Masilimeni Training of Trainers proposal; Lima. May 2016- January 2017.

# Introduction

There is a need to train the main field work team for the new Masilimeni programme for Wesbank 2016-2019, to provide a coherent implementation process in all three sites with quality and standardised inputs for training and learning sessions for participant farmers.

The Masilimeni programme is to include more in depth training for farmers at three levels (Survivalist, subsistence and livelihoods- ***See Appendix 1: farmer Categories***), with a progression of information and skills levels built in. New topics are also to be included; nutrition and value adding, including dietary diversity scores, soil and water conservation and rainwater harvesting, diversification, seed saving, fruit production, conservation agriculture, savings, local savings and credit clubs, budgeting, marketing and micro enterprise planning.

# Best Practice options

Best practice in implementation is important to ensure ecological, production and economic sustainability and needs to be worked into the learning and implementation process. In addition it is part of the Resilience index that will be used in the monitoring of all gardens.

The following are key practises to focus on in assisting the farmers to develop sustainable farming systems:

1. Diversity of production system: expand multi-species combinations and diversity of crops at different levels (e.g. crop, field or landscape); including integration of animals and agro-forestry. Include continuity and diversity of crops in nutrition planning at household level.
2. Soil fertility: build up and nurture soil biodiversity through practices such as minimum soil disturbance, year-round organic cover, use of compost and green manure, and diversified crop rotations.
3. Pest control: designing (through local experimentation and adaptation) and practising “Integrated Pest Management” systems that will include practices such as inter-cropping, crop rotation, growing pest-resistant or tolerant cultivars from certified seed, integrated weed management, applying field sanitation measures, and enhancing the habitat for beneficial organisms. The use of chemical pesticides, insecticides and herbicides should be a last resort.
4. Agro-forestry: add trees and shrubs to the system that will compliment other practises such as soil fertility, and that adds to the productivity of the total system.
5. Crop and livestock production mixed systems: add livestock to the system in ways that will have positive interactions and benefits with the other components.
6. Water use management and water harvesting: consider practices that will improve the availability and use of water.

# Training overview and outline

A learning process is proposed that would consist of 3x4 day sessions over a period of 5 months, with follow-up and mentoring support provided in all three sites for a further 4 months. The idea is to hold a one week long session in each of the three provinces; KZN (PMB), Mpumalanga (BBR) and Limpopo (Sekororo).

The training sessions are to be designed to include both theoretical input session (with notes and, training agendas, visual aids and farmers’ handouts) as well as practical implementation sessions and thus appropriate sites and venues will need to be found.

The proposed process is thus:

* Presentations, Training of trainers notes, farmers’ handouts
* Group practise and practical demonstrations
* Facilitation in a learning environment with farmers

Sessions are planned for 1 day per theme. It could be advantageous to include more participants from each office – besides the 6 primary participants (Mishgirl, Gilbert, Velelo and new fieldworker, Lunga (Hammarsdale-RCL), Mpho (FreeState- CWP), to broaden the learning base and make for more cost effective training.10-15 Participants would be ideal.

External training facilitation especially in nutrition and small business development will be sought.

Potential venues were initially suggested to be the site offices. It may however also be advantageous to search out other options such as Dovehouse organics, Cedara, Newlands-Mashu Permaculture Centre and Mahlathini Organics for some of the speciality sessions. For the garden design and soil and water conservation work it is suggested that an appropriate community level garden be chosen, where participants are keen for the full “make-over” and where resources and local labour can be brought in.

