in the respective national list;
- Reviewing deadlines during which agricultural activity needs to be carried out, to allow an exception for winter harvesting (e.g reeds, cattail);
- Including peat-soil specific requirements under the cross-compliance rules (and conditionality standards in post-2020 CAP) that would support restoration or maintaining natural water levels in these soils;
- Creating additional support schemes to support paludiculture, especially as regards investments in specific agricultural equipment, production facilities and capacity building of farmers;
- Providing more information and training about paludiculture to the policymakers, farmers, scientific organizations and other stakeholders. It is necessary to develop and agree on support measures that:

    - have technological justifications and economic assessments;
    - are focused on the implementation of specific and measurable goals;
    - encourage the development of high-value paludiculture production;
    - provide the public with benefits (to create public goods);
    - to ensure rational use of natural resources and taxpayers' money;

- Stopping support to the restoration and renewal of drainage systems on at least the most sensitive peat soils under the infrastructure investment support scheme
- Differentiating support schemes to mineral soils and organic soils to ensure climate-friendly management of the latter.

Country-specific

- Widening the scope of the term "environmentally sensitive grasslands" to include peat soils outside Natura 2000 areas and/or soils with less than 100% peat in those areas (Estonia);

- Amending the rules of regional soil protection support scheme so it would (at least in some areas) also require restoration of water levels at least closer to natural conditions (Estonia);
- Changing the requirement that aid for areas in the form of direct payments shall not be granted for agricultural land if there are bulrushes or there is wetland that within the time period from 15 May to 15 September is covered by water for a time period exceeding four weeks in a row (Latvia);
- Recognizing that the degradation of organic soils increases GHG emissions in the agricultural sector, and that they have to be treated differently as mineral soils. Therefore, it is necessary to subdivide agricultural lands – with mineral soil and with organic soil and to set different support measures for each of them. Applying the same measures for organic soils as for mineral soils can never lead to climate-friendly management of organic soils (Latvia).

2.1. Inserts to the EUKI Paludiculture Legal Analysis

2.1.1. National Strategies

Countries	General	Lithuania	Latvia	Estonia
Content of existing strategies	• The strategies foresee restoring exploited peatlands • More recent national strategies pay more attention to the need of keeping the carbon in the soil	• The resolution "Concerning the Approval of the Inter-institutional Action Plan for the Implementation of the National Strategies for Climate Change Management Policy Strategy for 2013-2020" declares that exploited peatlands should be restored. • The National Environmental Strategy foresees exploited peatlands to be rehabilitated, rebuilt to the former land use potential, or rebuilt into more valuable ecosystems than would have been due to the extent of the extraction.	• The strategy for sustainable use of peat 2018-2050 (not yet in force) is prepared to identify the most effective, economically viable and nature-friendly peat extraction re-cultivation measures. Paludiculture can be listed as potential environmental friendly re-cultivation and after-use options for these peat fields. • The Land Policy Plan 2016-2020 acknowledges the need to conserve soil carbon stocks (and nitrogen oxide emissions) which will help to significantly reduce greenhouse gas emissions and limit climate change. Therefore, it emphasizes the need to identify the areas of peatlands. • The Sustainable development strategy of Latvia	• The clearest support to paludiculture and stocking carbon in soil can be found in the Framework for Climate Policy until 2050 • The nature conservation and rural development strategies acknowledge the need to reduce intensive use of peat soils and protect them • Forestry strategy puts a clear emphasis on timber production and maintenance and reconstruction of the drainage systems needed for it, therefore continuing pressure on peat soils

Countries	General	Lithuania	Latvia	Estonia
			mentions also usage of some of the paludiculture products: in renovating the existing and building new heat plants and co-generation plants, local energy resources – wood, straws, reeds and, using environmentally friendly methods of extraction, also peat – should be used in the production of thermal energy. Use of straws, reeds and peat for the needs of heat supply is also possible in local heat plants. • The National development plan of Latvia (NAP 2020) includes strategic objective "Sustainable management of the natural and cultural capital" that foresees tasks related to sustainable use of land, increasing the use of agricultural lands for food production and increasing soil fertility which can be linked to paludiculture. • The Guidelines for the development of forestry and related sectors (2015-2020) could counteract paludiculture as it foresees increasing the total length of reconstructed forest drainage systems. • The Energy Development	

