

Quantifying agricultural characteristics using several indicators and extensive field surveys in an ecologically fragile watershed of India

Debashree Borah and Ashok Kumar Bora

Supplementary Table 1 Agricultural land use pattern of sampled villages

Revenue Circle	Area in hectares											
	Village Name	TGA	NAU	B & U C	PP & OGL	MTC	CWL	FLOTFCF	CF	NSA	%	
Dhekiajuli	Amtal Bali Gaon	158.58	19.83	0	0	6.77	0	0	0	131.98	83.23	
	Gazanga Guri	149.64	15.24	3.6	5.44	0	0	0	0	125.36	83.77	
	Gerujuli Gaon	92.73	13.43	0	0	1.52	0	0	0	77.78	83.88	
	Hugrajuli Gaon	82.69	5.23	0	0	1.93	0	0	0	75.53	91.34	
	Osurmari Pathar	88.47	28.22	0	0	1.73	0	0	0	58.52	66.15	
	Praja Basti Gaon	68.96	32.29	0	0	1.83	0	0	0	34.84	50.52	
	Raumari Pathar	104.49	30	10	0	15	35	0	4.1	10.39	9.94	
	Saikia Chuburi	109.14	22.97	0	0	4.26	0	0	0	81.91	75.05	
	Labari Gaon	313.02	113.14	0	0	6.04	0	0	0	193.84	61.93	
	Narayan Kati Bangali Gaon	321.43	24.42	0	0	2.84	0	0	234.17	60	18.67	
	Narayan Kati Kachari Gaon	168.2	14.84	0	0	2.47	0	0	0	150.89	89.71	
	Majroumari Gaon	213.26	13.92	0	0	2.67	0	0	0	196.67	92.22	
	Majgaon Pathar	143.14	6.17	0	0	1.98	0	0	0	134.99	94.31	
	Chari Duar Forest Prtd. Area	22	22	0	0	0	0	0	0	0	0.00	
	Mazbat	Amtal Bher Gaon	235.84	42.04	0	22.63	6.05	0	0	0	165.12	70.01
		Bhoira Guri Gaon	224.84	27.25	7.05	3.15	14.05	8	7.5	157.84	0	0.00
Habigaon		80.5	0	0	0	0	0	0	0	80.5	100.00	
Mazbatgaon		171.63	17.25	22.3	68.45	12	18	13.56	7.82	12.25	7.14	
Murakati		41.31	3.05	10.02	4.05	4.08	10.02	4.07	3.22	2.8	6.78	
Phuhurabari		25.55	4.1	3.2	3.35	4.95	3.8	3	3.15	0	0.00	
Phuluguri		152.66	40.05	20.1	15.1	5	20.15	30.1	22.16	0	0.00	
Saikia Chuburi No.2		257.16	18.09	30.1	25.5	58.38	90.09	22.1	4.05	8.5	3.31	
Thelamara		129.84	6.47	4.05	0.23	40.03	0.47	1.06	77.16	0	0.00	
Jingabil		257.82	18.05	37.42	17.2	18.56	85.05	35.4	25.05	21.09	8.18	
Jogyapur		120.06	7.02	15.05	9.07	15.42	42.04	14.4	9	8.04	6.70	
Kharamokhagaon		194.51	10.07	15.1	10.03	8.1	20.15	10.05	121.01	0	0.00	
Boigapara		106.66	11.15	10.15	10.05	10.08	48.05	7.08	10.1	0	0.00	
Hatibill		191.24	10.24	12	60	30	20	10	7	42	21.96	
Palash Basti		320.25	12	17	159	10	35	25	12	50.25	15.69	
Da-Heruabil		305.01	20.01	25	191	15	20	13	4	17	5.57	
Mowamari		174.1	9.27	15.1	2.95	24.22	3.09	18.44	11.03	0	90.00	
Ukubari		207.25	10.2	25.09	85.1	10.08	40.5	7.25	6.05	22.98	11.09	
Deva Pukhuri		10.61	1.01	2	1.1	1.19	1.11	1.8	1.2	1.2	11.31	
Biskhuti		203.16	60.73	2.5	3.75	20.24	6.15	5.5	5.1	99.19	48.82	
Fata Simalugaon	416.28	128.76	6.5	0	44.25	4.1	3.78	3.5	225.39	54.14		
Kacharibhetitop	191	0	0	0	0	0	0	0	0	0.00		
No.2 Kacharibhetitop	129.8	9	0	0	0	0	0	0	120.8	93.07		

Dalgaon-Sialmari	No.3 Kacharibhetitop	121.5	6	0	0	0	0	0	0	115.5	95.06
	Nalbari	230.1	8	0	0	0	0	0	0	222.1	96.52

Source: District Agriculture Office, (Sonitpur, Udalguri & Darrang districts); 2019-20

**Note:** TGA- Total Geographical Area, NAU- Non-Agricultural Uses, B & UC -Barren & Un Cultivable, PP & OGL - Permanent Pasture and Grazing Land, MTC - Miscellaneous Tree Crop, CWL - Culturable waste Land, FLOTCF- Fallow Land Other Than Current Fallow, CF - Current Fallow and NSA - Net Sown Area

