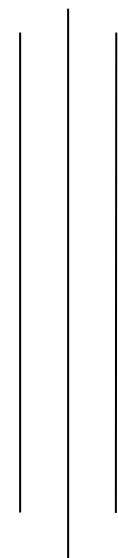


Annual Report

2022 - 2023



GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

SOIL RESOURCE DEVELOPMENT INSTITUTE

MINISTRY OF AGRICULTURE

DIVISIONAL LABORATORY: RAJSHAHI

REGIONAL LABORATORY: BOGURA & PABNA

Introduction:

Soil productivity more or less depends on soil fertility. Soil fertility leads the plant nutrition to optimize the growth and development of the plant. To ensure food security of ever growing population of Bangladesh, the only option left to increase crop production per unit area per unit time. Its can be attained by selecting crops/cropping pattern on the basis of land and soil qualities, agro-climate, and use of balanced fertilizer on soil test and demand basis, ensuring proper crop management practices. Plant nutrients present in soil are chemically analyzed in these laboratories to achieve the following objectives:

Objectives:

1. To determined location specific soil test data for balanced fertilization.
2. To prepare fertilizer recommendation card on the basis of soil test value for different crops to the requirements of different stakeholders.
3. To create analytical data base for future research.
4. To provide analytical support service to different stakeholder as per required.

Materials and Methods:

Prescribe analytical procedures are followed by the competent authority as:

- a) Analytical Methods of Soil, Water, Plant Material and Fertilizer by SRDI, June-2012.
- b) Manual for Fertilizer Analysis by Ministry of Agriculture, Bangladesh November-2003.

Working Personal

Table-1

Designation	Post		
	Total	Fill	Vacant
Officers			
Chief scientific officer (CSO)	1	-	1
Principal Scientific officer (PSO)	3	3	-
Senior Scientific officer (SSO)	7	4	3
Scientific officer (SO)	12	11	-
Sub Assistant Engeniar	1	1	-
Administrative officer	1	-	1
Staffs			
Copmuter Operator	1	1	-
Office Assistant Cum Copmuter Data Entry	2	1	1
Driver	2	1	1
Store Keeper	3	2	1
Laboratory Attendant	5	4	1
Office Assistance	3	1	2
Guard	3	1	2
Gardener	1	1	-
Cleaning Staff	3	2	1

Analyzed samples in static laboratory & MSTL

Table- 2

Name of sample		No. of sample	No. of ingredient
Soil	Farmers		
	Direct	1068	7,135
	DAE	481	3081
	SRDI	491	4,761
	SRDI		
	Upazila land and soil resource utilization guide	1134	14,742
	Others	377	3770
	Research institute		
	BARI	17	158
	BRRI		
	University (Teacher/Student)	155	1131
	GOs	929	4147
	NGOs	42	336
	MSTL (Tista & Korotoa)	1013	4052
Quality control	18	72	
Water		1	6
Fertilizer		793	1468
Total		6,519	44,859

Soil pH status of analyzed farmer's samples

Table 2.1

Sample	Very strongly acidic	Strongly acidic	Slightly acid	Neutral	Slightly alkaline	Strongly alkaline	Very strongly alkaline
	<4.5	4.6-5.5	5.6-6.5	6.6-7.3	7.4-8.4	8.5-9.0	>9.0
2040	9	335	568	326	785	16	1
%	-	16	28	16	39	1	-

Soil OM status of analyzed farmer's samples

Table 2.2

Total Sample		Very Low	Low	Medium	High	Very High
		≤1.0	1.0-1.7	1.71-3.4	3.41-5.5	>5.5
2040	No	993	627	362	58	-
	%	48	31	18	3	-

Total N status of analyzed farmer's samples

Table 2.3

Total Sample		Very Low	Low	Medium	Optimum	High	Very High
		≤ 0.09	0.091-0,18	0.181-0.27	0.271-0.36	0.361-0.45	>0.45
2040	No	1492	470	58	20	-	-
	%	73	23	3	1	-	-

Available P status of analyzed farmer's samples

Table 2.4

Total Sample		Very Low	Low	Medium	Optimum	High	Very High
		≤ 7.5	7.51-15.0	15.1-22.5	22.51-30.0	30.1-37.5	>37.5
No	1949	78	233	303	237	179	919
%		4	12	16	12	9	47

Exchangeable K status of analyzed farmer's samples

Table 2.5

Total Sample		Very Low	Low	Medium	Optimum	High	Very High
		≤ 0.09	0.091-0,18	0.181-0.27	0.271-0.36	0.361-0.45	>0.45
No	1947	140	525	475	246	139	422
%		7	27	24	13	7	22