Countries	General	Lithuania	Latvia	Estonia
			Guidelines for 2016-2020 puts emphasis on increasing the proportion of renewable resources, some of which could come from paludiculture (biomass).	
Gaps	• Different strategies are often counteractive.	• Most strategic documents do not mention peat mires and peatlands.	• No mention of paludiculture in the Land Policy Plan 2016-2020. • The Sustainable development strategy states that the proportion of peat in the final energy consumption may be increased if the best available technologies for extraction of peat, which do not emit methane, are used in extraction thereof. This, however, does not help to prevent CO2 emissions. • No mention of paludiculture in the National development plan of Latvia.	• The forestry strategy is in direct contradiction with a strategically higher-level planning document (climate policy framework) and this contradiction should be removed when drafting the new strategy.

2.1.2. National Laws

Legal Basis	General	Lithuania	Latvia	Estonia
Key requirements	• The strategies and national regulation foresees restoring exploited peatlands • Dual-regime reclamation systems are seen in Estonia and Lithuania as means of saving moisture in the soil during dry summer • Support schemes for restoring or constructing regulated draining systems in Estonia and Lithuania, support schemes for reconstructing or building draining systems in Latvia	• Land Law states that special conditions must be applied on land, and wetlands must be used according to the environmental regulation and landscape formation. • According to Law on Protected Areas it is prohibited to drain unmeliorated sites, change wetlands and other wet areas into other landusages, re-cultivate exploited peatlands into other land types than wetlands. Natura 2000 sites are not suitable for paludiculture as these habitats must be protected and maintained. • Technical reglement on polder management states that water level in polders must be lowered down to at least 30 cm to the surface in spring, and to the 50 cm in autumn, which makes it suitable for conventional agriculture. • Rehabilitation Methodology of Damaged Lands After Mining Minerals requires ecosystem rehabilitation of peatlands after extraction. The	• According to Amelioration Law a land owner or lawful possessor has an obligation to operate and maintain an amelioration system in accordance with the requirements of the relevant laws and regulations. • The Procedures for the Extraction of Mineral Resources obliges the extractor of mineral resources to re-cultivate the site after the completion of the extraction. The conservation of the mineral resource extraction site shall be ensured if the extraction work is suspended for a time period longer than one year. • The Land Management Law obligates the land user to carry out activities in order to preserve the quality of land and soil and prevent their degradation.	• Current Water Act prohibits land owners and water users to cause (by either acts or omissions) floods or paludification of the land • The draft of the new Water Act prohibits “causing excessive moisture that impedes intended use of land”, also causing “floods”. • New Land Improvement Act (in force from 1st of January 2019) provides as the previous one that the regulating network (including drainage systems) must ensure a soil water regime that is suitable for crop husbandry. The owners and users of land must perform necessary management work to ensure that it conforms to the requirements set in the act. • The Forest Act obligates to “manage and permit their forest to be managed only in such a way which does not damage forest soil or water regime” and to “protect the forest against the deterioration of site conditions”.

Legal Basis	General	Lithuania	Latvia	Estonia
		main means of restoration of the ecosystem of the peatland is the restoration of the hydrological regime for which is necessary to maintain a subterranean peat layer at a thickness of not less than 0,5 m in the digested extracted peatland. The Act also foresees that all mined and damaged lands could be converted to agricultural land. • Special Conditions of Land Use Act states that mires and springs are protected in a way, that it is not allowed to drain and transform them into agricultural use and waters all types of raised bogs, transitional mires and fens and their surroundings, which are bigger than 0,5 ha and have peat layer of 1 meter. • The Law on Special Conditions of Land Use (draft submitted to Parliament in 2017) states that converting mires and springs into arable land or plant with plant plantations is prohibited. Also, it is forbidden to turn the mires and springs into land occupied by surface water bodies, except in the case		•

Legal Basis	General	Lithuania	Latvia	Estonia
		of installing artificial non-leveled surface water bodies of land not exceeding 0.1 ha in the land plot.		
Impacts		• Regulations on polders in Technical reglement on polder management favours conventional agriculture practice and not paludiculture.		• An inflexible, grammatical interpretation of the provisions of the current Water Act on prohibition of causing floods or paludification of the land could pose a direct obstacle to implementation of paludiculture. In practice, it has not been a problem yet. • According to the draft new Water Act, paludification of land would not be prohibited, if it is in accordance with intended use of land (as provided in spatial plans, protection rules of nature conservation areas etc.) • Land Improvement Act does not exclude paludiculture to be a type of land use allowed in drained areas (provided this is

