**AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)**

UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

# Country Presentation Paper
# (India)

## Regional Roundtable of National Agricultural Machinery Associations in Asia and the Pacific
## - Connection for Cooperation and Development

**28-30 October 2014**

Wuhan, China

**(Dr. Surendra Singh)**

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

**The all India Agricultural Machinery Manufacturers' Association (AMMA-India) was established in the year 2010 on January 17 represents the machinery manufacturers of agriculture and allied sectors. The main objectives of association are:**

- **Augmenting and intensifying agricultural mechanization related activities in different agro-climatic zones.**
- **Promoting scientific development and technological up-gradation of need based agricultural machines and power sources.**
- **Providing technological coordination, management and advisory back-up to the members of AMMA-India.**
- **Providing effective liaison with Government organizations, NGOs and agencies sponsoring national and international fairs/meets and to establish institutional relations for implementation of appropriate policies and initiatives to promote growth of agricultural mechanization.**

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## The Association is Registered

**with**

**Registration No. 378 dated 20 September 2010**

**Under Society Act XXI of 1860)**

**With**

**416 members**

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## AMMA-INDIA

**has 13 State Chapters**

**Andhra Pradesh**
**Bihar**
**Gujarat**
**Haryana**
**Karnataka**
**Kerala**
**Maharashtra**
**Punjab**
**Rajasthan**
**Tamil Nadu**
**Uttar Pradesh**
**Uttarakhand**
**West Bengal**

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## AMMA-INDIA
## National Body of Agricultural Machinery Manufacturers

- **The manufacturers are fully capable of meeting demand of all kind of agricultural machinery.**

- **Association is ready to offer all kind of co-operation to promote the agricultural machinery all over India.**

# Other Associations in the India

- Tractor Manufacturers' Associations (TMA)
- Power Tiller Manufacturers' Associations (PTMA)
- All India Combine Manufacturers' Association (AICMA)
- Pump Manufacturers' Association (PMA)

# Agricultural Scenario in India

| Geographical Area and Agricultural Land | |
|---|---|
| •Total geographical area | 328.7 Mha |
| •Net cropped area under agriculture | 142.0 Mha |
| •Grossed cropped are under agriculture | 198.0 Mha |
| •Net area under irrigation | 60.0 Mha |
| •Land distribution pattern | |
| • Large > 10 ha (17 ha) | 15% |
| •Medium 4-10 ha (6 ha) | 25% |
| •Semi-medium 2-4 ha (2.7 ha) | 24% |
| •Small 1-2 ha(1.4 ha) | 19% |
| •Marginal > 1 ha(0.4 ha) | 17% |

# Indian agriculture

- Employs about 65% of the work force
- Provides livelihood to about 70% of the population
- About 14% of the Gross Domestic Product (GDP) comes from agriculture

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Global Ranking of India in Farm Production & Productivity

| Crop | Production Rank | Productivity Rank |
|---|---|---|
| Paddy | 2nd | 12th |
| Wheat | 2nd | 9th |
| Maize | 6th | 15th |
| Groundnut | 2nd | 12th |
| Rapeseeds | 4th | 28th |
| Pulses | 1st | 44th |
| Potato | 3rd | 26th |
| Sugarcane | 2nd | 9th |
| Fruits | 2nd (10.5% share) | - |
| Vegetables | 2nd (9.7% share) | - |
| Tractor in use | 4th | |

