2019

Report on collected and aggregated data from 30 farms on the economic profitability of integration of forage production in mixed crop livestock farms

Contents

Summary

The main objective of this study is to determine the profitability of the forages, specifically brachiaria, that are grown and to compare it to other crop alternatives. This was done by collecting data from dairy farmers who grow the forages. The data collected covered the costs of producing the forages and the yield obtained after harvesting. Person to person interviews was conducted, using questionnaires designed prior to the data collection. The data collection process took place in three counties in Kenya: Eldoret, Meru and Kirinyaga counties, where 30 farmers were interviewed.

In conclusion, based on the data, most of the farmers who managed their maintenance costs made a profit from their forages. However, based on the estimations they gave, a few farmers made losses, and this resulted due to the high costs they incurred during forage maintenance, especially during manure application and harvesting.

The main conclusion from the study is that profit from forages depends on, size of the land, type, and productivity of the forage and the maintenance practices of the forage crop. Well managed forages result to increase in productivity hence more yield. 8000m2 farms that were interviewed made the most average losses, while 3200m2 farms made the most average profit of Ksh. 150,000.

Despite the challenges faced during the collection of the data, the recommendations given would help improve the study in the future. To avoid too many estimations, farmers should have record-keeping books to record all the costs and income from forage farming, or the data collector should be on the ground during the time when the specific activities are being done to collect the data. A similar study in the future should also focus on the benefits of the forages on milk production since that is where most farmers realize back their profits.

Methodology

A trial was initially performed on two farms in Meru county before the main data collection, to test the efficiency of the questionnaire.

The data collection then took place, which took almost 3 weeks. The sample used in the data collection process was randomly selected from a population of farmers growing forages for livestock feeding and are part of the demonstration farms established by the International Centre for Tropical Agriculture (CIAT). A total of 30 farms were selected from 3 different counties, distributed as shown in the table below.

County	Number of farmers interviewed
Eldoret, Uasin Gishu county	2
Meru county	26
Kirinyaga county	2

The data was collected through person to person interviews with farmers on their farms. A questionnaire prepared prior was filled during the interviews. The questionnaire used covered the value chain of forage production from land preparation, planting the seeds/splits through to harvesting the grass. The questionnaire included questions on costs of producing and maintaining forages that the farmers had incurred and the yield they had obtained after harvesting.

The data was then processed and analyzed using excel functions to derive the profit generated from forage production.

Results and Discussion
Costs for individual activities
The average costs of production for all the activities in 500m2 farms are as shown in the graph below.
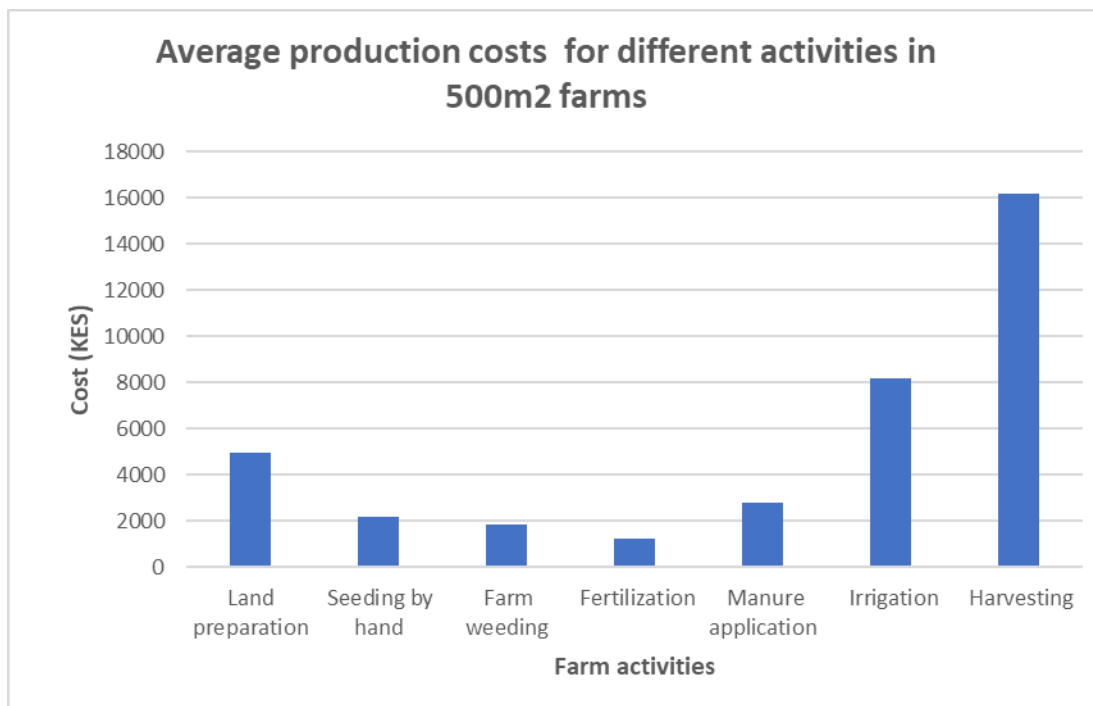
Figure 1: Production/ maintenance costs for different activities done on forage growing

