

The ANTAM Network

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Status and Forecast of Global Machinery Trade

Global centre of gravity of manufacturing and marketing of agricultural machinery has shifted to Asia.

According to the World Bank estimate in 2010, the projected sales of agricultural machinery, implements and equipment would reach US\$49 billion in 2015 in Asia as compared to US\$27 billion in North America and US\$20.5 billion in Western Europe. The global agriculture and farm machinery is expected to grow at a CAGR of 9.7 per cent from 2015 to 2022. The Asia Pacific region is likely to be where growth is most prominent, with maximum demand coming in from China and India.

Specifically, plowing and cultivating machinery segments as well as planting and fertilizing machinery are expected to register growth in the coming years.

One of the key reasons for the increased demand for machinery is the increase in food consumption, propelled by a fast-growing population and rural labor shortage .

A booming market requires standard testing to ensure safety, technical reliability of machinery. Harmonization of testing codes and procedures plays an important role to facilitate fair trade through reduction of unnecessary technical barriers to trade.

Agricultural Mechanization Issues in Asia and the Pacific

- **Safety:** The lack of safety components of machinery has resulted in injuries with huge social costs, making agriculture one of the most hazardous occupations with fatal accident rate in agriculture more than double the average for all other industries. For example, in 2013 China reported 1,733 accidents, of which 432 deadly, 631 injures with an estimated direct economic loss of US\$ 2.8 million. The major causes were: operator's errors (993 cases); lack of annual check up (453 cases); machinery inefficiency due to overuse (306). Huge social costs.
- **Cost:** Smallholders play a crucial role in the agricultural output of the Asia Pacific region, which hosts 87 percent of the world 500 millions small farms , with an average operational farm size of 1 ha . Small farms are characterized by very low cash income, and agricultural machinery and maintenance constitute biggest investment of small holders. Use of inappropriate and substandard machinery result in huge financial loss and potential food loss for millions of small holders.
- **Environmental sustainability:** The use of inefficient equipment has substantially contributed to the high level of emissions. Most of machinery used in the Asia-Pacific region are energy-intensive, exhaust emission , fuel efficiency, too much noise, strong vibration , have negative environmental impact, and are hazards to farmers' health.

Agricultural Mechanization Issues in Asia and the Pacific

- The development trend focuses on performance, safety, environmental compatibility, ergonomics and integration of information technology.
- Farmers emphasize on technical efficiency and reliability.
- Trade plays a crucial role in increasing agricultural machinery options available to farmers, improving quality through expanded competition in the market, providing more appropriate mechanized options suited to local soil, climatic conditions and stimulating innovation.
- Standard testing is a crucial component of sustainable agricultural mechanization.

Introduction of ANTAM

The Asian and Pacific Network for Testing of Agricultural Machinery (ANTAM) is a regional network composed of national agricultural machinery testing stations, research and extension institutes. The Centre for Sustainable Agricultural Mechanization (CSAM) of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) based in Beijing, China, is the executing agency of ANTAM.

The network aims to promote trade in and adoption of safe, efficient and environmentally friendly agricultural machinery through harmonization of testing Codes and procedures.

Brief History of ANTAM

ANTAM was proposed at the Roundtable Forum for the Regional Agricultural Machinery Manufacturers/Distributors Associations held by CSAM (then called UNAPCAEM) in Seoul, Korea in 2006. After a series of preparatory studies conducted by CSAM, ANTAM was officially launched on 18 November 2013 in Bangkok, Thailand at a regional policymakers' roundtable.

To date, a total number of 17 member States and associate members of ESCAP have designated focal points for ANTAM – Armenia; Bangladesh; Cambodia; China; France; Hong Kong, China; India; Indonesia; Malaysia; Pakistan; Philippines; Russia; Republic of Korea; Sri Lanka; Thailand; Turkey; and Vietnam. ANTAM focal points primarily include national testing centres and researching institutions of machinery mechanization.

The 1st annual meeting of ANTAM was held on 16-19 September in Beijing, China. Member states decided to set up a Technical Working Group with extensive participation of experts from the region to formulate region-wide testing codes.

