Youth training in Musina

A practical and theoretical workshop was convened with youth to help them explore agroecological practices to equip them with valuable skills to promote food security, and encourage sustainable livelihoods. Introducing livelihood options to youth that promote diversification and healthy practices to empower and foster sustainable development. In recent years, there has been a growing concern about the declining interest of youth in agriculture, which is a crucial sector for economic development and food security. MDF in conjunction with LIMA have taken an initiative to introduce farming skills and livelihoods avenues to local youth. This aims to explore the importance of youth development in agriculture, the potential opportunities for diversification through value addition, and the adoption of climate change strategies. MDF plays a pivotal role in providing information and guidance to the youth, who require more knowledge in this field. Youth development in agriculture is essential for the sustainability of the sector and the overall economic growth of a nation. Engaging young individuals in farming not only ensures the transfer of traditional knowledge and skills but also brings fresh perspectives and innovative ideas. By introducing farming skills to youth, MDF aims to create a new generation of farmers who are equipped with the necessary knowledge and tools to contribute to the agricultural sector and also a versatile youth. MDF serves as a driver in providing information and guidance to the local youth, who require more knowledge in youth development, value addition, and climate change adoption strategies. By diversifying avenues through value addition and adopting climate change strategies, the youth can contribute to the sustainability and growth of the agricultural sector. It is crucial to continue supporting and empowering the youth in agriculture to ensure a prosperous future for both the sector and the nation as a whole. The prearranged workshops will be provided by MDF for four days on Livelihoods options in a local clinic. Below are a few key concepts outlined for the whole week?

- Agroeceological concepts for building soil profile and fertility and how to control pest and dieses focusing on the following key interventions
    - Trench beds
    - Keyhole garden
    - Tower garden
    - Homemade drip irrigation systems
    - Line levelling
    - Types of Concoctions on pest and dieses management
- Value addition products
- Balanced diets
- Climate adoption strategies
- Balanced diets.

Day 1 and two November 2023

Introducing youth to agroecology concepts holistically, the aim is to equip youth with the knowledge and skills to understand, learn, and implement agroecological concepts in their households and communities. By adopting agroecological practices, we advocate for better living conditions for locals and future generations, while also ensuring the health and vitality of our ecosystems. The week training, will infuse opportunity to explore and learn in detailed various agroecological techniques such as trench beds, keyhole gardens, tower gardens, line level drip irrigation, and self-made concoctions for pest and disease control. These techniques are

designed to maximize productivity while minimizing the use of synthetic inputs and harmful chemicals. By them learning how to create their own concoctions using organic ingredients can effectively manage pests and diseases without harming the environment or compromising health.
Through this ongoing training, MDF aim to empower youth to become ambassadors for agroecology in their households and local communities. By implementing these practices, youth can contribute to a sustainable and resilient future, where the well-being of both humans and the environment are prioritized.

Trench Beds: Trench beds involve digging long, narrow trenches and filling them with organic matter, compost, and soil. This method increases water retention, improves soil fertility, and promotes healthy root growth. The size of the trench be is 4m length by 1m wide and depth. The terrain of Manezhe clinic is very rocky with mostly sand top soil. It was a very tiring exercise for the youth but a good learning on how to improve soil fertility.

Trench beds encourage biodiversity, attracting beneficial insects and animals that help control pests and diseases naturally. By creating a balanced ecosystem, predatory insects and other natural enemies of pests are attracted, which reduces the need for chemical pesticides. This promotes healthier plants and a more sustainable approach to pest management. Trench beds emphasize the importance of nutrient cycling within the system. Organic waste, such as crop residues and animal manure, is recycled back into the system through composting or mulching. This helps replenish nutrients in the soil, reducing the need for external inputs and improving long-term soil fertility. The aim is to create a harmonious and sustainable ecosystem that supports plant growth, soil health, and ecological balance. By mimicking nature's patterns, these systems can enhance planting practices and contribute to prolonged soil fertility.

Ecocircle: ecological circles, are used in sustainable agriculture and permaculture. The main purpose of an eco-circle is to create a self-sustaining system by mimicking natural patterns and processes. It aims to optimize the utilization of resources, reduce waste, and enhance overall ecosystem health.

The use of eco circles has several benefits, including improving planting and prolonging soil fertility. Eco circles utilize various techniques to improve soil fertility naturally, without relying heavily on chemical fertilizers. We encourage companion planting growing different plants together, where some plants provide nutrients to others, enhancing overall soil fertility.

