WP3:

Multiplication of early generation planting materials and demonstration of vegetatively propagated crops for mixed farming system in North Shoa, Ethiopia

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The Sustainable Intensification of Mixed Farming Systems Initiative aims to provide equitable, transformative pathways for improved livelihoods of actors in mixed farming systems through sustainable intensification within target agroecologies and socio-economic settings.

Through action research and development partnerships, the Initiative will improve smallholder farmers' resilience to weather-induced shocks, provide a more stable income and significant benefits in welfare, and enhance social justice and inclusion for 13 million people by 2030.

Activities will be implemented in six focus countries globally representing diverse mixed farming systems as follows: Ghana (cereal–root crop mixed), Ethiopia (highland mixed), Malawi: (maize mixed), Bangladesh (rice mixed), Nepal (highland mixed), and Lao People's Democratic Republic (upland intensive mixed/ highland extensive mixed).

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Abbreviations and acronyms

ARARI	Amhara Regional Agricultural Research Institute
SDG	Sustainable Development Goals
SI-MFS	Sustainable Intensification of Mixed Farming Systems Initiative
WP	Work Package

Background

The highlands of North Shoa in Amhara region are dominated by cereals (wheat, barley and tef) followed by food legumes. The productivity of cereals and food legumes is low due to biotic and abiotic factors as well as insufficient input supplies like planting materials and other inputs. Farmers are trying to include vegetatively propagated horticultural crops (tubers, bulbs, and fruit trees) into the farming systems. Horticultural crops are very important to diversify diets, incomes and reduce risks of cereal and legume crop production. There are many temperate fruits (apple, peach, pear, plum etc), potato and garlic varieties developed by the agricultural research system but most of them are not demonstrated to the farming communities. Horticultural crops are becoming important due to increased small scale irrigation in the highlands as well as promotion and awareness programs on nutrition.

Objectives

1. Production of early generation healthy planting materials for community-based production.
2. Creating awareness and demand for new varieties to growers; and
3. Improve skills of farmers and development agents

Methodologies

Early generation planting materials of different potato, garlic, banana, and temperate fruit crop varieties released by the research systems were multiplied in Basona-Worana and Ankober in North Shoa. Training and joint evaluation of the innovations were made by stakeholders.

Results

Due to season overlaps, crop yields were not included in the report. Breeder seed of six potato varieties (*Gera, Gorebela, Shenkola, Belete, Gudene, Birhan* and *Dagnaw*) and one garlic variety were planted on 0.58 ha land and 18.7 ton of tubers of potato (Figs. 2&3) and 30 kg of bulbs of one garlic variety were produced. Banana suckers (380) of six varieties (*Grand Nain50, Poyo30, William100, Giant Cavendish 100* and *Dwarf Cavendish100*) were multiplied for mid altitude areas and 380 apple (*MM106, MM111, MM104, and M9*) rootstock varieties were maintained. Temperate fruit seedlings are prepared for distribution in the 2024 season.

Figure 0. 1. Potato breeder seed multiplication, North Shoa

Figure 0. 2: Field evaluation of potato seed multiplication

Training

Training on apple farm management was organized for apple producers in Debre Birhan City, where 33 residents (20 females) were trained. Farmers and development agents (21 women and 16 male) were trained (Fig. 3).

Figure 0.3. Performance of temperate fruit tree nurseries and training on apple farm management

Conclusion

Through the support of SI-MFS, production of breeder planting materials by research center can contribute to drive scaling in the coming season and beyond. The availability of healthy planting materials of horticultural crops is key in bringing more incomes and diversified diets to the farmers.

References

1. https://africa-rising.net/training-offers-skills-for-scaling-up-apple-farming-in-north-shewa-ethiopia/
2. Tsion Tekalign, Adugna Eneyew and Yadeta Bedasa. 2023. Impact of improved potato varieties adoption on household resilience to food insecurity. Journal of Agriculture & Food Research. https://doi.org/10.1016/j.jafr.2023.100737

cgiar.org/initiative/mixed-farming-systems