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

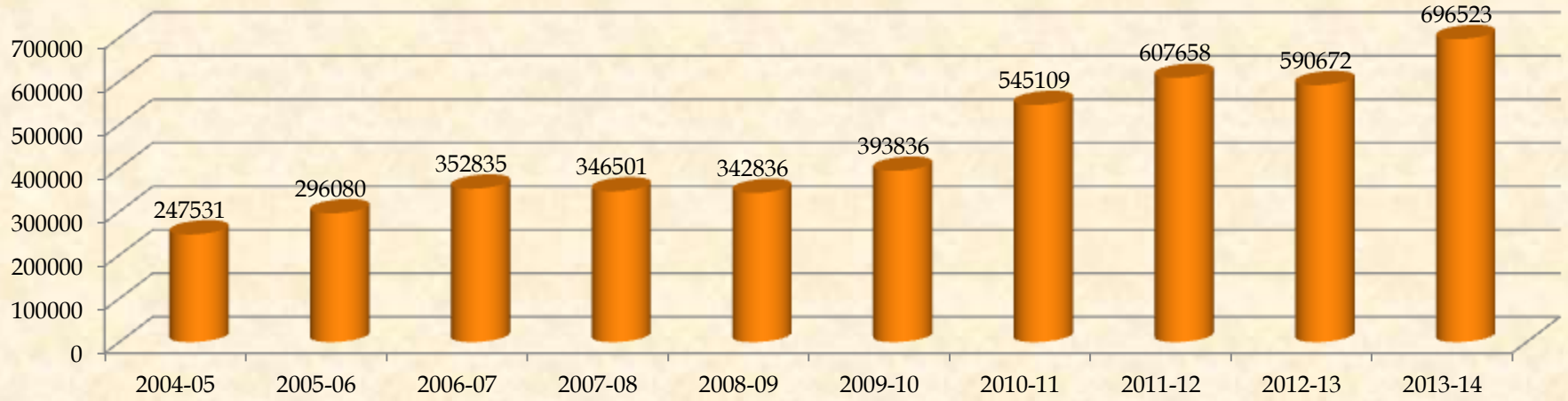
## Power availability on Indian farms (in millions)

| Year | Agricultural workers | Draught animals | Tractors | Power tillers | Motors & Engines |
|---|---|---|---|---|---|
| 1990-91 | 183 | 71 | 1.2 | 0.03 | 13 |
| 2000-01 | 215 | 60 | 2.54 | 0.11 | 20 |
| 2009-10 | 243 | 52.6 | 4.00 | 0.26 | 25.0 |
| 2013-14 | 272 | 52 | 5.237 | 0.441 | 25.5 |

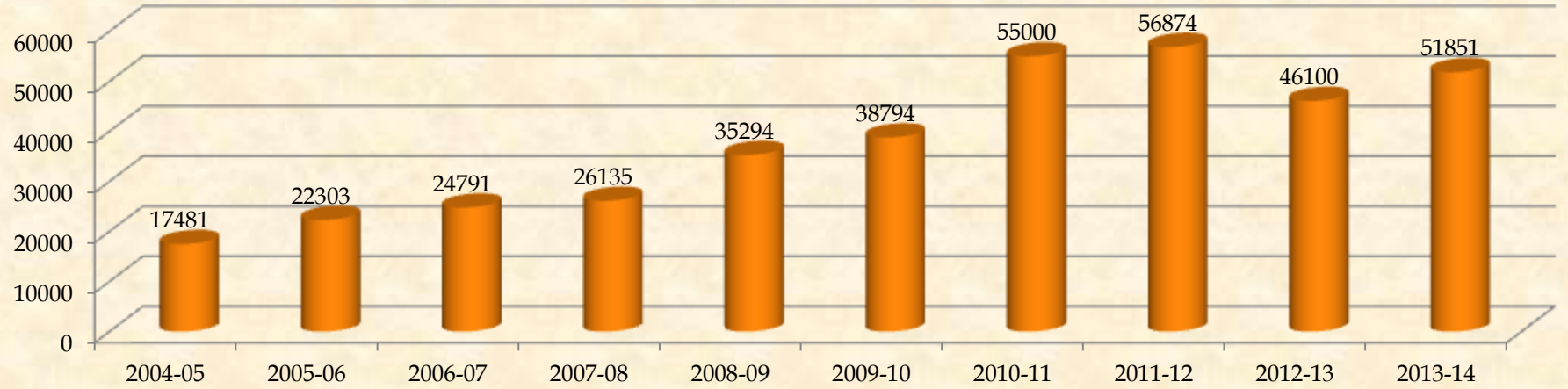
# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