Legal Basis	General	Lithuania	Latvia	Estonia
				done as an economic, agricultural activity). The new Act would also allow discontinuing of maintenance of drainage systems based on "needs of public interests" (e.g. for restoration of wetlands).
Gaps		• If a new habitat is detected, it is questionable whether such habitat shall be excluded from the paludiculture, especially low quality, degraded, e.g. 7120 degraded bogs as the laws do not set strict requirement to protect and maintain all habitats. • Peat mining industry is not legally bound to restore former ecosystem due to a of possibility to choose between different options, e.g. conversion of extracted site into the lake. Also, the law does not set any requirement on peat formation.	• Although the Land Management Law obligates the land user to carry out activities in order to preserve the quality of land and soil and prevent their degradation, the drainage of peat soils for agriculture is not (necessarily) recognised as degradation of the soil.	• Most drainage systems are related to more than one landowner's land. This means that if other "upstream" users of land are not interested in paludiculture, the change in water levels may not be allowed (unless substantial investments are made to ensure continued functioning of "upstream" network). •

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2.1.3.

2.1.4.

2.1.5. CAP (1st pillar)

Legal basis	General	Lithuania	Latvia	Estonia
Key requirements	• Agricultural areas must be planted with agricultural crops or kept fallow • Suitable crops are listed in national regulations. Plants suitable for paludiculture can be added to the list. • Greening requirements are similar in all three countries, including: • the diversification of crops; • establishing "ecological focus areas" (EFA); • preservation of existing permanent (environmentally sensitive) grasslands.	• There are no contradictions to receive direct payment and increasing water levels in arable land or grasslands in order to grow paludiculture crops. • Only applicants who meet the requirements of basic payment can claim other payments. Key requirements are: • Applicants must comply with Good Agricultural and Environmental Condition requirements, a subset of cross-compliance requirements. • Agricultural land specified in the classification must be cultivated and maintained. In the current year, flowering plants must be grown at least until their flowering starts • The declared agricultural areas must be planted with agricultural crops, (including meadows) or kept fallow • Areas of arable land must be cultivated periodically prior to	• Single area payment requirements: • land is in the ownership or legal possession (use) of the farmer on 15 June of the current year; • area of eligible agricultural land is at least one hectare; • the minimum size of agricultural parcel (, whereof an application may be submitted shall be 0.3 hectares • direct payments shall not be granted for agricultural land, if there are bulrushes (Typha) or there is wetland that within the time period from 15 May to 15 September is covered by water for a time period exceeding four weeks in a row • direct payments may be received for an area where a single age species of short rotation coppice is sown and cultivated - aspen tree (Populus spp.), osier (Salix spp.) or grey alder (Alnus	• To be eligible for single area payment scheme, the farmer has to fulfill: • General requirements for the support scheme, • Cross-compliance requirements and • Requirements for payment for agricultural practices beneficial for the climate and the environment (APBCE) • General requirements: • Applier must engage in agricultural activity (incl. growing cultures of the Salix genus suitable for short rotation coppice) • the land has to be registered in the payments agency • Agricultural crops eligible as agricultural products are listed by the payments agency (incl. "grasses" as a general category) • Agricultural land must be maintained in a way that prevents the spread of undesirable plants – mostly trees and other cultures that would either compete with

