

Proposal for Precautionary Measures to Reduce Soil Compaction Risks Due to Heavy Agricultural Machinery

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Objectives

Agricultural land use has to take care of the subsoil by minimizing the soil compactive risks induced by heavy machines including sugar beet harvesters. For this purpose, the Institute of Sugar Beet Research, soil scientists, agricultural engineers, the German sugar industry and the beet grower associations agreed on the following proposals:

Aspects and Measures

1. Considering soil protection when designing agricultural machines

Aims: The overall soil compactive impact of machines (number of passes, ground contact pressure, wheel load) has not to increase with future machinery. Instead, it should be reduced as far as possible.

Design improved chassis: 3 instead of 2 axles, belt instead of wheel chassis?



Reduce tyre inflation pressure as much as possible with regard to actual wheel load and soil strength.



2. Taking care of the soil when managing crops

Aims: Improve bearing capacity of soils. Minimize field traffic with trailers.

Use permanent conservation tillage and mulch seeding.



Adopt field length to storage capacity of harvester.



Use only trailers with wide tyres at low tyre inflation pressure.



3. Considering soil protection for purchase and operation of machines

Aims: Seize all available measures to avoid soil compaction.

Improve knowledge of engine-drivers, field men from sugar factories/grower associations and farmers in soil protective measures.



Organize sugar beet harvest and transportation flexible with regard to soil conditions (workable days).

Conclusions

The above measures, especially when jointly promoted by scientists, sugar industry and beet growing farmers, contribute to meet the demands of soil protection in agricultural land use.