The Technical Working Group of ANTAM is composed of international experts nominated by member countries in the field of agricultural engineering and machinery testing, and the 1st TWG meeting was held in May in Indonesia

The TWG has developed Codes for powered knapsack misters-cum-dusters and power tillers.

ANTAM Codes draw upon major international standards and guidelines formulated by FAO, ISO and OECD, and merge relevant national standards and best practices popularly adopted by participating countries to reflect salient regional features.

Each Code is accompanied by a training manual. The manuals have been carefully compiled to guide testing engineers in every phase of the procedures. The manuals include a complete list of equipment, specifications of testing facilities and a step-by-step explanation of testing practices.

Structure and Operational Model

CSAM is the executing agency of ANTAM, and hosts the Secretariat of ANTAM. CSAM assists and coordinates the operation of the network by providing necessary logistical and administrative support.

The Advisory Panel of ANTAM brings together a pool of global experts, and solid partnership with relevant international organizations and regional networks including the Food and Agriculture Organization of the United Nations (FAO), the Organization for Economic Co-operation and Development (OECD), United Nations Industrial Development Organization (UNIDO) and the European Network for Testing of Agricultural Machinery (ENTAM) represented by the Italian Agency for Agricultural Mechanization (ENAMA) which is also the Technical Reference Unit of ANTAM.

The Technical Working Group (TWG) of ANTAM is composed of national technical experts appointed by participating countries. Currently, the ANTAM TWG includes 13 testing engineers from 11 countries.

The Codes are part of a dynamic process that includes regular updates and reviews. The TWG is tasked to develop and revise ANTAM Codes based on the decision taken at the annual meeting of ANTAM. The annual meeting of ANTAM reviews and adopts the Codes based on consensus of participating countries.

Powered Knapsack Misters-Cum-Dusters

ANTAM Codes for testing of powered knapsack misters-cum-dusters were formulated by referring to ISO standards and FAO guidelines. Moreover, relevant national standards of China and India were merged to reflect the unique local conditions. The list of ANTAM Codes for testing of powered knapsack misters-cum-dusters include:

1. Specification Check
2. Engine Test
3. Joints, Tank, Straps, Hose and Controls Test
4. Blower Test
5. Discharge Rate Test
6. Misting / Dusting Range and Width Test
7. Noise Test
8. Endurance Test

Power Tillers

ANTAM Codes for testing of power tillers were formulated by referring to relevant ISO and OECD standards. Moreover, relevant national standards of China, India, Indonesia, Philippines, and Thailand were included to reflect the unique local conditions. The list of ANTAM Codes for testing of power tillers include:

1. Checking of Specifications
2. Engine Performance Test
3. Drawbar Performance Test
4. Turning Ability
5. Parking Brake Test
6. Noise Level Measurement

The Benefits of Adopting ANTAM Codes

Enhance safety and performance agricultural machinery

Facilitate cross border trade

Uplift regional standards and converge with global standards

Stimulate technological innovation

Promote sustainable agriculture for the attainment of SDGs

Progress of ANTAM

ANTAM Codes for Testing of Powered Knapsack Misters-Cum-Dusters and Power Tillers will be submitted to the 2nd annual meeting of ANTAM to be held on 3-5 in New Delhi, India for review and adoption.

A number of countries are conducting voluntary ANTAM tests and submit ANTAM standard test reports in compliance with ANTAM codes, i.e. China, India, Russia, Sri Lanka, Philippines. The test reports will be reviewed by the independent technical review unit to ensure compliance.

ANTAM logo will be approved at the 2nd annual meeting in New Delhi.

Certification of ANTAM testing centres will be carried out in a phased manner with study tours and capacity building activities, both institutional and technical training.

Private sector presentation and farmers' organizations are invited to attend to voice their opinions on standards to ensure a participatory process.

The private sector and the farmers are the biggest beneficiaries of ANTAM.

No Testing, No Sustainable Agricultural Mechanization

www.antam-network.net