



« TRACTORS AND MACHINERY FOR
AGRICULTURE AND FORESTRY »

ISO/TC 23

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Assistant:
Laurence VIALLE
Direct line: + 33 (0)1 41 62 84 57
laurence.vialle@afnor.org

Your contact:
Véronique DURANTON
Direct line : + 33 (0)1 41 62 84 47
veronique.duranton@afnor.org

Approved ISO/TC 23 Business Plan 2011

C COMMENTARIES/ D DECISIONS

- This revised version takes account of:
 - the comments made at TC meeting (N 705 refers)
 - the comments received on the draft proposal for a BP (N 724 refers);
 - the comments received from SC 13 Chairman related to data;
 - the decision from CAG to refer to sustainability rather than to environmental aspects

F OLLOW UP

- For information

1 INTRODUCTION

1.1 *ISO technical committees and business planning*

The extension of formal business planning to ISO Technical Committees (ISO/TCs) is an important measure which forms part of a major review of business. The aim is to align the ISO work programme with expressed business environment needs and trends and to allow ISO/TCs to prioritize among different projects, to identify the benefits expected from the availability of International Standards, and to ensure adequate resources for projects throughout their development.

1.2 *International standardization and the role of ISO*

The foremost aim of international standardization is to facilitate the exchange of goods and services through the elimination of technical barriers to trade.

Three bodies are responsible for the planning, development and adoption of International Standards: [ISO](#) (International Organization for Standardization) is responsible for all sectors excluding Electrotechnical, which is the responsibility of [IEC](#) (International Electrotechnical Committee), and most of the Telecommunications Technologies, which are largely the responsibility of [ITU](#) (International Telecommunication Union).

ISO is a legal association, the members of which are the National Standards Bodies (NSBs) of some 140 countries (organizations representing social and economic interests at the international level), supported by a Central Secretariat based in Geneva, Switzerland.

The principal deliverable of ISO is the [International Standard](#).

An International Standard embodies the essential principles of global openness and transparency, consensus and technical coherence. These are safeguarded through its development in an ISO Technical Committee (ISO/TC), representative of all interested parties, supported by a public comment phase (the ISO Technical Enquiry). ISO and its [Technical Committees](#) are also able to offer the ISO Technical Specification (ISO/TS), the ISO Public Available Specification (ISO/PAS) and the ISO Technical Report (ISO/TR) as solutions to market needs. These ISO products represent lower levels of consensus and have therefore not the same status as an International Standard.

ISO offers also the International Workshop Agreement (IWA) as a deliverable which aims to bridge the gap between the activities of consortia and the formal process of standardization represented by ISO and its national members. An important distinction is that the IWA is developed by ISO workshops and fora, comprising only participants with direct interest, and so it is not accorded the status of an International Standard.

2 BUSINESS ENVIRONMENT OF THE ISO/TC

2.1 *Description of the Business Environment*

The following political, economic, technical, regulatory, legal and social dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of this ISO/TC, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards:

The ISO/TC 23 field of application includes production machines and equipment required for farming and forestry as well as for gardening. The great variety of equipment concerned reflects the diversity of the agricultural, gardening and forestry operations (from soil preparation to harvesting), of users (farmers, contractors and their employees as well as the public) and as well as of environmental, geographic and soils conditions. The later description of the sector gives an overview of this market.

In this respect, more than 450 different types of machines are manufactured in all the world, whereby each category is subdivided into several models and variants. The main categories of machines include : agricultural and forestry tractors; motorcultivators, motorhoes and motor mowers; ploughs, harrows, tillers and many other machines and implements for soil preparation and soil working; machines and implements for sowing and planting; fertilizer and implements for sowing and implements for soil working; machines and implements for planting; fertilizer and slurry spreaders; combine harvesters, forage harvesters and other self-propelled crop and root harvesting machines; sprayers; machines and implements for irrigation; dairy and cattle-breeding equipment; machines and implements for cleaning, grading, weighing and bagging agricultural products; forestry machines, specialized transport and storage equipment; tedders and winrowers, rotary mowers, balers, lawnmowers and other grass harvesting machines and implements.

Taking into account this great variety of machine types manufactured in all the world, it is to be underlined that TC 23 has been developing since the beginning of its activities a series of standards, regularly up-dated to follow the development of the state of art, which deals with the interface between tractors and implements and is built as an open system ensuring the worldwide interchangeability of equipment while keeping the compatibility with existing systems. Even if tractors and machines are provided by different manufacturers, TC 23 standards ensure that the machine combination is working allowing the farmers to buy their equipment depending of their choice to satisfy their specific needs.