Harvesting costs were the highest of all costs, while fertilization costs were the least. This can be explained by the fewer fertilizer applications that are there in year one and almost zero application in the years that follow. Harvesting, on the other hand, requires a lot of manual labor to cut the forages. One harvesting period for most farmers who cut the forages daily takes 3 to 4 weeks, hence the high costs incurred during harvesting.

Profit for Year 1

Figure 2: Comparison of profit per ha earned from different sizes of land for year 1

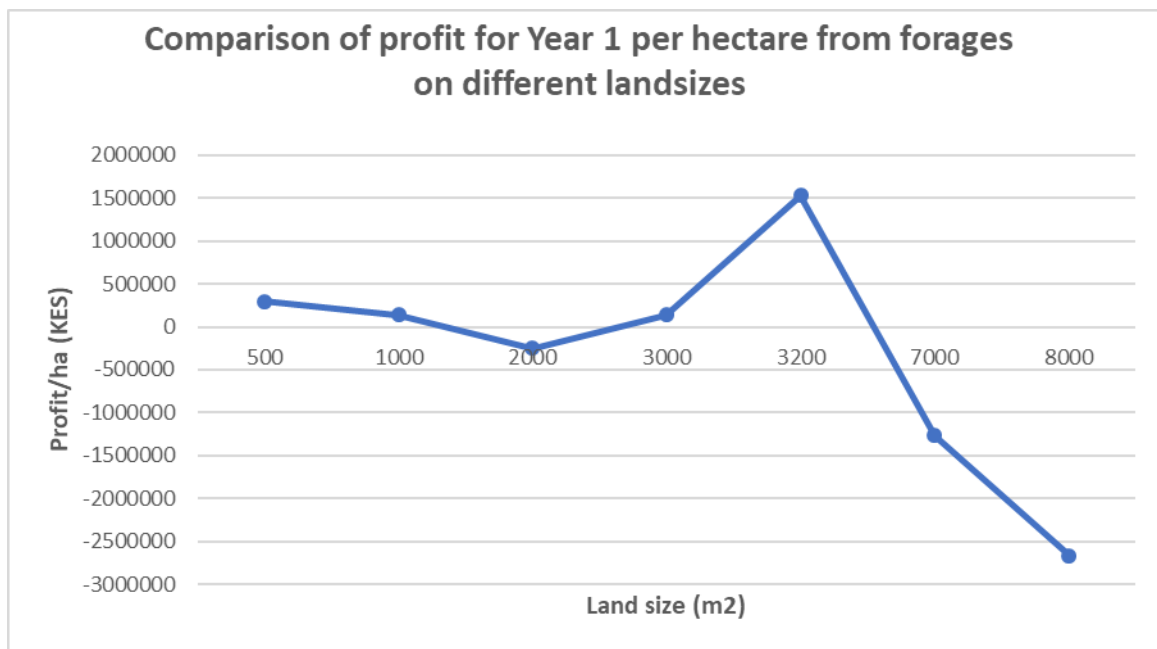Profit earned differs on different land sizes as shown in the graph above. In this case, some farmers with large portions of land made less profit than farmers with smaller portions of land. On the other hand, it was also observed that some farms with similar sizes of land also had major differences in their profits. This happened due to differences in costs incurred, which was caused by various reasons such as, the difference in the number of maintenance activities, and the difference in the number of certain inputs.

Some farmers with smaller sizes of land did more manure applications and/ or fertilizer applications than some farmers with larger sizes of land. Some farms, e.g. Meved farm in Kirinyaga whose size is 3000m2 (3/4 acres) used more manure than other larger farms hence resulted in higher manure application costs than larger farms.