Dreikönigsaktion
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Additionally, organic matter from composting and mulching is incorporated to enrich the soil with essential nutrients and improve its structure.

Fruits tress and herbs in the garden: Planting fruit trees adds layers to the ecosystem, providing shade, wind protection, and microclimates. Fruit trees also attract pollinators and offer habitat to various organisms. They produce delicious and nutritious fruits, increasing the overall productivity. Additionally, fruit trees add aesthetic value to the system, making it visually appealing. Adding herbs under the fruits provide several benefits as lots of herbs have natural pest-repellent properties, helping to control pests without the need for harmful chemicals, additionally, herbs attract beneficial insects that contribute to pollination and pest control. Moreover, herbs can be used for culinary purposes, providing fresh flavours and enhancing the overall biodiversity of the ecosystem. Introducing herbs as dietary requirements to the community is very key as it makes community to diversify.

Tower garden: Tower gardens are vertical gardening systems that allow plants to grow in a compact and space-efficient manner. They are particularly useful when there is limited horizontal space available. Tower gardens enable the cultivation of a wide variety of plants, including herbs, vegetables, and even small fruiting plants.
The garden is for those who are having trouble digging trench beds etc. for those who are residing in cities and having limited space tower garden is a way to go.

Drip Irrigation: Drip irrigation is a method of delivering water directly to the plant roots, minimizing water wastage. The design usually involves a network of tubes or pipes with small emitters that release water slowly. This system conserves water, reduces weed growth, and promotes more efficient nutrient uptake. MDF has designed easily user friendly and cheap drip irrigation, youth has been trained on how to make the drip system from the start so that they can incorporate this to their local gardens and their households.

Line levelling Line levels - ("string" levels) are a special brand of spirit level used for levelling across longer distances. They are attached to a tightly pulled string to find level between two stakes in the ground to find level ground.

- Find a length of string and two wooden stakes.
- Tie one end of string to a wooden stake and hammer it into the ground at the highest elevation in the area.
- Hammer in the second stake across the area you want levelled.
- Pull the string across and tie the other end to the second wooded stake loosely.
- Place the line level on string within eyeshot.
- Pull the string as tight as possible to get the most accurate reading.
- Adjust the string up and down until the bubble sits between the two black lines on the vial.
- Secure the string.
- You have found level between both stakes. Use the marks on the wooden stakes to make measurements for your project

The line levelling was used to make stone lines to control water movement and stabilize soil erosion. Using stone lines is an effective technique to control soil movement and prevent the loss of nutrients. Stone lines act as physical barriers that minimize soil erosion and runoff, helping to retain the soil and nutrients within the field.

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Homemade concoctions for improving soil and crops nutrients - Using homemade concoctions brews for soil improvement and pest and disease control is a cost-effective and environmentally friendly way to maintain a healthy garden. These homemade concoctions are made using natural ingredients such as herbs, fruits, and vegetables that are easily accessible in most households. They can be used as a foliar spray or added directly to the soil, providing essential nutrients and promoting healthy plant growth. Furthermore, these brews can also act as a natural pesticide, repelling pests and diseases without harming beneficial insects. This method of using homemade brews also reduces the need for chemical fertilizers and pesticides, which can have harmful effects on the environment and our health. By utilizing these natural and organic solutions, not only are we improving the quality of our soil but also creating a healthier environment for ourselves and our community. It is a simple yet effective way to achieve a bountiful and sustainable garden.
Foliar spray was chosen to train the youth on, the following ingredients are needed to do foliar concoctions:

Bin/drum/bucket	230l
Fresh manure	30kg
milk	5L
sugar	5kg
wood ash	4kg
bone meal	4kg
Weeds, comfrey, green materials	3-5x20l
agricultural lime	2-3kg

The foliar spray concoctions should be left for 15 days before it can be used in the garden. Measurement is for utilizing in crops you is you need 1lt of fresh foliar spray concoctions and add 4lt fresh water.
Brews for pest and dieses control – for pest and dieses control with materials that are easily accessible within the communities of

Chilli, garlic	Small bunches (handful
Bar soap	1-2 bars
Paraffin	Small bottle
onion	1 large
Chopping board, knives, empty containers/small buckets	

Erna asked what are pest.
Some of the youth outlined bees as pest, anything infesting on our vegetables and tress
Erna emphasised that bees are the friend of the garden, and said that people should plant crops that attracts important insects in the garden. Some of the key things farmers should do to avoid lots of pesticides is doing the following:

- Monoculture we should intercrop and do crop rotation
- We need to be confusing pest and dieses within the garden
- We need to balance nature in the garden

- Practice companion planting to repel and confuse pests or plant decoy plants to attract pests away from your plants.

