

## Pakistan

### Agricultural Mechanization in Pakistan

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Dr. Syed Ghazanfar Abbas is an Agricultural Engineer from University of Agriculture, Faisalabad, Pakistan. He has completed his M.Phil and Ph.D from Massey University, Palmerston North, New Zealand. Dr. Abbas has lots of international exposure when he has worked with FAO-HQ, Italy, Rome, and in Iraq. He has also taken up various assignments for UNIDO in Afghanistan and in Sudan. Dr. Abbas is working with Pakistan Agricultural Research Council (PARC) since July, 1985 and currently he is the Director (Farm Mechanization) of Plant Sciences Division of PARC. Before joining PARC he has worked for private tractor manufacturing company in Pakistan from 1980 to 1985. Dr. Abbas is an associate Member of Club of Bologna, Italy that is actually like an Agricultural Machinery Manufacturers Association established in 1987. Dr. Abbas carries lots of technical as well as managerial experiences spread around 33 years.

Pakistan is the 6th most populated country in the world. It is the 9th largest producer of wheat in the world, a sector accounting for 4.4% of value added and 3.0% of GDP in Pakistan. Rice production constitutes 5.9% of value added and 1.3% GDP. In terms of cotton production, Pakistan is the 4th largest producer in the world amounting 7.3% of value added and 1.6% GDP. Cotton is the major export and agro-industrial crop, and major source of employment in value chains. Nearly 80% total cotton production took place in Punjab. Sugarcane is also an important crop in the country, which accounts for 3.4% of value added and 0.7% in GDP. Pakistan falls in the top 15 most livestock populous countries of the world. Pakistan ranks 2nd in buffalo population, 13th in cattle population, 10th in sheep population, 3rd in goat population. In addition, Pakistan has comparative

advantages in the production of many dry fruits and Kinnow production .

By June 2010, the population of Pakistan has reached 180 million, among which 110.5 million are rural. The geographical area of Pakistan is 79.6 million hectares. The contribution to GDP of the services sector, industrial sector, and agriculture respectively are 53.3%, 25.2% and 1.5%. The total size of the agriculture economy is Rs. 3,016.6 billion (Pakistani Rupee), and 45% of total labor force are employed in agriculture. Cultivated area in Pakistan is 21.21 million hectares, in which 70% are canal irrigated. The country has highly diversified climate that is suitable for cultivating a number of crops. The important crops include wheat, rice, cotton, sugarcane, maize, gram, mung, potato, onion, tomato, mango, citrus, dates, apple, etc.

In Pakistan, 85% farm households cultivate nearly 45% of agricultural lands. Please refer to the table below for the farm households and farm area composition in Pakistan:

#### Farm Households & Farm Area Composition (%)

Farm size	Units	Punjab	Sindh	KPK	Baloch	PAK.
<b>Marginal (upto 5 ac.)</b>	% Farms	56.0	45.9	78.5	28.4	57.6
	% Area	16.3	12.6	31.0	3.5	15.5
<b>Small (5 - 12.5 ac.)</b>	% Farms	29.4	36.6	16.1	34.3	28.1
	% Area	31.0	27.7	28.3	14.6	27.9
<b>Medium (12.5-25 ac.)</b>	% Farms	9.5	9.6	3.2	20.0	8.8
	% Area	21.6	16.5	12.9	17.9	19.1
<b>Large (25-50 ac.)</b>	% Farms	3.9	5.4	1.4	10.3	3.9
	% Area	16.5	17.7	11.1	17.4	16.3
<b>Landlords (&gt; 50 ac.)</b>	% Farms	1.2	2.5	0.7	6.9	1.6
	% Area	14.6	25.6	16.7	46.5	21.2

Source: Agriculture Census, 2000

Table below shows the cropping patterns by farm size groups in Pakistan:

#### Cropping Patterns by Farm Size Groups (% Crop Area)

Crop types	Marginal (upto 5 ac)	Small (5-12.5 ac)	Medium (12.5-25 ac)	Large (25-50 ac.)	Landlord (> 50 ac.)	All Pakistan
<b>Wheat</b>	43.3	41.2	40.5	39.0	35.6	40.4
<b>Rice</b>	11.0	14.1	12.3	12.3	11.1	12.5
<b>Cotton</b>	12.3	13.4	15.1	14.1	14.0	13.7
<b>Maize</b>	8.7	3.5	1.9	1.6	1.7	3.7
<b>Sugarcane</b>	3.0	3.9	3.7	3.7	4.9	3.8
<b>Potato</b>	0.3	0.3	0.4	0.4	0.9	0.4
<b>Oil Seeds</b>	0.9	1.8	2.3	2.4	2.7	1.9
<b>Pulses</b>	1.7	3.3	6.1	9.4	11.3	5.4
<b>Fodder</b>	12.0	11.8	10.6	9.2	6.9	10.6
<b>Vegetables</b>	1.7	1.7	1.9	2.1	3.4	2.0
<b>Orchard</b>	1.1	1.1	1.5	1.6	4.0	1.6

Source: Agriculture Census, 2000

Pakistan is facing various issues and challenges in terms of agricultural mechanization development. Agricultural mechanization policy and strategy has just been in place. The National Network of Agricultural Mechanization needs revival. Machinery testing lab. and accreditation of machinery need further improvement. In terms of livestock mechanization, only poultry sector has adopted few innovative technologies, and lots of work needed to be done in Livestock sector. Currently, mechanized sugarcane planting and harvesting is very expensive considering the cash-return that sugarcane farmers get. The European second hand wheat combine harvesters are being used for rice harvesting in Pakistan, which causes a lot of grain damage of rice. Fruit and vegetable planting and picking need to be mechanized. And up-scaling seed processing machinery is needed as well. Introduction of Solar power for Agricultural purposes need to be encouraged in Pakistan. Irrigation needs to be strengthened in Pakistan. Loss of land due to water and wind erosion has to be curtailed. Pakistan has undulated topography, and laser land leveling can play important role in terms of increasing water efficiency and reclaiming land for agricultural purposes. In addition, for encouraging youth in agriculture sector, value addition mechanization systems should be introduced.