



# ANNEXURES



## ANNEXURE I: QUESTIONNAIRE FOR RAPID FERTILIZER USE ASSESSMENT

Farmer Name ----- Village Name -----  
 Tehsil Name ----- District ----- Farm Size (acre) -----  
 Contact Number ----- Major crop(s) -----

### Fertilizer Use (bags/acre)

Crop	Nitrogen		Phosphate				Potash		Micronutrients		Other
	Urea	CAN	DAP	MAP	SSP	NP	MoP	SoP	Zinc Sulfate	Boron	*Organic sources
Wheat											
Rice											
Cotton											
Sugarcane											
Maize											
Other											

\*Farm Yard Manure/Green Manure/Crop Residue Incorporation (if any)

### Irrigation Sources

Irrigated					
Canal <input type="checkbox"/>	Tube-well <input type="checkbox"/>	Rain-fed <input type="checkbox"/>			

### Laboratory Analysis (prior to sowing)

Soil Test <input type="checkbox"/>	Water Test <input type="checkbox"/>
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### Yield (Maunds/acre)

Wheat	Rice	Cotton	Sugarcane	Maize	Other

### Satisfied with Commodities Price

YES <input type="checkbox"/>	NO <input type="checkbox"/>
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### Major Problems

Water-logging <input type="checkbox"/>	Salinity <input type="checkbox"/>	Sodicity <input type="checkbox"/>	Others <input type="checkbox"/>
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## ANNEXURE II: NUMBER OF SOIL SAMPLES FROM DIFFERENT DISTRICTS ANALYZED BY FAUJI FERTILIZER COMPANY LIMITED

Farm Advisory Center	Districts	Number of Samples	Farm Advisory Center	Districts	Number of Samples
BAHAWALNAGAR	BADIN	34	SHAHKOT	GHOTKI	10
	DADU	21		KHAIRPUR	11
	GHOTKI	714		SHAHEED BENAZIRABAD	11
	HYDERABAD	465		NAUSHAHRO FEROZE	1
	JACOBABAD	243		SHIKARPUR	1
	KASHMORE	27	SUKKUR	BADIN	28
	KHAIRPUR	1,420		DADU	12
	MIRPUR KHAS	162		GHOTKI	310
	SHAHEED BENAZIRABAD	300		HYDERABAD	120
	NAUSHAHRO FEROZE	365		JACOBABAD	45
	SANGHAR	270		JAMSHORO	4
	SHIKARPUR	486		KHAIRPUR	1,540
	SUKKUR	1,054		LARKANA	19
	THATTA	50		MATIARI	25
HALA	BADIN	1,136		MIRPUR KHAS	278
	DADU	116	SHAHEED BENAZIRABAD	670	
	GHOTKI	250	NAUSHAHRO FEROZE	103	
	HYDERABAD	710	SANGHAR	650	
	JACOBABAD	33	SHIKARPUR	217	
	JAMSHORO	228	SUKKUR	590	
	KASHMORE	23	TANDO ALLAH YAR	128	
	KHAIRPUR	2,257	TANDO MUHAMMAD KHAN	83	
	MATIARI	4,551	THATTA	125	
	MIRPUR KHAS	2,740	UMER KOT	137	
	SHAHEED BENAZIRABAD	1,158			
	NAUSHAHRO FEROZE	419			
	KAMBAR SHAHDAKOT	130			
	SANGHAR	3,029			
	SHIKARPUR	210			
	SUKKUR	189			
	TANDO ALLAH YAR	2,143			
	TANDO MUHAMMAD KHAN	303			
	THARPARKAR	41			
	THATTA	479			
	UMER KOT	614			