8000m2 farms made the most average losses, while 3200m2 farms made the most average profit of Ksh. 150,000.

Profit for different forages for Year 2 onwards
Different varieties and hybrids have different productivity in terms of their mass; hence income would be different for all of them. Cayman (brachiaria hybrid) produces more mass than Basilisk (brachiaria cultivar) and Mombasa (Panicum). Mombasa has the least mass production of the three. The following three graphs show profits per hectare from the three forages on different sizes of land.

The prices of brachiaria were estimated to be Ksh. 10 to Ksh. 15 for fresh forage and Ksh. 300 to Ksh. 400 for one hay bale. The prices were estimated to be between prices of Boma Rhodes (Ksh. 200) and Lucerne (Ksh. 600) since the nutritional content of brachiaria is higher than Boma Rhodes but less than Lucerne. The prices of Boma Rhodes and Lucerne are

already established in the market while that of brachiaria is not yet known. The prices, however, depend on the season of the year, whether dry or rainy season.

Profit range from Basilisk on different land sizes per hectare per year(Year 2 onwards)

Profit range from Cayman on different land sizes per hectare per year(Year 2 onwards)

Profit range from Mombasa on different land sizes per hectare per year(Year 2 onwards)
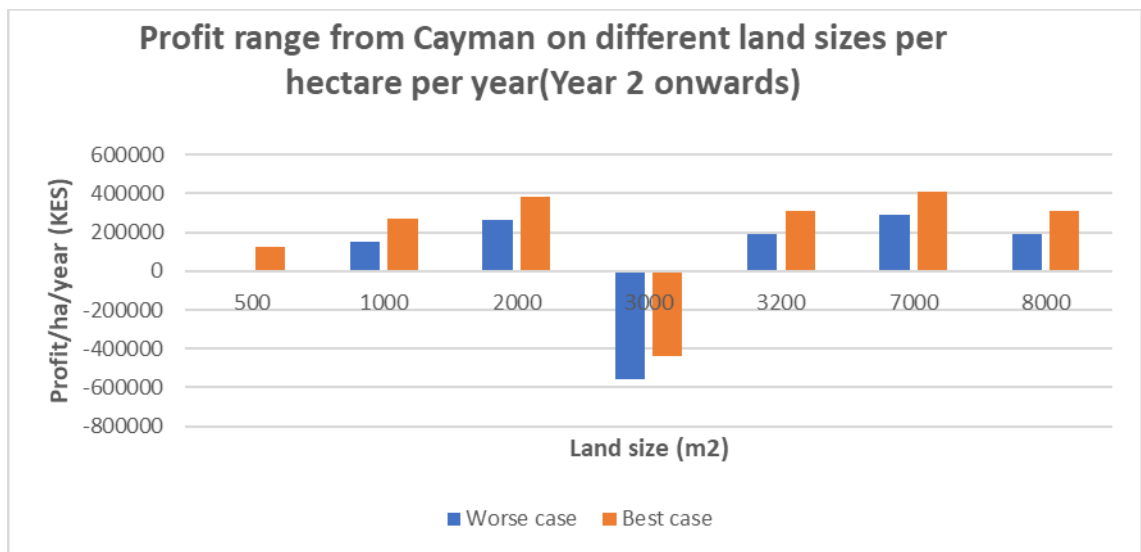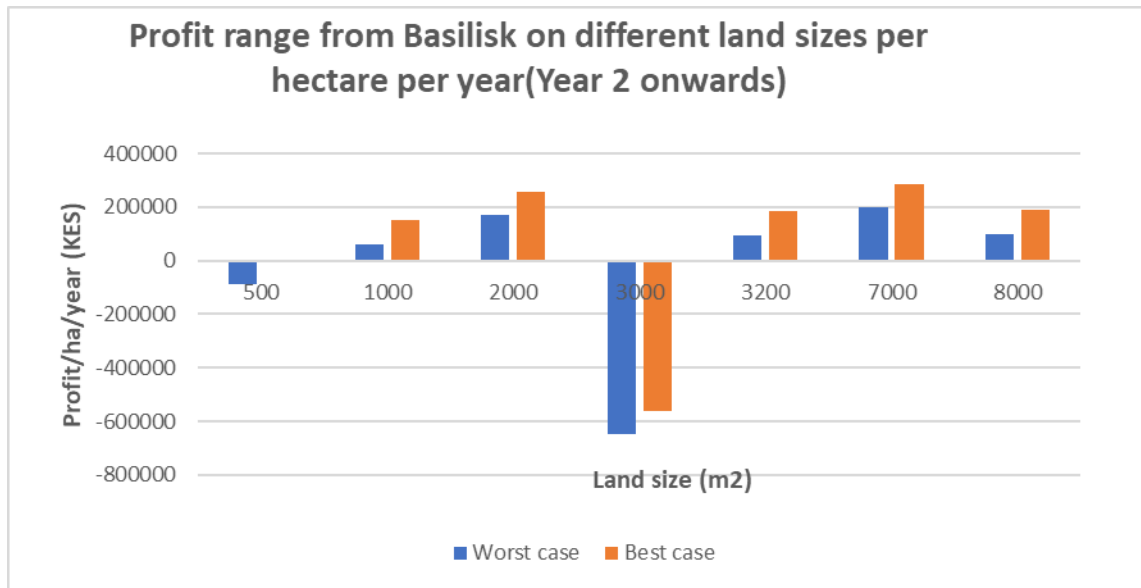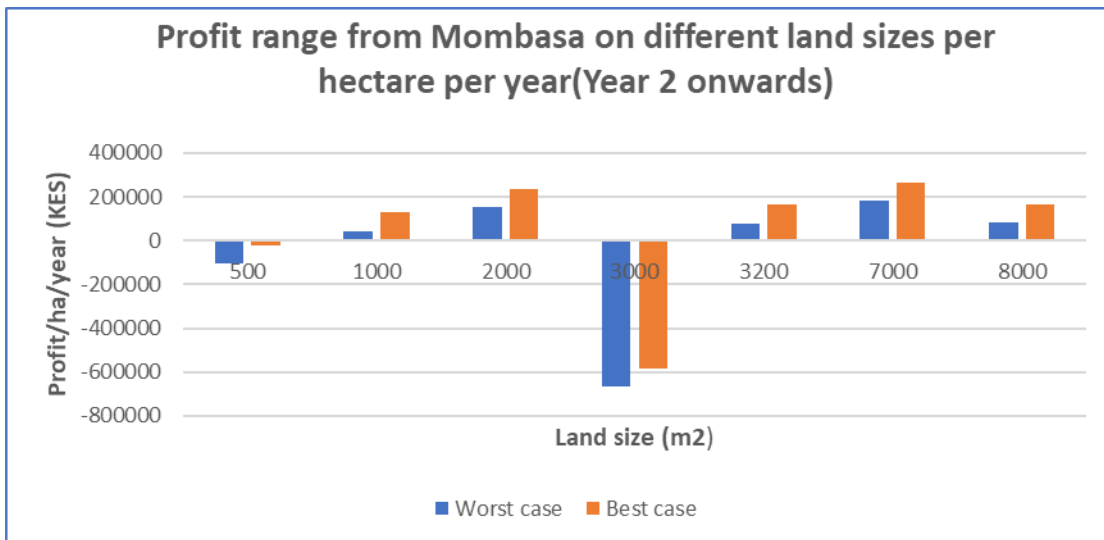
The negative values are as a result of the difference in the management of maintenance costs by farmers. Some farmers ended up incurring high costs where they would have incurred fewer costs and still have high yields.

