mahlathini development foundation

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Promoting collaborative, pro-poor agricultural innovation

2003-2018






Our Mission

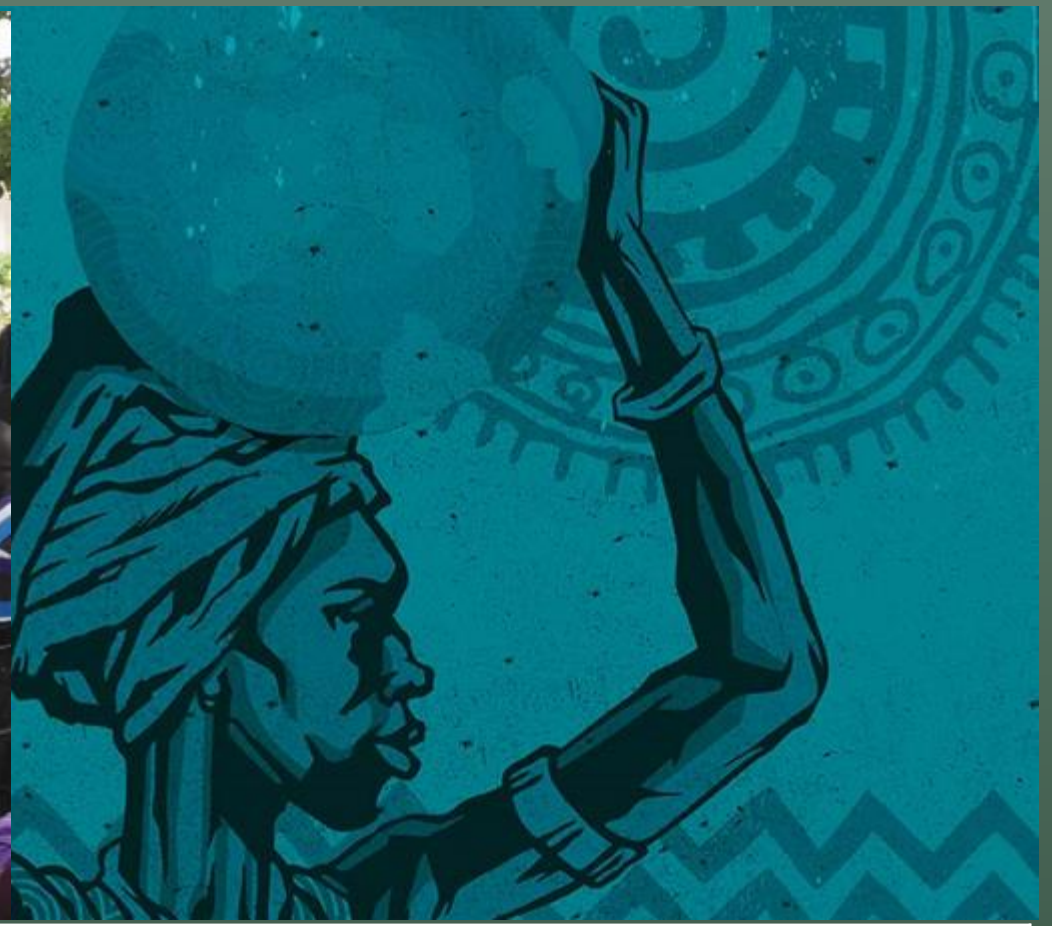
- To design and implement innovative projects and programmes which promote collaborative, ***pro-poor agricultural innovation,*** working in partnership with other organizations and communities.
- To work at the cutting edge of development methodology and process integrating ***learning (training), research and implementation*** into new models and processes emphasizing synergy and integration.

