

scholars in the Eastern Cape, KwaZulu-Natal and Limpopo provinces. This study was able to show that despite this neglect, the active farmers have been able to reap positive rewards from irrigation production such as supplementary food and cash incomes, though the latter are low for most farmers. Even greater returns from irrigation production would be realized and sustained if the government played its role of rehabilitating the dilapidated irrigation infrastructure, and providing the tillage and extension services required by the farmers. The level of irrigation scheme land utilization would also increase above the current 30%.

Collective action by smallholder farmers is a cross cutting theme, and is crucial for the farmers to be able to purchase inputs, engage in co-operative marketing, and manage and maintain the irrigation scheme. It was noted that there were no initiatives to collectively access input and output markets at the New Forest scheme. The farming world is very competitive, in both informal and formal agricultural value chains. The irrigation cooperative should provide a formalised and organised system to ensure that farmers are organised and well linked with input and output markets. The role of extension should be to mobilize the social capital of smallholder farmers around issues of common interest such as water management, farmer training, sourcing inputs, and commodity marketing.

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Appendix 1: Household Questionnaire

Household Interview guide

Questionnaire number					
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Name of respondent	
Area	
Section	
Name and surname by which homestead is known	
Cell phone number of respondent	

Particulars of visit to the homestead

Particulars of visits	Date	Time started	Time ended
First visit			
Second visit			
Third visit			

Hello, my name is I am. I am conducting a study of.... Your homestead has been selected for participation in this survey. We ask permission to interview the main farmer from this homestead. The selected farmer's participation is voluntary i.e. he or she has the right to refuse. The information obtained from all participating farmers will be compiled in a report and the findings will be presented to people in the surveyed areas. No names will be referred to in the report. Your responses will be kept strictly confidential.

Do you have any questions before we start? **IF NO, CONTINUE WITH THE INTERVIEW.**

Table 1: Homestead members

Please tell me about all the people who are members of the homestead, even if they are not here at the moment. Do not include people who have established other homesteads and have not come home in the last few years. Include only those that live here most of the time/nights [USE CODES TABLE 1: Homestead members]

Household head: Start with household head first on row 1 below.

Name	Sex	Year of birth	Relationship	Marital status	How often is this person present at the homestead?

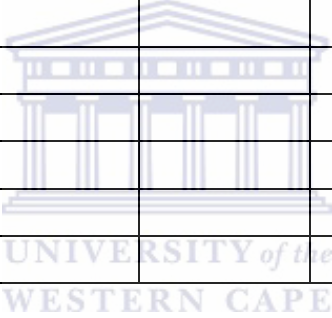


Table 2a: Sources of Income of Homestead members

Full name	Income source 1	Amount	Income source 2	Amount	Income source 3	Amount

*Indicate whether received per month or per year

Table 2b: Sources of Income of Homestead members

Full name	Income source 4	Amount	Income source 5	Amount	Income source 6	Amount

* Indicate whether received per month or per year

Ranking of sources of income of homestead members

Please rank the four most important income sources of the homestead, in order of importance, and explain why each is so important.

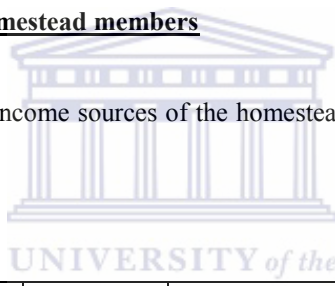


Table 3: Income source ranking

Rank order	Income source	Cash (R)	Unit (Month=1; Year=2)	Reasons for importance
1				
2				
3				
4				

Table 4: Durable goods and productive assets of homestead members

Domestic	Does homestead have		Number owned	Total
	Yes	No		
1 Electric stove				
2 Microwave				
3 Sewing or knitting machine				
4 Washing machine				
5 Lounge suite				
6 Gas stove				
7 Paraffin stove				
8 Fridge/freezer				
Electronic/Communication				Communication
9 Radio				
10 CD player				
11 TV/DVD player				
12 Computer				
Transport				Transport
13 Motor cycle				
14 Bicycle				
15 Vehicle				
Agriculture				Agriculture
16 Tractor				
17 Plough				
18 Wheelbarrow				
19 Knapsack sprayer				
20 Animal drawn cart				
21 Garden spade				
22 Garden fork				
23 Hoe				
24 Other (specify)				

