



ACCREDITATION DOCUMENT

F-06/02
Issue Date: 18/08/2020
Rev. No: 09
LAB 154

Accreditation No: LAB 154

Awarded to

**Soil & Water Testing Laboratory for Research
Government Agricultural Farm, Old Shujabad Road,
Multan, Pakistan.**

The scope of accreditation is in accordance with the standard specifications outlined in the following page(s) of this document. The accredited scope shall be visible and legible in areas such as customer service, sample-receiving section etc and shall not mislead its users.

The accreditation was first time granted on **02-07-2018** by Pakistan National Accreditation Council.

The laboratory complies with the requirements of **ISO/IEC 17025:2017**.

The accreditation requires regular surveillance, and is valid until **01-07-2027**.

The decision of accreditation made by Pakistan National Accreditation Council implies that the organization has been found to fulfill the requirements for accreditation within the scope.

The organization however, itself is responsible for the results of performed measurements/tests.

PAKISTAN NATIONAL ACCREDITATION COUNCIL

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Testing Laboratory.

**Accreditation Scope of M/s Soil & Water Testing Laboratory for Research
Government Agricultural Farm, Old Shujabad Road,
Multan, Pakistan.**

Permanent laboratory premises

Materials/Products tested	Testing field (e.g. environmental testing or mechanical testing)	Types of test/ Properties measured	Reference to standardized method (e.g. ISO 14577-1:2003)/ Internal method reference
1- Nitrogen fertilizers Liquid	Chemical Testing	1. Ureic 2. Ammonical 3. Nitrate 4. Total	1. Testing method: i. Tandon HLS (Ed.) 2009. Methods of Analysis of Soils, Plants, Waters, Fertilizer and Organic Manures Fertilizer Development and Consultation Organization, New Delhi. Pp 161-162 ii. Official Methods of Analysis of AOAC International, 18 th Edition, 2005, Current through Revision, 4, 2011. Method No. 2.4.10 (AOAC Official Method 892.01), Fertilizers Chapter 2 Page 16. 2. Instrument required i. Nitrogen Distillation Unit ii. Digital Burette. i. Magnetic Stirrer iv. Digestion Block
2- Nitrogen fertilizers Solid	Chemical Testing	1. Ureic 2. Ammonical 3. Nitrate 4. Total	1. Testing method: i. Tandon HLS (Ed.) 2009. Methods of Analysis of Soils, Plants, Waters, Fertilizer and Organic Manures Fertilizer Development and Consultation Organization, New Delhi. Pp 161-162 ii. Official Methods of Analysis of AOAC International, 18 th Edition, 2005, Current through Revision, 4, 2011. Method No. 2.4.10 (AOAC Official Method 892.01), Fertilizers Chapter 2 Page 16. 2. Instrument required i. Nitrogen Distillation Unit ii. Digital Burette. iii. Magnetic Stirrer iv. Digestion Block

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3- Nitrogen fertilizers Liquid mix	Chemical Testing	<ol style="list-style-type: none"> 1. Ureic 2. Ammonical 3. Nitrate 4. Total 	<p>1. Testing method:</p> <p>i. Tandon HLS (Ed.) 2009. Methods of Analysis of Soils, Plants, Waters, Fertilizer and Organic Manures Fertilizer Development and Consultation Organization, New Delhi. Pp 161-162</p> <p>ii. Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current through Revision, 4, 2011. Method No. 2.4.10 (AOAC Official Method 892.01), Fertilizers Chapter 2 Page 16.</p> <p>2. Instrument required</p> <p>i. Nitrogen Distillation Unit</p> <p>ii. Digital Burette.</p> <p>ii. Magnetic Stirrer</p> <p>iv. Digestion Block</p>
4- Nitrogen fertilizers Solid mix	Chemical Testing	<ol style="list-style-type: none"> 1. Ureic 2. Ammonical 3. Nitrate 4. Total 	<p>1. Testing method:</p> <p>i. Tandon HLS (Ed.) 2009. Methods of Analysis of Soils, Plants, Waters, Fertilizer and Organic Manures Fertilizer Development and Consultation Organization, New Delhi. Pp 161-162</p> <p>ii. Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current through Revision, 4, 2011. Method No. 2.4.10 (AOAC Official Method 892.01), Fertilizers Chapter 2 Page 16.</p> <p>2. Instrument required</p> <p>i. Nitrogen Distillation Unit</p> <p>ii. Digital Burette.</p> <p>iii. Magnetic Stirrer</p> <p>iv. Digestion Block</p>
5- Boron (Liquid Form)	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	<p>1. Testing method:</p> <p>Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.04 (AOAC Official Method 982.01), Fertilizers Chapter 2, Subchapter 6, Page 28</p> <p>2. Instrument required</p> <p>i. Spectrophotometer</p> <p>ii. Hot plate</p>
6- Mixed Boron Fertilizer (Liquid Form)	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	<p>3. Testing method:</p> <p>Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.04 (AOAC Official Method 982.01), Fertilizers Chapter 2, Subchapter 6, Page 28</p> <p>4. Instrument required</p>