CSA PRINCIPLES

- Minimize external inputs
- Maximise internal diversity
- Focus on soil health and natural soil building techniques
- Take care of the environment
- Use available water as efficiently as possible.
- Work together, learn together and plan together
- Local solutions and economies
- Farmer driven development
- Getting our hands dirty

Community based CCA

- Conservation Agriculture 2013-2018- Maize Trust;
  - KZN, EC -550 farmer led CA trials
- Smallholder CSA Decision support 2017-2020 – WRC;
  - 15 Village based sites across KZN, Limpopo, EC (200 participants)
  - (S&WC, agroecology- gardening, CA-field cropping, livestock and natural resource management)
- **Community CCA 2017-2019 – USAID (AWARD);**
  - **7 Villages in Lower Olifants' Basin (150 participants**)



RESILM-O: Resilience in the Limpopo Basin Program– Olifants'

Lower Olifants' catchment

Agricultural Support Initiative (AgriSI);2017-2019

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award

MENWANA E MEHLANO/ FIVE FINGERS

Ditsela tše hlano tšeo di ka dirago gore temo e be maleba / kaone

2. GO FOKOTŠA KGOGOLEGO YA MOBU
CONTROLLING SOIL MOVEMENT

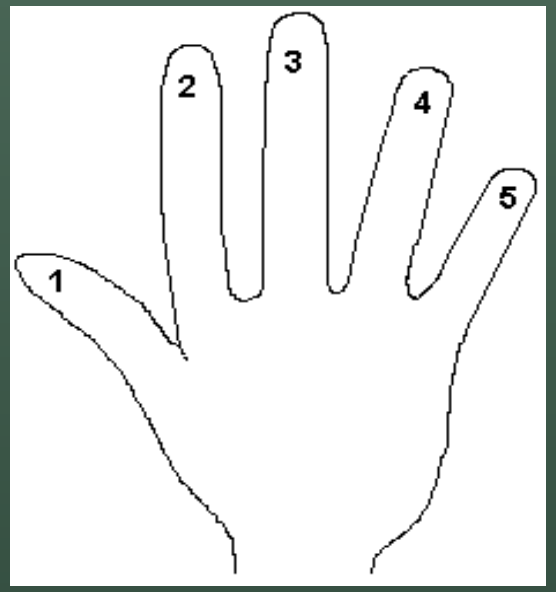
Cut off drains – ditches across a contour at top of garden/slop
Contours- measured with line level
Stone lines/bunds- made on contour
Strip cropping-
Sand bags for erosion control-

•1. GO KAONAFATŠA TAOLO YA MEETSE
GOOD WATER MANAGEMENT

Diversion ditches- to carry water to beds
Mulching -
Improved furrows and ridges contour, mulching, mixed cropping
Greywater management and use;-ash, tower gardens, keyhole gardens, greywater bucket filter
Dripkits
Tunnels
RWH storage tanks
Small dams

3. GO KAONAFATŠA HLOKOMELO YA DIBJALWA
CROP MANAGEMENT

Mixed cropping- incl intercropping
Pest control brews -Chilli -soap, onion-paraffin etc
Planting of herbs -(mixed in veg beds eg coriander, parsley,
Seed successions- planting a range of seed, across seasons for continuity, ***Seed saving***
Conservation Agriculture; minimal soil disturbance, soil cover ,crop diversity
Planting to maximise shade – in afternoons



4. GO NONTŠA MOBU
KEEP THE SOIL FERTILTY/HEALTHY

fertility management- manure incl improved manure), compost, green manures, legumes, liquid manure
Bed design -trench beds, shallow trenches, eco-circles, banana circles/basins