Productivity trend

Productivity vs. Number of cuts
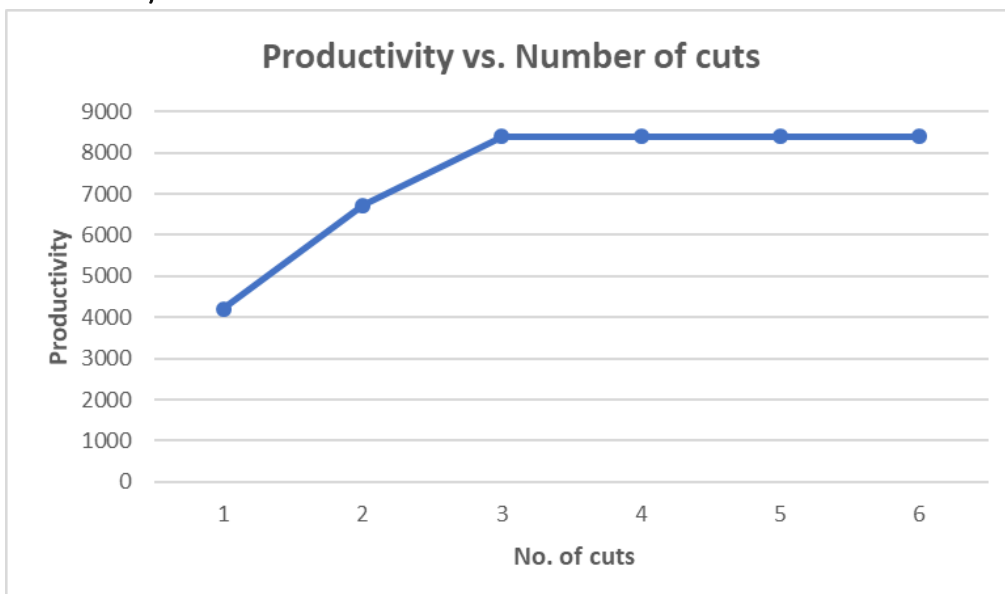
Production quantity increases for the first three to four cuts, and afterward, it remains constant after the plants have already established themselves. As much as the trend is constant, the yield may differ, depending on the size of the farm and maintenance given to the forage crop.

Comparison of profits for alternative crops
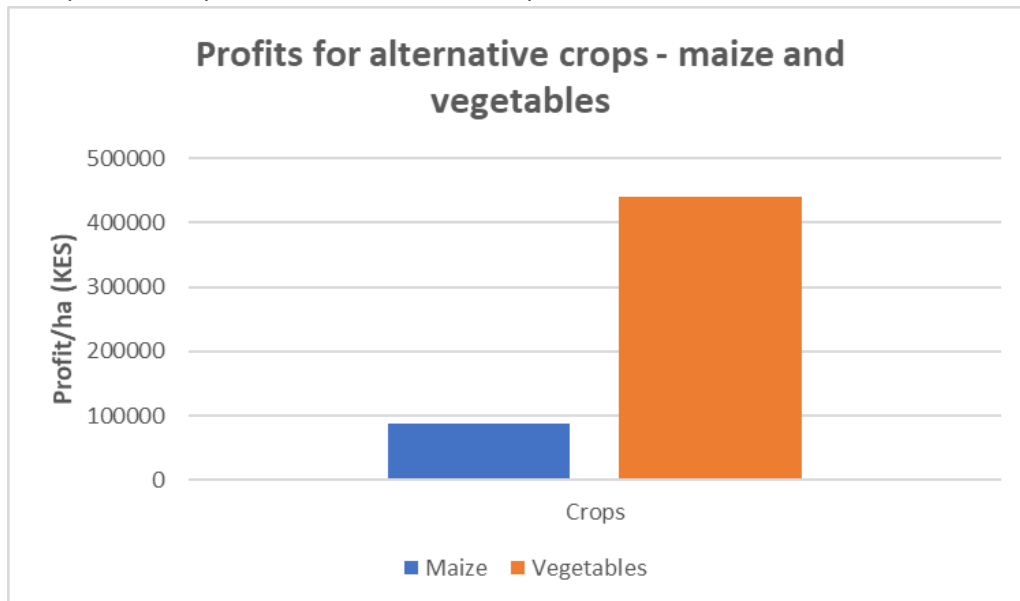
The average profit earned per hectare per year from maize and vegetables is approximately Ksh. 87,000 and Ksh. 440,000 respectively.

When compared with forage growing, farmers make less profit from maize than forages. However, most farmers indicated that maize is profitable when grown for silage than for human consumption. Very little or zero profit is earned when maize is grown for human consumption. Profit earned from vegetable production is higher than profit made from maize farming and, some forage farms that had high maintenance costs. Hence vegetable farming is more profitable than maize farming.

However, growing forages can be more profitable than vegetable farming, when grown in the right conditions.

Critical remarks
Several assumptions were made during this study. They include:

1. Farmers have no records for production of forage, hence most of the data that was collected was out of estimations. The estimations thus differed from farmer to farmer despite similar land sizes.
2. There is no established market for brachiaria, hence there is no established price for both fresh and dry brachiaria.
3. Most prices of the inputs were out of assumptions since the farmers did not buy the inputs and had no idea of their prices.
4. The data collected focused specifically on direct costs and direct returns from forages and did not focus on the benefits of forage on milk production.

Conclusions

The main lesson learned from the study is that profit from forages depends on, size of the land, type, and productivity of the forage, and the maintenance practices of the forage crop. Well managed forages result to increase in productivity hence more yield and profit.

