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Short communication

Description standards of primary tillage implements

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Abstract

Recent research has shown that different types of tillage implements have a different impact on soil translocation. Tillage experiment descriptions in the bibliography are usually incomplete in their description of the implements and the experimental tillage conditions, which makes some difference if one wants to compare different experiments through time and space. The aim of this paper is to present a diagnostic of the problem, showing the importance of describing the implements and at the same time to present a proposal for a standard description of mouldboards, disc harrows and cultivators that should be taken into account when tillage experiments are carried out. © 2000 Elsevier Science B.V. All rights reserved.

Keywords: Tillage implements description; Tillage experiments; Mouldboard; Disc harrow; Cultivators

1. Introduction

Implement description is important in tillage research to understand and compare different experiment results. It is also important because it allows replication of the experiment to be used in other studies. From Table 1 we can verify that tillage implement descriptions are usually incomplete.

This paper will focus on the tillage implement description and will not consider the implement adjustment because for each tillage experiment the implement is adjusted to the tractor for a perfect tillage performance. The objective of this study is to diagnose the problem and at the same time present a description proposal for mouldboard ploughs, disc harrows and cultivators.

2. Diagnostic and discussion

The relevant literature was scanned for studies with tillage implements and the description of the implements was analysed taking into consideration the characteristics presented in Table 1. Based on Cedra (1993) we consider these characteristics to be the principal ones that have to be taken into account whenever describing a specific tillage implement.

2.1. Mouldboard plough

The mouldboard plough is usually used to embed residues, weeds, minerals and organic fertilisers, facilitate the seed-bed preparation and improve the physical soil condition.

Several studies do not describe the share width and the number of shares (Table 1), which are important, because they influence the total work width of the mouldboard and together with the soil depth define the total volume of the disturbed soil. Other studies do not describe the mouldboard form, which is known to

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