## ANNEXURE III: DISTRICT-WISE RESULTS OF THE SOIL SAMPLES ANALYZED BY FAUJI FERTILIZER COMPANY LIMITED

District	Soil Parameter	Range (Minimum-Maximum)	Average Value	Fertility Status/Class	Standard Error of Mean (SEM)	Number of Samples
BADIN	pH	7.4-10.5	8.2	Neutral	0.01	1,198
	Electrical Conductivity (dSm <sup>-1</sup> )	0.1-47.2	3.6	Highly saline	0.14	1,198
	Organic Matter (%)	0.1-2.13	0.84	Low	0.01	983
	Available Phosphorus (ppm)	1-32	3.4	Low	0.11	997
	Extractable Potassium (ppm)	38-400	211	Adequate	2.69	1,081
DADU	pH	7.6-9.1	8.2	Neutral	0.03	149
	Electrical Conductivity (dSm <sup>-1</sup> )	0.2-10.8	1.6	Highly saline	0.19	149
	Organic Matter (%)	0.2-1.6	0.81	Low	0.03	148
	Available Phosphorus (ppm)	1-15	2.6	Low	0.13	149
	Extractable Potassium (ppm)	40-400	176	Adequate	6.71	141
GHOTKI	pH	7.6-10.9	8.3	Neutral	0.01	1,284
	Electrical Conductivity (dSm <sup>-1</sup> )	0.1-14.8	0.9	Slightly saline	0.04	1,284
	Organic Matter (%)	0.1-1.78	0.64	Low	0.01	1,279
	Available Phosphorus (ppm)	1-22	3.4	Low	0.07	1,284
	Extractable Potassium (ppm)	26-400	187	Adequate	2.61	1,179
HYDERABAD	pH	7.4-9.9	8.2	Neutral	0.01	1,295
	Electrical Conductivity (dSm <sup>-1</sup> )	0.08-29	1.5	Highly saline	0.08	1,295
	Organic Matter (%)	0.11-2.5	0.8	Low	0.01	1,293
	Available Phosphorus (ppm)	1-30	4.3	Low	0.12	1294
	Extractable Potassium (ppm)	30-400	181	Adequate	2.23	1,197
JACOBABAD	pH	0-10.2	8.2	Neutral	0.03	321
	Electrical Conductivity (dSm <sup>-1</sup> )	0-25.6	2.6	Highly saline	0.20	321
	Organic Matter (%)	0.1-2.1	0.66	Low	0.02	320
	Available Phosphorus (ppm)	1-25	3.2	Low	0.13	320
	Extractable Potassium (ppm)	34-400	189	Adequate	4.90	300
JAMSHORO	pH	7.5-8.9	8.1	Neutral	0.02	232
	Electrical Conductivity (dSm <sup>-1</sup> )	0.1-10.7	0.8	Slightly saline	0.09	232
	Organic Matter (%)	0.1-1.85	0.47	Low	0.02	229
	Available Phosphorus (ppm)	1-35	3.5	Low	0.31	231
	Extractable Potassium (ppm)	30-400	129	Marginal	4.09	231
KAMBER SHAHDAD KOT	pH	7.5-8.8	8.2	Neutral	0.03	130
	Electrical Conductivity (dSm <sup>-1</sup> )	0.18-13	3.0	Highly saline	0.23	130
	Organic Matter (%)	0.23-1.65	1.02	Marginal	0.03	130
	Available Phosphorus (ppm)	1-16	3.1	Low	0.22	130
	Extractable Potassium (ppm)	60-400	205	Adequate	8.02	108

**Reference Methods:**

Olsen SR, Cole CV, Watanabe SN, Dean LA (1954). Estimation of available phosphorus in soils by extraction with sodium bicarbonate. US Department of Agriculture Circular 939. Government Printing Office, Washington DC, USA. 19 pp.  
 Berg MG, Gardner EH (1978). Methods of soil analysis used in the soil testing laboratory at Oregon State University. Special Report 321 (Revised Sep 1978), Agricultural Experimental Station, Oregon State University, Corvallis, USA, 44 pp.  
 Walkley A (1947). Examination of a rapid method for determining organic carbon in soils: Effect of variations in digestions conditions and of organic soil constituents. Soil Science, 63, 251-263.