Furthermore, the standards for tractors, machines, systems, implements and their equipment used in agriculture and forestry as well as gardening, landscaping and irrigation are those of a modern industry using sophisticated techniques in mechanics, hydraulics, electrics and electronics, the proof of it being that tractors and implements are now able to dialogue in order to optimize their functioning.

Regarding TC 23 partners, it has to be mentioned that beside industry, other parties are involved in standardization work:

- o health and safety public authorities and regulatory bodies;*
- o representatives of users;*
- o insurance companies;*
- o representatives of intergovernmental and/or international organizations like FAO, IDF, ILO, OECD;*
- o research and testing organizations specialized in the field of agricultural, gardening and forestry equipment and/or that of safety;*

this last category contributing in particular towards the definition and development of verification methods.

2.2 Quantitative Indicators of the Business Environment

The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the ISO/TC:

2.2.1 International trade

There was a strong progression of international exchanges which were doubled between 2004 and 2008, then knew a decrease in 2009 of 30%. This wave concerned also gardening and landscaping equipment.

In North America, Western Europe, and portions of the Pacific Rim, farm incomes are sufficiently high and equipment financing sufficiently available to make the acquisition of agricultural machinery affordable and astute. The situation is the reverse in Africa, Asia, and some countries of Latin America. Farm incomes are still low, and equipment often consists of pedestrian controlled equipment.

In agricultural machinery, this is split under the following product lines (in volume):

- Tractors: 29%;
- Harvesters: 17%;
- Planting, seeding and fertilizing machinery: 6%;
- Haying machinery: 6%;
- Plowing and cultivating machinery: 5%;
- Other agricultural equipment (e.g. sprayers, feed grinders, irrigation equipment, ...): 20%;
- Parts: 17%.

As far as machinery for forestry are concerned, such as forwarders, skidders and harvesters, the annual world-wide market is estimated to be around 10 000 units and its value to be around 1,2 billion dollars. The market varies from year to year. Main manufacturing areas are North Europe and North America from where the machines are sold world-wide. In Europe and Scandinavia these machines were originally derived from agricultural tractors and are nowadays developed to a configuration special to these machines only and are often manufactured by companies specialized on these machines only. In North America these machines are derived from earth-moving machinery and are often manufactured by companies making earth-moving machinery too.

The total landscaping and gardening market worldwide is estimated to be around 28 to 30 billion dollars.

2.2.2 Imports and exports

Imports raised from 39 billion dollars to 74 billion dollars to get to a level of 51 billion dollars in 2009. United-States, the world's leading agricultural machinery importing country, represents between 10% and 12% of the world's imports over the last three years. It is followed by France, Germany, Canada, United-Kingdom, Australia, Belgium, Russia, Netherlands and Italy. Russia decreased its imports to get from the 4th rank in 2007 to the 8th in 2009. Brazil and India recorded strong growth of their imports during the last 5 years from 150 million to 500 million of dollars in 2009.

Exports raised from 43 billion dollars to 82 billion dollars to achieve 57 billion dollars in 2009. The 10 first exports countries represent 75% of all exports. Germany, the world's leading agricultural machinery exporting country, represents between 17% and 18% of the world's exports over the last three years. It is followed by United-States, Italy, China, France, Netherlands, Belgium, United-Kingdom, Japan and Canada. China's exports increased fourfold over the past five years. Also, Brazil exports reached 960 million of dollars (2% of world exports).

In landscaping and gardening area, United States represent 85 % of the market, where Europe is at 10 % and Asia at 5 %.

2.2.3 Companies

In this industry's sector, companies can be divided into two segments: multinational and small/medium size companies.

The top three producers of agricultural machinery account together for one-third of the global market (world-wild turnover of 27,3 billion dollars in 2009). These companies are "full-line" manufacturers: they produce and market tractors, self-propelled agricultural and forestry machinery and very often a whole range of related implements.

The landscaping and gardening companies are mostly polarised: few companies hold the monopoly of the market, i.e. with chain saws or turf lawn mowers.

Small and medium-size companies constitute the main bulk of the thousand companies of the sector. During the last years, they also knew some merging to become larger and multiactivities societies.