The brewer created is for soft boded insects like aphids, we need to spray two to three times a week, dilute 1lt to 4lt of the mixture on the plant. As direct spraying can burn the crops and kill them.

Day3 03 November 2023

Day three training was mostly theory and add up from the previous days training, and practical's on value addition training to give youth more options on how to do diversify in livelihoods options. The following outlined training focused on.

- Climate change
- Nutrition
- Value addition training

Climate change

Climate change poses significant challenges to the agricultural sector, including unpredictable weather patterns, increased pest and disease outbreaks, and water scarcity. To ensure the sustainability of farming practices, it is crucial to adopt climate change adaptation strategies. The MDF plays a vital role in introducing these strategies to the youth, who need to be aware of the potential impacts of climate change on agriculture and the available techniques to mitigate these effects. This can include promoting sustainable farming practices, such as organic farming, agroforestry, and water conservation methods.
MDF asks what Climate change is. Most of the youth struggled to answer the question it seemed language was a bit of bearer or they couldn't comprehend the concept of climate change. But eventually they got it
Climate change has significant environmental, social, and economic implications. It poses risks to ecosystems, biodiversity, and natural resources. It affects agriculture, water availability, and food security. Rising sea levels threaten coastal communities and increase the frequency and intensity of coastal flooding. Extreme weather events disrupt livelihoods, because property damage, and can lead to the displacement of communities. Climate change also exacerbates existing social inequalities, as vulnerable populations are disproportionately affected.

Climate change- can manifest in various signs and changes within a community. Here are some examples:

Changes	Impacts
Increased temperatures	Rising average temperatures and heatwaves are common signs of climate change. This can lead to more frequent and intense heatwaves, affecting human health, agriculture, and ecosystems.
rainfall patterns	Changes in precipitation patterns, leading to more intense rainfall events or prolonged droughts. This can impact water

	availability, agriculture, and the risk of floods or wildfires.
Changing ecosystems	Disrupt ecosystems by altering the habitats of various plants and animals. For instance, some species may experience shifts in their geographical ranges or changes in migration patterns.
Rising sea levels	As global temperatures increase, ice caps and glaciers melt, causing sea levels to rise. This can lead to coastal erosion, saltwater intrusion into freshwater sources, and increased vulnerability to coastal flooding.
Extreme weather events	Climate change can contribute to more frequent and severe extreme weather events such as hurricanes, cyclones, and storms. These events can result
Species and biodiversity loss	Extinction or migration of certain species as they struggle to adapt to changing conditions.

These signs and changes are not exhaustive, and their impacts can vary depending on the geographical location and local conditions of a community. It is important to monitor and address growth, reproduction, and survival. This can lead to changes in species composition and distribution, potentially disrupting entire ecosystems.

Climate-smart agriculture

Climate-smart agriculture - are practices and systems that aim to sustainably increase agricultural productivity while adapting to climate change and reducing greenhouse gas emissions. Adopting such systems is important for nations, especially farmers, for several reasons: It's important to note that the consequences of altered rainfall patterns can vary depending on regional and local factors. However, understanding and addressing these potential

consequences are crucial for effective water resource management, agriculture, and disaster preparedness in the face of climate change. Agricultural productivity: Changes in rainfall patterns can significantly affect agricultural productivity. Droughts can lead to reduced crop yields, livestock losses, and increased vulnerability to pests and diseases. Conversely, excessive rainfall can damage crops, cause soil erosion, and hinder fieldwork.
The concept of Climate-smart agriculture helps farmers cope with the impacts of climate change, such as extreme weather events, changing rainfall patterns, and rising temperatures. By implementing practices like crop diversification and improved water management, farmers can build resilience and reduce vulnerability.

