Geophysical Research Abstracts,
Vol. 11, EGU2009-12414, 2009
EGU General Assembly 2009

Degradation of drained peat soils in Belarus

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According to Belarusian classification, the drained peat soils with peat layer less then 30 cm and containing organic substance less then 50% are degraded soils. Degraded peat soils made up 190.2 thousand hectares in 2001 from a total area of 1062,2 thousand hectares of drained peat soils for agriculture in Belarus, but the process of degradation is prolonging now and it is expected, that their area will be extended additionally on 12 % till 2020.

The degradation of peat soils is most widespread in the region of Polesie, where the area of degraded soils makes up already several thousand hectares in some administrative districts.

The degradation of peat soils takes place jet locally on the comparatively not big plots but on the very many places. There is the threat of joining up of the existing now spots of degraded soils in the near future, and the new spots of degraded soils will appear in a very big amount as well. The large tracts of land will appear in the nearest 20–30 years and may be earlier.

The degradation of drained peat soils proceeds step by step, and three morphological groups of new soils are forming depending on degree of humification of organic matter, namely: raw humic, humus-fibrous and humus peat soils.

The complicated soil complexes with many alternating soil plots containing organic substance both more than 50 % and from 2 till 50 % are forming within one field in result of degradation. For the reason given above a rather not uniform structure of soil cover with unsatisfactory micro relief, big differences of aquatic, thermal and nutritious regimes is forming on agricultural fields, that leads to the substantial decrease of their productivity. In this connection big expanses will require to the rearrangement of drainage systems and leveling of soil fertility within every such field.

A fertility of drained peat soils with the depth of peat layer more then 1 m has been estimated as 69 points, with the depth of peat layer 0.3–0.5 m as 62 points, and degraded peat soils – from 22 till 58 points depending on the content of organic substance and granulometric composition of underlying rocks.

The main cause of increasing degradation of peat soils is cultivation of raw and grain crops. The necessity to change the structure of sown area on drained peat soils is quite obvious. It is necessary and obligatory to exclude fully the cultivation of raw crops and to decrease very much cultivation of grain crops on peat soils. Especially perspective a cultivation of long-term meadows without disturbance of sod.

A second perspective measure is the use of peat soils by the method of German sand-mix culture. Our 30-years field investigations in Belarus have shown, that this method allows to move near the balance of organic matter in soil to zero. It means, that the soil formation process and the balance of organic matter under condition of sand-mix culture are in the equilibrium position.

Besides that it is need to change the Belarusian soil classification in order to move near it to European one, in particular, it should refer to degraded peat soils only those ones, which contain organic matter less then 30 %, but not 50 %. In this case it will be possible to distinguish degraded peat soils and not degraded ones by morphological signs directly in the field.