Land use by members of the homestead last year

Table 5: What types of land does this homestead have? (Including land that is not adjacent to the homestead)

Type of land	Has the land been used in the last 12 months?		Year land first acquired	How land first acquired	Number of blocks owned	Number of blocks borrowed	Size of land
	Yes	No					
Residential							
Garden plot within homestead							
Fields							
Irrigation scheme plot							
Project garden plot							
Additional land (specify)							

If land is owned but not used, please explain why:

From your irrigation plot, how many times did you plant last year? This year?.....

If you planted less than 3 times in a year, what are the reasons?

.....

.....

.....

.....

Crops grown by members of the homestead last year

Table 6a: What types of crops were grown on the land used by this homestead last year?

Type of land	Crop type 1	Amount harvested	Crop type 2	Amount harvested	Crop type 3	Amount harvested
Garden plot within homestead						
Fields						
Irrigation scheme plot						
Project garden plot						
Additional land (specify)						



Table 6b: What types of crops were grown on the land used by this homestead last year?

Type of land	Crop type 4	Amount harvested	Crop type 5	Amount harvested	Crop type 6	Amount harvested
Garden plot within homestead						
Fields						
Irrigation scheme plot						
Project garden plot						
Additional land (specify)						

Table 7: Crops sold by members of the homestead last year

Crop type	Amount sold	Measure	Cash received	Purchaser

Table 8: Livestock owned by members of the homestead

Type of livestock	Number owned now	Purchases in last year	Sales in last year	Births in past year	Deaths in last year	Slaughtered in last year
Cattle						
Goats						
Sheep						
Donkeys						
Pigs						
Chickens						
Other						

Table 9: Livestock sold by members of the homestead last year

Livestock type	Number sold	Cash received	Purchaser
Cattle			
Goats			
Sheep			
Donkeys			
Pigs			
Chickens			
Other			

Appendix 2: New Forest Irrigation Scheme: Crop Recording Sheet

Date: **Farmer:** **Block No:**

No. of plots in farmer's own name ("owned"): **No. of additional plots** (rented or borrowed):

Rented or borrowed from whom? In return for:

Crop (eg tomatoes): **Variety** (eg Florodade, Heinz 1370)

Area planted to crop: metres x metres = m² (Crop spacing: cm x cm)

Date planted .../.../.... **Date of first harvest** .../.../.... **Date of final harvest** .../.../....

Did you disk the plot Yes/No If yes, for how much? R.....

How the plot was **ploughed** (eg. hoe, donkeys, tractor)? Cost: R

Chemical fertilizers applied before planting:

Name/type	Amount in kg	Cost

Chemical fertilizers used as **top dressing**:

Name/type	Amount in kg	Cost

Seeds: were seeds kept from last year or purchased?

If purchased, amount in grams: Where purchased? Cost: R

Seedlings: number purchased: Where purchased? Cost: R.....

Chemicals used to control pests and diseases:

Pest or disease	Name of chemical	Amount (grams/kg) purchased	Cost	Amount applied on this crop

Labour: how many people worked on this crop?

<i>Operation</i>	<i>Family labour</i>	<i>Hired labour</i>	<i>Payment / cost in R</i>
Clearing the plot			
Ploughing			
Weeding			
Watering			
Spraying			
Harvesting			
Marketing			
Other operations			

Yields and marketing (NB: the unit of measurement will vary by crop e.g. crates, buckets, kg, bags, etc).

	Number	Measure (eg bags, buckets, etc)
Used in farmer's home		
Given to others as gifts		
Used to pay workers		
Sales for cash		
Stored		

If sales took place, to whom was the crop sold?