Increased productivity: Climate-smart agriculture practices enhance agricultural productivity by optimizing resource use and minimizing waste. This can lead to higher yields, improved food security, and increased income for farmers. Environmental sustainability: By adopting climate-smart agriculture, farmers can contribute to environmental sustainability. Practices like soil conservation, efficient water management, and reduced use of synthetic fertilizers and pesticides help preserve natural resources, prevent soil erosion, and protect biodiversity. Mitigation of greenhouse gas emissions: Climate-smart agriculture also focuses on reducing greenhouse gas emissions from agricultural activities. By implementing techniques like agroforestry, conservation agriculture, and integrated pest management, farmers can minimize the carbon footprint of their farming practices. A new technic has been adopted to help farmers mitigate and copy with the climate challenges they have within their respective communities, the five fingers principles

- **Finger number 01** - Soil management: This involves practices like conservation tillage, cover cropping, and crop rotation to improve soil health, reduce erosion, and enhance nutrient cycling.
- **Finger number 02** - Water management: Smart farming techniques include efficient irrigation systems, rainwater harvesting, and precision irrigation to optimize water use and minimize water wastage.
- **Finger number 03** - Crop management: This involves using improved crop varieties, integrated pest management, and precision agriculture techniques to optimize crop production, reduce pest and disease risks, and minimize the use of synthetic inputs.
- **Finger number 04 -** Soil fertility management: Smart farming practices focus on sustainable soil fertility through techniques like organic matter addition, nutrient recycling, and balanced fertilization.
- **Finger number 05** - Nature management: Smart farming emphasizes the protection and enhancement of biodiversity and ecosystem services. This involves practices like agroforestry, habitat conservation, and promoting beneficial insects for pest control.

By adopting these principles and practices, farmers can achieve sustainable agricultural production, enhance resilience to climate change, and contribute to the overall well-being of the environment. Mitigating climate change challenges in organic farming requires a holistic approach that addresses both adaptation and mitigation strategies. It’s important to note that climate change impacts can vary across regions, so it's crucial to tailor mitigation strategies to specific local conditions and farming systems. Consulting with local farmers for further information about local weather or climate can also provide valuable insights and knowledge-sharing opportunities and better preparation for trainings.

Nutrition

Betty introduced daily food intake, she gave a pie example on what are glow, grow and go foods.

Types of food	What to eat
Glow- key Foods are rich in vitamins, minerals, and antioxidants, which help promote healthy skin	Fruits, vegetables, and certain types of nuts.
Grow foods- are rich in protein, which is essential for the growth and repair of tissues in our bodies	Meat, fish, poultry, eggs, dairy products, legumes, and nuts.
Go foods- provide energy and fuel for our daily activities. They are high in carbohydrates	Grains, cereals, bread, pasta, rice, and starchy vegetables like potatoes.

It is important to have a balanced diet that includes all three types of foods. While the specific percentage of each category may vary depending on individual needs and dietary goals, a general guideline is to aim for a diet that consists of approximately 50% glow foods, 30% grow foods, and 20% go foods.

Betty gave the youth a task to design daily food consumptions for the following age group looking into what she has taught them about nutrition.

Age group	Breakfast	Lunch	Supper	
45-60	Starch – sweet potatoes	Starch - Pap	Starch -Rice	
	Proteins - Milk Fresh milk	Proteins -Chickens breast	Proteins- grilled beef	
	Vegetables – steamed carrots	Vegetables- Spinach	Vegetables- boiled beetroot	
	Fruits – Apples	Fruits- orange	Fruits - grapes	
	Sugar			

Erna asked why you add sugar to this age group as they are prone to most chronic dieses like Sugar diabetic and high blood. You should be careful on what is being given to the elderly

Plate for 65 and above

Age group	Breakfast	Lunch	Supper	
30-39	Soft porridge made from mabele	Starch - Pap milk and Veg	Beans and Rice	
	Mageu	Grapes	Butternuts	
	Fruits and banana	Sweet potatoes	Boiled eggs	
			Water	

Plate for 65 and above

Age group	Breakfast	Lunch	Supper	
Grandmother and grand Father	Soft Porridge with milk	Pap, spinach , fish,	Starch -Rice	
	Brown bread, chess, eggs and tea	Red meat	Cooked beans	
	Banana	Apple	Chicken	
			Fruits - grapes	

Plate for 05 to years Children

Age group	Breakfast	Lunch	Supper	
05 to 10 year old babies	Slice of brown bread and eggs	Cup of pap, Spinach and drum stick	Rice- green beans and fish	
	Banana	Cup of milk	Pumpkins	
	Cup of tea	Apple	water	

Why do we give babies soft porridge? Because their tummy is small so digestion of food will be slow they need to eat mostly soft food.