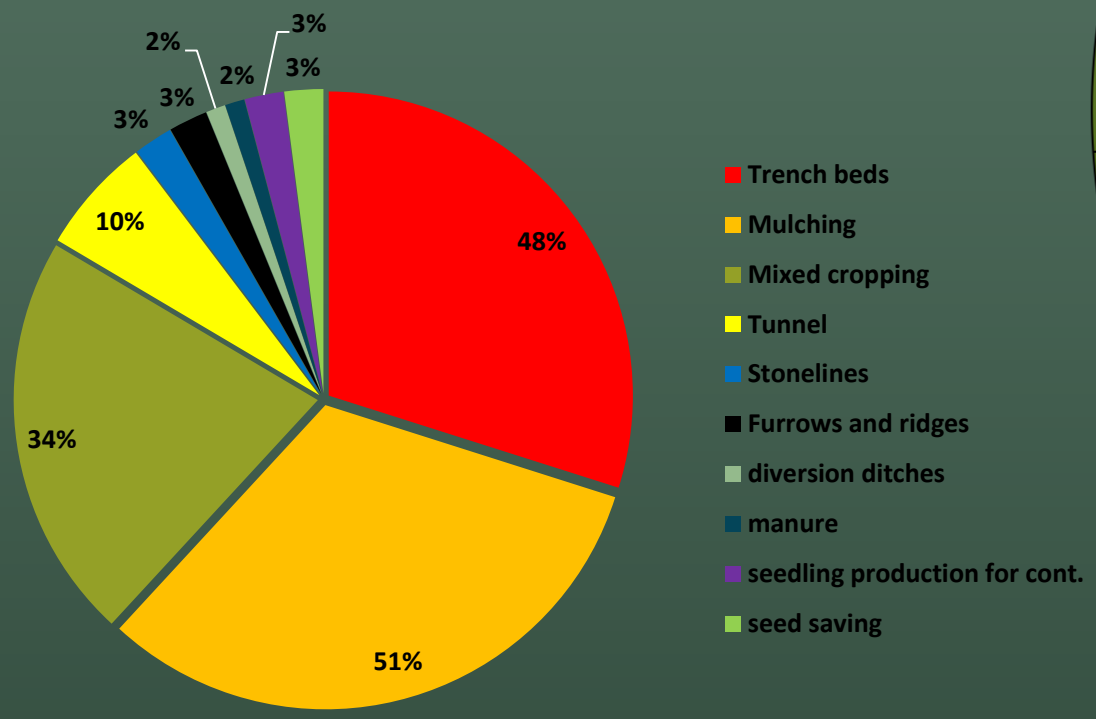
5. HLOKOMELO YA DIMELA TŠA TLHAGO
TAKE CARE OF INDIGENOUS PLANTS

Small nurseries-propagation of fruit and indigenous crops and trees
Planting- windbreaks, hedges, multi functional plants, inter cropping