## ANNEXURE III: DISTRICT-WISE RESULTS OF THE SOIL SAMPLES ANALYZED BY FAUJI FERTILIZER COMPANY LIMITED

District	Soil Parameter	Range (Minimum-Maximum)	Average Value	Fertility Status/Class	Standard Error of Mean (SEM)	Number of Samples
KASHMORE	pH	7.8-10.6	8.4	Alkaline	0.10	50
	Electrical Conductivity (dSm <sup>-1</sup> )	0.32-13.97	2.0	Highly saline	0.32	50
	Organic Matter (%)	0.22-1.67	0.89	Marginal	0.04	50
	Available Phosphorus (ppm)	1-13	2.4	Low	0.29	50
	Extractable Potassium (ppm)	134-400	261	Adequate	12.66	34
KHAIRPUR	pH	7-10.4	8.2	Neutral	0.00	5,228
	Electrical Conductivity (dSm <sup>-1</sup> )	0.1-39.2	1.3	Saline	0.03	5,228
	Organic Matter (%)	0.1-2.1	0.73	Low	0.00	5,210
	Available Phosphorus (ppm)	1-49	4.3	Low	0.05	5,225
	Extractable Potassium (ppm)	26-400	176	Adequate	1.21	4'856
LARKANA	pH	7.5-8.2	8.0	Neutral	0.04	19
	Electrical Conductivity (dSm <sup>-1</sup> )	0.17-0.9	0.4	Normal	0.05	19
	Organic Matter (%)	0.36-1.32	0.88	Marginal	0.07	19
	Available Phosphorus (ppm)	2-8	4.7	Low	0.44	19
	Extractable Potassium (ppm)	78-266	156	Adequate	11.74	19
MATIARI	pH	7.3-10.7	8.2	Neutral	0.00	4,576
	Electrical Conductivity (dSm <sup>-1</sup> )	0.1-27.3	1.3	Saline	0.04	4,576
	Organic Matter (%)	0.1-2.21	0.91	Marginal	0.01	4,555
	Available Phosphorus (ppm)	1-48	3.8	Low	0.06	4,575
	Extractable Potassium (ppm)	26-400	184	Adequate	1.28	4,254
MIRPURKHAS	pH	7.15-9.7	8.2	Neutral	0.01	3,180
	Electrical Conductivity (dSm <sup>-1</sup> )	0.08-36.8	2.1	Highly saline	0.05	3,179
	Organic Matter (%)	0.1-2.11	0.81	Low	0.01	3,166
	Available Phosphorus (ppm)	1-52	4.9	Low	0.09	3,176
	Extractable Potassium (ppm)	26-400	203	Adequate	1.43	2,928
SHAHEED BENAZIRABAD	pH	7.2-10.2	8.1	Neutral	0.01	2,139
	Electrical Conductivity (dSm <sup>-1</sup> )	0.1-46	1.5	Saline	0.06	2,139
	Organic Matter (%)	0.1-1.99	0.83	Low	0.01	2,135
	Available Phosphorus (ppm)	1-28	4.0	Low	0.07	2,139
	Extractable Potassium (ppm)	30-400	179	Adequate	1.94	1,961
NOUSHAHRO FEROZE	pH	7.5-10.4	8.3	Neutral	0.01	888
	Electrical Conductivity (dSm <sup>-1</sup> )	0.12-54.3	3.0	Highly saline	0.16	888
	Organic Matter (%)	0.1-2.09	0.80	Low	0.01	887
	Available Phosphorus (ppm)	1-36	3.9	Low	0.11	888
	Extractable Potassium (ppm)	32-400	206	Adequate	3.28	756
SANGHAR	pH	7.1-10.5	8.2	Neutral	0.01	3,949
	Electrical Conductivity (dSm <sup>-1</sup> )	0.11-49	2.0	Highly saline	0.05	3,949
	Organic Matter (%)	0.1-2.19	0.79	Low	0.01	3,893
	Available Phosphorus (ppm)	1-39	3.8	Low	0.06	3,948
	Extractable Potassium (ppm)	26-400	190	Adequate	1.48	3,667