Legal basis	General	Lithuania	Latvia	Estonia
		harvesting so that they do not contain any weedy agricultural crops (so that weeds do not dominate arable land or if the agricultural crops are not completely destroyed • Meadows (which are defined as grasslands) must be moved at least once a year, not later than August 1 of the current year • Applicants who wish to qualify for a greening payment must comply with three main requirements for the greening: • maintain the existing perennial meadows and pasture areas (the meadows are not used in rotation for five or more years) • Applicants who declare over 10 hectares of arable land must have 2 or 3 different crops, depending on the size of the farmer's holding • Applicants who declare more than 15 hectares of arable land must declare at least 5% part of this land declare as Ecological Focus Areas (EFA) in order to achieve the objective of biodiversity conservation • Coupled support could be	incana) - with a maximum rotation period of five years, and where no land amelioration systems have been registered on 1 July 2011, as well as no new land amelioration system has been created after 1 July 2011 • grassland sown in arable land, papilionaceous plants sown in pure stand and permanent grassland shall be maintained in a state suitable for grazing, if by 15 August of the current year they are grazed or mowed down and the mowed grass has been gathered irrespective of the number of times mowing has been conducted, except [..] an area occupied by switchgrass (Panicum virgatum) and reed canary grass (Phalaris arundinacea) for the purpose of acquiring energy and the flowering stage of which was reached in the previous year, if the respective area has been mowed and harvested by 1 May of the current year • Greening requirements: • diversification of crops - farmers who declare over 10 hectares of arable land depending on the size of the farmer's holding,	the main crops or prevent normal maintenance activities • Agricultural plants must be sown or planted by June 15th and maintenance and production activities must be finished by August 20th and September 1st respectively • If the land is constantly and not only temporarily excessively wet, it is regarded as not suitable for agriculture • Cross-compliance requirements: • Soil protection requirements include the requirement to maintain at least 30% of land under plant cover in winter in certain areas (with a more sloped terrain), using appropriate techniques on sloped areas (with a profile of more than 10 degrees), ban on burning grass and straws and drawing up of crop rotation plans (not required for grasslands, multiannual crops etc.) • Maintenance of landscape elements includes a requirement to preserve ditches that belong to a drainage system • APBCE (greening) requirements:

Legal basis	General	Lithuania	Latvia	Estonia
		used for paludiculture if the water levels are close to surface and grazing is continued with adapted cattle breeds or buffalos. • All direct aids to farmers are paid in compliance with strict standards relating to the environment, food safety, plant and animal welfare, and the general requirement for farmers to maintain their land under productive and good agricultural conditions – so-called cross-compliance standards (GAEC): • Arable land must be planted with agricultural crops or black fallow • before 1 November of each year must be sown or planted with agricultural crop • Agricultural crops and their stubbles, grass in pasture or meadows, as well as perennial grassland or meadows, cannot be burned, except for the cases specified in law	must have 2 or 3 different crops • establishment/ maintenance of an ecologically focus area - farmers declaring more than 15 hectares of arable land, in order to achieve the objective of biodiversity conservation must declare at least 5% part of this land declare as EFA • preservation of existing permanent grassland • Cross-compliance requirements. In order to receive full payment of aid, the farmer is obliged to comply with good agricultural and environmental condition (GAEC) and Mandatory Management Requirement • GAEC requirements: • a land amelioration system within one's responsibility is maintained in the agricultural land, ensuring its activity and maintenance, as well as regulation of land humidity regime • prohibition on burning stubble-field or dry grass on the field • Coupled support • Voluntary coupled support for certified seed of grasses and fodder crops may be	• Prohibition on reducing the total area of permanent grassland (5 years grassland) they hold • the prohibition of ploughing and change of use of "environmentally sensitive" grasslands (areas within Natura 2000 areas where the soil is 100% peat soil) • farmers with more than 15 ha of arable land must have at least 5% of their land covered by so-called ecological focus areas (incl. drainage ditches, fallows and short rotation coppice of the Salix genus)

Legal basis	General	Lithuania	Latvia	Estonia
			received, if timothy grass, hybrid ryegrass, Italian ryegrass, red fescue, perennial ryegrass, tall fescue, smooth-stalk meadowgrass, cocksfoot, red clover, white clover, eastern galega, alfalafa, alsike clover, phacelia, birdsfoot trefoil, peas, vetches, field beans or lupine (sweet or yellow, white or narrow-leafed) are cultivated in the respective area	
Impacts	• Greening requirements can have some positive impact on paludiculture as these foresee the preservation of grasslands and agricultural practices that are beneficial for the climate and the environment. However, requirements for EFA, which is a part of greening requirements, do not entirely support paludiculture.	• Greening requirements have a positive effect on the conservation of perennial grasslands. • Cross-compliance requirements are limiting paludiculture as one of the requirements is that arable land must be planted with agricultural crops that are listed in classificatory. The list does not include all crops suitable for paludiculture.	• Several requirements are not supportive for paludiculture. Farmers have to take care of amelioration system and ensure that the land is not overgrown with trees, hogweed and cattail.	• General requirements for single area payment scheme are aimed at active agricultural management of the land. Certain agricultural activity must be carried out every year, before fall (with narrow exceptions related to e.g. growing of short rotation coppice Salix, ecological focus areas (EFA) and grasses grown for energy production. • Cross-compliance requirements do not explicitly support paludiculture • Greening rules have a limited positive impact on the peat soil, requiring the preservation of some areas as permanent grasslands and including short rotation coppice