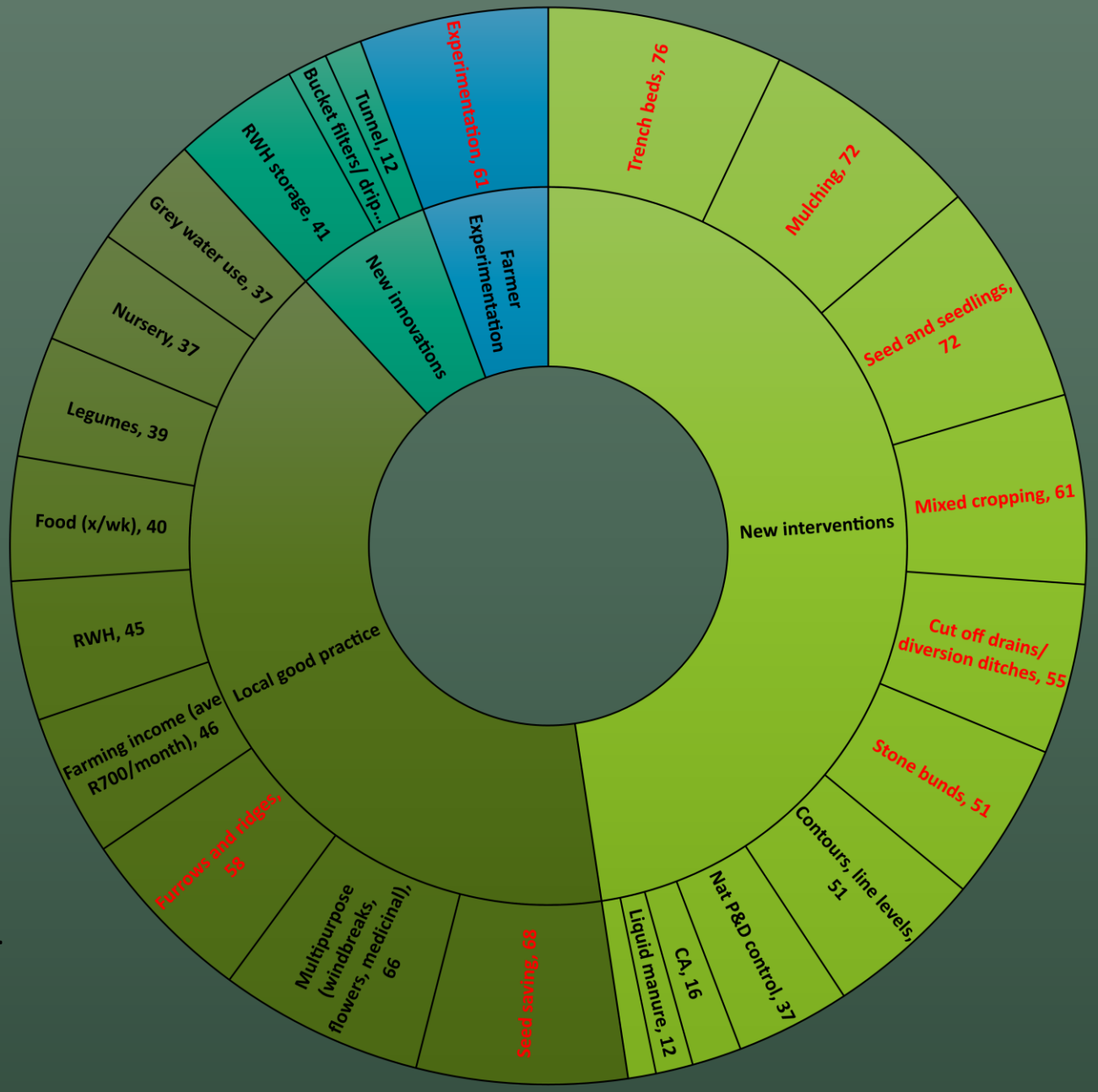
Community level CCA_ CSA

7 Villages/ learning groups – Mametje
150 participants
9 Local facilitators

Individual experimentation; July 2018 (N=61)



