O8: At least 15 more private forests (Overall 30) demonstrating major AEFM regimes across 6 sites

a) Activities: As a part of participatory action research on developing silvicultural regime for private forestry in Nepal, a survey of private forest owners and under-utilised land (UUL) owners was conducted across the 6 research sites to understand private forest owners and UUL owners' forest management objectives, private forest resources, percept tions on growth and economic performances and silvicultural problems. Seven participatory private forest silviculture demo trials have been established: They are given in table below:

Table 1:Silvicultural trial demo plots

SN	Name of Trial	Cluster	No.of farmers	Area (Ropani)	Species
1	Inter-planting of high value cash generating tree crops inside broad leaf forests	Chautara	10	22.8	Zanthoxylum, Coffee, Lime
2	Broad leaf tree plantation establishment on UUL	Chautara	8	28	Cinnamon and Michelia
3	Early thinning of regenerated pine forests on UUL	Bhumlu	6	75	Pinus patula
4	Pine harvesting and management trial	Bhumlu	7	32	Pinus patula
5	Alnus management trial	Dhungkharka	4	24	Alnus nepalensis
6	Pine plantation establishment	Bhumlu	6	35	Pinus patula
			41 farmers	216 (10.8 hectare)	

Private forests play a crucial role in environmental conservation and sustainable management of natural resources. This report presents an overview of the monitoring activities conducted on private forests, including the measurement of diameter and height of species in demo plots. Continuous monitoring of private forests is being carried out to ensure their health and productivity. Regular visits to these forests allow for data collection and analysis, aiding in the assessment of their growth and condition. The monitoring efforts aim to provide insights into the

effectiveness of management practices, identify potential issues, and propose appropriate interventions.

b) Outcomes: The analysis of diameter and height measurements in the demo plots reveals encouraging growth trends within the private forests. Over the monitoring period, notable increases in the dimensions of the sampled species have been observed. This growth signifies the effectiveness of existing management practices.

i) In the plot of Pramila Chaulagain (Interplantation trial), the basal diameter and height of the tejpat species recorded in 2022 exhibited significant improvement, with measurements of 0.11 cm and 23.4 cm respectively. However, the subsequent assessment in 2023 revealed remarkable growth, as the basal diameter increased to 0.2 cm and the height reached an impressive 50.2 cm. These findings highlight an exceptional outcome. Similarly, other silvicultural trial plots have exhibited comparable growth performance.

Figure 1: Growth performance of Tejpat in the plot of Pramila Chaulagain

ii) The growth data of Tejpat trees planted in UUL from 2019 to 2023 are as follows:

- In 2019, the diameter was 0.93 cm, and the height was 0.29 cm.
- By 2022, the diameter increased to 1.9 cm and the height reached 1.39 cm.
- In 2023, further growth was observed with a diameter of 2.8 cm and a height of 2 cm.
- The Michelia tree recorded a basal diameter of 1.46 cm and a height of 0.26 cm in 2019. Notably, by 2023, the basal diameter increased to 4 cm, while the height reached 1.84 cm.

These measurements demonstrate steady and consistent growth in the Tejpat and Michelia over the specified time.

iii) Early thinning of regenerated pine forests on UUL: The previously unmanaged pine plantation area was managed by clear-cutting all trees and leaving 311 trees for research purposes Two plots were established from the original plot of 311 trees: Plot A with 3m spacing and Plot B with 4m spacing." 61 trees were removed, leaving 250 trees for research, including 149 trees from Plot A and 101 trees from Plot B.

In July 2021, Plot A consisted of pine trees with a diameter of 8.38 cm and a height of 7.56 m. By February 2023, the diameter increased to 9.49 cm, and the height reached 9.12 m. Similarly, in Plot B, the trees had a diameter of 9.81 cm and a height of 8.78 cm in July 2021. However, by February 2023, the diameter grew to 11.44 cm, while the height increased to 9.79 m. These findings demonstrate substantial growth in both plots, reflecting positive development in the pine trees over the specified period.

The implementation of the thinning technique has garnered significant inspiration among farmers, leading them to apply it to their private forests. Kumar Chaulagain is one such farmer who embraced this approach and incorporated it into his forest management practices. His adoption of thinning demonstrates the positive influence and effectiveness of this technique in promoting sustainable forest management.

iv) In the Alnus plantation trial plot of Ram Krishna Shrestha, the diameter of the trees measured 4.3 cm and the height was 3.49 m in 2021. Subsequently, by 2023, the diameter showed substantial growth, reaching 6.81 cm, while the height increased to 5.16 m.

Figure 2:Alnus plantation trial