# Sales of Tractors and Power Tillers in India

## Tractor sale




## Powe tiller sale



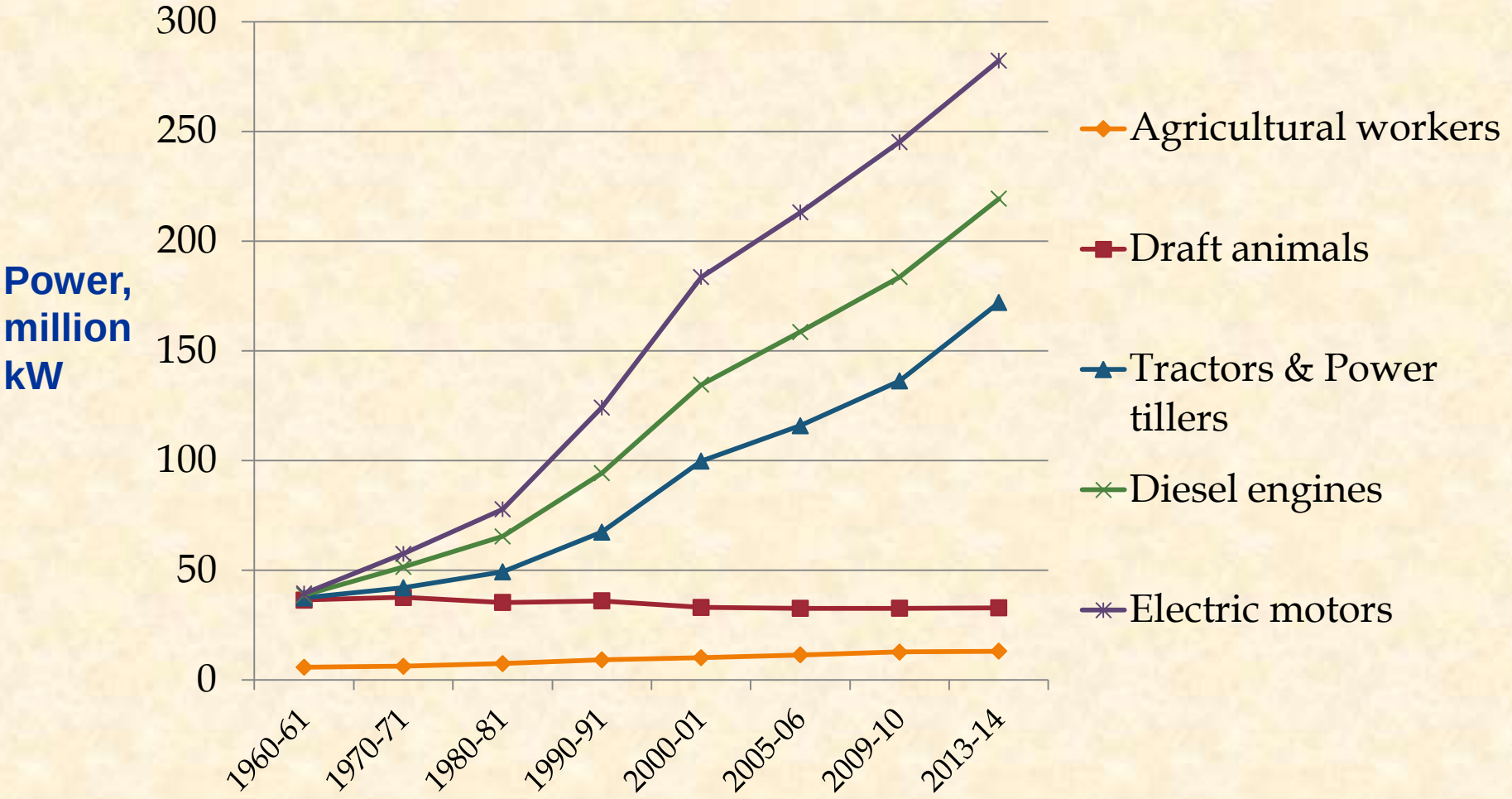
# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Cropping intensity, Power availability on Indian farms

| Year | Cropping intensity (%) | Productivity (t/ha) | Power available (kW/ha) | Power per unit production (kW/t) | Net sown area per tractor (ha) |
|---|---|---|---|---|---|
| 1965-66 | 114 | 0.636 | 0.32 | 0.50 | 2162 |
| 1975-76 | 120 | 0.944 | 0.48 | 0.51 | 487 |
| 1985-86 | 127 | 1.184 | 0.73 | 0.62 | 174 |
| 1995-96 | 131 | 1.50 | 1.05 | 0.70 | 84 |
| 2004-05 | 135 | 1.65 | 1.47 | 0.89 | 47 |
| 2009-10 | 139.2 | 1.85 | 1.73 | 0.96 | 36 |
| 2013-14 | 141 | 2.11 | 2.02 | 0.96 | 27 |