## ANNEXURE III: DISTRICT-WISE RESULTS OF THE SOIL SAMPLES ANALYZED BY FAUJI FERTILIZER COMPANY LIMITED

District	Soil Parameter	Range (Minimum-Maximum)	Average Value	Fertility Status/Class	Standard Error of Mean (SEM)	Number of Samples
SHIKARPUR	pH	7.5-10.5	8.4	Alkaline	0.02	914
	Electrical Conductivity (dSm <sup>-1</sup> )	0.1-37.2	2.2	Highly saline	0.10	914
	Organic Matter (%)	0.1-1.95	0.75	Low	0.01	914
	Available Phosphorus (ppm)	1-42	4.3	Low	0.14	914
	Extractable Potassium (ppm)	30-400	192	Adequate	3.12	797
SUKKUR	pH	7-10.8	8.4	Alkaline	0.01	1,833
	Electrical Conductivity (dSm <sup>-1</sup> )	0.11-55.6	2.3	Highly saline	0.10	1,833
	Organic Matter (%)	0.1-1.92	0.69	Low	0.01	1,828
	Available Phosphorus (ppm)	1-50	3.7	Low	0.07	1,833
	Extractable Potassium (ppm)	28-400	183	Adequate	2.28	1,544
TANDO ALLAH YAR	pH	7.1-9.9	8.2	Neutral	0.01	2,271
	Electrical Conductivity (dSm <sup>-1</sup> )	0.11-40.3	1.4	Saline	0.05	2,271
	Organic Matter (%)	0.1-1.99	0.82	Low	0.01	2,262
	Available Phosphorus (ppm)	1-53	5.3	Low	0.11	2,270
	Extractable Potassium (ppm)	30-400	200	Adequate	1.78	2,037
TANDO MUHAMMAD KHAN	pH	7.5-10.5	8.4	Neutral	0.03	386
	Electrical Conductivity (dSm <sup>-1</sup> )	0.1-35	1.8	Highly saline	0.15	386
	Organic Matter (%)	0.1-1.93	0.83	Low	0.02	381
	Available Phosphorus (ppm)	1-26	4.5	Low	0.22	386
	Extractable Potassium (ppm)	38-400	169	Adequate	4.14	371
THARPARKAR	pH	7.7-8.2	7.9	Neutral	0.02	41
	Electrical Conductivity (dSm <sup>-1</sup> )	0.16-1.21	0.3	Normal	0.03	41
	Organic Matter (%)	0.13-1.39	0.86	Marginal	0.06	41
	Available Phosphorus (ppm)	1-5	2.1	Low	0.19	41
	Extractable Potassium (ppm)	56-330	185	Adequate	9.91	41
THATTA	pH	7.4-10.2	8.2	Neutral	0.02	654
	Electrical Conductivity (dSm <sup>-1</sup> )	0.1-53	4.1	Highly saline	0.24	654
	Organic Matter (%)	0.11-2.21	0.80	Low	0.02	646
	Available Phosphorus (ppm)	1-32	4.3	Low	0.15	654
	Extractable Potassium (ppm)	26-400	206	Adequate	3.79	580
UMER KOT	pH	7.5-10.6	8.2	Neutral	0.01	750
	Electrical Conductivity (dSm <sup>-1</sup> )	0.12-48.6	3.7	Highly saline	0.22	751
	Organic Matter (%)	0.1-2.14	0.77	Low	0.01	741
	Available Phosphorus (ppm)	1-28	4.2	Low	0.13	751
	Extractable Potassium (ppm)	26-400	191	Adequate	3.19	700