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			iii. Spectrophotometer iv. Hot plate
7- Mixed Boron Fertilizer (Solid Form)	Chemical Testing	1. Acid Soluble 2. Water Soluble	5. Testing method: Official Methods of Analysis of AOAC International, 18 th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.04 (AOAC Official Method 982.01), Fertilizers Chapter 2, Subchapter 6, Page 28 6. Instrument required v. Spectrophotometer vi. Hot plate
8- Zinc (Liquid form)	Chemical Testing	1. Acid Soluble 2. Water Soluble	1. Testing method: Official Methods of Analysis of AOAC International, 18 th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizers Chapter 2, Subchapter 6, Page 29-30 2. Instrument required i. Atomic Absorption Spectrophotometer ii. Hot plate
9- Mixed Zinc Fertilizer (Liquid form)	Chemical Testing	1. Acid Soluble 2. Water Soluble	3. Testing method: Official Methods of Analysis of AOAC International, 18 th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizers Chapter 2, Subchapter 6, Page 29-30 4. Instrument required i. Atomic Absorption Spectrophotometer ii. Hot plate
10- Mixed Zinc Fertilizer (Solid form)	Chemical Testing	1. Acid Soluble 2. Water Soluble	5. Testing method: Official Methods of Analysis of AOAC International, 18 th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizers Chapter 2, Subchapter 6, Page 29-30 6. Instrument required i. Atomic Absorption Spectrophotometer ii. Hot plate

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11- Iron fertilizer Solid	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	<p>7. Testing method: Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizers Chapter 2, Subchapter 6, Page 29-30</p> <p>8. Instrument required</p> <ol style="list-style-type: none"> i. Atomic Absorption Spectrophotometer ii. Hot plate
12- Iron fertilizer Liquid	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	-do-
13- Iron fertilizer Solid Mixed	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	-do-
14- Iron fertilizer Liquid Mixed	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	-do-
15- Copper fertilizer Solid	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	-do-
16- Copper fertilizer Liquid	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	-do-
17- Copper Solid Mixed	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	-do-
18- Copper Liquid Mixed	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	-do-
19- Manganese fertilizer Solid	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	-do-
20- Manganese fertilizer Liquid	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	-do-
21- Manganese Solid Mixed	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	-do-
22- Manganese Liquid	Chemical Testing	<ol style="list-style-type: none"> 1. Acid Soluble 2. Water Soluble 	-do-
23- Waste Compost	Chemical Testing		<p>1. Testing method: Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.7.08 (AOAC Official Method 967.05), Fertilizers Chapter 2, Subchapter 6 Page 54</p>

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			<p>2. Instrument required</p> <p>i. Muffle furnace ii. Oven</p>
24- Waste Compost	Chemical Testing		<p>3. Testing method: Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.7.13 (AOAC Official Method 973.09), Fertilizers Chapter 2, Subchapter 6 Page 56</p> <p>4. Instrument required</p> <p>iii. Muffle furnace iv. Oven</p>
25- Humic acid Liquid	Chemical Testing		<p>1. Testing method Gravimetric method of humic acid analysis</p> <p>2. Instrument required</p> <p>i. Oven</p>
26- Humic acid solid	Chemical Testing		<p>1. Testing method Gravimetric method of humic acid analysis</p> <p>2. Instrument required</p> <p>iv. Oven</p>
27- Amino acid Solid	Chemical Testing		<p>1. Method of analysis</p> <p>i. FAO nutritional studies no 24(1970). ii. Pellet, L P and Young (1980). iii. Theymoli Balasubramanian, Sadasivam (1987). iv. www.eplantsceinece.com</p> <p>.Instrument required</p> <p>i. Nitrogen Distillation Unit ii. Digital Burette. iii. Magnetic Stirrer iv. Digestion Block.</p>
28- Amino acid liquid	Chemical Testing		<p>2. Method of analysis</p> <p>v. FAO nutritional studies no 24(1970). vi. Pellet, L P and Young (1980). vii. Theymoli Balasubramanian, Sadasivam (1987). viii. www.eplantsceinece.com</p> <p>.Instrument required</p> <p>i. Nitrogen Distillation Unit ii. Digital Burette. iii. Magnetic Stirrer iv. Digestion Block</p>
29- Chelated Zinc liquid	Chemical Testing		<p>1. Testing method: Vogel's Text Book Of Quantitative Chemical Analysis, 6th Edition, J Mendham, R C Denney, J D Barnes, M J K Thomas</p>

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			2. Instrument required i. Atomic Absorption Spectrophotometer ii. Hot plate
30- Chelated Zinc Solid	Chemical Testing		-do-
31- Chelated Zinc, Copper, Iron Manganese in mixed fertilizer solid	Chemical Testing		-do-
32- Chelated Zinc mixed fertilizer liquid	Chemical Testing		-do-

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