Legal basis	General	Lithuania	Latvia	Estonia
				among ecological focus areas.
Gaps	• All three countries have put a lot of emphasis on the ban on burning grass and stubs, but there are almost no other measures for protecting soil carbon. • Grasslands with peat soil outside the Natura 2000 areas are not directly protected by the "greening rules".	• If the agricultural crops in the declared area are not cultivated at all (there is no agricultural activity), support for such areas is not granted. Current list of agricultural crops includes mostly "traditional" crops, with paludiculture crops such as sphagnum, reeds are not listed. • The EFA requirement currently dominated by productive elements of the EFA-nitrogen-containing plants and fallow are not suitable for paludiculture. • To comply with 4 GAEC standard, arable land must be planted with agricultural crops, which are listed in classificatory, which is a limiting factor to grow specific crops suitable for paludiculture	• Amelioration of organic soils is directly counteracting the requirement of GAEC 6 as organic matter is not preserved but lost from peat soils under these regulation	• The list of agricultural crops does not explicitly support growing of crops suitable for paludiculture as activity that may receive support. Deadlines for maintaining the agricultural land (maintenance and production must be done by end of summer) effectively eliminate the possibility to gain support for crops which do not need sowing/planting, maintaining or harvesting every year or in the summer season (e.g. reed, cattail). • Cross-compliance rules on maintaining soil carbon does not address the issue of peat soils (concentrating on erosion of sloped fields instead), which should be considered a missed opportunity. • Grasslands with peat soil outside the Natura 2000 areas are not directly protected by the "greening rules" nor are the areas inside Natura 2000 areas, where the soil is not 100% peat soil, but mixed.
Prospects	• Rules on maintaining soil carbon could be supplemented with	• Basic payment would be applicable for paludiculture if plants suitable for paludiculture	• Direct payments may be received for permanent grassland recognised as biologically valuable	• Single area payment scheme could offer more support to paludiculture if the list of

Legal basis	General	Lithuania	Latvia	Estonia
	requirements directed to peat soils as the overall ban of burning grass is not sufficient.	would be added to the list of agricultural crops. • Indicating and recommending plants that are suitable and profitable to grow in excessively moist areas would help to promote paludiculture through greening support schemes.	grassland or grassland and bird habitats of European Union importance depending on agricultural activities, if they have been grazed, mowed and gathered by selecting a mowing technique suitable for the conditions of water content in the soil by 15 September of the current year. Because of the raised water level, paludiculture sites are attracting birds, therefore these sites can become bird habitats of European Union importance.	suitable plants of agricultural crops would be edited and the harvesting times reviewed to make it suitable for growing paludiculture crops. • Reviewing the concept of "environmentally sensitive" grasslands in order to include grasslands with peat soil outside the Natura 2000 areas and areas inside Natura 2000 areas where the soil is not 100% peat soil to make these areas applicable for greening support could support paludiculture.

2.1.6. EAFRD (2nd Pillar of CAP) Support Schemes

Legal basis	General	Lithuania	Latvia	Estonia
Supported activities	• In all three countries, a support scheme for constructing or rebuilding drainage systems is available	• "Agri-environment and climate" measure: • Extensive management of wetlands • Conservation of endangered Aquatic Warbler habitats in wetlands" • "Natura 2000 payments and payments under the General Water Framework Directive": • "Support for Natura 2000 on agricultural land" • "Support for Natura 2000	• Agri-environment and climate activities: • Maintenance of biodiversity in grasslands • Use of environment-friendly methods in horticulture • Stubble fields in winter • Creating a protective environment for growing nectar plants • Organic Farming sub-actions:	• Environment-friendly management support (EFMS) requirements: • Outside permanent grasslands, at least 3 different agricultural crops must be grown + additional rules on crop diversification and rotation, e.g. crop may exceed 75% of the area and two main crops may not exceed 95% of the area and grains may not be grown on the same field for more than three consecutive