## ANNEXURE IV: CRITERIA FOR SOIL NUTRIENT ANALYSIS (mg kg<sup>-1</sup>)

### THE INTERNATIONAL CENTER FOR AGRICULTURAL RESEARCH IN THE DRY AREAS (ICARDA)

Nutrient/Organic Matter	Test	Low	Marginal	Adequate
Organic Matter (%)	Walkley-Black Method	<0.86	0.86-1.29	>1.29
Phosphorus	NaHCO <sub>3</sub>	<8	8-15	>15
Potassium	NH <sub>4</sub> OAc	<100	100-150	>150
Zinc	DTPA	<0.5	0.5-1.0	>1.0
Maganese	DTPA	<1.0	1.0-2.0	>2.0
Boron	HCl	<0.45	0.45-1.0	>1.0

(Source: ICARDA Manual 2013)

### CRITICAL LIMITS OF SOIL PARAMETERS ADOPTED BY GOVERNMENT OF SINDH (mg kg<sup>-1</sup>)

Nutrient/Organic Matter	Test	Limits				
		Salt free	Very Slightly Saline	Moderately Saline	Strongly Saline	Very Strongly Saline
Electrical Conductivity (dSm <sup>-1</sup> )	1:2, Soil:Water Extract	0-2	2-4	4-6	6-8	>8
pH	1:2, Soil:Water Extract	Neutral	Mildly Alkaline	Moderately Alkaline	Strongly Alkaline	Very Strongly Alkaline
		6.6-7.3	7.4-7.8	7.9-8.4	8.5-9.0	>9.1
Organic Matter (%)	Walkley-Black Method	Low	Marginal	Adequate		
		<0.86	0.86-1.29	>1.29		
Phosphorus	AB-DTPA Method	Low	Marginal	Adequate		
		<3	3-7	>7		
Potassium	AB-DTPA Method	Low	Marginal	Adequate		
		<60	60-120	>120		

(Source: FAO (1980), Sultanpur (1985), Ludwick (1995), Martens and Lindsay (1990), Jhonsen and Fixen (1990), Soil and Plant Analysis Council (1992), Mathar et al. (1992))

### FAUJI FERTILIZER COMPANY LIMITED

pH	Acidic	<6.5
	Neutral	6.5-7.5
	Alkaline	>7.5
Electrical Conductivity (dSm <sup>-1</sup> )	Normal	<0.5
	Slightly saline	0.5-1.0
	Saline	>1.0

\* Soil pH and Electrical Conductivity measured in 1:2.5, soil:water extract.

(Source: Fauji Fertilizer Company Limited)



