Title: Low-cost vermicomposting for sustainable income generation and soil health management .

Profile of the farmer/group

Name of the grower/group	:Malsawmtluanga(**MALSAWM FARM**)
Village	:Hnahthial
Block	:Hnahthial
District	:Lunglei
Enterprise	:Vermicomposting
Name of the centre	:KVK Lunglei District, Mizoram.

Background information of the grower:
Mr.Malsawmtluanga from Hnahthial, Mizoram is a young hard working farmer. He is cultivating vegetables and rears cattle with land holding area of 2.0 ha. Due to abundant source of farm waste and cattle dung, he is taking up vermicomposting production for income generation and soil health management. He named his farm MALSAWM FARM. In 2020, he attended training and demonstration conducted under ARYA and skill development programme, where he learned the proper process of vermicomposting method. Following his interest, with assistance from ARYA project he started preparing vermicompost from his farm waste and cattle dung. After successful ARYA intervention number of his vermicompost unit also increases from 2 to 10 units. He also produces vermiwash which is a byproduct of vermicomposting and sells at a rate of Rs.40/kg (vermicompost) and Rs.100/lit (vermiwash).

Technology/process intervened:
The main purpose of this technology intervention is basically for income generation and the management of farm waste to transform into beneficial soil amendment with the use of earthworm. Vermicompost is high in demand especially among vegetables and flowers growers, so it is a good source for income generation. Moreover, the nutrient value of the vermicompost is higher with additional advantages in enhancing both the physical and chemical properties, increased water holding capacity of soil. Besides the cost incurred on chemical fertilizer could be reduced to certain amount.

Effect of the technology/process:
There is reduction in cost of inputs due to use of own farm generated organic inputs as well as reduction in application of chemical fertilizers to a certain extend. The organic composts create less environment pollution than chemical due to their positive biological effect and modification of physical and chemical characteristics of the soil because their nutrients are released slowly to be used by the plant. Besides, there is significant increase in micronutrients in field soils after vermicompost applications.

Production:

Sl. no	Indicators	Before intervention (2020)	After invention (2023)
1.	Vermibeds (nos.)	2	10
2.	Average Yield (qtl.)	11	75, 50ltrs vermiwash

Productivity:

Sl.no	Indicators	Before intervention (2020)	After invention (2023)
1.	Vermibeds(nos.)	2	10
2.	Cost of Production(Rs.)	9300/-	93000/-
3.	Gross Return (Rs.)	44,000/-	3,05,000/-
4.	Net Return(Rs.)	34700/-	2,12,000/-

Economics gains:

Cost of Production (Rs.)	Gross Return (Rs.)	Net Return (Rs.)	BC Ratio
93,000	3,05,000	2,12,000	3.2

Suitability and adaptability in the existing farming system:

Low cost vermicompost production can be adopted even for small scale farmers. It does not require much external inputs, many of the farm waste can be transform into valuable assets. Vermicomposting contributes to many environmental benefits, including waste recycling. Production and use of vermicompost reduce the use of chemical fertilizers and pesticides. Besides, crops harvested through organic means are much healthier and more nutritive for consumption. Many of the farmers within the district involves in vegetables cultivation where application of vermicompost and others compost are much feasible. The cost incurred on chemical fertilizers and pesticides can also be reduced to certain amount.

Acceptance of technology/process in terms of views of the farmers:

After realizing the success of the intervention, many farmers from Hnahthial village started showing interest in low cost vermicompost production. They became aware of the fact that farm waste can be transform into useful and valuable assets. Even small scale farmers started producing vermicompost and vermiwash for their own use.

Out scaling of technology (Horizontal spread):

Before this intervention, vermicompost are also used by many farmers, but the production is low and demand is high. So, after Mr. Tluanga's successful operation in vermicompost production, farmers from surrounding villages started to set up their own vermicompost unit. Till now, this technology is adopted in Thiltlang, Pangzawl, Darzo and South Vanlaiphai villages with a total no. of 37 farmers.

Substitution or replacement of commodities:
Farmers become aware of the impact of chemical/conventional farming on the environment and soil, so they shift to organic farming in order to attain sustainable agriculture and good health. Chemical and pesticides usage gradually declines and the use of more organic inputs started to make way among farmers within the district and nearby villages.

Socio-economic impact:
Before the intervention of this technology farmer in the district concentrated mainly on chemical based farming system. They used to spend a lot for purchasing expensive chemical fertilizers, insecticide etc. The agriculture waste generated in the farm is put to no use but after successful intervention, farmers started using all the waste generated for producing vermicompost. They can save more money instead of buying chemical fertilizers and pesticide. So, now they become self-reliant in terms of vermicompost and others organic fertilizers. They also generate additional income from selling their produce.

Marketing network established:
Most of the vermicompost or vermiwash produce are sold mainly in the local market. During surplus production and good year, several farmers export their product to nearby villages and district which also fetch a good price.

Linkage with technology/development organizations:
Others departments like Department of Horticulture, ATMA -Lunglei District, and NEIDA also work with KVK in the dissemination and popularization of this technology. SHG's like Florist Association also perform in group in making of Vermicompost and vermiwash production.

ARYA Product Vermicompost

Vermi Wash

Malsawm Farm Vermicompost Unit

Vermicomposting Unit