3 BENEFITS EXPECTED FROM THE WORK OF THE ISO/TC

3.1 Main priorities

- a) *To ensure the compatibility and interoperability of the equipment;*
- b) *to pay attention to environmental protection, while continuing to improve safety and comfort;*
- c) *to increase the gains in productivity by reducing production costs;*
- d) *to make the information supplied to users reliable as far as the performances or the level of operator protection are concerned;*

those are the benefits expected from the work of ISO/TC 23.

In 2011-2015, sustainability should be emphasized, in particular through eco-design requirements based on life cycle analysis..

3.2 Legal factors

ISO standards are solutions to policy and technical issues, which have been agreed upon by a consensus reached with the involvement of all stakeholders - including the regulators themselves with a view to responding to regulatory and market.

The importance of regulations in the agricultural machinery sector continues to grow. This is logical since these machines present significant hazards due to their functional requirements.

In addition, standardization plays an ever-increasing role, for instance regarding couplings (compatibility between all machines and all implements) and on-board electronics.

Two other sectors are particularly concerned by new standards:

- o *the environment, which is concerned not only by the accurate application of plant protection products but also by engine emissions;*
- o *the safety, in use, in the fields and on the road.*

Furthermore, it is to be mentioned that several regions agree now to refer to ISO standards – identical or modified - specifying dimensional and/or performance characteristics in their own regulations.

4 REPRESENTATION AND PARTICIPATION IN THE ISO/TC

4.1 [Countries/ISO members bodies that are P and O members of the ISO committee](#)

5 OBJECTIVES OF THE ISO/TC AND STRATEGIES FOR THEIR ACHIEVEMENT

5.1 *Defined objectives of the ISO/TC*

Taking account that :

- o *the market for agricultural engineering products will become increasingly globalized, the manufacturing for only indigenous markets will decline but production by national and multinational organizations will grow while local diversified needs of special machines will always appear and it will be satisfied by local small manufacturers;*
- o *agriculture engineering equipment manufacturers will continue to diversify into related fields such as landscaping, gardening and amenity work (e.g. sportsfield, roadside and local authority maintenance work);*
- o *electronic components will increasingly become an integral part of agricultural equipment;*
- o *sustainability aspects will become increasingly important, not only those related to the impact of the products and processes used in agriculture and forestry but also those related to the recycling or recoverability of used agriculture and forestry equipment;*

the specific objectives of ISO/TC 23 are:

- a) spreading of participation to other main members manufacturing agricultural and forestry equipment (as China, India, Brazil, ...);
- b) harmonization of safety standards at international level;
- c) integration of electronics on tractors, machines and implements and of other aspects such as those related to the use of electricity;
- d) harmonization of items related to the connection and interaction between tractors and implements (taking note of possible future technological developments) is a key issue taking account of remaining problems as far as compatibility and safety are concerned;
- e) standardization of items related to the construction and use of agricultural machinery on public roads (e.g. lighting, braking, ...) in order to propose harmonized technical requirements and test methods to regional regulatory bodies such as the European Commission (EC) and the United Nations Economic Commission for Europe (UN/ECE);
- f) consideration of users' needs in relation to equipment performance, safety and sustainability aspects.

5.2 Identified strategies to achieve the ISO/TC's defined objectives

5.2.1 How ISO/TC 23 complies with ISO policy 2011-2015

Key objectives		TC 23 contributions
1	<i>ISO deliverables meet customer needs</i>	<ul style="list-style-type: none"> - Increasing number of standards developed under dual logo (Vienna Agreement - EN ISO – or Memorandum of Understanding – ISO OECD) - Use of ISO standards by regional organizations / authorities (e.g. European Commission, base for Chinese regulations on tractors) - Tendency to replace national standards by ISO deliverables - First projects / standards with data base approach - Sustained support of industry
2	<i>ISO standards promote innovation and provide solutions to address global challenges</i>	<ul style="list-style-type: none"> - Communication standards specifies the interfaces for machine - machine and machine - tractor - management systems data transfer and supports the application of high sophisticated technologies - Standards dealing with safety - operator & environment - have a long tradition and are continuously improved - 'Sustainability' is identified as main topic for the future
3	<i>The capacity and participation of developing countries in international standardization is significantly enhanced</i>	<ul style="list-style-type: none"> - Additional members from developing countries attending TC and SC meetings - Increasing implementation of ISO standards by developing countries - Active support of project by joining WG's / project teams and providing comments to be improved - Discussion within ISO/TC 23 to have better participation through specific actions (e.g. meetings) in those countries
4	<i>ISO excels in reaching and engaging stakeholders</i>	<ul style="list-style-type: none"> - All (major) stakeholders are represented and provide support (manufacturers, test houses, authorities, private & official consultancy agencies, science & research, etc.) - Participation of end customers (farmers) to be improved
5	<i>ISO fosters partnerships that further increase the value and efficient development of international standards</i>	<ul style="list-style-type: none"> - Partnerships with regional (trade associations, authorities) and international organizations (WHO, FAO) are established - Support of individual projects limited to specific areas (e.g. crop protection, safety)