## سندھ میں موجود مٹی اور پانی کی تجزیہ گاہیں

## ANNEXURE V: ADDRESSES OF SOIL AND WATER TESTING FACILITIES IN SINDH

پتہ	ضلع	تجزیہ گاہ
فلور نمبر 6، اسٹیٹ لائف بلڈنگ، ٹھنڈی سڑک، حیدرآباد	حیدرآباد	تجزیاتی لیبارٹری، اینگرو فرٹیلائزرز لمیٹڈ
بالمقابل موٹروے پولیس اسٹیشن پیشل ہائی وے، سکھر	سکھر	فارم ایڈوائزرز سینٹر، فوجی فرٹیلائزرز کمپنی لمیٹڈ
ایگریکلچر کمپنری، اے آر آئی، ٹنڈو جام	حیدرآباد	مرکزی مٹی اور پانی کی تجزیاتی لیبارٹری
نزد ایگریکلچر ایسٹیشن آفس سکرند	شہید مینظیر آباد	ضلعی مٹی اور پانی کی تجزیاتی لیبارٹری
سندھ تحقیقاتی ادارہ برائے باغبانی، میرپور خاص	میرپور خاص	ضلعی مٹی اور پانی کی تجزیاتی لیبارٹری
نزد ڈسٹرکٹ ایگریکلچر ایسٹیشن آفس ساگھر	ساگھر	ضلعی مٹی اور پانی کی تجزیاتی لیبارٹری
نزد ڈسٹرکٹ ایگریکلچر ایسٹیشن آفس روہڑی	سکھر	ضلعی مٹی اور پانی کی تجزیاتی لیبارٹری
نزد ڈسٹرکٹ ایگریکلچر ایسٹیشن آفس، مکلی	ٹھٹھہ	ضلعی مٹی اور پانی کی تجزیاتی لیبارٹری
نزد آئیٹل سیدسب سیکشن	شکارپور	ضلعی مٹی اور پانی کی تجزیاتی لیبارٹری
نزد ڈی سی او آفس	بدین	ضلعی مٹی اور پانی کی تجزیاتی لیبارٹری
نزد ڈسٹرکٹ ایگریکلچر ایسٹیشن آفس خیرپور	خیرپور	ضلعی مٹی اور پانی کی تجزیاتی لیبارٹری
کالج روڈ دادو	دادو	ضلعی مٹی اور پانی کی تجزیاتی لیبارٹری
نزد ڈسٹرکٹ ایگریکلچر ایسٹیشن آفس	جیکب آباد	ضلعی مٹی اور پانی کی تجزیاتی لیبارٹری
نزد سیشن کورٹ ملیر کراچی	کراچی	ضلعی مٹی اور پانی کی تجزیاتی لیبارٹری
نزد ڈی سی او آفس، نوشہرو فیروز	نوشہرو فیروز	ضلعی مٹی اور پانی کی تجزیاتی لیبارٹری

Soil Testing Facility	District	Address
Engro Fertilizers Limited Soil and Water Testing Facility	Hyderabad	6th Floor State Life Building, Thandi Sarak, Hyderabad
Fauji Fertilizer Company Limited Farm Advisory Center	Sukkar	Opposite Motorway Police Station, National Highway, Karam Abad, District Khairpur
Government of Sindh Central Analytical Lab	Hyderabad	Agriculture Chemistry, ARI, Tandojam
Government of Sindh District Lab	Shaheed Benazirabad	Near District Agriculture Extension Office, Sakrand
	Mirpur Khas	Sindh Horticulture Research Institute, Mirpur Khas
	Sanghar	Near District Agriculture Extension Office, Sanghar
	Sukkur	Near District Agriculture Extension Office, Rohri
	Thatta	Near District Agriculture Extension Office, Makli
	Shikarpur	Near Oilseeds Sub-Station, Shikarpur
	Badin	Near DCO Office, Badin
	Khairpur	Near District Agriculture Extension Office, Khairpur
	Dadu	Near Millet Research Station Dadu
	Jacobabad	Near Director Agriculture Extension Office, Jacobabad
Karachi	Near Session Court Malir, Karachi	
Naushahro Feroze	Near DCO Office, Naushehro Feroze	



