The Importance of Standards in Sustainable Agricultural Mechanization

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The Reality in the field:

- **Low quality** equipment is on the market

- **Maintenance** of equipment is **insufficient** or non-existent

- Operators of equipment are **unskilled** or with little knowledge about the principles of operation of such equipment
FAO & Standards for agricultural machinery mechanization

- FAO’s work on standards for agricultural machinery in the Plant Production and Protection Division falls under Strategic Objectives 2 & 4

**Activities:**

- **Capacity building** on standards, testing, evaluation of ag. machinery
- Assisting member countries and projects to prepare specifications, evaluate bids and test tools, equipment & machinery
- Preparing publications on standards, testing and evaluation.
Introduction to standards: Purpose & features

• The purpose of standards is to:
  - provide consumers with an assurance of “fitness for purpose”.
  - provide manufacturers with a product specification.
  - Standards serve as a reference point against which features of a product can be compared.

• Common features include:
  - Dimensions
  - Quality of materials
  - Health & safety aspects
  - Functional characteristics & field performance
Importance of standards – FAO’s perspective

STANDARDS

- Operator’s Safety
- Application Efficiency
- Food Security
- Environmental Hazards
- Food Safety
Good standards in the countries exporting machines ensures success of SAM in countries which import agricultural machinery: e.g. pumps, tractors, transplanters, sprayers, harvesters etc.
Standards – Advantages & Disadvantages

• Although government-imposed Standards may be urged to impede progress and raise costs, standards that **protect users** are of great importance.

• Testing should involve the private sector (Manufacturing) - PPP arrangements???

• Particularly relevant is the case of agro-chemical sprayers
Standards are important in promoting Sustainable Agricultural Mechanization (SAM)
What is SAM?

• Sustainable mechanization involves:
  ▪ the application of different forms of power sources
  ▪ used in conjunction with appropriate tools, implements and machinery
  ▪ to be able to do useful work in agricultural production and along the agri-food value chain
What is SAM?

- Thus mechanization must:
  - meet farmers’ needs efficiently and effectively
  - result in improved farm productivity and reduced drudgery,
  - contributing to the development and competitiveness of the food supply chain

- To be sustainable, mechanization must:
  - take economic, social, environmental, cultural, and institutional issues fully into account.
Testing of tools/equipment/machinery

The Problem: Quality of equipment has significant impact on:

– Operator safety
– Application efficiency
– Environmental hazards
– Food security and food safety

What is happening in the field:

– Market forces do not push for good quality
– Many equipment are used roughly/badly
Testing of tools/equipment/machinery

- Pay attention to:
  - operator & environment safety
  - Include durability tests (in case of safety implication)
  - The standards set must be met - even beyond

- The FAO guidelines are based on:
  - Existing international standards
  - European and National standards
  - Published references
  - Subject matter experts knowledge and experience
Some of the FAO’s work on machinery testing

- FAO recognizes the fundamental role of
  - selection
  - testing and evaluation
  - of agricultural machinery

- 1992 Panel of Experts on Agricultural Engineering met in FAO to examine the topic.

- The outcome comprised two publications:
  - AG Services Bulletin 110 on the Principles and Practice
  - AG Services Bulletin 115 on the Theory
Pesticides are considered dangerous and harmful—but very few countries have regulations in place to control how pesticides are actually used in the field.
It starts with machinery selection

- A user-based activity
- Selection success depends on access to **reliable information** (where from?)
- Process should be **demand-led** and **not top-down**
Machinery testing

• Who benefits?
  - Manufacturers (supply-side)
  - Farmers – users of the machines-demand-side?
  - Traders/importers of machinery
  - consumers

• Farmers need reliable information on machine performance in the field.

• Testing should target the following aspects
  - functional
  - field and
  - comparative

Examples of the possible failures during field testing include: overheating, cracks in the tyre rims of tractors after several hours of testing in tough soils

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Machinery Evaluation

- Evaluation for a machine user takes account of:
  - technical performance parameters (from both functional and field tests),
  - information on costs, user friendliness, support services (needs and availability), social acceptability, environmental impact and other, site-specific characteristics.

- FAO does not recommend to buy any machine if no after sale service is available within a country

“Supply the name, Tel./Fax number and email or postal address of your service agents in the country”
Conclusions

- Testing procedures should be **unified and protocols standardized** in order to be useful.

- **Countries should take actions** for the benefit of the national consumers as well as to secure export markets.

- **Private sector and public sectors** have to find a common procedures & move forward together.

- Should private sector play a more active role during testing?

- **Strengthening** of national and regional testing centres essential.

- **Strengthening SAM network** with –exchange of information, capacity building etc.
Thank you for your Attention!

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