

Agricultural Mechanization Pakistan

**By: Dr. S G Abbas,
Director (Farm Mechanization, PARC) and
Dr. Tanveer Ahmed,
Director Agricultural and Biological Engineering Institute (ABEI), NARC**

Pakistan's Position in the World Agriculture

- **Population** --- Pakistan is 6th most populated country in the world
- **Wheat** --- 9th largest producer in the world, 14.4% value added and 3.0% of GDP
- **Rice** --- 5.9% value added and 1.3% GDP, edge for Basmati rice
- **Cotton** --- 4th largest producer in the world, 7.3% value added and 1.6% GDP, major export and agro-industrial crop, major source of employment in value chains, Nearly 80% total cotton production took place in Punjab
- **Sugarcane** --- 3.4% of value added and 0.7% in GDP
- **Livestock** --- 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 goats population
- **Fruits** --- Pakistan has comparative advantage in the production of many dry fruits and Kinnow production in citrus family

Agriculture Economy of Pakistan

- **Population: (June 2010) – about 180 Million**
- **Rural population: – 110.5 Million (about 63.7%)**
- **Geographical area: – 79.6 million ha.**
- **Contribution of Services Sector to GDP: – (53.3%)**
- **Contribution of Industrial Sector to GDP: – (25.2%)**
- **Contribution of Agric. to GDP: – 21.5%**
 - **Major crops – (7.0%); Minor crops – (2.4%)**
 - **Livestock – (11.4%); Fishery – (0.4%); Forestry – (0.3%)**
- **Total Size of the Agriculture Economy: Rs.3016.6 Billion**
- **Employment by Agriculture: – 45% of total labor force**
- **Cultivated area: – 21.21 million ha (70% canal irrigated)**
- **Highly diversified climate:- suit to cultivate a number of crops**
- **Important crops: wheat, rice, cotton, sugarcane, maize, gram, mung, potato, onion, tomato, mango, citrus, dates, apple, etc.**

Farm Households & Farm Area Composition (%)

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

- 85% farm households cultivate nearly 45% of agricultural lands

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
Wheat	43.3	41.2	40.5	39.0	35.6	40.4
Rice	11.0	14.1	12.3	12.3	11.1	12.5
Cotton	12.3	13.4	15.1	14.1	14.0	13.7
Maize	8.7	3.5	1.9	1.6	1.7	3.7
Sugarcane	3.0	3.9	3.7	3.7	4.9	3.8
Potato	0.3	0.3	0.4	0.4	0.9	0.4
Oil Seeds	0.9	1.8	2.3	2.4	2.7	1.9
Pulses	1.7	3.3	6.1	9.4	11.3	5.4
Fodder	12.0	11.8	10.6	9.2	6.9	10.6
Vegetables	1.7	1.7	1.9	2.1	3.4	2.0
Orchard	1.1	1.1	1.5	1.6	4.0	1.6

Source: Agriculture Census, 2000

Agricultural Mechanization Issues and Challenges

1. Mechanization Policy and Strategy formulation (non-existent until now) – **Taking FAO Rep. speech a positive step in the opening session today morning, I urge help Pakistan for developing mechanization policy and strategy for which I offer my services on voluntary basis,**
2. National Network of Agricultural Mechanization (needs revival)
3. Machinery Testing Lab. Accreditation (Needs improvement). **I think UNIDO can help in various countries to develop such facilities**
4. Livestock Mechanization (Only poultry sector has adopted few innovative technologies. Lots of work in Livestock sector is needed)
5. Mechanized Sugarcane planting and harvesting. **Currently it is very expensive considering the cash-return that sugarcane farmers get.**

Agricultural Mechanization Issues and Challenges

6. Harvesting of Basmati Rice. The European 2nd hand wheat CH are being used for Rice harvesting. This causes a lot of grain damage of rice
7. Mechanized fruit and vegetable planting and picking is needed
8. Up scaling of seed processing machinery is needed
9. **Introduction of Solar power for Agricultural purposes need to be encouraged**
10. Shortage of irrigation water (**Good seed can not be provided until irrigation water is supplied to the seed producing fields**)
11. Loss of land due to Water and Wind erosion has to be curtailed
12. Undulated topography (laser land leveling can play double benefits. (a) Increased water efficiency (2) Reclaim land for agricultural purposes
13. **For encouraging youth in agriculture sector, value addition mechanization systems should be introduced** 7

Technologies Commercialized

1985: Reaper-windrower: 35,000 units



1995: Zero-till Drill: 7,000 units



2002: Wheat Straw Chopper: 5,000 units



2002: Paddy Thresher: 6,000 units



Technologies Commercialized

Fertilizer Band Placement Drill 2009 onward: 8,000 (Punjab Govt.)



Technologies Commercialized

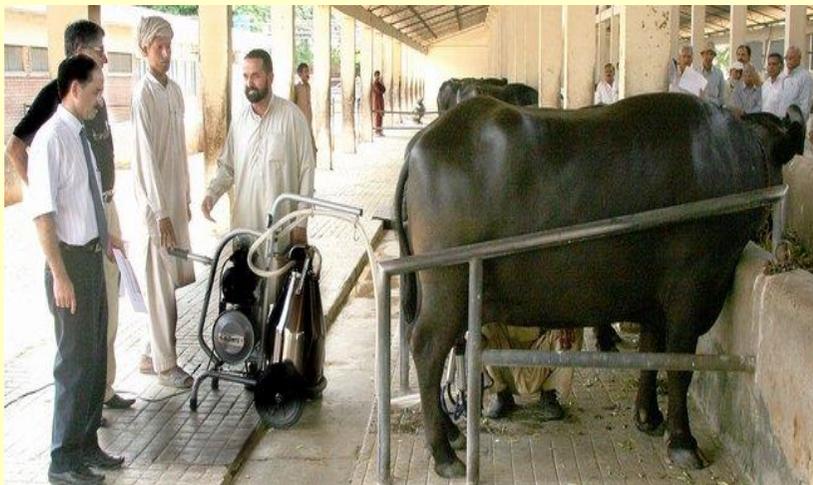
Mobile Flat-bed Dryer (0.7m)



Olive Oil Extraction Unit (0.6m)



Milking Machine for Buffaloes (0.15m)



Mango Picking Machine (0.7m)



Technologies in Progress

Solar-cum-Gas Fired Dates Dryer



Solar House Dates Dryer



Mobile Seed Processing Unit



Seeder For Combined Harvested Paddy Fields



CSAM

Thank you