Agricultural Mechanization and Processing in Pakistan

- Overview
- National Perspective
- FMI Contributions
- Agro-based Processing
- Vision
Geographical Area: 79.61 million ha
Population: 153.96 million
Literacy Rate:
  Male: 65%
  Female: 40%
Rainfall (mm): 127 ~ 1250

Major Crops: Wheat, Rice, Cotton, Sugarcane
Agriculture in National Economy

- Gross Domestic Product 22%
- Employment 43%
- Export Earnings of Raw & Processed Products 70%
- Industrial Production 51%
Farm Mechanization

Aims at

- Increasing productivity of land and labor
- Bringing in more area under cultivation
- Conserving energy and resources
- Sustaining agricultural production
- Improving operators’ comfort and safety
- Protecting environment
- Increasing farm profits
Practicing selective mechanization
Mechanized operation for which there was shortage of labor, power or both
Popular forms of mechanization are:
- Bulldozers
- Power rigs
- Tractors with cultivator, wheat thresher & sprayer
- Tube wells
## Agricultural Machinery Used in Pakistan

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Tractor</td>
<td>18,909</td>
<td>35,714</td>
<td>157,310</td>
<td>252,861</td>
<td>401,663</td>
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<td>Cultivator</td>
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<td>31,619</td>
<td>146,863</td>
<td>236,272</td>
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<td>Mould Board Plough</td>
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<td>2,734</td>
<td>7,319</td>
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<td>Disc Plough</td>
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<td>2,938</td>
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<td>Blade</td>
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<td>4,200</td>
<td>69,004</td>
<td>164,489</td>
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<tr>
<td>Chisel Plough</td>
<td>-</td>
<td>-</td>
<td>712</td>
<td>6,535</td>
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<td>Rotavator</td>
<td>-</td>
<td>-</td>
<td>2,101</td>
<td>5,594</td>
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<tr>
<td>Bar/Disc Harrow</td>
<td>2,007</td>
<td>2,373</td>
<td>8,140</td>
<td>12,233</td>
<td>23,764</td>
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<tr>
<td>Ridger</td>
<td>-</td>
<td>120</td>
<td>4,711</td>
<td>10,984</td>
<td>71,338</td>
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<tr>
<td>Grain Drill/Planter</td>
<td>563</td>
<td>1,174</td>
<td>11,251</td>
<td>64,126</td>
<td>70,810</td>
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<tr>
<td>Sprayer</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>20,778</td>
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<tr>
<td>Trailer</td>
<td>-</td>
<td>18,074</td>
<td>98,787</td>
<td>176,412</td>
<td>242,655</td>
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<tr>
<td>Wheat Thresher</td>
<td>-</td>
<td>5,635</td>
<td>78,377</td>
<td>112,707</td>
<td>137,270</td>
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<tr>
<td>Reaper</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7,972</td>
<td></td>
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<tr>
<td>Combine Harvester (Wheat &amp; Paddy)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>859</td>
<td>6,000</td>
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</tbody>
</table>
Farm Machinery Manufacturing

TRACTORS

• Massey Ferguson F-240 & MF-265/375
• Fiat Fiat-480 & Fiat-640
• Belarus MTZ-50 & UMZ-6AKM
• Ford 3600 & 4600
• IMT 540 & 560
Farm Machinery Manufacturing

TRACTORS – DELETION ACHIEVED

Massey Ferguson
- 50-60 hp tractors: 87%
- 70-85 hp tractors: 60%

Fiat (CNH)
- 50-65 hp tractors: 85%

Belarus
- 50 hp tractors: 68% (no more in business)
MECHANIZATION ORGANIZATIONS

R & D Institutions

- Farm Machinery Institute (FMI)
- Agricultural Mechanization Research Institute (AMRI)
- Agricultural Mechanization Research Cell (AMRC)
- Centre For Agricultural Machinery Industry (CAMI)

Universities

- Agricultural University, Faisalabad
- Agricultural University, Tandojam
- Engineering University, Peshawar

Others

- MINFAL, PDAE, ZTBL, APTMA, PAMIMA
FARM MACHINERY INSTITUTE

FARM MECHANIZATION

for

SELF-RELIANCE & QUALITY LIVING
Mission

Contribute to

- food security
- poverty reduction
- environment protection

by fostering sustainable enhancement in productivity of agricultural production resources

through farm machinery

- Development/adaptation
- testing & standardization
  - commercialization
FMI Contributions
(Software)

Testing & Evaluation - Machines Tested

- Prototypes 20
- Commercial/Local 21
- Imported
  - Tractors 20
  - Others 35

Standardization - Standards Developed

- Farm machinery 53
- Plant protection equipment 10
- Earth moving machinery 18
Agro-based Processing

‘Globalization’

- Enhanced capacity building
- Human resource development
- Industrial base diversification

Agro-Processing Industries

- Food industry 13.8%
- Beverages man. 1.6%
- Tobacco man. 7.4%
## Number of Industrial Establishment in Pakistan

