DIN EN 13739-2:2012-05 (E)

Agricultural machinery - Solid fertilizer broadcasters and full width distributors - Environmental protection - Part 2: Test methods

Contents

Page

Foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 6

4 Test conditions 8
4.1 Machine for test 8
4.1.1 General 8
4.1.2 Transverse test 8
4.1.3 Rotating test 8
4.2 Test materials 8
4.3 Application rates 9

5 Test equipment 9
5.1 Accuracy in weighing measurements 9
5.2 Transverse test Devices for receiving fertilizer for transverse distribution 10
5.3 Rotating test 10
5.3.1 Measurement of the angular position of the spreader 10
5.3.2 Data acquisition device 10
5.3.3 Devices for receiving fertilizer for spread pattern distribution 10
5.4 Test site 10
5.5 Handling of test materials during the tests 11

6 Test methods 11
6.1 Contact with obstacles 11
6.2 Estimation of hopper volume - Checking of the spillage 11
6.3 Adjustment of flow rate 11
6.4 Reduced working width or throwing width 12
6.5 Flow rate regulation system, when available (see example in Figure 2) 12
6.5.1 Deviations of the flow rate 12
6.5.2 Continuous mass flow measurements 12
6.6 Evenness of transversal distribution 13
6.6.1 Arrangement of containers 13
6.6.2 Procedure 14
6.7 Evenness of transverse distribution near the border 15
6.8 Evenness of transverse distribution when spreading with equipment for top-dressing 15
6.9 Deviation of the obtained flow rate from the intended flow rate 15
6.10 Evenness of obtained flow rate 15
6.10.1 Obtained flow rate on horizontal ground 15
6.10.2 Obtained flow rate on sloping ground 16

7 Calculation and presentation of test results 16
7.1 Transverse distribution 16
7.1.1 Determination of the fertiliser amount distributed 16
7.1.2 Working width 19
7.1.3 Degree of unevenness of transverse distribution 19

7.1.4 Equipment for spreading near the border 19
7.1.5 Top-dressing 21
7.2 Flow rate 21
7.2.1 Obtained flow rate on horizontal ground 21
7.2.2 Obtained flow rate on sloping ground 21

8 Test report 21

Annex A (normative) Determination and specification of physical properties of test materials 22

Annex B (informative) Example of a fertilizer - collecting container 23

Annex C (informative) Example of a test report 24

C.1 General 24
C.2 Features of the fertilizer distributor 24
C.2.1 General 24
C.2.2 Description 24
C.2.3 Dimensions and specifications 24
C.3 Physical properties of test material 27
C.4 Test conditions 27
C.5 Test equipment 27
C.6 Test results 28
C.6.1 Contact with obstacles 28
C.6.2 Estimation of hopper volume 28
C.6.3 Adjustment of flow rate 28
C.6.4 Reduced working width 28
C.6.5 Flow rate regulation system 28
C.6.6 Evenness of transverse distribution on level ground 29
C.6.7 Evenness of transverse distribution near the border 29
C.6.8 Evenness of transverse distribution when spreading with equipment for top-dressing Statistical results 30
C.6.9 Deviation from intended flow rates 30
C.6.10 Evenness of flow rate 30
C.7 Inspections 30
C.7.1 General 30
C.7.2 Hopper filling opening 31
C.7.3 Hopper emptying 31
C.7.4 Hopper cleaning 31
C.7.5 Calibration aids 31
C.7.6 Feeding device 31
C.7.7 Spillage 31
C.7.8 Instruction handbook 31
C.8 Remarks 32

Bibliography 33