FAO’s experience on standards for agricultural equipment

Joseph Mpagalile and Josef Kienzle
Outline

• Brief introduction to FAO
• Testing, evaluation, standards & FAO involvement
• A case of pesticides application
• Conclusion
What is FAO?

The Food and Agriculture Organisation

Vision: a world free of hunger and malnutrition where food and agriculture contributes to improving the living standards of all, especially the poorest, in an economically, socially and environmentally sustainable manner.

✓ Specialised technical agency of the United Nations
✓ Neutral forum for international negotiation agreement and debate policy
✓ Knowledge and information HUB for agricultural and related activities
FAO’s 5 strategic objectives

SO1 – Help eliminate hunger, food insecurity & malnutrition

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

SO3 – Reduce rural poverty

SO4 – Enable inclusive & efficient agricultural & food systems

SO5 – Increase the resilience of livelihood to disasters
Introduction to testing, evaluation & standards

- **Testing**: Analysis of behavior of a machine compared with well defined standard under ideal & repeatable conditions

- **Evaluations**: Measurement of machines performance under real farm conditions

- **Standards**: used to ensure that machines/equipment/implements etc. are consistently fit for their purposes

Provide growers, manufacturers, government agencies with:

- Appropriate
- Practical
- Consistent
  - Quality assurance system for agric. equipment
Introduction to testing, evaluation & standards

- Pay attention to:
  - operator & environment safety
  - Include durability tests (in case of safety implication)

- The FAO guidelines are based on:
  - Existing international standards
  - European and National standards
  - Published references
  - Subject matter experts knowledge and experience
FAO’s contribution to 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 is demand-led and not top-down
Machinery testing

- By whom and for whom?
- Who benefits?
  - Manufacturers (supply-side)? or
  - consumers (farmers) demand-side?
- Farmers need **reliable information** on machine performance in the field.
- Testing should target the following aspects
  - functional,
  - field and
  - comparative
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.
Machinery Standards

- The purpose of standards
  - 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
Standards – Advantages & Disadvantages

- Although government-imposed Standards may impede progress and raise costs, standards that protect users are of great importance.
- Testing should be left to the private manufacturing sector
- Particularly relevant is the case of agro-chemical sprayers
The Problem – A case of pesticides

- Pesticide use in tropical and subtropical countries is increasing
- Pesticides are considered dangerous and harmful

Reality:
- Safety and quality standards are not necessarily adhered to
- Few countries have regulations in place to control, how pesticides are actually used in the field
The Reality in the field:

- Low quality spray equipment is on the market
- Maintenance of spray equipment is insufficient or non-existent
- Operators of spray equipment are unskilled or with little knowledge about the principles of pesticide application
The Reality in the field:

Spray equipment of low quality on the market

- Unsafe design
- Leaking
- Poor durability
- Lack of quality control
Consequences:

- Health hazards for operators and rural population
- Incorrect, inefficient and patchy applications featuring:
  - Bad practices
  - High number of applications
  - Waste of pesticides, environmental contamination
  - High risk of residues

- Pesticides create hazard for humans and environment
- Increasing cost of production
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 procedure & move forward together

• Should private sector should play a more active role in handling testing?
Thank you
for your Attention!

Joseph.Mpagalile@fao.org & Josef.Kienzle@fao.org