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<tbody>
<tr>
<td><strong>Total Agro-based</strong></td>
<td>1883</td>
<td>2043</td>
<td>2552</td>
<td>2515</td>
<td>2661</td>
<td>2763</td>
<td>2913</td>
<td>2798</td>
<td>2861</td>
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<tr>
<td><strong>All Industries</strong></td>
<td>3676</td>
<td>3815</td>
<td>4423</td>
<td>4349</td>
<td>4594</td>
<td>4753</td>
<td>4792</td>
<td>4474</td>
<td>4528</td>
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<tr>
<td><strong>Food Manufacturing</strong></td>
<td>462</td>
<td>494</td>
<td>848</td>
<td>730</td>
<td>831</td>
<td>822</td>
<td>858</td>
<td>931</td>
<td>880</td>
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<tr>
<td><strong>Dairy Products Except Ice Cream</strong></td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>12</td>
<td>12</td>
<td>14</td>
<td>5</td>
<td>10</td>
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<tr>
<td><strong>Processing, Canning and Preservation of Fruit, Vegetable, Fish and Sea Food</strong></td>
<td>24</td>
<td>24</td>
<td>18</td>
<td>21</td>
<td>22</td>
<td>17</td>
<td>21</td>
<td>16</td>
<td>19</td>
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<tr>
<td><strong>Edible Oils</strong></td>
<td>111</td>
<td>124</td>
<td>193</td>
<td>173</td>
<td>179</td>
<td>173</td>
<td>154</td>
<td>129</td>
<td>99</td>
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<tr>
<td><strong>Rice Mills</strong></td>
<td>42</td>
<td>57</td>
<td>194</td>
<td>125</td>
<td>170</td>
<td>184</td>
<td>208</td>
<td>241</td>
<td>228</td>
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<tr>
<td><strong>Wheat and Grain Milling</strong></td>
<td>116</td>
<td>123</td>
<td>199</td>
<td>200</td>
<td>211</td>
<td>214</td>
<td>259</td>
<td>330</td>
<td>300</td>
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<tr>
<td><strong>Refined Sugar</strong></td>
<td>25</td>
<td>31</td>
<td>38</td>
<td>38</td>
<td>39</td>
<td>40</td>
<td>45</td>
<td>58</td>
<td>62</td>
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<tr>
<td><strong>Others</strong></td>
<td>141</td>
<td>132</td>
<td>198</td>
<td>164</td>
<td>198</td>
<td>182</td>
<td>157</td>
<td>152</td>
<td>162</td>
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<tr>
<td><strong>Manufacturing of Textile</strong></td>
<td>924</td>
<td>914</td>
<td>895</td>
<td>980</td>
<td>1013</td>
<td>1045</td>
<td>1135</td>
<td>1068</td>
<td>1063</td>
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</table>
Processing Industries

Issues

- Lack of standardization & certification
- Lack of innovation in product development
- Un-even standards and quality control
- High packaging and input costs
- Phytosanitary, hygiene, health and safety

Policy and Strategy

- Standards & product quality improvement
- New products development
# Fruit and Vegetable Processing

<table>
<thead>
<tr>
<th>Crops</th>
<th>Estimates 2004-05</th>
<th>Targets</th>
<th>Annual Growth (%)</th>
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<tbody>
<tr>
<td>Fruits</td>
<td>6,000</td>
<td>6,570</td>
<td>7,194</td>
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<tr>
<td>Vegetables</td>
<td></td>
<td></td>
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<tr>
<td>Potato</td>
<td>1,888</td>
<td>2,001</td>
<td>2,121</td>
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<tr>
<td>Onion</td>
<td>1,850</td>
<td>1,943</td>
<td>2,040</td>
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<tr>
<td>Other vegetables</td>
<td>3,250</td>
<td>3,559</td>
<td>3,847</td>
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</table>
Fruit and Vegetable Processing

**Issues**
- Low yields
- Poor quality (short shelf lives)
- Non-standard nursery plants
- Non-availability of disease-free seeds
- Poor management & cultural practices
- High post harvest losses (30-40%, Rs 50 b/yr)
- Lack of basic infrastructure (transport, storage, preservation and distribution)
Milk Processing

Issues

- Low yield
- Under-fed cattle
- Low feed quality
- Non-adoption of clean milk production practices
- Lack of chilling facilities
- Adulteration
- Increasing energy costs
- Costly packaging
- Sub standard containers
- < 2% milk production processed
Agribusiness Development

Issues
- Poor infrastructure (energy, transport & storage)
- Sector institutions and policies
- Governance practices
- Access to modern technology, financial & business development services

Agribusiness Development & Diversification Project
- 5 years project
- 4 billion Rs
- ADB assistance (ASF)
Vision

• Mechanization strategy formulation
• National Network of Agricultural Mechanization
• Machinery Testing Lab Accreditation
• Grain Drying & Storage
• Agro-Processing Machinery
• Livestock Mechanization
• Energy efficient & environment friendly technologies
• Mechanization Informatics
Thank you