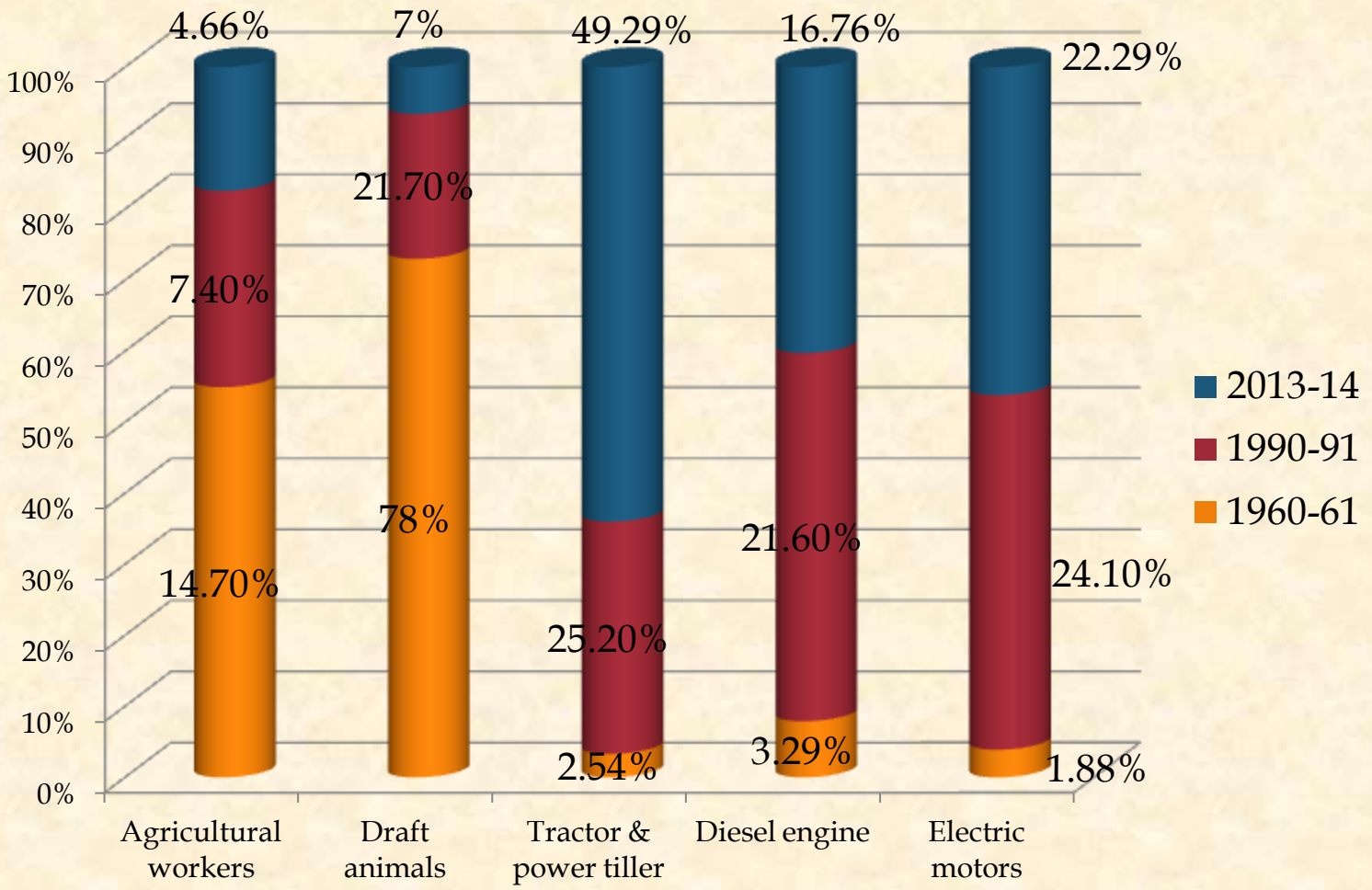
# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Power availability on Indian farms