Available S status of analyzed farmer's samples

Table 2.6

Total Sample		Very Low	Low	Medium	Optimum	High	Very High
		≤ 7.5	7.51-15.0	15.1-22.5	22.51-30.0	30.1-37.5	>37.5
No	1946	550	614	237	282	81	182
%		28	32	12	15	4	9

Avail Zn status of analyzed farmer's samples

Table 2.7

Total Sample		Very Low	Low	Medium	Optimum	High	Very High
		≤ 0.45	0.451-0.9	0.91-1.35	1.351-1.8	1.81-2.25	>2.25
No	1908	113	652	528	226	98	291
%		6	34	28	12	5	15

Available B status of analyzed farmer's samples

Table 2.8

Total Sample		Very Low	Low	Medium	Optimum	High	Very High
		≤0.15	0.151-0.30	0.31-0.45	0.46-0.60	0.61-0.75	>0.75
No	1904	211	660	303	215	173	342
%		11	35	16	11	9	18

Analyzed plant samples

Table-3.

Source of sample	No of sample	No of ingredient
	-	-
Total	-	-

Analyzed water samples

Table- 4.

Source of sample	No. of sample	No. of ingredient
	1	6
	-	-
Total	1	6

Status of Upazila land and soil resource utilization guide updating soil

Table-5.

Division	Laboratory	Name of Upazila	Sample	Status	
Rajshahi	Rajshahi	Boraigram, Natore	152	Analysis Completed & Result Processing ongoing	
		Belkuchi, Sirajgonj	60		
		Pantnitola, Naogoan	172		
		Charghat, Rajshahi	126		
		Singra, Natore	283		
		Puthia, Rajshahi	91		Processing ongoing
		Paba, Rajshahi	114		
	Bogura	Fulchari, Gaibandha	115	Analysis Completed & Result Processing ongoing	
		Gangachara, Rangpur	126		
	Pabna	Bhanghura, Pabna	80	Analysis Completed (100)& Result Processing ongoing	
Faridpur, Pabna		72			

Soil samples analysis and fertilizer recommendation card distribution through MSTL

Table-6.

MSTL	Season	Working area					
		District	Upazila/Block	Sample		Card	
MSTL (Tista & Korotoya)	Rabi			Rabi	Kharif	Rabi	Kharif
		Naogaon	Manda	56		56	
		Chapainawabgonj	Shibgonj	74		74	
		Rajshahi	Durgapur	12		12	
		Natore	Lalpur	46		46	
		Pabna	Atghoria	108		108	
		Sirajganj	Tarash	44		44	
		Gaibandha	Gobindogonj	50		50	
		Thakurgoan	Thakurgoan Sadar	44		44	
		Dinajpur	Birgonj	50		50	
		Nilphamari	Nilphamari Sadar	56		56	
		Kurigram	Chilmari	56		56	
		Bogura	Shibgonj	46		46	
	Kharif	Chapainawabgonj	Nachol		55		55
		Joypurhat	Kalai		50		50
		Gaibandha	Palashbari		50		50
		Rangpur	Mithapukur		50		50
		Dinajpur	Kaharol,		63		63
		Thakurgoan	Thakurgoan Sadar		103		103
Total			642	371	642	371	

pH (Salinity) status of analyzed soil samples (Kharif)

Table 6.1

MSTL	Total Sample		Very strongly acidic	Strongly acidic	Slightly acid	Neutral	Slightly alkaline	Strongly alkaline	Very strongly alkaline
			<4.5	4.6-5.5	5.6-6.5	6.6-7.3	7.4-8.4	8.5-9.0	>9.0
Tista & Korotoya	No	371	26	230	80	33	-	2	-
	%		7	62	21	9	-	1	-

Available P status of analyzed soil samples (Kharif)

Table 6.2

MSTL	Total Sample		Very Low	Low	Medium	Optimum	High	Very High
			≤7.5	7.51-15.0	15.1-22.5	22.51-30.0	30.1-37.5	>37.5
Tista & Korotoya	No	371	1	10	16	15	11	318
	%			3	4	4	3	86

Exchangeable K status of analyzed soil samples (Kharif)

Table 6.3

Total Sample	Total Sample		Very Low	Low	Medium	Optimum	High	Very High
			≤0.09	0.091-0.18	0.181-0.27	0.271-0.36	0.361-0.45	>0.45
Tista & Korotoya	No	371	19	68	97	60	29	98
	%		5	18	26	16	8	27

Available S status of analyzed soil samples(Kharif)

Table 6.4

Total Sample			Very Low	Low	Medium	Optimum	High	Very High
			≤7.5	7.51-15.0	15.1-22.5	22.51-30.0	30.1-37.5	>37.5
Tista & Korotoya	No	371	97	189	68	11	5	1
	%		27	51	18	3	1	-

Prepared and distributed fertilizer recommendation card

Table-7.