## ANNEXURE VI: DOMINANT SOIL SERIES, CLASSIFICATION AND THEIR AREAS OF OCCURRENCE

Soil Series	US Soil Taxonomy	FAO World Soil Map	Survey Areas Mapped
Adilpur	Halic Camborthids	Haplic Yermosols	Ghotki, Larkana, Dadu
Badin	Typic Camborthids	Haplic Yermosols	Badin
Bagh	Fluventic Camborthids	Haplic Yermosols	Jacobabad, Ghotki, Nawabshah, Hyderabad, Sanghar
Bagodaro	Fluventic Camborthids	Orthic Solonchaks	Dadu, Larkana
Bahadarpur	Typic Torripsamment	Calcaric Fluvisols	Jacobabad, Larkana
Bhambhro	Typic Torripsamment	Calcaric Rhegosols	Ghotki
Bulri	Typic Salorthids	Orthic Solonchaks	Thatta East, Badin
Chhater	Typic Torripsamment	Calcaric Fluvisols	Jacobabad, Dadu, Larkana
Chinni	Fluventic Camborthids	Haplic Yermosols	Dadu
Dari	Typic Torrifluvents	Calcaric Fluvisols	Thatta East, Badin
Daro	Aquic Camborthids	Calcaric Gleysols	Thatta, Badin
Dhand	Ustertic Camborthids	Haplic Yermosols / Calcaric Gleysols	Thatta East, Badin
Dungi	Ealic Camborthids	Haplic Yermosols	Ghotki
Gambat	Aeric Haplaquepts	Calcaric Gleysols	Khairpur
Garhi	Typic Torriorthents	Orthic Solonchaks	Ghotki
Ghaibi	Typic Camborthids	Haplic Yermosols	Larkana, Dadu
Golarchi	Typic Salorthids	Orthic Solonchaks	Badin
Guddu	Typic Salorthids/Fluventic Camborthids	Orthic Solonchaks	Jacobabad
Gujo	Typic Salorthids	Orthic Solonchaks	Thatta East, Badin
Gungro	Fluventic Camborthids	Orthic Solonchaks	Thatta East, Badin
Humayun	Vertic Torriorthents	Orthic Solonchaks	Jacobabad
Jacobabad	Typic Camborthids	Orthic Solonchaks	Jacobabad, Hyderabad, Nawabshah, Sanghar, Larkana, Dadu
Jagan	Typic Camborthids	Orthic Solonchaks	Jacobabad, Larkana, Dadu
Jarwar	Typic Salorthids/Fluventic Camborthids	Orthic Solonchake	Ghotki, Jacobabad, Nawabshah, Sanghar, Hyderabad
Jati	Typic Salorthids	Orthic Solonchake	Thatta East, Badin
Jhakkar	Halic Camborthids	Haplic Yermosols/Orthic Solonchake	Jacobabad, Ghotki
Jhatpat	Torretic Camborthids	Haplic Yermosols/Chromic Vertisols	Jacobabad, Larkana, Dadu
Joanna	Typic Halorthents	Orthic Solonchake	Ghotki
Johi	Typic Salorthids/Vertic Torriorthents	Orthic Solonchake	Dadu
Kabil	Fluventic Camborthids	Haplic Yermosols	Larkana, Dadu
Kahrar	Halic Camborthids	Haplic Yermosols / Orthic Solonchake	Jacobabad, Larkana, Dadu
Kamber	Fluventic Camborthids	Orthic Solonchake	Larkana, Dadu
Kashmore	Typic Salorthids/Typic Camborthids	Orthic Solochaks	Jacobabad, Dadu, Larkana
Kasur	Halic Ustorthents/Halic Torriorthents	Orthic Solonchaks/Gleysic Solonchaks	Ghotki, Jacobabad, Larkana, Dadu
Katchar	Typic Torriorthents	Calcaric Fluvisols	Jacobabad, Larkana, Dadu
Katiar	Typic Salorthids / Typic Torriorthents	Takyric Solochaks	Thatta East, Badin
Khair	Typic Torriorthents /Typic Ustorthents	Calcaric Fluvisols	Larkana, Dadu, Hyderabad
Kirthar	Halic Camborthids	Orthic Solochaks	Larkana, Dadu



