

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



SO2 – Make agriculture, forestry and fisheries **more productive & sustainable**



SO4 – Enable **inclusive & efficient** agricultural & food systems



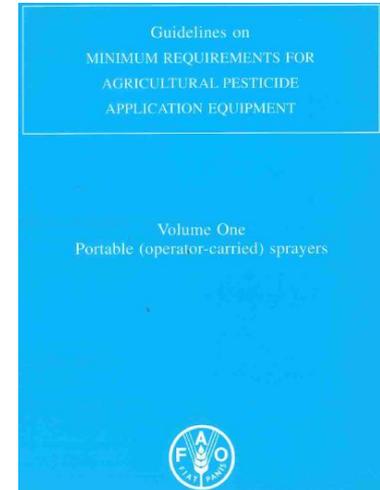
Activities:

- **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

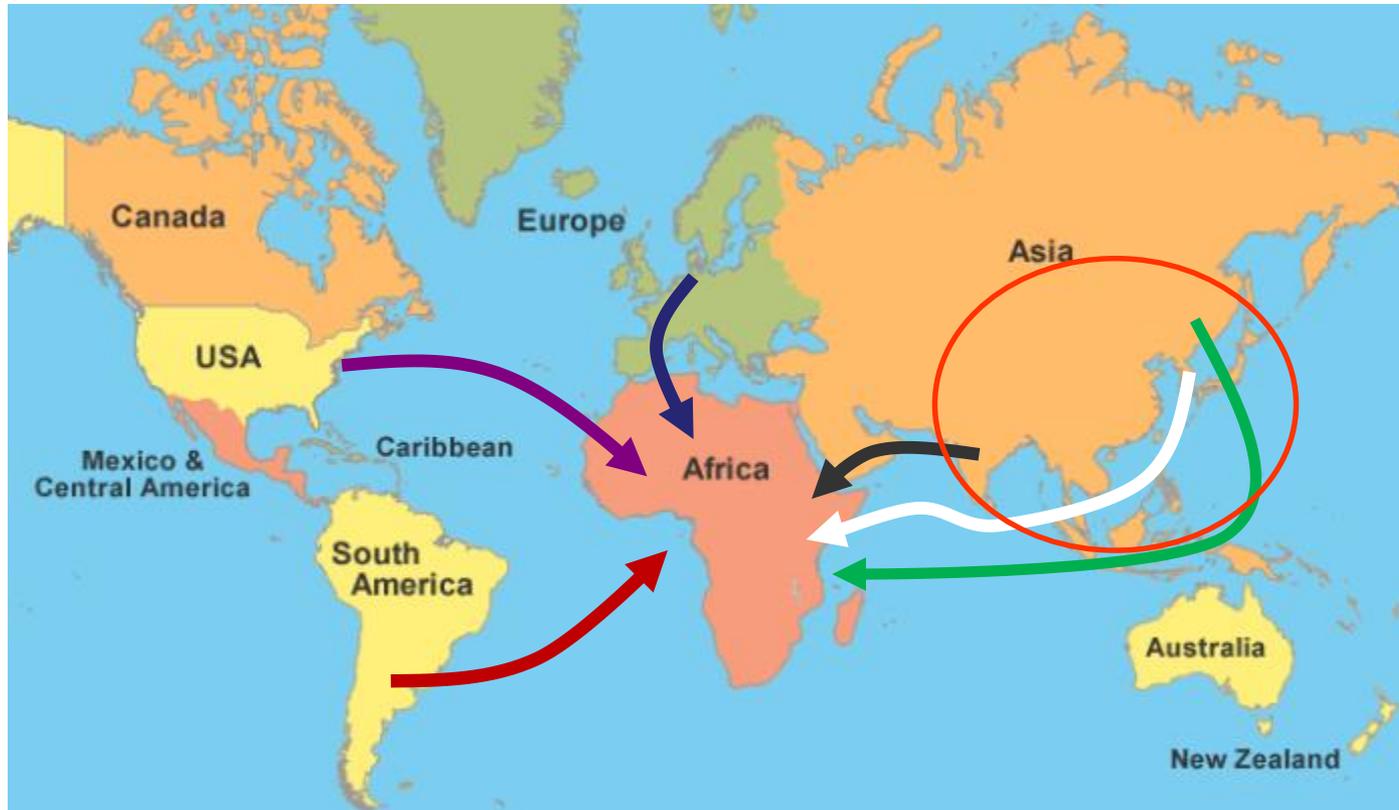
- The purpose of standards is to:
 - provide consumers with an assurance of **“fitness for purpose”**.
 - provide manufacturers with a **product specification**.
 - Standards serve as a **reference point** against which features of a product can be compared.