## Outline of proposed course

#### SESSION 1: KZN: Inside venue, kitchen and orchard

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| **THEME** | **TOPICS** | **PRACTICALS** | **MONITORING** |
| Nutrition and value adding/ processing  2-2,5days  **KITCHEN** | \*Go, grow, glow food  \* Vitamins linked to traditional foods  \*Malnutrition nod symptoms  \*What’s on my plate  \* Recipes and ingredients  \*Drying (drying frame, blanching)  \* Food preservation; sugar, salt, vinegar  \*Interesting foods; traditional recipes | -Nutrition gap analysis  -What’s on my plate  -Gardening diversification including legumes and fruit  -Cropping calendars  -Monitoring exercises  -Preparation of nutritious snacks  -Blanching and drying  -Ibece jam  -Sweet potato bites  -Piccalilli or atjar *Orange fleshed sweet potato course, ibece, different seeds for diversification*  -Workshop agenda | Weekly diet and meals charts  Gardening monitoring forms  Dietary diversity score (DDS)  Local facilitators  *Nutrition (WRC)*  *Value adding manual (EFSP)*  *Traditional food prep (EFSP)*  *Trad Food DVD (EFSP)* |
| Marketing and small business development  2,5 days  **INSIDE VENUE** | \*Market system analysis  \*Marketing surveys  \*Niche markets  \*Pricing  \*Cash flow analysis  \*Small business plan development  \*Savings and credit groups (VLS groups)  \*Case studies | -Develop a process of setting up a VLS group  Analysis of savings and expenditure on household level  -Budgeting and pricing exercises  -Workshop agenda | Resilience index  Cost- benefit anlaysis  Business plans, budgets  Small business training and VLS groups *Information from: Mahlathini, StratAct, VLS* |

#### SESSION 2: MPUMALANGA; Inside venue, garden with stream close by, access to stones;

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| **THEME** | **TOPICS** | **PRACTICALS** | **MONITORING** |
| Water and soil conservation  2 days | \*RWH: Introduction, water in the landscape  \*Contours, swales, berms and bunds, Lesotho case study  \*Infiltration pits, check dams, garden ponds and small earth dams  \*Roof rainwater harvesting  Gravity fed water; heads, flow, pumps | -Line levels, A-frames  -Measuring contours and slope  - Making a contour and swale  - Making a diversion ditch and small garden pond  - Building check dams (sandbags or stones)  - Using a treadle pump  -Workshop agenda | Resilience index  *WRC RWH manuals*  *RWH DVD* |
| Garden Layout and design  0,5-1 day | \*Slope, aspect, orientation  \*Sun, wind, water  \* Matshepo’s run on system  \*Windbreaks  \*Frost protection | -Workshop agendas  -Water flow drawings  -Planning a diversion furrow and cut off drain  -Spacing and planting windbreaks  -Stone bund and bed construction  -Workshop agenda | Garden monitoring forms, Resilience index,  ***See Appendix 2: Alternative 1 layout***  *WRC manuals* |
| Visioning  1,5hrs | \*Helicopter planning and drawing | Garden plans | Garden monitoring forms, Resilience index, registration baseline household information |
| Natural pest and disease control  0,5 day | \*Integrated gardening; plants, layout, sanitation  \*Pest control brews  \*Disease control; plants, sanitation and brews | -Examples of plants and mixed cropping- do tyre gardens  -Make brews (pest and disease)  -Identifying different pests  -Workshop agenda | Garden monitoring forms, Resilience index  *Natural pest and disease control handbook (EFSP)* |
| Seed Saving  0,5 day  **ON SITE WITH PLANTS IN SEED** | \*Gardening for seed saving  \*How to grow and select plants for seed saving; open and cross pollinations, OPV’s, hybrids, GMOs  Cleaning and storage | -Cleaning seed  -Garden Plan for seed saving  -Caging  -Bottles etc for drying and storage (*bottles, silicon, ash, rune, chilli, aloe, oil...)*  -Workshop agenda | Garden monitoring forms  Resilience index  DDS |
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SESSIONS 3: LIMPOPO; Inside venue, garden with access to manure, grass, seedlings, plants, trees etc