In conclusion, despite the positive feedback from farmers on the impact of forages on livestock milk production, farmers need to improve on the maintenance of the forages to improve their yield. Most of the farmers who managed their maintenance costs made a profit from their forages. However, some of them made losses, and this occurred due to the high costs they had incurred during forage maintenance, especially during manure application and harvesting.

Recommendations

This study faced some challenges; hence the following recommendations are made:

1. Introduce record-keeping books to farmers who grow forage, to help them in keeping all records on activities, costs, and the yield from forage production. This will help in a similar study in the future.
2. In order to get rid of too many estimations, the data collector can be on the ground during the time when the specific activities are being done to collect data. E.g., during harvesting, the data collector should be there during the harvesting season to weigh the harvested forage, and/ or count the number of bales made.
3. A similar study in the future should be specific on the type and variety of forage that the study should focus on. Different forages have different productivity and hence different profitability.
4. A similar study in the future should also focus on the benefits of the forages on milk production since that is where most farmers realize back their profits.
5. Organize a workshop or a forum where all farmers growing forages will come together and share their experiences with growing the forages, so that the farmers who are not doing well, will learn from the ones who are doing well. Some farmers also gave this as a remark during the data collection.

Appendices

Total Production Costs for Year 1, Establishment Costs and Total Production Costs for Year 2 Onwards