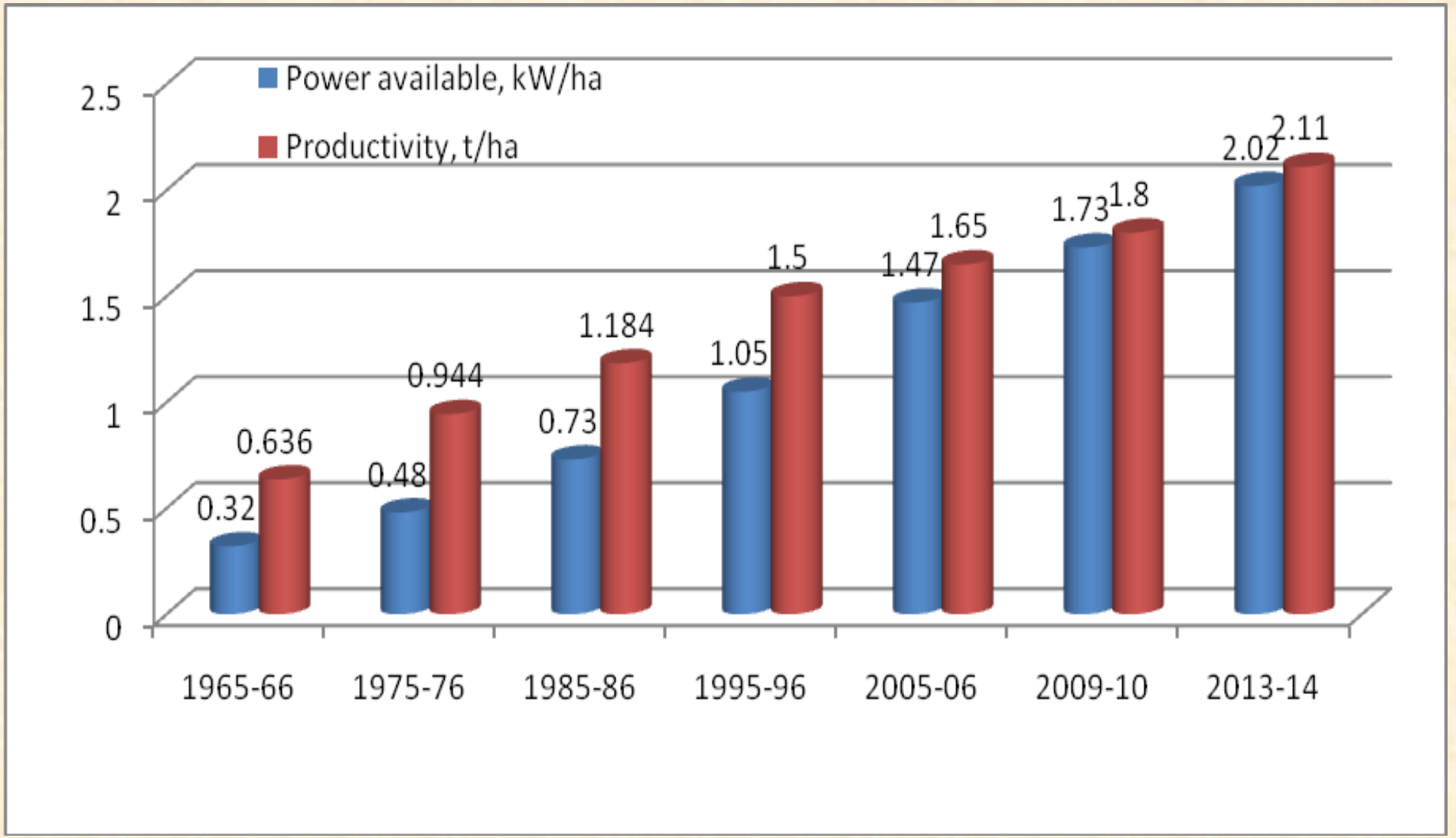
# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Power availability on Indian farms from different sources (%)



# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Power availability and productivity over the years



# Level of Farm Mechanization in India

| Operation | Percentage |
|---|---|
| Soil working and seed bed preparation | 40 |
| Seeding and planting | 29 |
| Plant protection | 34 |
| Irrigation | 37 |
| Harvesting and threshing | 60-70 percent for wheat and rice and <5percent for others |

**Overall about 40-45%**

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Present status of mechanization of crops (2013-14)

| Crops | % Operations mechanized | | | |
|---|---|---|---|---|
| | Seedbed preparation | Sowing/planting/transplanting | Weed & pest control | Harvesting & threshing |
| Paddy | 85-90 | 5-10 | 80-90 | 70-80 |
| Wheat | 90-95 | 80-90 | 70-80 | 80-90 |
| Potato | 90-95 | 80-90 | 80-90 | 70-80 |
| Cotton | 90-95 | 50-60 | 50-60 | 0 |
| Maize | 90-95 | 80-90 | 70-80 | 50-60 |
| Gram (chicpea) | 90-95 | 50-60 | 60-70 | 30-40 |

