

Seed drills —

Part 2: Methods of test for seed drills for rows

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Agricultural Machinery and Implements Standards Policy Committee (AGE/-) to Technical Committee AGE/32, upon which the following bodies were represented:

- A F R C Institute of Engineering Research
- Agricultural and Allied Workers' National Trade Group
- Agricultural Engineers' Association
- British Fluid Power Association
- Department of Transport
- Fertiliser Manufacturers' Association Ltd.
- Health and Safety Executive
- Local Authority Organizations
- Ministry of Agriculture, Fisheries and Food
- National Farmers' Union
- Silsoe College

This British Standard, having been prepared under the direction of the Agricultural Machinery and Implements Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on 30 June 1990

© BSI 12-1999

The following BSI references relate to the work on this standard:
Committee reference AGE/32
Draft for comment 83/70338 DC

ISBN 0 580 18288 6

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
0 Introduction	1
1 Scope and field of application	1
2 References	1
3 Definitions	1
4 General test conditions	1
5 Mandatory tests	2
6 Test procedure	4
7 Results	4
8 Test report	4
Annex A Programming of mandatory tests	5
Annex B Optional tests	6
Annex C Example of test report on a seed drill for sowing in lines	8
Table 1	5
Table 2	7
Table 3	10
Table 4	11
Publication referred to	Inside back cover

National foreword

This British Standard has been prepared under the direction of the Agricultural Machinery and Implements Standards Policy Committee and implements agreements of the International Organization for Standardization (ISO). It is identical with ISO 7256-2:1984 “*Sowing equipment — Test methods — Part 2: Seed drills for sowing in lines*”.

ISO 7256-1 deals with single seed drills (precision drills) and has been published as BS 6978-1.

Cross-reference

International Standard	Corresponding British Standard
ISO 3534:1977	BS 5532 <i>Statistical terminology</i> Part 1:1978 <i>Glossary of terms relating to probability and general terms relating to statistics</i> (Identical)

The Technical Committee has reviewed the provisions of ISO 3339-0, ISO 3339-4, ISO 3534, ISO 5698, ISO 5699 and ISO 7424, to which reference is made in the text and has decided that they are acceptable for use in conjunction with this standard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 2 to 12, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

0 Introduction

The aim of this part of ISO 7256 is to make available to test offices and other interested organizations a standardized test method permitting reproducibility of tests when they are carried out in geographically remote areas and/or in different climatic conditions; the main objective being comparability for any one model of equipment.

This condition of reproducibility limits the number of mandatory tests which can be used and eliminates mandatory tests in the field. However, these tests may be carried out optionally at the instigation of the test office or at the request of the manufacturer.

The test method takes into account the effects of the type of seed, the level of seed in the hopper, the application rate adjustment, the forward speed, the slope of the ground and the condition of the soil surface (bumps).

1 Scope and field of application

This part of ISO 7256 specifies a test method for seed drills for sowing in lines, including seed drills attached to a basic machine.

The test method permits the determination of performance using reproducible tests so that comparable results in numerical or graphical form which take into account the influence of the following can be obtained:

- type of seed;
- the forward speed;
- the level of seed in the hopper;
- the application rate adjustment;
- the slope of the ground;
- the condition of the soil surface (bumps).

Optional tests (see Annex B) may supplement the test method by taking into account the effects of products used for treatment and distribution on the sowing site.

The mandatory tests do not give any picture of the true distribution of the seeds on the sowing site.

NOTE Part 1 of ISO 7256 deals with single seed drills (precision drills). (See ISO 3339-0 for the classification.)

2 References

ISO 3339-0, *Tractors and machinery for agriculture and forestry — Classification and terminology — Part 0: Classification system and classification*.

ISO 3339-4, *Tractors and machinery for agriculture and forestry — Classification and terminology — Part 4: Sowing and planting equipment*¹⁾.

ISO 3534, *Statistics — Vocabulary and symbols*.

ISO 5698, *Agricultural machinery — Hoppers — Manual loading height*.

ISO 5699, *Agricultural machines, implements and equipment — Dimensions for mechanical loading with bulk goods*.

ISO 7424, *Agricultural equipment — Matching of wheeled tractors and rear mounted implements — Code numbering system*.

