Improvement of para-podsols in North-Western Croatia

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Summary [1]

Investigations have shown that it is possible to create a new crop producing soil on para-podsols of North-West Croatia with tillage aimed at permanent amelioration by means of deep ploughing and manuring with commercial fertilizers.

Previously held views, that on such soils deep tillage must be combined with liming and the application of organic matter have thus been disproved. This is a highly important fact for it means that the improvement of para-podsols can be achieved by a much simpler and less expensive method.

According to our experience, a cereal, in fact wheat (a crop of great commercial value) should be the crop in the first year, to be followed in the second year by maize fertilized with stable manure, and by a leguminous plant in the third year. While wheat will repay all investment costs in the first year alone, the costs of the improvement and fertilization should be distributed over several years.

Deep tillage itself ensures vertical drainage and allows deeper and stronger rooting; it does not, however, meet all requirements regarding quick drainage of surface water derived from precipitation. The ameliorative tillage should therefore be combined with back-furrow ploughing according to the Italian system called "abbaulatura" wich leaves drainage ditches all around the tilled plots. The advantages of tile drainage, which is more expensive and rather complicated to install, should be studied in greater detail, although practice will give preference to ameliorative tillage combined with the "abbaulatura" system.

The method described above should make it possible to stabilize agricultural production on para-podsols in North-Western Croatia at a level of high and profitable yields within a comparatively short time.

Investigations are continuing at present with the objective to determine the optimum depth of tillage for the main field crops and the residual effect of deep tillage on para-podsols.

[1] Complete mimeographed text available on request from Tillage Laboratory State Agric. Univ., Diedenweg 20, Wageningen.