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Equipment for harvesting — Forage harvesters —

Part 1:
Vocabulary

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Partie 1: Vocabulaire

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by ISO/Technical Committee TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 7, *Equipment for harvesting and conservation*.

This second edition cancels and replaces the first edition (ISO 8909-1:1994), which has been technically revised.

The main changes compared to the previous edition are as follows:

— Update to Normative references

— Adaptation of designation of some terms

— Modifications of some definitions.

A list of all parts in the ISO 8909 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Equipment for harvesting — Forage harvesters —
Part 1:
Vocabulary

1 Scope

This document specifies terms and definitions relating to forage harvesters and their component parts. In association with ISO 8909-2, which lays down methods of measuring characteristics and performance requirements for the term defined, this document identifies dimensions and other characteristics aimed at allowing comparison of operations of the machines and to improve communication among engineers and researchers.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 789-3:2015, *Agricultural tractors — Test procedures — Part 3: Turning and clearance diameters*

ISO 2710-1:2000, *Reciprocating internal combustion engines — Vocabulary — Part 1: Terms for engine design and operation* (under revision)

ISO 8909-2:XXXX, *Equipment for harvesting — Forage harvesters — Part 2: Specification of characteristics and performance* (under revision)

ISO 14396:2002, *Reciprocating internal combustion engines — Determination and method for the measurement of engine power — Additional requirements for exhaust emission tests in accordance with ISO 8178*

3 Terms and definitions

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

For the purposes of this document, the terms and definitions in this document apply.

3.1
forage harvester
agricultural machine used to harvest or gather the crop, cut the crop into short parallel lengths and to deliver the chopped crop into containers or separate vehicles

Note 1 to entry Typical forage crops harvested are grasses, legumes, mixtures and/or row crops such as maize (corn) and sorghum. The chopped crop may be preserved in storage by ensiling or dehydrating, or it may be fed directly to livestock.

Note 2 to entry The forage harvester may harvest the crop directly by cutting it at full width or from single or multiple rows, or by picking it up from swaths or windrows. Forage harvesters may be tractor-mounted, towed or self-propelled.

3.1.1
precision-cut forage harvester
forage harvester (3.1) which uses a feeding mechanism consisting of four or more feed rolls to partially orient and advance the crop at a consistent rate into the cutting or shearing mechanism

Note 1 to entry This type of forage harvester is capable of producing the shortest and most uniformly cut particles.

3.1.2
semi-precision-cut forage harvester
forage harvester (3.1) which uses a feeding mechanism consisting of fewer than four feed rolls or other means such as an auger to advance the crop to the cutting or shearing mechanism

Note 1 to entry Mean particle lengths and particle uniformity are intermediate between those obtained with precision-cut and random-cut forage harvesters. This type of forage harvester includes double-chop and multi-chop machines.

3.1.3
random-cut forage harvester
forage harvester (3.1) without a distinct feeding mechanism usually employing flails to impact-cut and chop the standing crop or pre-cut crop directly into shorter pieces

Note 1 to entry This type of forage harvester usually produces the longest mean particle lengths, and the least uniformly cut particles.

4 Terms for characteristics of functional components

4.1
crop-gathering header
device, usually detachable, used to gather the crop into the *forage harvester* (3.1)

4.1.1
row crop header
device used to cut off and gather row crops, usually near ground level

4.1.2
maize picker header
device used to harvest and gather only ears of maize [corn]

4.1.3
pickup header
device for picking up previously cut crop

Note 1 to entry The crop may be in a swath or windrow.

4.1.4
direct-cut header
device capable of cutting unharvested crop across its full width and conveying the cut crop directly into the *forage harvester* (3.1)

4.2
header cutting mechanism
device used on the header to cut off the standing crop from its root system

4.2.1
cutterbar
cutting device which uses one or two reciprocating components (sickle, knife) to cut off the standing crop

4.2.2
rotary impact cutter
rotary cutting device using high-velocity knives driven about a vertical or horizontal axis to cut off the unsupported standing crop by impact alone

4.2.2.1
disc cutter
multiple disc mechanism using two or more blades per disc driven about vertical axes from below at sufficiently high rotational frequencies to achieve impact cutting

4.2.2.2
drum cutter
device using multiple large discs each with a central drum and driven about vertical axes from above or below at sufficiently high rotational frequencies to achieve impact cutting

Note 1 to entry Each disc has at least two knife blades which protrude outwards from beneath the peripheral edge.