	Number	Measure	Price per measure	Amount received
Directly to consumers				
To hawkers				
To traders with bakkies				
To shops				
Others				

Marketing costs

Costs	Number	Unit/measure used	Costs
Travel			
Materials (e.g. bags)			
Other (specify)			

Calculating the gross margin:

Costs:

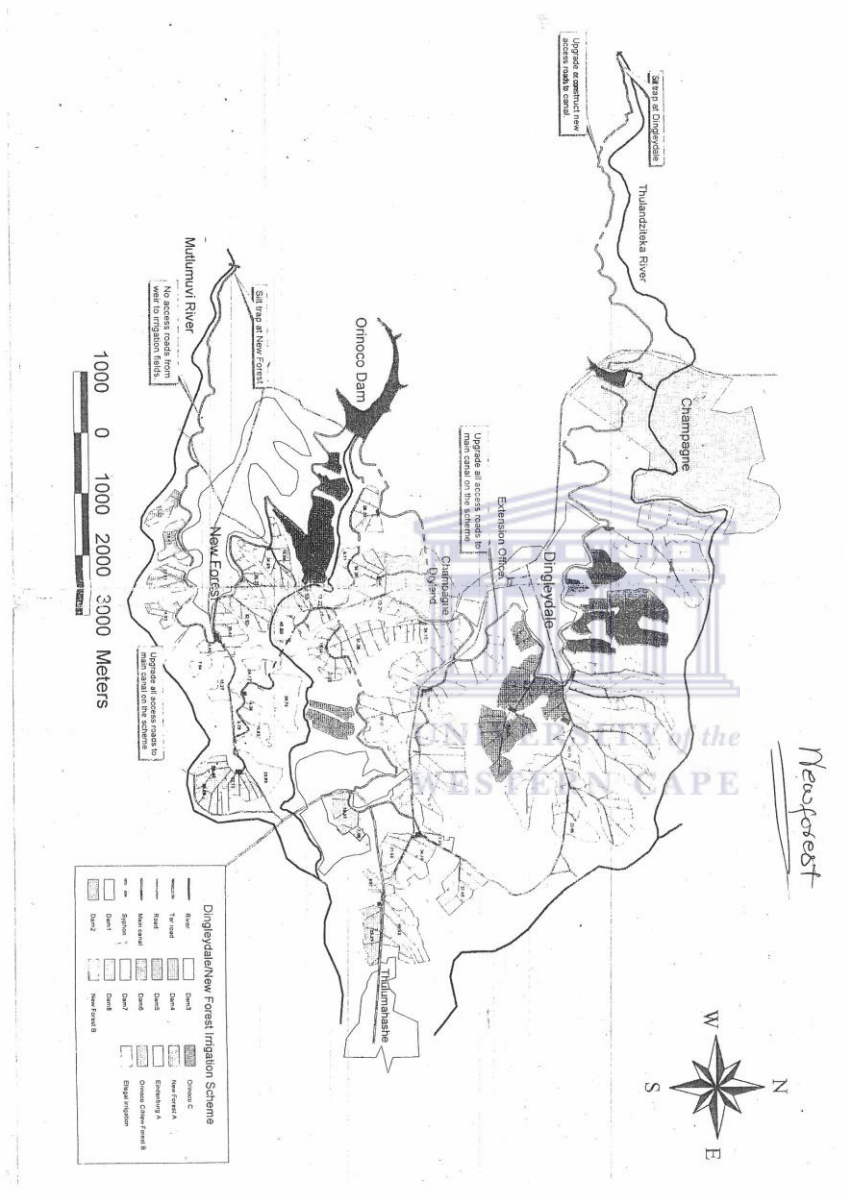
Disking		Gross margin (profit) is income less total costs (A - B = C)	A. Income from crop	
Ploughing			B. Costs	
Fertilizers			C. Gross margin	
Seeds				
Chemicals				
Labour				
Marketing				
Other				
<i>Total</i>				

Appendix 3: Focus Group Discussion Guide – Irrigation cooperative committee

1. How and when was this cooperative formed?
2. What is its legal status? Do you have a constitution, by-laws?
3. Who are the members of this cooperative and roles/positions?
4. Does the cooperative have a committee, and who is part of the committee and their roles?
5. Whom does this cooperative report to/answerable and what are the modalities thereof?
6. What is the role of this cooperative?
7. What are some of the ways you have supported farmers in the scheme during the last season?
8. What are the farmers expected to pay to the cooperative for which services?
9. How is the cooperative maintained/funded so as to fulfill its role?
10. Which platforms are used to interact/communicate with farmers, e.g. meetings, field days, etc
11. What farm equipment does the cooperative have at its disposal, and when and who purchased it?
12. What challenges have you faced in the last 3 years as the cooperative, and how were they resolved?
13. What are some of the successes has the cooperative registered in the last 3 years?