farm_name	size_of_forage_field(m2)	Year 1				Establishment costs				Year 2 onwards			
		total cost of the farm	total_cost per m2_yr1	total_cost per plot_yr1	total_costper ha_yr1	establishment_costs_for the farm	establishment_costs per m2	establishment_costs per plot	establishment_costs per ha	total_cost_of_farm_yr2_without_establishment	total_cost per m2_yr2	total_cost per plot_yr2	total_cost per ha_yr2
Illula farm- Mr. Magut	8093.7	182450.0	22.5	11271.1	225422.2	62600.0	7.7	3867.2	77344.1	119850.0	14.8	7403.9	148078.1
Leketeton farm - Chris	3237.5	108240.0	33.4	16716.6	334332.0	52700.0	16.3	8139.0	162779.9	55540.0	17.2	8577.6	171552.1
Farmmaid farm - Jane Wanja Joseph	8093.7	248350.0	30.7	15342.2	306843.6	94800.0	11.7	5856.4	117128.1	153550.0	19.0	9485.8	189715.5
Joska farm - Joseph Munyi Kimathi	1011.7	17810.0	17.6	8802.0	176040.3	8950.0	8.8	4423.2	88465.0	8860.0	8.8	4378.8	87575.4
Chure Dairy Co-operative Society	2023.4	20550.0	10.2	5078.1	101561.7	18550.0	9.2	4583.9	91677.4	2000.0	1.0	494.2	9884.4
Sikiru farm - Silvia Kiruja	2023.4	74220.0	36.7	18340.4	366808.3	24420.0	12.1	6034.4	120688.0	49800.0	24.6	12306.0	246120.4
Rarama farm - Joseph Gatubo Rarama	1011.7	37250.0	36.8	18409.6	368192.2	19850.0	19.6	9810.2	196204.4	17400.0	17.2	8599.4	171987.7
Nkuriga farm - Margaret Riungu	1011.7	41400.0	40.9	20460.6	409212.2	10800.0	10.7	5337.6	106751.0	30600.0	30.2	15123.1	302461.2
Makamu farm - Eric Magaju	1011.7	37900.0	37.5	18730.8	374617.0	11800.0	11.7	5831.8	116635.4	26100.0	25.8	12899.1	257981.6
Itiri farm - Timothy Itiri	2023.4	36200.0	17.9	8945.3	178906.8	12100.0	6.0	2990.0	59800.3	24100.0	11.9	5955.3	119106.5
Kinoti fram - Nathan Kinoti	1011.7	25500.0	25.2	12602.6	252051.0	18000.0	17.8	8895.9	177918.4	7500.0	7.4	3706.6	74132.6
Susan and Davis Kiumbe	505.9	10600.0	21.0	10476.4	209527.6	4600.0	9.1	4546.4	90927.1	6000.0	11.9	5930.0	118600.5
Florence Thuranira	1011.7	50097.5	49.5	24759.1	495181.4	12897.5	12.7	6374.2	127483.4	37200.0	36.8	18384.9	367697.9
RK farm - Rachel Kinyua	3035.1	99200.0	32.7	16342.1	326842.6	29200.0	9.6	4810.4	96207.7	70000.0	23.1	11531.7	230634.9
Samson Muroki farm	1011.7	23540.0	23.3	11633.9	232677.7	11300.0	11.2	5584.7	111693.2	12240.0	12.1	6049.2	120984.5
Batch farm - Mary Kaburu	2023.4	13850.0	6.8	3422.5	68449.1	10400.0	5.1	2569.9	51398.6	3450.0	1.7	852.5	17050.5
Arithi farm - Elias Kimathi	1011.7	51365.0	50.8	25385.5	507709.8	6875.0	6.8	3397.7	67954.9	44490.0	44.0	21987.7	439754.9
Jackson Mukaria	505.9	21180.0	41.9	20933.0	418659.8	7980.0	15.8	7886.9	157738.7	13200.0	26.1	13046.1	260921.1
Geoffrey Muuru	1011.7	13350.0	13.2	6597.8	131956.1	8250.0	8.2	4077.3	81545.9	5100.0	5.0	2520.5	50410.2
Arimi farm - Simon Guantai	505.9	23950.0	47.3	23670.7	473413.7	3500.0	6.9	3459.2	69183.6	20450.0	40.4	20211.5	404230.1
Manene farm - Mburugu, Justus and Sabella	505.9	35340.0	69.9	34927.9	698557.0	13900.0	27.5	13737.9	274757.9	21440.0	42.4	21190.0	423799.2
John Gitonga	505.9	25550.0	50.5	25252.0	505040.5	3650.0	7.2	3607.4	72148.6	21900.0	43.3	21644.6	432891.9
Nkaabu farm - Bernard Gitobu Ngabu	7082	75000.0	10.6	5295.1	105902.3	25075.0	3.5	1770.3	35406.7	49925.0	7.0	3524.8	70495.6
Susan Kangai	505.9	24200.0	47.8	23917.8	478355.4	8775.0	17.3	8672.7	173453.3	15425.0	30.5	15245.1	304902.2
David Mwiti	505.9	7000.0	13.8	6918.4	138367.3	3850.0	7.6	3805.1	76102.0	3150.0	6.2	3113.3	62265.3
Fortune farm - Steven Muriuki	505.9	8910.0	17.6	8806.1	176121.8	8610.0	17.0	8509.6	170191.7	300.0	0.6	296.5	5930.0
Lupa farm - Patrick Murimi Nkanata	505.9	27070.0	53.5	26754.3	535086.0	2650.0	5.2	2619.1	52381.9	24420.0	48.3	24135.2	482704.1
Briaton dairy farm - Zipporah Arithi	505.9	70200.0	138.8	69381.3	1387626.0	16550.0	32.7	16357.0	327139.8	53650.0	106.0	53024.3	1060486.3
Mwiboini farm - Grace	1011.7	533000.0	526.8	263418.0	5268360.2	514300.0	508.4	254176.1	5083522.8	18700.0	18.5	9241.9	184837.4
Meved farm	3035.1	551400.0	181.7	90837.2	1816744.1	64700.0	21.3	10658.6	213172.5	486700.0	160.4	80178.6	1603571.5

