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CAN IRRIGATION BE AN ANSWER TO INCREASED MAIZE PRODUCTION AND FOOD SECURITY IN KENYA?

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Maize in Perkerra

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IRRIGATION

- Inadequate information about irrigated maize production in Kenya.

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METHODOLOGY

- To contribute information on viability of irrigated maize

  - A survey was carried out---Lower Kuja, Bunyala, Nandi, Perkerra, Mwea, Bura, Hola and Galana.

- Primary data was collected by the use of
  - Questionnaires,
  - FGDs,
  - Key informant interviews
  - Published materials were the main source of secondary data
  - Additional data for non irrigated maize from 2014 TAPRA II data for the same areas.

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BUDGET RESULTS

	Irrigated	Non irrigated	Simulated	2 crops
Maize yield (bags/acre)	**11**	**7.6**	11	**22**
Sale price per 90kg bag	2,200	**2382**	**2,382**	2,382
Sold to	Traders	Traders	Traders	Traders
Total revenue	**24,200**	**18,103**	**26,202**	**52,404**
Land preparation	2,500	2,500	2,500	5,000
Seed	1348	1597	1,348	2,696
Fertilizer	4853	4331	4,853	9,706
Other intermediate costs	1857	2872	1,857	3,714
Labor (family & hired)	2061	1800	2,061	4,122
Water	3,086		3,086	6,172
Total production costs (TC)	**15,705**	**13,100**	**15,705**	**31,410**
Working capital (WC) 10%	1571	1310	1,571	3,141
Total production costs (TC) with wc	17,276	14,410	17,276	34,551
Cost per bag w/o WC	1,428	1,724	1,428	1,428
Cost per bag with WC	1,571	1,896	1,571	1,571
Profit=TR-TC (per acre)	**8,495**	**5,003**	**8,927**	**17,853**

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Impact on food security

- Positive impact of irrigated maize production.
  - High output, high income , high profit
  - Can produce more maize output than non irrigated maize in comparable fields
  - Has a potential to produce 2 to 3 crops annually
  - Price change does not affect the costs of production
  - but affects the margins per bag, GM, and the profit levels
  - There exists a potential to produce it on a large scale given the available land
- However, for irrigation to be used
  - costs of production should be lowered / profit margins should increase

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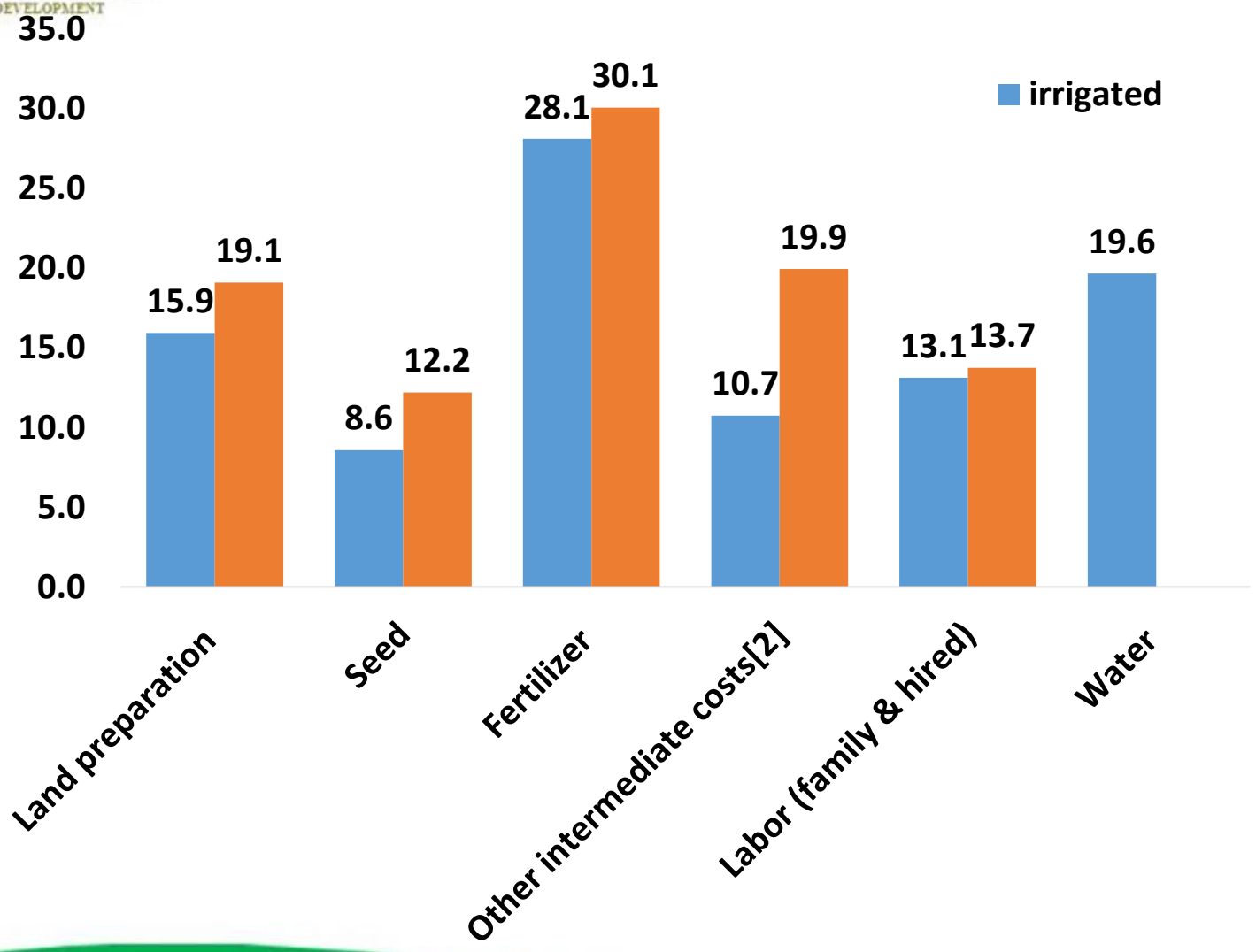
Comparative factor use levels