Legal basis	General	Lithuania	Latvia	Estonia
		forests" • Support for agricultural water management. The following activities are supported by the measure; • Renovation of the field drainage engineering infrastructure (including redesigning and rebuilding of systems to function as regulated systems); • Adaptation of outdoor drainage systems to their environmental requirements; • Reconstruction and installation of local roads of local significance and liming of arable land according to the project	• Transition to Organic Farming • Development of Organic Agriculture • Natura 2000 payments and Water Framework Directive payments (Compensation payments for NATURA2000 forest areas) • Payments for areas with natural or other specific constraints • Investments in the extension of forest areas and the improvement of the viability of forests - support for: • afforestation and the development of forest land • improving the nutritional and ecological value of forest ecosystems • Eligible area of activity "Applying environmentally friendly methods in horticulture" is an agricultural area comprising in addition to farmland also a raised bog or a extracted peatland that is used for fruit and berry gardens in agriculture, and is grown in shrubbery, large cranberries, blueberries, raspberries or blackberries • The measure "Investments in tangible assets" supports among	years • The farmer must draw up crop rotation or sowing order plans as well as fertilising plans • At least 30% of the land under support scheme must be covered by agricultural crops in winter • Regional soil protection support requirements: • At least in the first year of the five-year support period, the land must be covered with the EFMS scheme • Support is paid to land which is either grassland or agricultural land where fruit trees or berries are grown • At least 90% of the land must be made up of with either peat soils or eroded deluvial soils • The supported land must be covered by grass • Grass cover may not be damaged by overgrazing and it may be renewed only by direct sowing or sowing on top of existing grassland; on peat soils, renewal with disc harrows and rototillers is allowed once during the five-year period • Environment-friendly gardening support requirements: • The land is used for growing of certain fruits and berries, including

Legal basis	General	Lithuania	Latvia	Estonia
			other activities restoring or rebuilding of drainage systems • The sub-measure "Forest cultivation" of the measure "Investing in the extension of forest areas and improving the viability of forests" can be implemented on agricultural land on peat soils among other types of lands.	agricultural cranberries • Semi-natural communities maintenance support requirements: • The main activity for the maintenance of a semi-natural community has to be carried out consistently during 5 years • The size of the land is at least 0.1 ha, with some exceptions • The land is registered in the environment register as a semi-natural community • The land is covered with meadow type vegetation and can be mowed or herded, or the restoration of a semi-natural community is finished and conditions for the formation of meadow type vegetation are created and the required maintenance can be carried out • Maintenance work is carried out by methods approved by Environmental Board • Investment support for development and maintenance of agricultural and forestry infrastructure is offered to agricultural producers, companies who own land under forest cover, forest owners' associations or land improvement associations. Supported activities are: • Recipients of drainage water

Legal basis	General	Lithuania	Latvia	Estonia
				and associated constructions • Construction, reconstruction and renewal of constructions required for protection of environment • Reconstruction and renewal of regulating networks, pump stations and dykes • Construction of new drainage systems or parts thereof • Support is not granted, if the application concerns construction of a new system on land where: • Mire soils with depth of more than 1m make up more than 30% of the area of the system or its part (as indicated in the agricultural registry) concerned • The perspective quality rating of the agricultural land is less than 35 • The forest land is under nature protection
Impacts	• The support schemes for constructing or rebuilding drainage systems have more of a negative impact with regard to maintaining carbon in the soil as the support for building potentially paludiculture-friendly	• The requirements for support mechanisms in "Agri-environment and climate" measure have positive effect on preserving organic matter in the soils and areas with perennial grasses • The requirements of the Natura 2000 support measure contribute to the conservation of the	• The rules of applying environmentally friendly methods in horticulture can have a beneficial effect on the implementation of paludiculture as it also provides support for the use of extracted peatlands • The measure "Investments in tangible assets" supports among other activities	• EFMS currently provides only minimal indirect support, by somewhat incentivising establishment of permanent grasslands (where crop rotation rules do not apply) and requiring some vegetation cover over winter period. • The Regional soil protection support scheme reduces