Name of Client	No of card
Soil test based	1910
OFRS based	-
Upazila land and soil resource utilization guide based	-
MSTL	1013
Total	2923

Training provided by the laboratories

Table-8.

Topic	No. of trainee
Soil samples collection and Balanced Fertilizer use	75
Soil samples collection and Identification of Adulterated Fertilizer	100
Total	175

Training received by the laboratory staff

Table- 8

Topic	No. of trainee
Officer	
ভূমি ও মৃত্তিকা সম্পদ ব্যবহার নির্দেশিকা (উপজেলা নির্দেশিকা) ব্যবহার বিষয়ক	02
1. Modern Farm Mechanization	01
2. Public Financial Management	01
4. Web Portal Management (Online)	01
Total	05
Staff	
	-
Total	05

Source and quantity of analyzed fertilizer samples

Table-9.

Name of fertilizers	Source	Amount		
		Total	Standard	Sub-standard
TSP	Jamuna Fert. Company	18	-	18
	DAE (UAO)	21	19	2
	Total	39	19	20
	DAE (UAO)	14	14	-
	Total	14	14	-
	DAE (UAO)	21	21	-
Total	21	21	-	
Gypsum	SRDI	1	1	
	DAE (UAO)	26	13	13
	Private	1	1	
	Total	28	15	13
MgSO ₄	BADC	2	2	-
	DAE (UAO)	95	95	-
	Private	1	1	-
	Total	98	98	-
ZnSO ₄ monohyate	Sugar Mill	9		9
	DAE (UAO)	280	16	264
	Private	12		12
	Total	301	16	285
ZnSO ₄ heptahydrate	DAE (UAO)	35	20	15
	Private	1	1	
	Total	36	21	15
Chelated zinc	DAE (UAO)	23	17	6
	Private	3	1	2
	Total	26	18	8
Solubor boron	DAE (UAO)	98	78	20
	Private	3	2	1
	Total	101	80	21
Boric acid	Autonomus	1		1
	DAE (UAO)	87	29	58
	Private	3	1	2
	Total	91	30	61
Fertibor	DAE (UAO)	6	6	0
	Total	6	6	-
Organic fertilizer**	SRDI	2	-	-
	DAE (UAO)	1	-	-
	Private	22	-	-
	Total	25	-	-
K ₂ SO ₄	DAE (UAO)	3	3	-
	Total	3	3	-
NPKS	DAE (UAO)	4	4	-
	Total	4	4	-
Grand Total		793	345	423

** Incomplete Analysis

Quality of analyzed fertilizer sample

Table- 10

Name of fertilizer	Amount		
	Total	Standard	Sub-standard
TSP	39	19	20
DAP	14	14	0
MOP	21	21	0
Gypsum	28	15	13
MgSO ₄	98	98	0
ZnSO ₄ monohyate	301	16	285
ZnSO ₄ heptahydrate	36	21	15
Chelated zinc	26	18	8
Solubor boron	101	80	21
Boric acid	91	30	61
Fertibor	6	6	0
Organic fertilizer (Incomplete analysis)	25	0	0
K ₂ SO ₄	3	3	0
NPKS	4	4	0
Grand Total	793	345	423

Revenue earning

Table- 11.

Source	(Tk.)
Soil	3,90,514/-
Water	150/-
Plant	
Fertilizer	33,0700/-
Total	7,21,364

12. Change in soil analytical data of Niamotpur Upazila Nirdeshikha updating program compare to previous recent one

Comparative study on soil nutrient status in serieses in different upazillas during 1998 and 2022:

Table 12.1: Nutrient changing pattern(average values) of pH, SOM, TN, P in different soil series between the year 1998 and 2022

Name of soil series and land type	pH range		EC range		SOM%		TN%		P(ppm)	
	1998	2022	1998	2022	1998	2022	1998	2022	1998	2022
	Manda, Naogaon									
Manda- HL	5.3-6.4	4.5-5.3			0.95	1.38		0.08	8	15.75
Ganggachara-HL	5.1-6.9	4.5-5.7			1.32	1.52		0.09	11	16.03
Ganggachara-MHL	5.2-7.9	4.4-5.8			1.29	1.70		0.10	15	18.40
Malanci-MHL	5.2-6.8	4.5-6.1			1.13	1.76		0.10	10	17.82
Kawnia-MHL	4.7-7.0	3.9-6.4			1.24	1.87		0.11	9	16.04
Lashkara-MLL	5.4-6.9	4.9			1.61	1.85		0.11	5	7.90
Alenga-LL	5.9-6.7	5.0-5.2			1.11	2.09		0.12	4	18.96
Sara-HL	6.3	5.8-6.1			1.12	2.21		0.13	27	5.10
Gopalpur-MHL	6.8-6.9	5.1-6.5			1.19	2.06		0.12	9	14.03

