WWF: Water stewardship in the upper uThukela: Smallholder CRA and water provision

1 May 2022-5 March 2024

July 2022









WWF NEDBANK GREEN TRUST

Institute of Natural Resources

WATER RESEARCH COMMISSION

The Maize Trust

mahlathini development foundation

Project description

OBJECTIVES

- 250 farmers from 5-8 villages improve CA (20ha's)
- VWB for reduced runoff and reduced consumption measured for 8-12 participants
- Spring protection, w reticulation to header tanks and taps for 20hhs in at least 1 village, involvement of stakeholders

R1 285 000:
CA inputs ~R125 000/yr;
Spring protection: R218 000 +eng R96 000

OUTCOMES

- Measurement of VWB and livestock integration practices
- Improved crop diversity, yields, marketing for 3 local value chains (maize + ?+ ?) for improved income
- Improved livestock management: fodder production and supplementation (25), and rangeland man practices
- Improved access to H_2O for consumption and farming – community owned
- Improved governance and stewardship through multistakeholder engagement with CRA learning groups

Measurements

Runoff – Pans in CA experimental and control plots in cropping fields

	rainfall (mm)	runoff CA plot (L)	runoff control plot (L)
Bergville (6 participants, 4 villages)			
Sum	1277	76,7	146,1
% rainfall conversion (2021)		**6%**	**11%**
% rainfall conversion (2022)		**5%**	**7%**
% rainfall conversion (average)		**4%**	**7%**

Right and far right: Installation of run-off pans in control and CA trial plots, respectively.

- Run-off averages across all CA trial plots almost 50% lower than runoff in the control plots (CA control maize- mono cropped)
- Between 2%-5% of total rainfall is saved through reduced runoff in the CA trial plots

69 Litre /m^2 now in the soil. That is 694 000 L/ha per year, more water in the soil and available to crops

Right: Signs of run-off in a CA control M plot in Bergville

Measurements

Water productivity field cropping

- Water productivity for CA maize grown as an intercrop with beans or cowpeas is higher than single cropped CA maize and
- Water productivity for CA plots is significantly higher than conventionally tilled plots.
- Despite annual differences in water productivity, these trends remained the same across two seasons for all three areas within KZN. WP for grain in the M+CP intercropped plots is the highest for both seasons
- The close spacing used in the CA trial plots provides extra WP benefits when compared to the 'normal' spacing used in these villages

Cropping options	WP (kg/m³)	WP (kg/m³)	Ave WP (2 seasons)
	2020/21 (n=11)	**2019/20 (n=9)**	
CA – Maize (M)	2,28	1,11	**1,7**
CA- Maize, bean intercrop (M+B)	2,50	1,21	**1,9**
CA- Maize cowpea intercrop (M+CP)	2,84	1,43	**2,1**
CA- Maize control (M-CA control)	1,1	0,8	**1 ,0**
Conventionally tilled maize (M-Conv Control)	0,75	0,36	**0,6**

WP for maize grown in a multi-cropping rotation CA system is much higher (x2) than CA mono-cropped maize or conventionally tilled maize (x3)

This means that on average you will save 1 500-2 000 liters of water for every kg of maize produced.

Average yield in Bergville for CA was 6,3t/ha (2021). This means that CA intercropping saves around 5 - 6 million liters of water for every hectare planted

Activities

CA (2 rounds)

- 15 CMTs in 5 villages (75) – crop growth monitoring, yield measurements, cropping areas measured
- Runoff pans, rainfall, bulk density, water productivity for 8-12 participants
- 250 farmers from 12 villages improve CA (20ha's) – planning, demonstration and learning w/s and planting support. Cropping areas measured. Monitoring for min of 50 –growth and yield
- Inclusion of different varieties of maize, legumes and cover crops for all

LIVESTOCK INTEGRATION (2 rounds)

- Fodder production trials (min 25) across 5 CRA groups – monitoring
- Winter supplementation cross 5 CRA learning groups (25)

WATER ACCESS

- Meetings with water committees, walkabout, surveys, layouts and scenarios for min 1 villages
- Planning and implementation for min 20 hhs

GOVERNANCE AND STEWARDSHIP

- Review and planning meeting min2 CRA learning groups
- Cluster meetings around specific themes/issues
- 2Workshops to discuss water and resource stewardship and management
- Attendance of 1-2 multistakeholder events

Milestones

MILESTONE 2- September 2022

- Work plan and Reporting Framework

MILESTONE 3- December 2022

- Progress on all activities
  - CA: review and planning meetings (min 2)
  - Cluster meeting – VWB and mycotoxin training
  - Participants lists, areas, procurement of inputs, planting, demonstrations and planting support (75 CMTs, 250 CA plots)
  - Livestock integration: Monitoring for winter fodder supplementation (25) and planning and planting of 25 fodder trials
  - Meetings with water committees, walkabout and scenarios for 1 village
  - 1 Multistakeholder event/meeting – Water services???LCP???WRC_ESS???

Interventions to address policy and legislative shortfalls:

1. Entails the amendment of the WSA of 1997, Section 51(3) to designate WSCs as vehicles of community participation, add water cooperatives as alternative institutions alongside WSCs, and make way for partnerships between municipalities and communities.
2. There is also a need to review the IDP processes of community consultation to include capacity development and training elements for creating a common understanding and shared view of IDP based on transparency and mutual trust.
3. Participatory approaches that see communities as partners and not just consumers, as well as considers the range of strengths and assets that communities bring into water management rather than keeping the sole focus on their water needs and creating expectation and dependency on government handouts.