

CASE STUDY ON SOIL FERTILITY MANAGEMENT

Name of activity: Soil Fertility Management.

Objective: To increase soil fertility, productivity, cropping intensity and stabilize productivity.

Background: Soils of Mamit District and the rest of Mizoram are acidic in nature with low base saturation and vary from sandy loam to clayey loam in texture. The district of Mamit chiefly comprises of laterite soil followed by patches of sandy and alluvial soil (NICRA, ICAR 2013).

FOCUS intervention: For reclamation of acidic soil, 400 Quintal of slaked lime was applied to WRC field of 385 farmers under Soil Fertility Management activity, DMU: Mamit District during the 1st Quarter of 2020-2021 FY. The treated soils were ploughed with tractor mounted rotavator to improve the soil structure for better cultivation of crops.

Table 1: List of villages under Soil Fertility Measures

Sl no.	Name of village	Name of FIG	No. of beneficiaries	Qnty of Slaked lime received (Qtl)	Area covered (ha)
1	Saikhawthlir	WRC FIG Saikhawthlir	68	40	32.4
2	Chuhvel	WRC Interest Group, Chuhvel	42	30	20.7
3	Suarhliap	WRC/TRC FIG	40	30	21.7
4	Nalzawl	WRC FIG Nalzawl	13	20	6.6
5	Mamit II	WRC/TRC Mamit II FIG	4	-	4
6	Lengpui	WRC and Terrace Lengpui	11	20	6.2
7	Kawrtethawveng	Terrace & WRC Kawrtethawveng	15	22	9.8
8	Darlak	Malsawmna FIG Darlak	40	58	24.8
9	Saithah	Renngo FIG	32	30	17.1
10	Lallen	Chhawrpial FIG	12	18	6
11	New West Phaileng	Exodus	19	19	8.7
12	Damparengpui	Thaiwaha Group	4	6	2
13	Ailawng	FIG Terrace	10	15	5
14	Lungphun	FIG WRC/Terrace	6	6	3
15	Hreichuk	FIG WRC/Terrace	5	7.5	6
16	Khawrihnim	FIG WRC Khawrihnim	5	7	2.5
17	W. Lungdar	FIG WRC/Terrace	3	3	1.5
18	Reiek	FOCUS WRC/Terrace FIG	10	11.5	14
19	Zawlnuam Vengpui	WRC/TRC FIG	31	35	15.5
20	Zawlnuam Thuampui	WRC Farmer Interest Group	10	10	5
21	Zawlnuam Bawrai	WRC FIG Borai	5	5	2.5

(Note: Before FIG restructuring, 1 FIG in one trade per village)

No. of Village	21
No. of FIG	18
No. of Households	385
No. of Quantity received	393
Area Covered (Ha)	215



Figure: Farmers applying slaked lime on their field





Figure: Ploughing the treated soil with tractor

Table 2: Impact of liming on yield of lowland paddy

Sl no	Name of village	No of FIG	No of farmers	Quantity of seeds sown	Area (ha)	Yield before liming (Qtl)	Yield after liming (Qtl)
1	Kawrtethawveng	2	19	3.8	9.5	14.25	19
2	Zawlnuam Thuampui	1	10	2	5	8	10.5
3	Zawlnuam Vengpui	3	15	2.9	7.5	12	15
TOTAL		6	44	8.7	22	34.25	44.5

(Note: After FIG restructuring, 20 members per FIG)



Figure: Paddy nursery at Kawrtethawveng

Paddy nursery at Zawlnuam Thuampui



Figure: Farmers transplanting paddy seedlings to main field



Figure: Paddy (Stem elongation stage) at Kawrtethawveng village

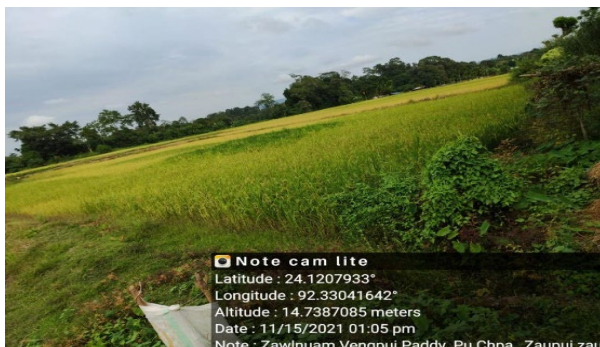


Figure: Paddy (Milk stage) at Zawnuam and Kawrtethawveng village

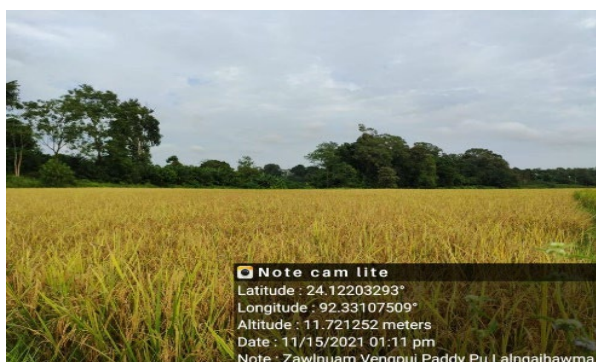


Figure: Paddy (Harvesting Stage) at Kawrtethawveng and Zawnuam village

Observation:

- Soil testing laboratory is not available at the District Agriculture Office.
- Only one Soil testing laboratory in Mamit District is located at KVK Lengpui, Lengpui village which is around 65 Kms away from Mamit.
- The cost of soil testing is Rs 30 per parameter.

Result:

The collected sample for soil testing could not be sent to the laboratory due to transportation problem because of Covid pandemic. However, the yield of lowland paddy cultivated at the treated field of Kawrtethawveng, Zawlnuam Thuampui and Zawlnuam Vengpui village in the following year during rabi season is found to be significantly increased from 14.25 quintals, 8 quintals and 7.5 quintals to 19 quintals, 10.5 quintals and 15 Quintals respectively after liming.

Recommendation:

- ✓ Installation of Soil testing laboratory at the District Agriculture Office, Mamit.
- ✓ Conducting field demonstration on soil sample collection to farmers.
- ✓ Reducing the cost of soil testing or providing free of cost for the farmers by the government through Agriculture Department.
- ✓ Introducing Mobile Soil Testing Laboratory Van for remote areas within the district.
- ✓ Making provisions for purchase of Hand-held device for soil testing.