4.2.2.3
flail cutter

device using multiple, radially attached blades that are mounted to pivot on a horizontal rotor

Note 1 to entry Each blade has a transverse cutting edge to cut off crop by impact.

Note 2 to entry The rotor is positioned transverse to the direction of travel.

4.2.3
rotary disc(s)
disc(s) on the head row unit used to shear off the crop

Note 1 to entry There are two systems: the one-disc rotary knife system requires a stationary knife against which to shear the crop, and the two-disc rotary knife system requires either a stationary knife or discs that are overlapped and rotated in opposite directions such that the crop is sheared off at the forward intersection of the two disc peripheries.

4.2.4
oscillating scissor knife
device consisting of one pivoting knife with two cutting surfaces per row crop head row unit

Note 1 to entry The knife reciprocates in a semi-circular arc and cuts the crop off against one of two stationary knives.

4.2.5
unidirectional cutterbar
device for cutting off stalks comprising a horizontally arranged chain or belt carrying protrusions which guide and shear the stalks against spaced stationary supports

4.3
feedroll(s)
one or more cylindrical rolls, generally with protrusions or flutes, used to gather, compress and advance the crop into the *cutterhead* (4.4)

4.4
cutterhead
cutting rotor
devices intended to cut the crop into short lengths with reasonable consistency within a range of optional settings

4.4.1
cylinder cutterhead
knives on cylindrical mountings such that the cutting edges of the knives are essentially parallel to the axis of rotation

4.4.2
flywheel cutterhead
knives mounted essentially radially with the cutting edges describing a plane perpendicular to the axis of rotation

4.5
stationary knife
shear bar

fixed plate providing a stationary edge against which the cutterhead knives shear the crop

4.6
recutter screen
semi-cylindrical band or plate with holes mounted concentric to a *cylinder cutterhead* (4.4.1), which starts downstream of the *stationary knife* (4.5) and continues around the discharge opening

Note 1 to entry The chopped crop is recut by the cutterhead knives as it passes through the screen holes.

Note 2 to entry The recutter screen is used primarily to reduce particle lengths that are substantially beyond the theoretical length of cut.

4.7
smasher impact attachments
protrusions attached either to the cutterhead knives or blower paddles, and/or to the cutterhead or blower housing band used primarily to break whole grains or maize [corn] kernels into smaller pieces either by impact or by shearing

4.8
crop processor
driven pair of opposing, counter-rotating rolls or discs placed in the chopped crop stream flow to crush whole grains or kernels into smaller pieces

4.9
inertial chamber
chamber with special bottom mounted in the lower part of the cutterhead housing, into which chopped material (maize) is directed and then inertially reversed to the cutterhead housing for re-chopping

4.10
random-cut flail chopping rotor [cutterhead]
multiple flails with transverse cutting edges at their tips, pivotably attached to a rotor positioned transverse to the direction of travel and parallel to the ground

Note 1 to entry The swath, windrow or standing crop is cut directly by the flail blades into shorter random lengths by impact cutting or cutting against an adjustable element (stationary knife) on the chopping rotor periphery.

4.11
crop delivery device
mechanism used to propel the chopped crop from the forage harvester through a converging duct or chute to the transport container

4.11.1
cylinder impeller blower
device consisting of multiple rows of radial, fixed or free-swinging paddles mounted on a transverse rotor, where the crop is fed essentially tangentially to the rotor

4.11.2
flywheel impeller blower
device generally using one row of paddles mounted essentially radially to the axis of rotation, in which the crop is fed into the blower essentially parallel to the axis of rotation

5 Terms for machine and functional component characteristics

5.1
forage harvester mass
mass, expressed in kilograms with a tolerance of ± 50 kg of the complete machine equipped for field operation, but without the crop head mounted unless it is an integral part of the machine under the conditions defined in ISO 8909-2

5.2
forage harvester length:
overall length in transport position as defined by the manufacturer, expressed in millimetres with a tolerance of ± 50 mm from the foremost point to the rearmost point of the machine, with and without crop head(s) fully raised, measured parallel to the ground and to the longitudinal centreline of the *forage harvester* (3.1)

5.3
forage harvester width
overall side-to-side width expressed in millimetres with a tolerance of ± 10 mm with and without crop header(s) measured parallel to the ground and to its transverse axis

Note 1 to entry Account of tyres near point of contact with the ground, and connections for tyre pressure gauges is not included.