

**Van den Akker, J.J.H.,** Arvidsson, J. and Horn, R., 2003. Introduction to the special issue on experiences with the impact and prevention of subsoil compaction in the European Union. *Soil and Tillage Res.* 73: 1-8.

**Abstract**

The papers in this special issue present results of the European Union Concerted Action "Experiences with the impact of subsoil compaction on soil crop growth and environment and ways to prevent subsoil compaction". The results and conclusions of earlier research on subsoil compaction are memorized and it is emphasized that the conclusions are still sound: high axle-load traffic on soils of high moisture content causes deep and persistent subsoil compaction. The concerted action on subsoil compaction in the European Union and an almost identical concerted action on subsoil compaction in Central and Eastern Europe are briefly introduced. This special issue presents a selection of papers of the concluding workshop of the concerted action on subsoil compaction in the EU. It includes three papers on modeling the impact of subsoil compaction on crop growth, water availability to plants and environmental aspects; three papers on modeling of subsoil compaction by heavy machinery; four papers on measurement of soil mechanical and physical properties in relation to subsoil compaction and four papers on methods to determine the risk of subsoil compaction and to identify prevention strategies. The trends in agriculture in relation to subsoil compaction are discussed. A positive trend is that policy makers in the EU and worldwide recognize soil as a vital and largely non-renewable resource increasingly under pressure. A negative trend is that wheel loads in agriculture are still increasing causing severe damage to subsoils. The conclusion is that European subsoils are more threatened than ever in history. Manufacturers, agricultural engineers and soil scientists should collaborate and research should be initiated to solve this problem and find solutions. Subsoil compaction should be made recognized by all people involved from farmer to policy maker. Therefore an assessment of the existence and seriousness of subsoil compaction throughout Europe should be initiated.

**Keywords:** subsoil compaction, soil degradation, soil quality, soil physical properties, soil mechanical properties, structure degradation, crop growth, rootability