Table 12.2: Nutrient changing pattern(average values) of S, K, Ca, Mg in different soil series between the year 1998 and 2022

Name of soil series and land type	S(ppm)		K(cmole+/kg)		Ca(cmole+/kg)		Mg(cmole+/kg)	
	1998	2022	1998	2022	1998	2022	1998	2022
	Manda, Naogaon							
Manda- HL	14	7.74	0.45	0.14	3.3	3.35	0.95	0.99
Ganggachara-HL	10	7.74	0.40	0.14	6.0	3.35	1.00	0.99
Ganggachara-MHL	21	18.34	0.24	0.13	5.6	4.91	1.60	1.41
Malanci-MHL	20	9.50	0.30	0.13	6.5	4.19	1.68	1.35
Kawnia-MHL	21	12.40	0.29	0.14	5.8	5.14	1.50	1.48
Lashkara-MLL	22	21.77	0.30	0.22	6.9	7.05	2.18	2.29
Alenga-LL	15	16.60	0.24	0.29	4.2	8.30	1.04	2.97
Sara-HL	7	28.48	0.38	0.34	5.3	11.30	1.42	3.49
Gopalpur-MHL	10	17.10	0.24	0.14	10.7	3.39	2.75	0.96



Table 12.3: Nutrient changing pattern(average values) of B, Zn, Cu, Fe, Mn in different soil series between the year 1998 and 2022

Name of soil series and land type	B(ppm)		Zn(ppm)		Cu(ppm)		Fe(ppm)		Mn(ppm)	
	1998	2022	1998	2022	1998	2022	1998	2022	1998	2022
	Manda, Naogaon									
Manda- HL	0.64	0.61	2.2	1.25	3.4	1.01	106	150.35	18.4	24.55
Ganggachara- HL	0.83	0.62	1.8	1.29	4.0	1.00	144	156.48	14.7	29.55
Ganggachara- MHL	0.57	0.62	2.5	1.03	6.1	1.05	128	138.83	10.6	19.97
Malanci-MHL	0.50	0.50	2.5	0.70	6.0	1.20	129	135.30	6.0	23.10
Kawnia-MHL	1.01	0.66	2.3	0.84	6.2	1.25	113	150.04	11.6	16.00
Lashkara-MLL	1.28	1.10	2.6	1.70	8.5	2.54	122	240.29	17.0	34.10
Alenga-LL	0.72	0.90	2.4	1.90	7.4	1.90	95	156.6	15.8	40.2
Sara-HL	0.85	1.09	2.6	1.97	5.1	2.08	134	220.48	16.1	23.03
Gopalpur- MHL	1.19	0.84	2.3	1.23	4.3	1.25	66	148.25	5.2	10.03

Target was in 2022-23 fiscal years

Table-13

Division	Laboratory	Soil	Plant	Water	Fertilizer	FRC	Revenue Tk.
		(No.)					
Rajshahi	Rajshahi	2250	-	-	650	1000	-
	Bogura	1530				1150	-
	Pabna	275	-	-	-	175	-
Total		4055			650	2325	

Achievement (No.) in 2022-2023 fiscal years

Table 14.

Division	Laboratory	Soil	Plant	Water	Fertilizer	FRC	Revenue Tk.
		(No.)					
Rajshahi	Rajshahi	3501	-	1	793	1153	5,21,839/-
	Bogura	1919	-	-	-	1562	1,87,195/-
	Pabna	305	-	-	-	205	12,327/-
Total		5725	-	1	793	2923	7,21,364/-

Achievement (%) in 2022-2023 fiscal years

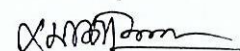
Table-15

Division	Laboratory	Soil	Plant	Water	Fertilizer	FRC	Revenue (Tk.)
		(%)					
Rajshahi	Rajshahi	155	-	-	122	115	-
	Bogura	125	-	-	-	136	-
	Pabna	111	-	-	-	117	-
Total		141	-	-	122	126	-

Target for 2023-2024 fiscal years

Table-16

Division	Laboratory	Soil	Plant	Water	Fertilizer	FRC	Revenue Tk.
		(No.)					
Rajshahi	Rajshahi	2250	-	-	660	1000	-
	Bogura	1630	-	-	-	1180	-
	Pabna	300	-	-	-	200	-
Total		4180	-	-	660	2380	-



(মোঃ শহিদুল ইসলাম)
প্রধান বৈজ্ঞানিক কর্মকর্তা