3 Definitions

For the purpose of this part of ISO 7256, the following definitions apply.

3.1 seed drills for sowing in lines

see ISO 3339-4

3.2 feed mechanism (of seed)

a mechanism which takes seed from a hopper and transfers it at a constant determined flow rate into a furrow created by the coulter

3.3 flow rate (of seed)

the quantity, expressed as mass or volume, of seed sown per unit time

3.4 application rate (of seed)

the quantity, expressed as mass or volume, of seed sown per unit length or unit area

3.5 hopper height

the internal height of the hopper, H , shall be the vertical distance between the lower edge of the outlets and the lower edge of the top of the hopper

4 General test conditions

NOTE The manufacturer or his representative should be entitled to be present at the tests.

4.1 Seed drills

4.1.1 Selection

The seed drill to undergo testing may be selected by the representative of the test office in agreement with the manufacturer.

¹⁾ At present at the stage of draft.

The seed drills shall, in all respects, conform strictly to the specifications which the manufacturer is required to send to the test office in writing.

The test report (see Annex C) shall specify how the seed drill to be tested was chosen.

If the test on the seed drill is associated with a test on a basic machine, the seed drill chosen shall be that attached to the basic machine to be tested.

4.1.2 *Manufacturer's instructions*²⁾

Use the seed drill in accordance with the manufacturer's instructions, which shall specify, among other things

- a) the maximum working speed, expressed in kilometres per hour or in metres per second;
- b) the types of seed which the seed drill can sow or discharge;
- c) in the case where the device includes several interchangeable mechanisms, the types of feed mechanism and types of seed which can be sown or discharged by each model;³⁾
- d) the maximum and minimum application rates permitted by the feed mechanism(s) for each type of seed;
- e) any accessories which may be required for distributing certain types of seed;
- f) the inflation pressure, if the seed drill or the basic equipment is fitted with pneumatic tyres.

4.1.3 *Checking of specifications*

The technical characteristics supplied by the manufacturer shall be checked and shall be noted in the test report. When comparing laboratory test results with application rate and flow rate data supplied by the manufacturer, it shall be noted that manufacturer's data may have been adjusted for wheel slippage.

4.2 *Seed*

4.2.1 *Types*

Each of the performance tests shall be carried out with the following seeds:

- type a: an average size seed of regular shape, wheat (mandatory);
- type b: a small round seed (for example clover);
- type c: a light bearded seed (for example rye-grass from Italy);
- type d: a large, irregular shaped seed (for example field bean).

If the manufacturer judges his seed drill to be unsuitable for the sowing of one or more types of seed, these types will be excluded from the tests and the fact noted in the test report.

NOTE For the mandatory reproducible tests, these seeds should not have been subjected to any treatment (with phytosanitary or other products) likely to modify their physical characteristics.

4.2.2 *Physical characteristics*

The seed used shall be of current commercial quality.

The dimensions, germination percent, bulk density, mass of 1 000 seeds, purity (percentage of foreign bodies, broken seed and bad seed), and the water content of each batch shall be noted in the test report.

4.3 *Ambient conditions*

The degree of atmospheric humidity shall be noted in the test report.

5 *Mandatory tests*⁴⁾

5.1 *Nature of tests* (see Annex A)

The essential aim of these tests is to determine the evenness of the flow rate and the accuracy of metering.

These tests shall be carried according to two methods:

- static tests;
- mobile tests;

to give the appropriate results.

5.1.1 *Static tests*

With the seed drill stationary, the drive wheel shall rest on a drive mechanism. It shall be driven at a speed equal to that which it would have in actual operation, that is at the theoretic forward speed of the seed drill travelling without slipping.

5.1.2 *Mobile tests*

The seed drill shall be driven at a constant speed on a hard and uniform surface. An adhesive strip, or visual or acoustic processes shall be laid on the surface over which the seed drill passes.

5.2 *Distance between the feed mechanism and the surface*

Care shall be taken that the mechanism is placed, in relation to the surface (for example an adhesive strip), at an average distance corresponding to that in actual operation.

²⁾ These instructions shall be attached to the test report.

³⁾ Applicable to seed drills for ergot.

⁴⁾ For the optional tests, see Annex B.