Key objectives		TC 23 contributions
6	ISO and its processes are significantly improved	<ul style="list-style-type: none"> - Scope and responsibilities of TC and SC's clearly specified and work items assigned accordingly - Committees using all IT tools provided by ISO/CS - Agreement to reach target dates is to be seen as high priority issue - First example to use 'chair advisory group' to support objective related and efficient work processes
7	ISO and the value of voluntary International Standards are clearly understood by customers, stakeholders and general public	<ul style="list-style-type: none"> - Promoting of ISO deliverables - in general - is seen as task for ISO/CS - Promoting of individual standards is mainly up to the TC 23 members - Support by additional individual experts, development of EN ISO standards and replacement of national by ISO standards show that actions are successful

5.2.2 ISO/TC 23 internal strategy

- a) TC 23 standards should:
 - be performance based as opposed to design or prescriptive;
 - provide one unique international solution.
- b) For harmonization of safety and environmental protection (work process) standards, it is agreed to use the Vienna Agreement each time the market of the relevant machine is global, using available existing CEN standards as source documents, while firmly maintaining the objective of obtaining harmonized standards with regard to European Directives /Regulations.
- c) Beforehand an analysis of regional regulatory constraints shall be made in order to ascertain the feasibility of preparing globally relevant IS before work is undertaken, and in case of doubt to only deal with common aspects. As far as safety is concerned, the ISO Guide 78:2008 "Safety of machinery -- Rules for drafting and presentation of safety standards" (under revision) shall be used as a reference document. Providing technical requirements, they can be used to support and simplify the process of development and application of technical regulations, for example:
 - As far as safety is concerned, it is referred to ISO 500 series in the future European Frame Directive Tractors;
 - As far as environmental aspects are concerned, the example of CEN/TC 144 should be mentioned with the elaboration of EN 12761 "Sprayers and liquid fertilizer distributors – Environmental protection" and EN 13790 "Sprayers – Inspection in use" series upstream the regulation. Indeed, both Directives 2009/127/EC and 2009/128/EC are based now on them.
- d) To achieve harmonization of agricultural tractor performance test standards, a Memorandum of Understanding has been approved by members of OECD and SC 2 . This document defines the working relationships between both organizations and allows for the creation of dual designated standards.
- e) For dealing with other aspects than above mentioned, "pure" ISO standards should be appropriate and recognized (no need for EN ISO standards).
- f) Anticipating possible forthcoming regulations related to sustainability, to develop series of standards/guides ...

6 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE ISO/TC WORK PROGRAMME

EC Directives on Machinery Safety (2006/42/EC and 2009/127/EC), the one on sustainable use of pesticides (2009/128/EC) as well as on type-approval of agricultural or forestry tractors, their trailers and interchangeable towed machinery (2003/37/EC) may necessitate modifications of the content and target dates for projects in the work program.

The state of art in different regions can generate different safety requirements. Furthermore:

- *differences made between professional and domestic use;*
- *different habits of the final user;*

may generate options in draft standards not compatible with the objectives of publishing globally relevant standards.

For sensitive standards, the lack of participation of some stakeholders may question their validity.

7 STRUCTURE, CURRENT PROJECTS AND PUBLICATIONS OF THE ISO/TC

This section gives an overview of the ISO/TC's structure, scopes of the ISO/TCs and any existing subcommittees and information on existing and planned standardization projects, publication of the ISO/TC and its subcommittees.

7.1 [Structure of the ISO committee](#)

7.2 [Current projects of the ISO technical committee and its subcommittees](#)

7.3 [Publications of the ISO technical committee and its subcommittees](#)

Reference information

[Glossary of terms and abbreviations used in ISO/TC Business Plans](#)

[General information on the principles of ISO's technical work](#)