- Common features include:
 - Dimensions
 - Quality of materials
 - Health & safety aspects
 - Functional characteristics & field performance



Importance of standards – FAO's perspective





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

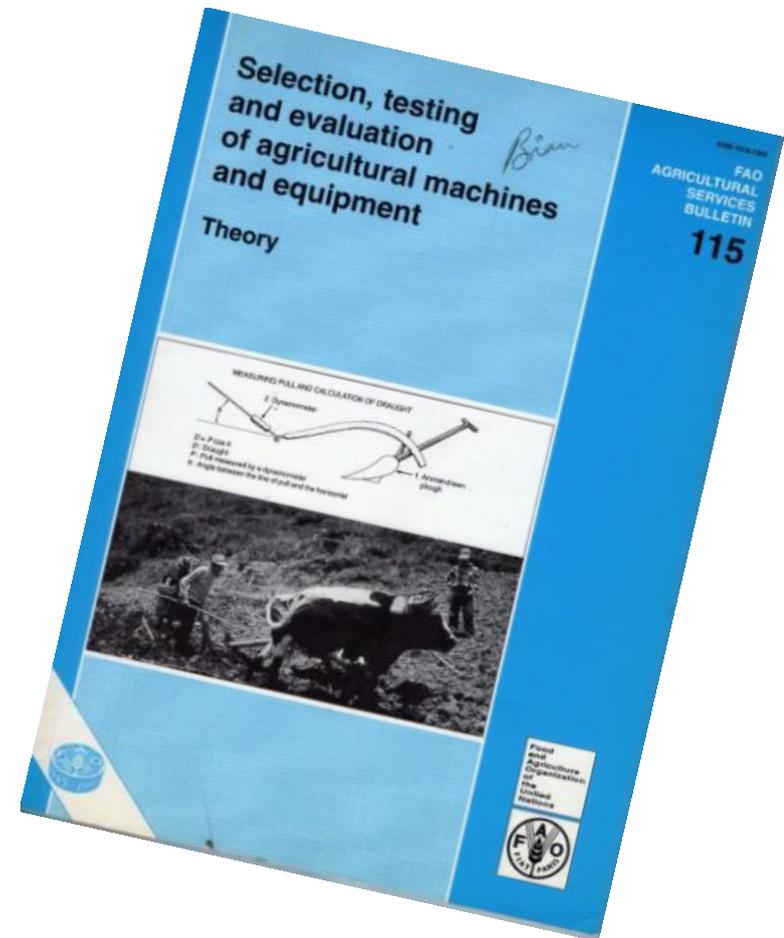
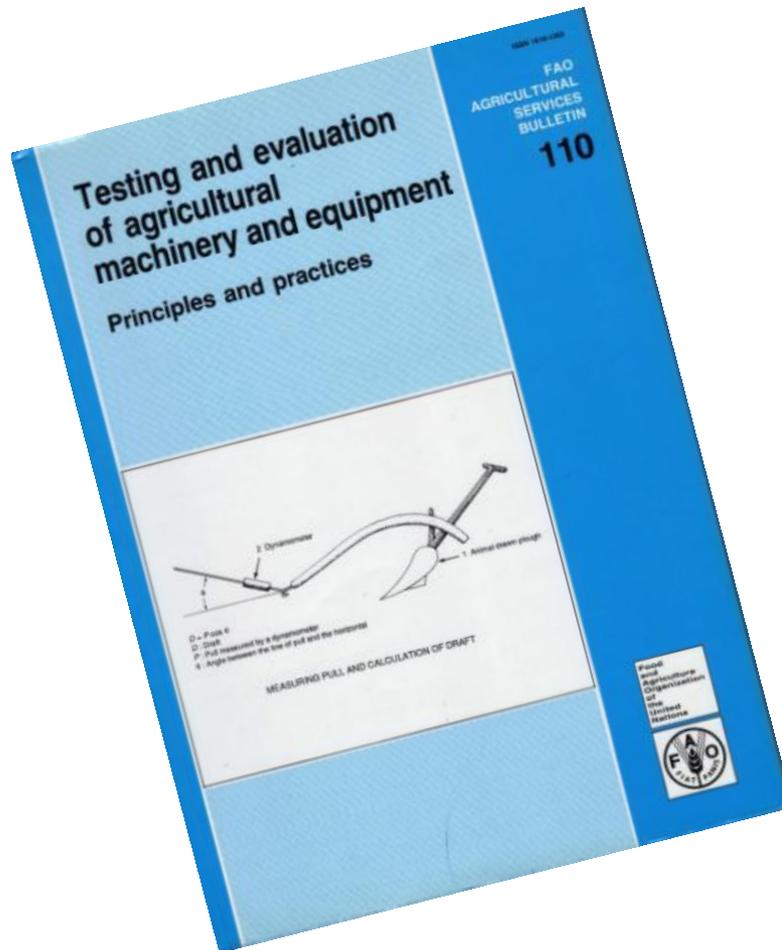
- Pay attention to:
 - operator & environment safety
 - Include durability tests (in case of safety implication)
 - The standards set must be met - even beyond

- 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**



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? } **All Stakeholders**
 - 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



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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