Overall implementation of practices; 2017-2018 N=100

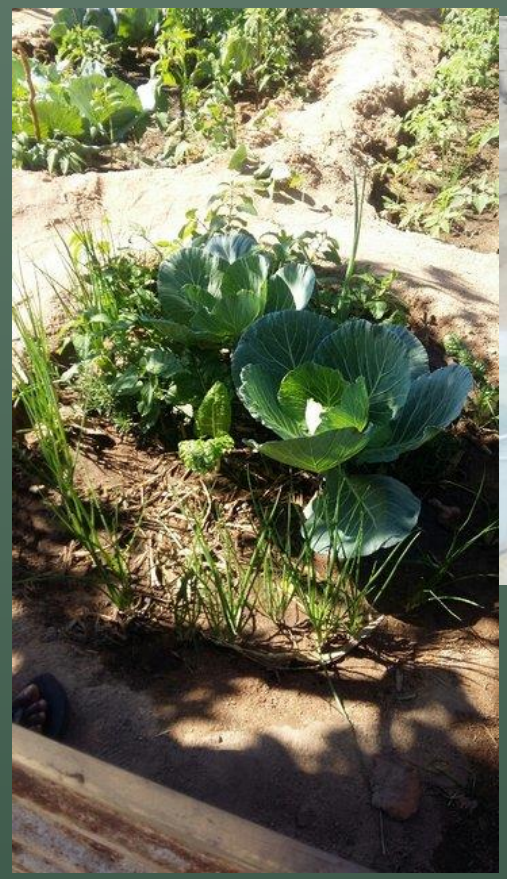






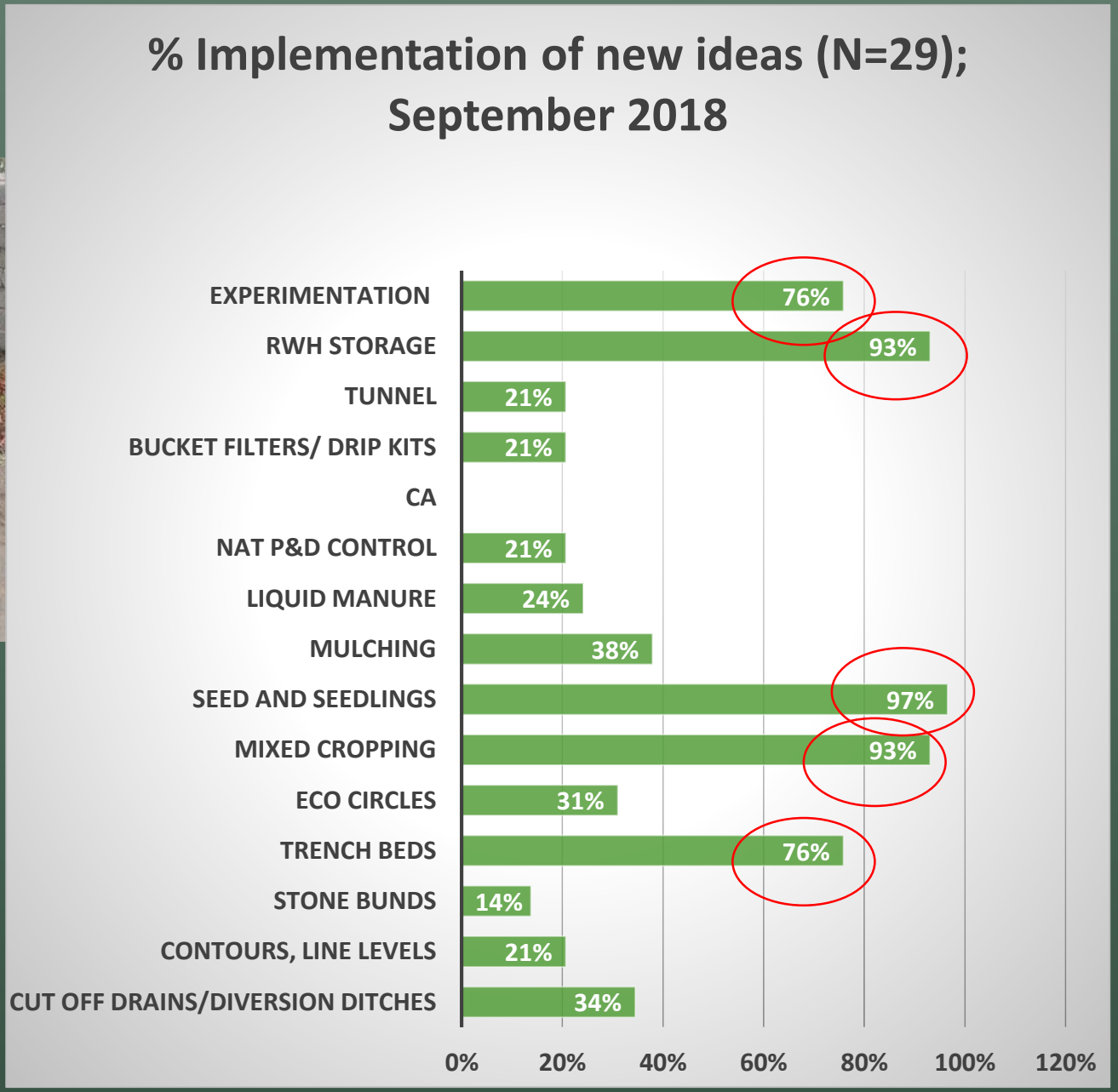



Garden monitoring



Eco –circles, mulching, mixed cropping

Farmer Experimentation	No of participants (N=29)
trench beds	21
tower gardens	4
banana basins	3
Eco-circles	5



Measurements

	Sedawa		Mametja	Botshabelo
	Christina Tobejane	Koko Maphori	Lerato Lewele	Mariam Malephe
Date	rainfall (mm)	rainfall (mm)	rainfall (mm)	rainfall (mm)
21/12/2017	5	10	8	7
24/12/2017	1	4	3	4
30/12/2017	22	32	30	28
25/01/2018	1.5	3.5	3.8	5
28/01/2018	1.6	2.1	2	3
30/01/2018	1	1.5	1.8	1.4
24/02/2018	2	2.6	2.8	2.4
16/03/2018	28	51	30.2	10.2
21/03/2018	9	20.8	10.2	20.5
24/03/2018	20	32	28	9
01/04/2018	9	8	15	30
02/04/208	1.4	2	2	1.8
Total	**101.5**	**169.5**	**136.8**	**122.3**
Ave for each rainfall event	8.5	14.1	11.4	10.2

Best practice: Production in tunnels

Tunnel experiments



- Trench bed with mixed cropping and mulching inside tunnel
- Trench bed with mixed cropping and mulching outside tunnel
- Furrows and ridges outside tunnel (control)

How productive is each practice?

