

## Gross Margin Analysis

### Introduction

- Rice in Kenya produced either under irrigation (80%) or rain-fed



Fig 1. Irrigated rice Mwea



Fig 2. Rainfed rice coastal Kenya  
Photo by Rachel Kisilu

- Gross margin reveals the amount that an entity earns from the sale of its products and services, before the deduction of any selling and administrative expenses.
- The figure can vary dramatically by crop and sector.

### Gross Margin Formula

- The formula for the gross margin is net sales less the cost of goods sold.
- It is better to use net sales than gross sales, since a large number of deductions from gross sales could skew the results of the calculation.
- Gross margin is frequently expressed as a percentage, called the gross margin

percentage.

- The calculation is:  
 $(Net\ sales - Cost\ of\ goods\ sold) / Net\ sales$

Net sales –what is produced in terms of quantity amount of rice per acre or ha.  
Cost of goods sold or cost of production of rice. The inputs required to produce crop.

- The Cost of goods deals with the different records kept by farmers and these include:

- Production records
  - land preparation
  - input records
  - Crops activities
  - Purchases
  - Labour



Fig 3. Mature rice crop ready for harvesting  
Source: Oliver Nyongesa

- Sales records
  - Amounts and prices products sold in that season
- Profit/loss account
  - Inputs and outputs of product rice

### Rice gross margin calculations

#### Net sales (outputs):

- Rice total amount harvested per acre (KG)
- Farm-gate price as at time of harvest or what the rice was sold at after harvesting.

#### Cost of rice production- (Inputs):

- Land free or pay rent
- Labour, nursery preparation, clearing drainage and field, planting, weeding spraying (insecticide, herbicide) fertilizer, application, bird scaring stoking, threshing drying, dusting bagging and weighing
- Inputs such as seeds, fertilizers, insecticide, herbicide gunny bags,
- Other inputs costs: irrigation water charges, hired machinery, transport costs



Fig 4. Tractor transport of rice



Fig 5. Rice storage

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**Factsheets for Rice Gross Margins, East Africa**

Gross margin analysis for irrigated rice		2019		
Item	Units	Quantity	Price/Unit	Total Value
Gross Income				
Yields	kg	3,750	60	225,000
rice straws (hay)	bales	150	200	30,000
Total Gross Income				255,000
Variable Costs				
Seeds	kg	10	100	1,000
Fertilizers – Basal (NPK 17:17:17)	50Kg bag	1	3500	3,500
Tillering (AS, 100 kg/ha)	40Kg	1	1800	1,800
Panicle initiation (AS, 100 kg/ha)	40Kg	1	1800	1,800
Chemicals –Insecticides	Lt	1	500	500
Herbicide	Lt	1	600	600
Irrigation costs per acre per yr		1	2000	2,000
Land Preparation				
Land costs per season (Year) NIB	Acre	1	8750	8,750
clearing field Ploughing	Acre	1	2400	2,400
rotavation	Acre	1	4000	4,000
clearing Drainage	Acre	1	2000	2,000
Field leveling	MD	1	1500	1,500
Labour				
Planting	MD	5	400	2,000
Fertilizer application	MD	3	400	1,200
Weeding and herbicide application twice	MD	8	400	3,200
spraying insecticide	MD	3	400	1,200
Bird Scaring	MD	45	400	18,000
Harvesting (combine KES 6000) Manual	MD	5	400	2,000
Post harvest				
threshing, weaning, drying	MD	12	400	4,800
Sorting & bagging	MD	3	400	1,200
- Gunny bags	Bags	35	80	2,800
Transport - Farm to store	Bags	1	1000	1,000
Baling of rice straws to hay	Acre	1	4000	4,000
Total Working Capital				67,250
Interest on Working capital(16% on W/C)				10,760.00
Total variable costs(TVC)				78,010
Gross Margin (GI-TVC) acre				176,990

**Remarks for Rice GM Table:**

Hiring land cost of ksh 60,000 deducted in GM of 176990 for those hire land from land owners

Gross margin analysis for Rainfed Rice		2019		
Item	Units	Quantity	Price/Unit	Total Value
Gross Income				
Yields	kg	2,500	50	125,000
rice straws (hay)	bales	100	200	20,000
Total Gross Income				145,000
Variable Costs				
Seeds	kg	10	100	1,000
Fertilizers – Basal (NPK 17:17:17)	50Kg bag	1	3500	3,500
Tillering (AS, 100 kg/ha)	40Kg	1	1800	1,800
Panicle initiation (AS, 100 kg/ha)	40Kg	1	1800	1,800
Chemicals –Insecticides	Lt	1	500	500
Herbicide	Lt	1	600	600
Land Preparation				
Land costs per season (Year)	Acre	1		0
clearing field Ploughing	Acre	1	2000	2,000
harrowing	Acre	1	1000	1,000
Field leveling	MD	1	1000	1,000
Labour				
Planting	MD	5	400	2,000
Fertilizer application	MD	3	400	1,200
Weeding and herbicide application 3 times	MD	16	400	6,400
spraying insecticide	MD	3	400	1,200
Bird Scaring	MD	45	400	18,000
Harvesting (combine KES 6000) Manual	MD	5	400	2,000
Post harvest				
threshing, weaning, drying	MD	12	400	4,800
Sorting & bagging	MD	3	400	1,200
- Gunny bags	Bags	20	80	1,600
Transport - Farm to store	Bags	1	1000	1,000
- To market/board	Bags			0
Baling of rice straws to hay	Acre	1	4000	4,000
Total Working Capital				52,600
Interest on Working capital(16% on W/C)				8,416.00
Total variable costs(TVC)				61,016
Gross Margin (GI-TVC) / acre				83,984

**Continued Remarks for Rice GM Table:**

Transport cost incurred from field to store during harvesting

Rice management practices affect the cost incurred

prices are as resented as 2019 and vary from region and production area

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