Legal basis	General	Lithuania	Latvia	Estonia
	regulated drainage systems that is available in Estonia and Lithuania is not popular due to the greater costs or building regulated systems.	environment, as well as wet peatlands where is possible for farmers to be engaged in paludiculture. • Support for agricultural water management measure encourages the renovation of the field's drainage engineering infrastructure. As a result, excessive moisture is removed and yields of traditional agricultural crops are increasing.	restoring or rebuilding of drainage systems which has negative impact on paludiculture.	carbon emissions from peat soils by requiring (almost permanent) grass coverage • The Environment-friendly gardening support scheme would directly support growing of one potential paludiculture crop – cranberries. • The Semi-natural communities maintenance support scheme provides incentives to maintain semi-natural communities (some of which are on peat soils) as it partially covers the additional costs and loss of profit resulting from use specific maintenance methods and characteristics of the lands. • Investment support for development and maintenance of agricultural and forestry infrastructure could have either positive or negative impact on paludiculture, depending on which type of systems are (re)constructed or renewed with the support. In theory, the support may be applied for to redesign and construct

Legal basis	General	Lithuania	Latvia	Estonia
				existing systems into dual-regime regulated systems, however, this is not a common practice (and support rates are lower for construction of new systems). As the support scheme incentivises and supports continuing use of existing drainage systems, it has mostly an opposite effect to supporting paludiculture,
Gaps/ shortcomings		• The requirements for support mechanisms in "Agri-environment and climate" measure are aimed at conservation, not economic activity, which makes it difficult to find plants that grow naturally in wetlands and have an economic value. It is even more difficult to find such plants whose production would be more profitable for applicants than the current payment. • The Natura 2000 support measure is focused on passive preservation. There may be a problem with the timing of harvesting. • Drainage that is encouraged	• Applying environmentally friendly methods in horticulture - there are no paludiculture plants on the list of supported plants	• The EFMS support scheme does not directly tackle the issue of soil carbon, especially in peat soils. However, this can be somewhat explained with the existence of a separate soil protection support scheme. • The Regional soil protection support scheme does not cover environmentally sensitive permanent grasslands (grasslands in Natura 2000 areas with 100% peat soil). Also, it does reduce emissions, but without requiring raising the water level, this effect is limited (land impacted by drainage will most likely continue to be

Legal basis	General	Lithuania	Latvia	Estonia
		by the Support for agricultural water management measure destroys wet peatlands and works against the development of paludiculture. Not many applicants know about regulated drainage advantages and that present action is financing installing regulated drain systems, which could be used also for paludiculture.		CO2 source rather than a carbon sink). Moreover, although the support scheme covers grasslands, fruit trees and berries it does not cover potential paludiculture crops (presuming the latter would be considered agricultural crops rather than grass). • The Environment-friendly gardening support scheme does not give preferential treatment to cranberries, which as the practice shows, is an unattractive culture, at least for this support scheme. • The Semi-natural communities maintenance support scheme has two gaps in practice. On one hand, quite extensive administrative burden (with two agencies, the payment agency as well as Environmental Board, involved). On the other hand, the support only partially covers the additional costs and loss of profit, meaning the farmers on such land are still relatively uncompetitive. • Investment support for development and

Legal basis	General	Lithuania	Latvia	Estonia
				maintenance of agricultural and forestry infrastructure incentivises and supports traditional (drained) use of peat soils and does not provide support for farmers interested in paludiculture
Prospects	• Supporting (in Latvia) and promoting regulated draining systems could support paludiculture.	• Support measures could be reviewed to be linked to paludiculture, including adding paludiculture plants to the list of acceptable agricultural crops.	Planting black alder under the measure "Investing in the extension of forest areas and improving the viability of forests" would be a good solution providing carbon sequestration and valuable wood in areas where pine, spurce and birch do not grow well - abandoned agricultural lands with low soil fertility and high water level.	• EFMS has a huge potential due to its wide coverage to support maintaining carbon in the soil and supporting paludiculture. • The authorities indicated that they would support more investments under the Investment support for development and maintenance of agricultural and forestry infrastructure scheme into dual-regime regulated systems, as the owners of such systems are likely to be more prudent in their maintenance. However, such systems require both higher investments as well as maintenance costs.

2.1.7.