## ANNEXURE VI: DOMINANT SOIL SERIES, CLASSIFICATION AND THEIR AREAS OF OCCURRENCE

Soil Series	US Soil Taxonomy	FAO World Soil Map	Survey Areas Mapped
Kundi	Typic Camborthids	Haplic Yermosols	Jacobabad
Lalian	Typic Torriorthents	Calcaric Fluvisols	Ghotki, Larkana, Dadu
Larkana	Typic Camborthids	Haplic Yermosols	Larkana, Dadu
Lodra	Typic Halorthids	Orthic Solonetz	Ghotki, Jacobabad
Makai	Typic Torriorthents	Calcaric Fluvisols	Ghotki, Jacobabad, Sanghar
Manchar	Fluventic Camborthids	Haplic Yermosols	Dadu
Matli	Typic Calciorthids	Haplic Yermosols	Thatta East, Badin, Hyderabad, Dadu, Larkana, Nawabshah, Sanghar
Miani	Typic Calciorthids/Ustochrepts	Haplic Yermosols/Calcaric Cambisols	Dadu, Larkana, Sanghar, Nawabshah, Jacobabad, Sargodha, Hyderabad, Ghotki
Mirzapur	Halic Camborthids	Orthic Solonchaks	Larkana, Dadu
Nabipur	Typic Camborthids	Haplic Yermosols	Jacobabad, Sanghar, Dadu, Larkana, Hyderabad, Nawabshah, Badin
Nangin	Typic Salorthids/Typic Torriorthents	Orthic Solonchaks	Thatta East
Naodero	Fluventic Camborthids	Haplic Yermosols	Larkana, Dadu
Pacca	Typic Camborthids/Aquic Camborthids	Haplic Yermosols / Calcaric Gleysols	Sanghar, Badin, Thatta East, Jacobabad, Ghotki, Hyderabad, Nawabshah, Dadu
Pandi	Fluventic Camborthids	Haplic Yermosols	Dadu
Petaro	Fluventic Camborthids	Haplic Yermosols	Dadu
Phulji	Fluventic Camborthids	Orthic Solonchaks	Dadu
Pitafi	Typic Salorthids	Orthic Solonchaks	Ghotki, Larkana, Dadu
Ratodero	Typic Salorthids/Typic Camborthids	Orthic Solonchaks	Dadu, Larkana
Rojhan	Fluventic Camborthids	Orthic Solonchaks	Jacobabad, Larkana, Dadu
Roshan	Typic Salorthids or Fluventic Camborthids	Orthic Solonchaks	Ghotki, Larkana, Dadu, Nawabshah, Sanghar
Rustam	Typic Torriorthents or Typic Torrifluvents	Calcaric Fluvisols	Thatta East, Larkana, Dadu, Badin, Jacobabad, Hyderabad
Sarhad	Typic Torripsamments	Calcaric Fluvisols	Ghotki
Satghara	Typic Halorthids	Orthic Solonetz / Solonchaks	Jacobabad
Shahdara	Typic Ustifluvents / Typic Torrifluvents	Calcaric Fluvisols	Hyderabad, Thatta East, Jacobabad, Ghotki, Badin, Larkana, Dadu, Nawabshah
Shahpur	Fluventic Camborthids	Haplic Yermosols	Nawabshah, Sanghar, Dadu, Ghotki, Jacobabad, Hyderabad, Larkana
Shergarh	Typic Camborthids	Haplic Yermosols	Jacobabad, Nawabshah, Sanghar, Larkana, Dadu
Shikarpur	Typic Camborthids	Haplic Yermosols/Calcaric Gleysols	Sanghar
Sindhelianwali	Typic Halorthids	Orthic Solonetz	Jacobabad, Ghotki
Sodhra	Typic Torripsamments/Typic Ustipsamments	Calcaric Fluvisols/Eutric Fluvisols	Thatta East, Larkana, Dadu, Jacobabad, Hyderabad, Ghotki
Sultanpur	Typic Camborthids	Haplic Yermosols	Thatta East, Nawabshah, Jacobabad, Sanghar, Ghotki
Takkar	Typic Torri fluvents	Calcaric Fluvisols	Thatta East
Thar	Typic Torripsamments	Calcaric Rhegosols	Ghotki
Vas	Typic Torripsamments	Calcaric Fluvisols	Ghotki
Wagan	Typic Torripsamments	Calcaric Fluvisols / Orthic Solonchaks	Larkana