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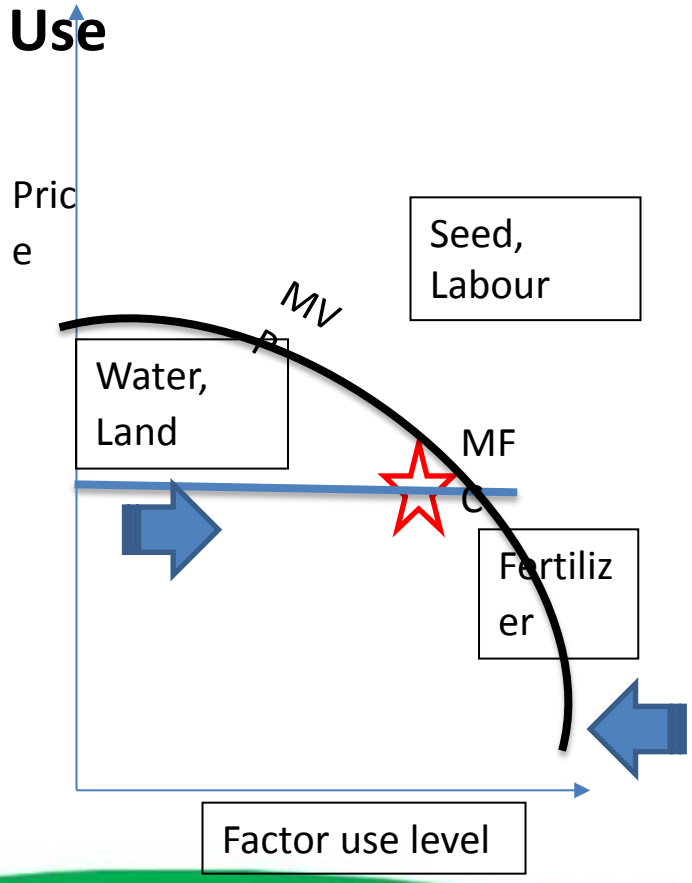
Input Efficiency

Input Use



Efficiency Test

Factor	GM MVP	price	ratio	Decision	Policy direction
Water	16,852.13	4911	3.43	Under	Efficiency
Labor	25.56	312.61	0.08	Excess	High rates
Land	5,977.48	3000	1.99	Under	intensification
Seed	3,365.74	3750	0.9	Excess	Excess
Fertilizer	1,078.08	2400	0.45	Excess	under

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LESSONS FOR GALANA KULALU.

- The potential output of Galana Kulalu
  - can produce 5.5 million bags of maize in one season (about a half of the national food requirement in three seasons)!
  - the project can solve Kenya frequent structural food insecurity
- However, the high cost of the factor use needs to be addressed through
  - Efficient use of water use and water application methods
  - Intensify Land use in maize production.
  - Use reduction in the use of fertilizer to optimal levels
  - Extensification which exploits/ economies of scale/mechanization and solves the labour problem.
- Issues

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Conclusion / Recommendation.

- Actions are recommended to address the high costs production of irrigated maize.

To improve the efficiency of *factor use levels*

- *Fertilizer use levels to decrease to optimal levels*
- *Land use to be intensified to increase output*
- *Water use choice of efficient water application method*

- Irrigated maize production-

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- ***Thankyou …***