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| **THEME** | | **TOPICS** | | **PRACTICALS** | **MONITORING** |
| Soils and bed design  2 days | | \*Soil types, texture, structure  \*Soil nutrients: Including carbon sequestration, nitrogen, soil microbes  \*Natural sources and fertilizers, including compost  \*Bed design; water and nutrients  \*Trenches – deep and shallow  \*Double digging, eco-circles, banana circles  \*Grey water; tower and keyhole gardens | | -Soil tests; bottle, sausage  -Testing structure and infiltration (VSA)  -Reading soil sample test results  -Working out fertilizer quantities  -Lay out and construct all bed types  -Do tower and keyhole | Garden monitoring forms, Resilience index, household information  *Soil fertility DVD (EFSP)*  *Soil fertility manuals, (EFSP, WRC)* |
| Diversification  0,5 day | | \*Brews for plant nutrition  \*Mixed cropping intercropping, relay cropping, crop rotation  \*Mulching  \*Green manures and agro-forestry  \*Integration of small livestock  \*Seedling production  \*Earthworms | | -Make brews  -Exercise to design mixed cropping system, incl green manures  -Making and sterilizing seedling mixtures  -Chicken tractor | Garden monitoring forms, Resilience index, household information  *Soil fertility DVD (EFSP)*  *Soil fertility manuals, (EFSP, WRC)* |
| Conservation Agriculture  1 day | | \*Principles  \*Cropping systems; furrows, basins, mulching, planters  \*Crop diversification; incl winter and summer cover crops and mixes  \*Herbicides; labels, types adjuvants, wetters etc | | -Layout and planting; basins, furrows, manure and fertilizer  -Spraying; using a knapsack sprayer, calibration, dilution and mixing herbicides, protective clothing. | Garden monitoring forms, Resilience index, household information  *CA manual (GrainSA)* |
| Fruit production  1 day  **ON SITE WITH FRUIT TREES** | \* Fruit types, varieties  \*Succession planting and planning  \*Planting and caring for fruit trees, layout, water harvesting basins  \*Propagation; seed, cuttings, grafting | | -Fruit seed processing  -Do cuttings (*root powder)*  -Demonstrate grafting (*tape)*  -Design a garden with types and varieties (*get variety lists)*  -Planting trees, basins and berms, under canopy crops (*seed)*  -Pruning (*shears, wound seal)*  -Workshop agenda | | Garden monitoring forms  Resilience index  DDS  *Fruit production (WRC)* |
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# Appendix 1: farmer categories