Thank you

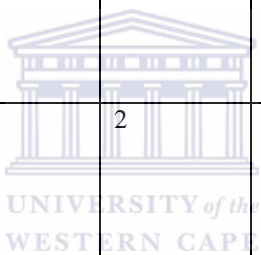
Appendix 4: Map of New Forest and Dinglydale Irrigation Schemes
 (Source DAFF extension officers at New Forest irrigation scheme)



Appendix 5: Family History Characteristics

Variable	Kenny	Mary	Angela	Thabie	Derick	Allan	Phineas	Sam	Janet	Rose	Musa
Household size	10	4	7	4	7	8	10	8	4	6	4
Irrigation Section	New Forest	New Forest	New Forest	Tsuvulani	Tsuvulani	Tsuvulani	Demulani	Demulani	Edenburg	Edenburg	Edenburg
Sex of household head	Male	Male	Female	Female	Male	Male	Male	Male	Female	Male	Male
Marital status	Married	Married	Single parent	Divorced	Married	Married	Married	Widower	Single parent	Married	Married
Total number income sources	3	2	2	3	3	3	5	2	3	2	1
Types of income sources	Farming ; Pension (x2)	Farming; formal employment	Farming; child grant	Farming; poultry; petty trading	Farming; child grant (x2)	Farming; child grant (x2)	Farming; child grant (x4)	Farming; pension	Farming; child grant; pension	Farming; pension	Farming; formal employment
Number of child grants received	0	0	1	0	2	2	4	0	1	0	0

Variable	Kenny	Mary	Angela	Thabie	Derick	Allan	Phineas	Sam	Janet	Rose	Musa
Number of pensions received	2	0	0	0	0	0	0	1	1	1	0
Size of plots owned	Unkno wn	1.4ha	Unknow n	1.2ha	1ha	0ha	1.4ha	1.2ha	1.3ha	0ha	1.4ha
Size of plots accessed	Unkno wn	1.4ha	Unknow n	1.2ha	1ha	1ha	2.6 ha	1.2ha	1.3ha	1.2ha	1.4ha
Number of times planted last year	2	2	2	2	2	2	2	2	2	2	2
Number of times planted this year	3	2	2	2	2	2	2	2	1	2	2
Number of crops grown last year (2012-	2	3	1	4	5	2	4	2	4	4	3



Variable	Kenny	Mary	Angela	Thabie	Derick	Allan	Phineas	Sam	Janet	Rose	Musa
2013)											
Types of crops grown last year (2012-2013)	Maize, Cabbage	Maize, spinach, sweet potato	Maize	Maize, butternut, beetroot, tomatoes	Maize, butternut, spinach, cabbage, chilies	Maize, tomatoes	Maize, tomatoes, cabbage, groundnuts	Maize, tomatoes	Maize, groundnuts, Bambara, sweet potato	Maize, groundnuts, Bambara, sweet potato	Maize, tomatoes, butternuts
Overall crops gross margin	-R2,660 Loss	R19,050 Profit	-R6,320 Loss	R19,811 Profit	R17,125 Profit	R14,585 Profit	R3,416 Profit	R1305 Profit	R1,920 Profit	R1,375 Profit	-R8,265 Loss
Maize gross margin	R1,190 Profit	R15,680 Profit	-R6,320 Loss	R7,765 Profit	-R2,033 Loss	R3,610 Profit	R4,155 Profit	R65 Profit	R450 profit	R265 Profit	-R3,510 Loss
Groundnut gross margin	N/A	N/A	N/A	N/A	N/A	N/A	R600 Profit	N/A	R1,100 Profit	R540 Profit	N/A
Tomato gross margin	N/A	N/A	N/A	R5,850 Profit	N/A	R10,975 Profit	-R238 Loss	R1,240 Profit	N/A	N/A	-R1,445 Loss