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Present status of mechanization of crops (2013-14)

| Crop | % Operations mechanized | | | |
|---|---|---|---|---|
| | Seedbed preparation | Sowing/planting/transplanting | Weed & pest control | Harvesting & threshing |
| Sorghum | 80-90 | 30-50 | 60-70 | 20-30 |
| Millets | 80-90 | 30-40 | 60-70 | 20-30 |
| Oilseeds | 80-90 | 30-40 | 60-80 | 20-30 |
| Sunflower | 80-90 | 40-50 | 80-90 | 60-70 |
| Fodder crops | 80-90 | 20-40 | 80-90 | 10-20 |
| Vegetable crops | 70-80 | 5-10 | 80-90 | <1 |
| Horticultural crops | 60-70 | 30-40 | 40-50 | <1 |

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Sub Mission On Agriculture Mechanization

- **Increasing the reach of farm mechanization** to small and marginal farmers and to the regions where availability of farm power is low;
- Offsetting adverse **'economies of scale'** and **'higher cost of ownership'** of high value farm equipment by promoting 'Custom Hiring Centre' for agricultural machinery;
- Passing on the benefit of **hi-tech, high value and hi-productive agricultural machinery** to farmers through creating hubs for such farm equipment.
- Promoting farm mechanization by creating awareness among stakeholders through **demonstration and capacity building activities;**
- **Ensuring quality control of newly developed agricultural machinery** through performance evaluation of newly developed agricultural machinery and equipment and certifying them at designated testing centers located all over the country.

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Sub Mission on Agricultural Mechanization : Key Interventions Proposed

1. **Promotion** and Strengthening of Agricultural Mechanisation through **Training, Testing and Demonstration;**
2. Appropriate **Post Harvest Technology** and Management (PHTM);
3. **Financial Assistance** or Procurement Subsidy for creating ownerships of Agriculture Machinery and Equipments;
4. Establishment of **Farm Machinery Banks** for Custom Hiring

Creation of **Hi-Tech, High Productive Equipment Hub** for Specific crops (Sugarcane, Cotton etc.);

6. Enhancing **Farm Productivity at village level** by introducing appropriate farm mechanisation in selected villages;
7. Creating ownership of appropriate farm equipment among **Small/Marginal farmers;**
8. Assistance to farmers for **promoting mechanized farming**

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Status of Agricultural Machinery Industry

**This is unorganized sector in India mostly with small and medium categories of industries.**

### MANUFACTURING UNITS

- **250 Medium to Large Scale Units**
- **2,500 Small Scale Industries**
- **15,000 Tiny Industries**
- **1,00,000 Village level Artisans**

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Distribution and Supply Chain of Agricultural Machinery in India

- It is mainly though the network of dealership owned and managed by individual agricultural machinery manufacturer or by themselves.
- A group of manufacturers have joined hands together through common dealership and distribution centres and supply machineries.

# Agricultural Machinery Policies, including Trade and Investment Policies

**No Agricultural Mechanization Policy as such in India. However, GOI has Sub-Mission on Agricultural Mechanization in XII Plan with following objectives:**

- **Increasing the reach of farm mechanization to small and marginal farmers and to the regions where availability of farm power is low;**
- **Promoting 'Custom Hiring Centres' to offset the adverse economies of scale arising due to small landholding and high cost of individual ownership;**
- **Creating hubs for hi-tech & high value farm equipment;**
- **Creating awareness among stakeholders through demonstration and capacity building activities; and**
- **Ensuring performance testing and certification at designated testing centers located all over the country.**

# Mission Strategy

- To conduct performance testing for various farm machineries and equipment at the four Farm Machinery Training and Testing Institutes (FMTTIs), designated State Agricultural Universities (SAUs) and ICAR institutions;
- To promote farm mechanization among stakeholders by way of on-field and off-field training and demonstrations;
- To provide financial assistance to farmers for procurement of farm machinery and implements;
- To establish custom hiring centres of location and crop specific farm machinery and implements; and
- To provide financial assistance to small and marginal farmers for hiring machinery and implements in low mechanized regions.

