

Integrated Drought Management Programme in Central and Eastern Europe

DROUGHT MANAGEMENT BY AGRICULTURAL PRACTICES AND MEASURES INCREASING SOIL WATER HOLDING CAPACITY (Activity 5.1)

Theoretical review of problems and first results of experiments *(Milestone 2)*

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Integrated Drought Management Programme

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Table of contents	1. Main common conclusions
	Annexes:
	Annex 1: National report for Slovakia
	Annex 2: National report for Poland
	Annex 3: National report for Czech republic
	Annex 4: National report Slovenia

Contents

Main c	ommon conclusions	1
1.	On theoretical level	.1
2.	On experimental level	.1

Main common conclusions

1. On theoretical level

A several approaches of agricultural practices can improve conditions for soil water holding capacity increase what is more precise presented in individual national reports. Of course, the parameters and effects of them must be verified and proposed into the practice.

2. On experimental level

- Following several approaches on soil water holding capacity increase have been verified in field experiments: traditional tillage, mouldboard ploughing, no-till farming, subsoiling, fertilizing (organic fertilizers) and combinations of them.
- The traditional method of soil cultivation (ploughing) causes adverse effects on the soil water holding capacity (mainly due to compaction of deeper layer of soil).
- Verified no traditional tillage and no traditional farming operations had more or less positive effects on soil water holding capacity.
- Mainly subsoiling decreased the resistance of soil against root and water penetration into the soil profile (penetrometric study).
- Subsoiling increased the water infiltration into the soil profile (using field infiltrometers, saturated hydraulic conductivity).
- Positive impact of organic fertilizers on total soil porosity was proved.
- Subsoiling increased the yields of cultivated plants.
- No till farming has many other positive effect mainly on some kinds of soil biota.

New experimental activities have been started with results expected in nearest future. Also existing field experiments will be examined in the next experimental year of this project.

The national reports (Czech Republic, Poland, Slovakia and Slovenia) are enclosed as annexes to this report.