Value generated after harvesting from each farm for Year 1

farm_name	location	field_size (m2)	KGs for fresh_forage for 1st cut	KGs for fresh_forage for 2nd cut	KGs for fresh_forage for 3rd cut	KGs for fresh_forage for 4th cut	KGs for fresh_forage for 5th cut	KGs for fresh_forage for 6th cut	total_KGs_freshforage	Worst Case (sh. 10) Total income value_Fresh_forage (KES)	Best Case (sh. 15) Total income value_Fresh_forage (KES)	No_of_haybales_for 1st Cut	haybales_no_2cut	haybales_no_3cut	haybales_no_4cut	haybales_no_5cut	haybales_no_6cut	total_haybales_no	Worst Case (sh. 300) Total income value_Haybales (KES)	Best Case (sh. 400) Total income value_Haybales (KES)
Susan and Davis Kiumbe	Njuki njiru	505.9	250	0	0	0	0	0	250	2500	3750	0	0	0	0	0	0	0	0	0
Jackson Mukaria	Mujwa	505.9	300	400	450	500	0	0	1650	16500	24750	0	0	0	0	0	0	0	0	0
Arimi farm - Simon Guantai	Fun city - Arimi	505.9	600	0	0	0	0	0	600	6000	9000	0	0	0	0	0	0	0	0	0
Manene farm - Mburugu, Justus and Sabella	Nkubu	505.9	100	150	210	300	0	0	760	7600	11400	0	0	0	0	0	0	0	0	0
John Gitonga	Irimbene	505.9	700	0	0	0	0	0	700	7000	10500	0	0	0	0	0	0	0	0	0
Susan Kangai	Mutunyi	505.9	600	0	0	0	0	0	600	6000	9000	0	0	0	0	0	0	0	0	0
David Mwiti	Mutunyi	505.9	3000	0	0	0	0	0	3000	30000	45000	0	0	0	0	0	0	0	0	0
Fortune farm - Steven Muriuki	Marurui	505.9	500	0	0	0	0	0	500	5000	7500	25	0	0	0	0	0	25	7500	10000
Lupa farm - Patrick Murimi Nkanata	Kianjogu	505.9	160	180	200	0	0	0	540	5400	8100	0	0	0	0	0	0	0	0	0
Briaton dairy farm - Zipporah Arithi	Kinoru	505.9	2000	3000	2500	2800	0	0	10300	103000	154500	0	0	0	0	0	0	0	0	0
Joska farm - Joseph Munyi Kimathi	Chure	1011.7	700	1050	1500	0	0	0	3250	32500	48750	0	0	0	0	0	0	0	0	0
Rarama farm - Joseph Gatubo Rarama	Gatheri central	1011.7	3900	0	0	0	0	0	3900	39000	58500	0	0	0	0	0	0	0	0	0
Nkuriga farm - Margaret Riungu	Nkuriga	1011.7	280	350	400	400	450	500	2380	23800	35700	0	0	0	0	0	0	0	0	0
Makamu farm - Eric Magaju	Gatimbi	1011.7	280	420	420	600	600	420	2740	27400	41100	0	0	0	0	0	0	0	0	0
Kinoti fram - Nathan Kinoti	Muringombugi	1011.7	600	1200	1800	2000	2200	0	7800	78000	117000	0	0	0	0	0	0	0	0	0
Florence Thuranira	Nkabune	1011.7	490	700	700	1470	0	0	3360	33600	50400	0	0	0	0	0	0	0	0	0
Samson Muroki farm	Mujwa	1011.7	200	280	320	350	0	0	1150	11500	17250	0	0	0	0	0	0	0	0	0
Arithi farm - Elias Kimathi	Mujwa	1011.7	420	840	0	0	0	0	1260	12600	18900	0	0	0	0	0	0	0	0	0
Geoffrey Muuru	Mujwa	1011.7	400	750	800	0	0	0	1950	19500	29250	0	0	0	0	0	0	0	0	0
Mwiboini farm - Grace	Njukini, Kirinyaga	1011.7	500	700	750	750	0	0	2700	27000	40500	0	0	0	0	0	0	0	0	0
Chure Dairy Co-operative Society	Chure	2023.4	0	1500	2000	0	0	0	3500	35000	52500	26	0	0	0	0	0	26	7800	10400
Sikiru farm - Silvia Kiruja	Nkubu	2023.4	200	200	200	200	200	200	1200	12000	18000	0	0	0	0	0	0	0	0	0
Itiri farm - Timothy Itiri	Kariene	2023.4	500	1000	500	0	0	0	2000	20000	30000	0	0	50	0	0	0	50	15000	20000
Batch farm - Mary Kaburu	Mujwa	2023.4	800	1000	0	0	0	0	1800	18000	27000	0	0	0	0	0	0	0	0	0
RK farm - Rachel Kinyua	Muratha nkari	3035.1	1000	1925	2600	**1500**	**1200**	0	8225	82250	123375	0	0	0	0	0	0	0	0	0
Meved farm	Njukuma, Kirinyaga	3035.1	600	1000	**2000**	0	0	0	3600	36000	54000	0	0	0	0	0	0	0	0	0
Leketon farm -Chris	Cheplasgei, Eldoret	3237.5	4200	6720	8400	8400	8400	8400	44520	445200	667800	0	0	0	0	0	0	0	0	0
Nkaabu farm - Bernard Gitobu Ngabu	Kithoka	7082	1500	1200	1500	1300	0	0	5500	55000	82500	0	0	0	0	0	0	0	0	0
Illula Farm- MR. