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Forage harvesters —

Part 3: Test methods

Récolteuses-hacheuses-chargeuses de fourrage —

*Partie 3:
Méthodes d'essai*



Reference number
ISO 8909-3:1994(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 8909-3 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 7, *Equipment for harvesting and conservation*.

ISO 8909 consists of the following parts, under the general title *Forage harvesters*:

- *Part 1: Vocabulary*
- *Part 2: Specification of characteristics and performance*
- *Part 3: Test methods*

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Forage harvesters —

Part 3: Test methods

1 Scope

This part of ISO 8909 specifies test methods for evaluations of forage harvester function and performance, covering forage harvesters which cut the crop directly at full width or from spaced-apart plant rows, or which pick up precut crop.

It applies to forage harvesters with driven knives for chopping and which deliver the chopped crop into a container or a separate vehicle or trailer. The harvesters may be tractor-mounted, trailed or self-propelled.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8909. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8909 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 500:1991, *Agricultural tractors — Rear-mounted power take-off — Types 1, 2 and 3.*

ISO 730-1:1990, *Agricultural wheeled tractors — Rear-mounted three-point linkage — Part 1: Categories 1, 2 and 3.*

ISO 730-2:1979, *Agricultural wheeled tractors — Three-point linkage — Part 2: Category 1 N (Narrow hitch).*

ISO 730-3:1982, *Agricultural wheeled tractors — Three-point linkage — Part 3: Category 4.*

ISO 789-3:1993, *Agricultural tractors — Test procedures — Part 3: Turning and clearance diameters.*

ISO 3600:1981, *Tractors and machinery for agriculture and forestry — Operator manuals and technical publications — Presentation.*

ISO 3767-1:1991, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Symbols for operator controls and other displays — Part 1: Common symbols.*

ISO 3767-2:1991, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Symbols for operator controls and other displays — Part 2: Symbols for agricultural tractors and machinery.*

ISO 3965:1990, *Agricultural wheeled tractors — Maximum speeds — Method of determination.*

ISO 4254-1:1989, *Tractors and machinery for agriculture and forestry — Technical means for ensuring safety — Part 1: General.*

ISO 5007:1990, *Agricultural wheeled tractors — Operator's seat — Laboratory measurement of transmitted vibration.*

ISO 5008:1979, *Agricultural wheeled tractors and field machinery — Measurement of whole-body vibration of the operator.*

ISO 5131:1982, *Acoustics — Tractors and machinery for agriculture and forestry — Measurement of noise at the operator's position — Survey method.*

ISO 5675:1992, *Agricultural tractors and machinery — General purpose quick-action hydraulic couplers.*

ISO 5697:1982, *Agricultural and forestry vehicles — Determination of braking performance.*

ISO 5715:1983, *Equipment for harvesting — Dimensional compatibility of forage harvesting machinery.*

ISO 5718-1:1989, *Harvesting equipment — Flat blades for rotary mowers — Specifications — Part 1: Type A flat blades.*

ISO 5718-2:1991, *Harvesting equipment — Flat blades for rotary mowers — Part 2: Specifications for type B flat blades.*

ISO 6097:1989, *Tractors and self-propelled machines for agriculture — Performance of heating and ventilation systems in closed cabs — Test method.*

ISO 6489-1:1991, *Agricultural vehicles — Mechanical connections on towing vehicles — Part 1: Hook type.*

ISO 6489-2:1980, *Agricultural vehicles — Mechanical connections on towing vehicles — Part 2: Clevis type — Dimensions.*

ISO 8909-1:1994, *Forage harvesters — Part 1: Vocabulary.*

ISO 8909-2:1994, *Forage harvesters — Part 2: Specification of characteristics and performance.*

3 Definitions

For the purposes of this part of ISO 8909, the definitions given in ISO 8909-1 and the following definitions apply.

3.1 test machine: Machine whose performance is being assessed.

3.2 reference machine: Machine of known performance required to be used alongside the test machine.

3.3 test series: All the events and data comprising several test runs in one crop and set of conditions.

3.4 catch: Mass of the material collected from the harvester during a test run, in kilograms.

3.5 capacity: Continuous output (mass) on a wet and dry basis of chopped crop from the harvester per unit of time. The capacity is expressed in tonnes per hour.

3.6 power requirement: Time-averaged total power, in kilowatts, required to operate the harvester during a test run at rated operating speed, excluding the power for propulsion.

3.7 no-load power requirement: Time-averaged total power, in kilowatts, required to operate the harvester at the rated speed when stationary and with the attachments to be tested engaged.

3.8 specific energy requirement: Total harvester energy required per unit of crop mass on a wet and dry basis. It is expressed in kilowatt hours per tonne.

3.9 theoretical length of cut: Length of cut, in millimetres, calculated from the number of knives and the speeds and effective dimensions of all relevant components.

3.10 length of cut analyser: Apparatus for dividing a typical sample of the chopped forage harvested by the machine into particle length groups, to enable the percentage of cumulative undersize by mass to be determined from each group.

3.11 length of cut distribution graph: Logarithmic normal probability graph of percent cumulative undersize mass versus mean particle length data from the length of cut analysis for each sample. (See annex B.)

3.12 geometric mean length of cut: Particle length, in millimetres, calculated from the analysis data or taken from the length of cut distribution graph at the 50 % level of cumulative undersized mass. It denotes the fineness of chopped crop and is the most appropriate dimension for comparison with the theoretical length of cut.

3.13 geometric standard deviation of length of cut: Particle length taken from the length of cut distribution graph at the 84 % level of cumulative undersized mass divided by the mean length at the 50 % level of cumulative undersized mass; alternatively, it may be calculated mathematically from the analysis data. The geometric length of cut standard deviation is an index of the uniformity of cut.