**Supplementary Table 2** Crops grown and associated inputs in sampled villages

Sl.No.	Village Name	Crops Grown	Status of Irrigation	Manure	Quality of Seed	Method of Sowing	Soil
1	Amtal Bali Gaon	SP, WP, Ju, R & M, Wh	Partly Irrigated	DAP, Potash, Urea	Local/HYV	Transplanted	Loamy
2	Gazanga Guri	AP, Ju, SC, WP, BG, Wh	Unirrigated	DAP, Potash, Urea	Local	Transplanted	Loamy
3	Gerujuli Gaon	Ju, Su, BG, R & M, Po, Wh, SP, WP, SC	Partly Irrigated	DAP, Potash, Urea	Local/HYV	Transplanted	Loamy
4	Praja Basti Gaon	WP, SP, Po, R & M	Partly Irrigated	DAP, Potash, Urea	Local/HYV	Transplanted	Loamy
5	Raumari Pathar	WP	Unirrigated	DAP, Potash, Urea	Local	Transplanted	Loamy
6	Hugrajuli Gaon	WP, BG, Po, SP, Wh, R & M	Partly Irrigated	DAP, Potash, Urea	HYV	Transplanted	Loamy
7	Osurmari Pathar	AP, Ju, SC, WP, BG, Wh	Unirrigated	DAP, Potash, Urea	Local	Transplanted	Loamy
8	Saikia Chuburi	WP, AP, Ju, SC, BG, Po, R & M	Unirrigated	DAP, Potash, Urea	HYV	Transplanted	Loamy
9	Saikia Chuburi No.2	WP	Unirrigated	DAP, Potash, Urea	Local/HYV	Transplanted	Loamy
10	Mowamari	WP, SP, BN, Po	Partly Irrigated	DAP, Potash, Urea	Local/HYV	Transplanted	Loamy
11	Ukubari	WP, SP, Ju	Partly Irrigated	DAP, Potash, Urea	Local	Transplanted	Loamy/Clayey
12	Fata Simalugaon	WP, SP, Ju, Su, Po, OV	Partly Irrigated	DAP, Potash, Urea, Vermicomposting	Local/HYV	Transplanted	Loamy/Clayey
13	No.2 Kacharibhetitop	WP, SP, Ju, Su, Po, OV	Partly Irrigated	DAP, Potash, Urea, Vermicomposting	Local/HYV	Transplanted	Loamy/Clayey
14	No.3 Kacharibhetitop	WP, SP, Ju, Su, Po, OV	Partly Irrigated	DAP, Potash, Urea, Vermicomposting	Local/HYV	Transplanted	Loamy/Clayey
15	Nalbari	WP, SP, Ju, Su, Po, OV	Partly Irrigated	DAP, Potash, Urea, Vermicomposting	Local/HYV	Transplanted	Loamy/Clayey

Source: Field survey (2020-21)

**Supplementary Table 3** Physiological density of sampled villages

Sl No.	Village Name	Physiological density
1	Amtal Bali Gaon	4.81
2	Amtal Bher Gaon	6.70
3	Bhoira Guri Gaon	7.26
4	Biskhuti	10.38
5	Boigapara	3.37
6	Chari Duar Forest Prtd. Area	NA
7	Da-Heruabil	11.75
8	Deva Pukhuri	85.54
9	Fata Simalugaon	7.72
10	Gazanga Guri	6.78
11	Gerujuli Gaon	6.13
12	Habigaon	14.32
13	Hatibill	4.46

14	Hugrajuli Gaon	3.05
15	Jingabil	2.10
16	Jogyapur	8.22
17	Kachari Bheti Top	9.03
18	Kharamokhagaon	7.95
19	Labari Gaon	8.40
20	Majgaon Pathar	4.04
21	Majroumari Gaon	1.91
22	Mazbatgaon	2.28
23	Mowamari	14.05
24	Murakati	32.29
25	Nalbari	3.93
26	Narayan Kati Bangali Gaon	3.20
27	Narayan Kati Kachari Gaon	6.55
28	No.2 Kacharibhetitop	14.73
29	No.3 kacharibhetitop	13.23
30	Osurmari Pathar	2.19
31	Palash Basti	4.25
32	Phuhurabari	51.01
33	Phulguri	12.98
34	Praja Basti Gaon	7.69
35	Raumari Pathar	2.79
36	Saikia Chuburi	5.18
37	Saikia Chuburi No.2	6.03
38	Thelamara	3.87
39	Ukubari	3.42

Source: Computed by the researcher from census report (2011)

**Supplementary Table 4** Land holdings and related aspects of the sampled villages

Name of the sample villages	Average size of land holdings (ha.)	Average family size	Percentage of maincultivators	Percentage of Agricultural labourers	Cropping types	Chief crops	Tools used	Seeds
Gerujuli	0.71	6	44.92	54.27	Mono	Paddy	Power tiller, Cello tube well	Local
Saikia Chuburi	1.65	5	19.04	61.89	Mono	Paddy	Power tiller, Cello tube well	Local
Raumari Pathar	3.45	5	92.85	7.14	Double	Paddy	Power tiller, Canal	Local

Saikia Chuburi No. 2	1.29	5	81.43	1.13	Mono	Paddy	Power tiller, Deep tube well	Local
Ukubari	3.3	5	89.39	6.06	Mono	Paddy	Power tiller, Deep tube well	Local
No.2 Kachari Bhetitop	0.34	6	74.25	8.27	Multiple	Paddy, Jute, Sugarcane, Vegetables	Power tiller, Artificial canal, Deep tube-well	Local/ HYV

Source: Compiled from primary and secondary data (2020-22)