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Mission Components

- **Promotion and Strengthening of Agricultural Mechanization through Training, Testing and Demonstration;**
- **Demonstration, Training and Distribution of Post Harvest Technology and Management (PHTM);**
- **Financial Assistance for Procurement of Agriculture Machinery and Equipment;**
- **Establish Farm Machinery Banks for Custom Hiring;**
- **Establish Hi-Tech, High Productive Equipment Hub for Custom Hiring;**
- **Promotion of Farm Mechanization in Selected Villages;**
- **Financial Assistance for Promotion of Mechanized Operations/hectare Carried out Through Custom Hiring Centres;**
- **Promotion of Farm Machinery and Equipment in North-Eastern Region.**

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## -Challenges-

| Item | 2013-14 | 2020-21 |
|---|---|---|
| Power, kW/ha | 2.02 | 2.50 |
| Agril. Workers, millions | 263 | 280 |
| Draft animals, millions | 52 | 38 |
| Tractor, millions | 5.24 | 7.5 |
| Power tiller, millions | 0.44 | 1.5 |
| Diesel engine, millions | 8.5 | 9.5 |
| Electric motors, millions | 17 | 21 |

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Annual market of major farm machinery used in India

| Item | Numbers | Item | Numbers |
|---|---|---|---|
| Tractors | 450000 - 500000 | Power tillers | 50000 - 60000 |
| MB plow | 45000 - 50000 | Rotavator | 100000 - 120000 |
| Cultivators | 150000 - 200000 | Harrows | 120000 - 150000 |
| Seed-ferti drills | 60000 - 75000 | Planters | 15000 - 25000 |
| Rice transplanters | 2000 - 3000 | Power weeders | 35000 - 40000 |
| Reapers | 10000 - 15000 | Threshers | 60000 - 75000 |
| Combine harvesters | 3500 - 4000 | Trailers | 150000 - 175000 |
| Sprayers (TD) | 10000 - 15000 | Laser land levellers | 2500 - 3500 |
| Potato diggers | 25000-30000 | Rotary hoes/Power weeders | 20000-25000 |

# Constraints in Mechanization

- Small farms and abundance of dryland agriculture
- Low productivity and high cost of production
- Inadequate infrastructure for Agro-processing and marketing of agro produce
- Weak industrial Liaisoning
- Absence of long term Agricultural Mechanization Policy
- Lack of proper mandatory safety standards & legislative Measures
- Inadequate and ill-equipped repair & maintenance shops
- Poor after sales service
- Proliferation of designs/ Sub-standard designs
- High operating cost due to low annual use of machine
- Absence of Farm Machinery Management Data regarding use-patterns, annual-use, breakdown frequency, repair & maintenance cost, reliability etc.

# Future Strategies for Mechanization

- Location specific and crop specific technologies
- Mechanization of rice, cotton, sugarcane, plantation crops, horticulture, agro forestry and aqua-culture
- Green House and surface covered cultivation including application of microprocessors and computers in agriculture
- Multifunctional equipment for conservation of energy and turn around time
- Occupational Health Hazards and Safety including gender issues

## Potentially bigger roles for the associations

**As an association we are ready to take up any role and assignment to assist Governments, NGOs and other organizations engaged in agriculture in R&D, promotion and popularization of farm equipment.**

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## Bigger roles for the Associations in promoting domestic agricultural mechanization and regional cooperation

- Through R&D in mutual area of interest
- Through exchange of information and visits
- Through exchange of data base on tractor and farm machinery manufacturing
- Through training of personal engaged in manufacturing
- Through organization of exhibitions/workshops
- Through testing, instrumentation and quality control for farm equipment
- Through mechanization studies and formulation of need based mechanization packages
- Through manufacturing technology for batch production of farm equipment

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

**There is a need of establishing a regional**

**Asia pacific Agricultural Machinery Manufacturers' Association (APAMMA)**

**with headquarter at one place and sub-mission one in each member country**

# AGRICULTURAL MACHINERY MANUFACTURER'S ASSOCIATION (AMMA-India)

## The formation of Asia pacific Agricultural Machinery Manufacturers' Association (APAMMA)

- Will intensify and coordinate agricultural mechanization related activities in different countries.
- Will help in promoting scientific development and technological up-gradation of need based agricultural machines and power sources.
- Will help in providing technological coordination, management and advisory back-up to the member countries.
- Will help in providing effective liaison with Government organizations, NGOs and agencies sponsoring national and international fairs/meets, and
- Will help in establishing institutional relations for implementation of appropriate policies and initiatives to promote growth of agricultural mechanization In the region

# THANKS