Food Preservation

Diversification Avenues: Value Addition

One of the key avenues for diversification in agriculture is value addition. Value addition involves transforming raw agricultural products into processed goods with higher value and market demand. By introducing youth to value addition techniques, MDF aims to encourage youth to explore entrepreneurial opportunities in agriculture. This can include activities such as food processing, packaging, and branding, which not only add value to the products but also create employment opportunities and increase income for the youth. Training youth in value addition plays a crucial role in adding value to individual skills, especially for the youth facing joblessness in shrinking economy of South Africa. Diversification skills, such as learning how to make archers, sweet chill, and jams, can greatly enhance their relevance and ability to sustain themselves by selling food products. By equipping the youth with the necessary training, they can not only acquire new skills but also contribute to the local economy by creating their own businesses and generating income. This enables them to become more self-reliant and less dependent on traditional job opportunities. Some of the key concept introduced to youth for food processing and preservation with ingredients needed below:

Name of the initiative	Ingredients	Measurements	
Chilli sauce	Rice vinegar	250-ml	
	Sugar	Small packet 100g	
	Chillies - red	100-200g	
	Garlic	1 bunch	
	Ginger	1 bunch	
	Cornstarch/maize	100g	
	Natural red food coloring	1 small bottle	
Vegetable Achar	Cauliflower,	1 small	
	Carrots,	1 small packet	
	Cabbage	1 small	
	Green beans	1 small packet	
	Coarse salt	1 small packet	
	White vinegar	250ml	
	Canola oil	250	
	Pickle masala	50-100g	
Sweet potato bites	Spring onions	1 small bunch	
	Flour	250g	
	sweet potato	500g	
	Egg	6	
	Fresh cream (optional)	125ml	
	Baking powder	1 small packet	
	Oil for frying	2l	
	Lemons	500g	
	sugar	3,5 – 4 kg	
	chopped melon	1kg	
	lemon juice	small bottle of lemon juice	

Marmalade Jam	ginger gelatine Pepper, black	1 small bottle dried 1 small box 1 small bottle	 
Draying of vegetable	Cauliflower Tomatoes Green pepper Green beans Sweet potatoes	Need to add the vegetable for a less than 5 minutes in boiling water. Add vinegar for keeping the colour of the vegetables	
Pesto	3 garlic cloves(minced Parmesan cheese Pine nuts or chopped walnuts or almonds or other nuts Olive oil Mixed, fresh herbs packed Salt and black pepper	1 tablespoon) 1/2cup 1/3cup 1/2cup 2 cups ¼ teaspoon	

The training is teaching the youth to be more self-reliant and less dependent on traditional job opportunities it is important for youth to be versatile as the social employment fund is not a long term program so it may not always be readily available and not promised to be nonstop funding. By developing diverse skills and entrepreneurial abilities, youth can create their own opportunities and become more resilient in the face of economic challenges. Self-reliance allows youth to have greater control over their own financial stability and future. Relying solely on traditional jobs leaves individuals vulnerable to layoffs, job insecurity, and limited income potential. By diversifying their skills and becoming self-reliant, youth can explore various income-generating avenues and have greater flexibility in their career paths. If the youth become less dependent on traditional job opportunities promotes innovation and creativity. It encourages young individuals to think outside the box, explore new industries or sectors, and discover unique ways to contribute to the economy. This can lead to the development of new businesses, products, and services, driving overall economic growth and job creation. Lastly, self-reliance fosters a sense of empowerment and personal growth. becoming more self-reliant and less dependent on traditional job opportunities empowers youth, enhances their financial stability, promotes innovation, and fosters personal growth. It is a key aspect of preparing them for the challenges and opportunities of the ever-changing job market.

In conclusion, it appears that some youth were overwhelmed by the training program. There could be several reasons for this. It’s possible that they may not have been initially interested in the agroecological aspects of the program. Some individuals may have joined the program with different expectations or motivations, such as solely focusing on financial gains rather than the opportunity to learn new skills. However, it's important to acknowledge that this kind of program has numerous benefits overall.

- It provides an avenue for skill sharpening and introduces participants to new skills related to agroecology
- Value addition products
- Climate adoption strategies
- Balanced diets.

These skills are crucial in addressing the challenges posed by climate change and promoting sustainable farming practices. While some participants may have felt overwhelmed providing ongoing support, mentorship, and creating a supportive learning environment can also contribute to the success and effectiveness of the program. Overall, while there may be challenges in engaging all participants, the program's positive impact on skill development and knowledge enhancement in agroecology is vital for the overall program