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| **Farmer category** | **Indicators** | **Best Practices** |
| **SURVIVALIST**  Farmers at the survivalist phase are characterized by low or no household agricultural activity • Poor knowledge and/or implementation of low input agricultural methods  • Limited crop diversity  • Low yields resulting to infrequent use of household gardens as a primary source of food  • Low yields resulting to low income from the sale of agricultural outputs.  • The sales made are to generally meet other essential needs that the household deems more important than consuming fresh vegetables from the garden. | Income: R0-R100  Crop diversity: one type of crop  Harvesting at most twice a week  DDS  Resilience | **1. Nutrition**  **2. Garden layout:** trench bed, cut off drain, run on channels, wind breaks, tower garden, key hole garden, grey and rain water harvesting. 3. **Bed design and soil fertility:** Mulching, Double digging, Shallow trench, Composting**.4. Diversified crop production:** Intercropping, Crop rotation, Legumes, short and long season crops. **5. Pest and disease management. 6. Value adding and processing. 7. Seed saving** |
| **SUBSISTENCE** Subsistence stage farmers are characterized by significant resource constraints that limit their levels of production • They are able to apply their knowledge and skills set to achieve moderate levels of production • Yields allow for the farmer to harvest at least three times from the garden in a week • Diverse range of at least three crop types as a primary source of food • Surpluses are either sold, bartered are given away to family, neighbours and friends • Income made from sales from the garden averages at between R100 and R200 a month.  •In come from sales made may be used to meet other essential needs that the household deems more important than consuming fresh vegetables from the garden. | Income: R100-R200  Crop diversity: 2-3 crops  Harvesting at least three times a week  DDS  Resilience | **1. Nutrition**  **2. Garden layout:** trench bed, cut off drain, run off channels, wind breaks, tower garden, key hole garden, grey and rainwater harvesting. **3. Bed design and soil fertility:** Mulching, Double digging, Shallow trench, Composting, improved liquid manures, soil types and soil structure, eco trench, banana circle.**4. Diversified crop production:** Intercropping, Crop rotation, Legumes, short and long season crops, fruit production, field crops, CA. **5. Pest and disease management. 6. Value adding and processing. 7. Seed saving** |
| **Early Livelihoods** Early livelihoods farmers are moderately resource constrained but are able to consistently produce a marketable surplus resulting in incomes averaging between R200 and R500 a month for at least six months (below or at poverty line).  • These farmers are effectively applying farming techniques and knowledge enabling them to produce for household consumption • Incomes generated from sales is used to improve household food security and to strengthen livelihoods.  • Farmers are more independent and require more specific and specialized assistance/interventions and on farm advise.  • The interventions at this stage lean more towards record keeping and financial management.  • Because of the income generated from sales, it is important to track the dietary diversity of the farmers to assess the food security levels of the farmers.  At this level, farmers start to invest increasingly more in their agricultural activities. | Income: R200-R500  Crop diversity: 2-3 crops  DDS  Resilience | **1. Nutrition**  **2. Garden layout**: wind breaks, contour lines, fencing. **3. Bed design and soil fertility:** Composting of manure, improved liquid manures, soil types and soil structure, NPK fertilizer use and LAN and associated soil tests. **4. Diversified crop production:** Intercropping, Crop rotation, Legumes, short and long season crops, fruit production, field crops, CA, integrated livestock production. **5. Pest and disease management:** tailored for specific crop diseases and pests**. 6. Value adding and processing. 7. Seed saving 8. Business and financial management:** Record keeping |
| **Livelihoods** Livelihoods farmers consistently produce a surplus for market.  • The income generated from the surplus should be more than R500 or at above the poverty line averaged per month over a year.  • At this stage farmers are self-sufficient and are sustaining their livelihoods fully through agricultural production.  • Interventions at this stage are specialized and there is more emphasis on record keeping, financial management and business skills development. Increased focus on nutrition and good dietary requirements.  • Because of the income generated from sales, it is important to track the dietary diversity of the farmers to assess the nutritional food security levels of the farmers.  At this level, farmers start to invest increasingly more in their agricultural activities. | Income: >R500  Crop diversity: 2-3 crops  DDS  Resilience | **1. Nutrition 2. Garden layout:** wind breakers, contour lines, fencing. **3. Bed design and soil fertility:** Composting of manure, improved liquid manures, soil types and soil structure, NPK fertilizer use and LAN and associated soil tests. **4. Diversified crop production:** Intercropping, Crop rotation, Legumes, short and long season crops, fruit production, field crops, CA, integrated livestock production. **5. Pest and disease management:** tailored for specific crop diseases and pests both chemical and natural means of pest and disease control. **6. Value adding and processing. 7. Seed saving 8. Business and financial management:** Record keeping, sound business practices |

# Appendix 1: ALTERNATIVE 1 Garden layout

HOUSE , BUILDINGS

**RUN-OFF WATER**

CHANNELING

DITCHES

CUT OFF DITCH AT THE TOP OF THE GARDEN

Windbreak planting

10m

0.5m 2m 1m 2m 1m 2m 0.5m

1m trench bed trench bed trench bed

1m

Double digging Keyhole / tower Double digging

1m

Fruit tree shallow trenches for beans, potatoes,

Sweet potatoes, maize

Windbreak planting

NOTE: The exact layout will depend on the conditions in the garden. You may decide to lay the whole garden out in beds that have been double-dug, or to only do shallow trenches or to use a combination of both.

#### Garden layout tasks defined

1. Water channelling ditches for run-off from structures to the garden (1pd) *(30cm deep and 30cm wide, 20meters long)*
2. Cut-off ditch at the top of the garden – on contour if possible (1pd) (*30cm wide, 30cm deep and 20m long)*
3. Deep trench beds (x10) laid out in a grid (as shown on picture below) (20pds; 1pd to dig each bed and 1pd to fill each bed. This includes the time to collect the material) *(Trench is 1m wide, 1m deep and 2m long)*
4. Building of a tower garden (1pd) or a keyhole garden (2pds) *(specific instructions in handouts provided in supervisor training sessions)*
5. Planting of 2-4 fruit trees (1pd) *(Holes for trees are to be 60cm wide, 60cm long and 60cm deep)*
6. Planting of windbreaks (2x10m) (2pds) *(1pd to collect material and 1pd to plant the 2x10m rows)*
7. Plus specific requests from the household; eg clearing of grass (10mx10m – 2pds),

**TOTAL: 30 person days**