REHABILITATION OF MILLED PEAT AREAS BY CRANBERRY (*OXYCOCCUS PALUSTRIS* L.) PLANTATIONS

TAIMI PAAL$^1$ & JAANUS PAAL$^2$

$^1$Forest Research Institute
Estonian Agricultural University
Kreutzwaldi St. 5, EE-51014 Tartu, Estonia
Tel: +372 7 313171
e-mail: tpaal@eau.ee

$^2$Institute of Botany and Ecology
University of Tartu
Lai St. 40, EE-51005 Tartu, Estonia
Tel: +372 7 376220, Fax: +372 7 376222
e-mail: jpaal@ut.ee

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**SUMMARY**

Simple and effective methods for rehabilitation of exhausted milled peat areas by cranberry plantations are introduced. Plantations can be established by sowing seeds or by planting. A subnatural plant cover will develop in course of 3-4 years.

The total area of exhausted peat fields in Estonia constitutes 22 000-24 000 ha and this will be doubled in next two decades (Paal *et al.*, 1998). The natural plant cover on abandoned peat fields is developing extremely slowly. A possibility for re-establishing of subnatural plant cover, stopping the carbon emission and turning the areas into economically useful ones is to establish cranberry plantations. For that purpose simple and cheap methods were elaborated in the Nigula Nature Reserve by H. and J. Vilsbale already in 1970’s (Ruu & Vilsbale, 1968; Vilsbale, 1974; Vilsbale *et al.*, 1995).

The surface of exhausted milled peat fields with the residual peat layer of at least 0.5 m should be smoothed and gutters stopped with controllable dams. On the soil thus prepared, a cranberry (*Oxyccoccus palustris* L.) culture can be initiated either by sowing seeds or by planting.

The seeds are separated by washing and stored through winter in a moist, cool environment. In spring they should be soaked for about 12 hours in a 10-15% Na$_2$CO$_3$ solution (also K$_2$CO$_3$ or H$_2$O$_2$ can be used), rinsed in clean water, drained, and mixed with sawdust before sowing. Then the germination
rate will approach 80-90%, compared to a natural germination of 2-5%. A proper time for sowing is the end of April or beginning of May. 15-20 kg ha$^{-1}$ seeds should be used. After sowing, it is recommendable to fertilize the field with 200-400 kg ha$^{-1}$ of superphosphate and 10 kg ha$^{-1}$ of CuSO$_4$.

By establishing a cranberry culture by planting, the cuttings selected from procumbent shoots of fruitful, good-sized varieties are used. Unrooted cuttings are planted before bud-break slantwise in clusters of 2-3, leaving 2-3 leaves above the surface. The depth of the subsoil water during the rooting period should be not less than 40 cm, and 30 cm during the fruit ripening. When cuttings are rooted, the plantation is fertilized with 50-60 kg ha$^{-1}$ 2-5-18 (NPK), fertilizer should be added close to the plants. Still this method has a deficiency, because in a dry spring rooting of the cuttings can develop rather poorly.

Tending of cranberry plantings mainly consists of maintaining dams, clearing brush, and removing heather with a brush-cutter. In the sown culture the first berries appear in the 3rd and 4th year and the first considerable crop can be gathered in the 5th and 6th year. Berry yield has been as high as 1.5 to 2 tons per ha. Plantings with unrooted cuttings yield their first crop in the 3rd or 4th year and up to 3 tons of berries can be picked.

In that way altogether 275 ha were recultivated up to the end of 1980’s. Regrettably in the last decade these cheap and simple methods for rehabilitating abandoned bog areas has ceased. Nevertheless, from these earlier trials, the six best cranberry varieties selected by H. and J. Vilbaste are now tested in new production plantations.

In recent years, cranberry cultures have been established with one-year-old rooted plants. To obtain a great number of cuttings for that, the mother plantation is watered in spring with a solution of high nitrate fertilizer. 5-7 cm height cuttings are taken in the end of April before opening of buds and they will be rooted in plastic rolls. For that, ca 20 cm wide plastic ribbon is put on ground and covered with approximately 0.5 cm thick milled peat. On the peat layer the cuttings are laid with interval of 10 cm leaving over the plastic ribbon 2-3 leaves. Cuttings are covered with a layer of peat and rolled together with plastic to a roll. The rolls should be stored in a shadowed place and watered regularly to keep peat moist. It is recommendable to cover the rolls with a veil, this enables to keep moisture and also a bit higher temperature, and enhances cuttings rooting. After a couple a weeks the rolls should be fertilized e.g. with 2-5-18 (NPK) fertilizer (10 g per 10 l of water) where also microelements are added. The second time the fertilizing should be done not later than in the end of June, otherwise the plants could be damaged in course of overwintering.

In the next spring the planting in field should be done before the peat has become dry (in the end of April, beginning of May). Before planting the area must be smoothed and cleaned up from stumps remains.

About two-three weeks later when the plants are rooted, they should be fertilized with a fertilizer containing microelements and only a little nitrogen, e.g. with Cropcare-2:11:22. Nitrogen-rich fertilizers will favor growth of shoots but inhibit forming of blossom-buds. In the last 5-6 years about 4 ha of cranberry fields has been planted and crop up to 10 tons ha$^{-1}$ is expected.

Problems of fertilization of the already established cranberry plantations are not properly studied yet. With fertilizing the plantations will be covered by Eriophorum vaginatum, Calluna vulgaris, Betula spp., Pinus sylvestris, etc.
REFERENCES


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