- Water productivity – how much crop is produced for the amount of water used?
  - Trench in tunnel 10x more productive than furrows and ridges and 5 x more than trench outside tunnel
  - Must have mulch and do deep watering. If not then result is similar to furrows and ridges…
- Cost- benefit (R35/210l)
  - Profit of R31/m of trench bed (in tunnel)
  - ~R620/tunnel fully planted ($15m^2$), for a season
  - If water is free then~ R900

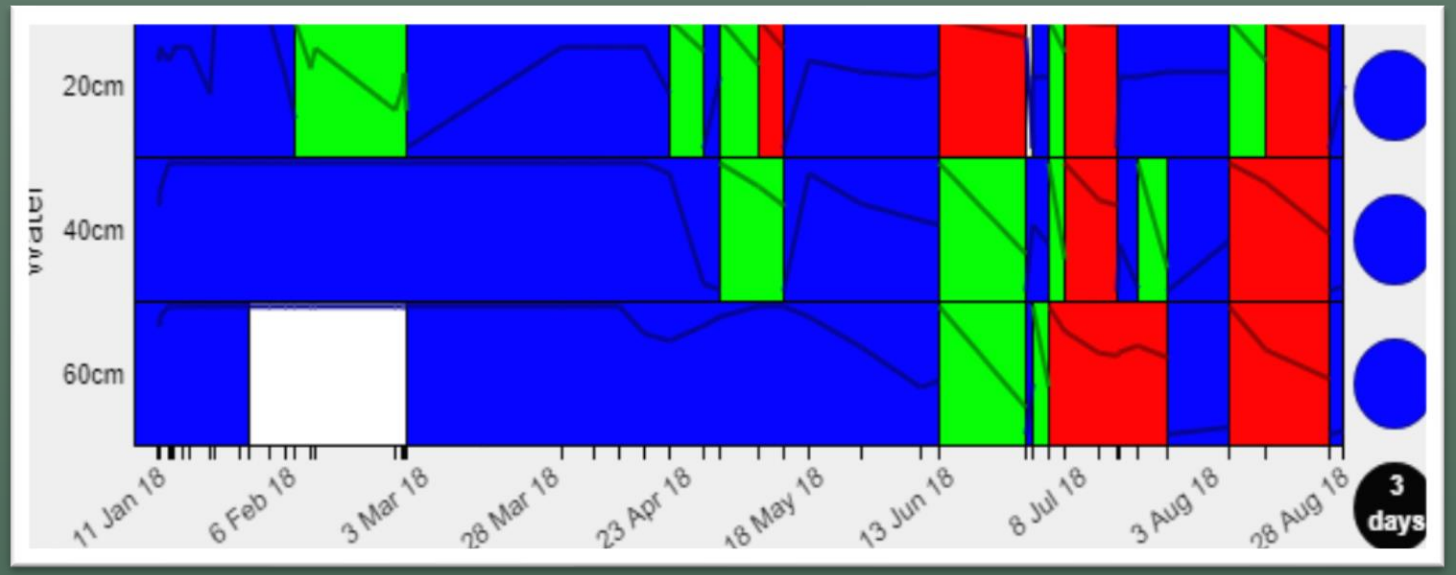
	Farmers' method (Water applied)		
Name of famer	water use (m^3)	Total weight (kg)	WP (kg/m^3)
Christina Thobejane (Tunnel; trench beds, with mulch)	1,10	48,9	56,7
Christina Thobejane (Furrows and ridges with mulch)	3,91	24,5	5
Christina trench outside	2,93	14,7	11,3
Nora Mahlako (Tunnel; trench beds without mulch)	9,47	19,6	5

