

Seminar on cranberry production on rewetted peatlands



Development of Sustainable (adaptive) peatland management by Restoration and paludiculture for nutrient retention and other ecosystem services in the Neman river catchment (DESIRE)

On-line seminar on cranberry production on rewetted peatlands (paludiculture)

Join Zoom Meeting

<https://wwf.zoom.us/j/99197222253?pwd=UldzeXN0Zk1SbUNBTGVsdWtoalDnUT09>

with a farmer **Bart Crouwers (the Netherlands)**

March 23, 2021

8-10 a.m. CET /10-12 a.m. in Moscow

Programme

1.	Wendelin Wichtmann: Introduction of the concept of paludiculture	8:00 – 8:15
2.	Bart Crouwers: methods of cranberry production on peatlands in the Netherlands	8:15 – 9:00
3.	Vladimir Kukushkin: Short film on harvesting techniques in Kaliningrad region	9:00 - 9:05
4.	Nature Park "Vishtynetsky": Information on the intended location, type of peatland, area size, rewettability	9:05 – 9:20
5.	Discussion: 1. Do cranberry production, peat preservation and paludiculture here fit together? 2. Is the intended site feasible for cranberry production? 3. What are the main business obstacles?	9:20 – 10:00



The seminar resulted in the following outcomes:

1. Wendelin Wichtmann showed in his introduction on the concept of paludiculture that if conversion of peatland management to paludiculture is undertaken, it is necessary to comply with minimum standards. This is necessary to ensure that the ecosystem services associated with the conversion (in particular the reduction of greenhouse gas and nutrient emissions) are achieved. If mean water levels are only half-heartedly raised to -30 to -50 cm, higher emissions may even be caused than under still dry conditions. Emissions may even be raised, as a good water supply of the aerated topsoil promises better mineralization conditions (see figure).

Paludiculture does not allow half measures to be taken. There is no option for weakening the concept. But people always try to optimize and improve the economic situation. As wetland plants often have a large amplitude for optimal growth eventually higher yield could be produced with lower water tables. This would comply that lower water tables allow conventional machinery for harvesting and no investment in adapted machinery would be necessary. This may lead to weak implementation of the water level elevation e.g. by installation of subsurface irrigation or too low damming targets when setting the weirs. Medium watertables should be higher than -20 cm below soil surface during the summer season, in winter they should be even higher. This seems to be good conditions also for cultivation of cranberries.

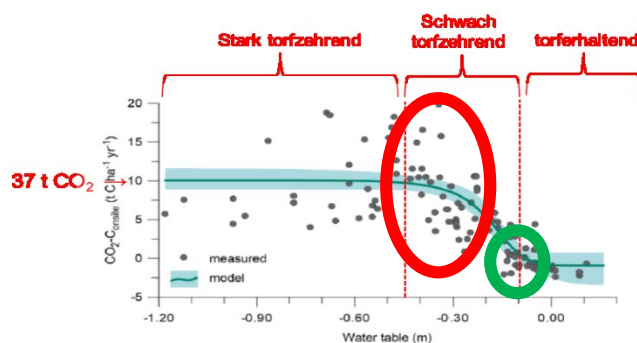


Figure: CO₂-C Emissions from organic soils in temperate zone (changed after Tiemeyer et al. 2020)

Another argumentation for weak implementation of sufficient water level elevation may be that, if they do so, farmers and landowners can accustom themselves stepwise to peatland rewetting which would be similar to conventional like management of peatlands. Then additional steps of rewetting would be necessary to reach goals of paludiculture. Such a several step approach would be tediously and tiring. As farm operating concepts are oriented towards longer time periods (e.g. 25 yrs) and they cannot turn with the wind. This stepwise approach would not be a good solution and reaching same total emissions reductions would only be possible at much higher costs. To avoid such problems a regular monitoring of compliance with the framework conditions demanded by paludiculture must be installed.

2. Bart Crouwers gave a comprehensive overview on methods of cranberry production on wet peatlands in the Netherlands. Starting some years ago, he established a cranberry farm in the region between Amsterdam and Rotterdam in the Netherlands, which was normally used for dairy cows grazing. The site is rather nutrient rich. Before spreading Cranberry propagules, the grass sward topsoil (~15cm) was removed.

Some mycorrhiza ericoides must be present so that Cranberries can grow. Weeds develop parallel after Cranberry plantation but may be partly controlled by raised water tables, especially by full inundation during winter. In winter water tables should be like flooding, in summer -20 to -30 cm. Also the pH (<5) which establishes after rewetting and topsoil removal regulates the weeds. Some weed plants (killer weeds) have to be controlled handish (buttercup) other by regular mowing at a height of about 20 cm above ground. % varieties from America have been planted. At first one year was necessary to propagate the plants. 4 plants have been spread per m², in good conditions only 2-3 plants would be necessary for 1 m². The cuttings which were prepared have at first been planted in April.

Some yield already was obtained after 3 years, now, after 3-5 years, the Cranberry cultivation is yielding handsome returns. The yield is about 50-60 T kg/8 ha. Additional incomes are received by emissions reduction certificates.

3. Vladimir Kukushkin showed a short film on harvesting technique with a hand-operated machine that can harvest cranberries by combing out the berries as they pass over the area. He is already experienced in blueberry farming. He is seriously interested to cultivate Cranberries in Witgirinskoye and Vishnevae in Kaliningrad Region. Recently he visited a Cranberry farm site in Belarus near Minsk.

4. Maxim Napreenko gave some information on the potential site for Cranberry cultivation for the Nature Park "Vishtynetsky": Ge gave general information on the intended location, type of peatland, area size, rewettability etc.

The intended location Witgirinskoye is a former raised bog with Sphagnum peat and shows a ph of 4,5. The size of the site is large enough for cultivation of Cranberries, as 10-20 ha are suitable for cultivation. The precipitation is about 700-800 mm per annum.

5. Discussion with the participants

The following topics have been discussed

- a. Do cranberry production, peat protection and paludiculture here fit together?
These challenges for further dealing with peatlands seem to be compatible, if water tables are kept high to avoid as much greenhouse gas emissions as possible throughout the year.

b. Is the intended site feasible for cranberry production?

Yes, it's a former bog peatland, has a convenient pH and is large enough to start with Cranberry planting activities.

c. What are the main business obstacles and requirements to be met for the productive use of rewetted peatlands in paludiculture?

Maybe the necessary long term engagement and the organisational issues which have to be solved beforehand could be a deterrent. On the other hand the potential for long term utilisation of cranberry fields and regular harvesting for more than 20 years are convincing.

List of the people who participated from their own desks (additional participants mainly from Kaliningrad shared their desks with several colleagues), in total more than 25 participants came from Poland, Lithuania, Latvia, Kaliningrad Region and Germany.

Bart Crouwers, Wendelin Wichtmann, Marina Abramchuk, Jan Peters, Olga Denyshchuk, Vladimir Kukushkin, Nerijus Zableckis, Amalj Samerkhanova, Leonas Jarašius, Marta Stachowicz, Demid Tsegilnikov, Aleksandrs Kalamašņikovs, Maxim Napreenko, Susanne Abel, Moritz Kaiser, Christina Lechthape, Vitaly Kurlshov