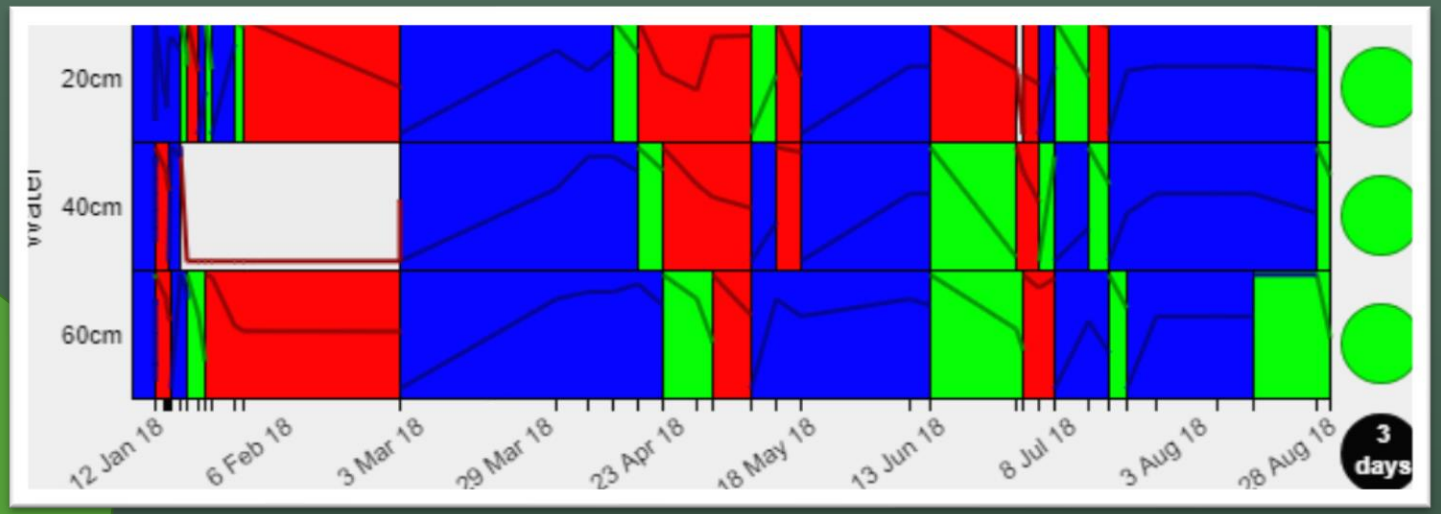
	Water	Cost (R/m^2)	Yield	Sales (Rands/ m^2)	Profit (R/m^2)
Trench inside tunnel	1100	R18,70	6 bundles/m^2	R60	R41,30
Trench outside tunnel	2926	R48,80	4,2 bundles/m^2	R42	-R6,80
Furrows and ridges	3913	R130,40	2,4 bundles/m^2	R24	-R106,40

Chameleons

- Measure the amount of water in the soil (20,40 and 60 cm deep)
- Tells you when and how much to irrigate

Christina Tobejane (Sedawa):
Applying water until the chameleon changes colour (goes blue) seems to be a good idea as this saves her some water and means that she only has to irrigate once a week (every 7 days).
She has thus now changed her irrigation practice of watering a little every morning and afternoon, to a deep watering every 5-7 days.





- Top: Chameleon in trench bed inside tunnel
- Bottom: furrows and ridges outside tunnel

Herb and veg sales

An average of R600/month for the 15+ participants; selling herbs and vegetables

Date	Herbs	No bundles	Price	Amount	Total
2018/08/17	Basil	2	R15,00	R30,00	
	Coriander	32	R14,00	R448,00	
	Flat leaf parsley	21	R9,50	R199,50	R677,50
2018/08/24	Coriander	20	R14,00	R280,00	
	Flat leaf parsley	20	R9,50	R190,00	
	Spinach	30	R10,00	R300,00	
	Onions	33	R10,00	R330,00	R1 100,00
2018/08/31	Coriander	30	R14,00	R420,00	
	Flat leaf parsley	15	R9,50	R142,50	
	Basil	4	R15,00	R60,00	
	Spinach	24	R10,00	R240,00	R862,50
2018/09/07	Coriander	10	R20,00	R200,00	
	Parsley flat leaf	10	R20,00	R200,00	
	Parsley curly leaf	2	R20,00	R40,00	
	Funnel	6	R20,00	R120,00	
	Cabbage	7	R20,00	R140,00	
	Basil	4	R20,00	R80,00	
	Beetroot	2	R15,00	R30,00	
	Tomatoes	13	R10,00	R130,00	
	Spinach	40	R18,00	R720,00	R1 660,00
2018/09/14	Coriander	10	R20,00	R200,00	
	Parsley flat-leaf	10	R20,00	R200,00	
	Parsley curly-leaf	20	R20,00	R400,00	
	Cabbage	4	R20,00	R80,00	
	Basil	4	R20,00	R80,00	
	Beetroot	20	R15,00	R300,00	
	spinach	27	R18,00	R486,00	
	Onions	25	R10,00	R250,00	
	Fennel	4	R20,00	R80,00	R2 076,00
Total sales					R6 376,00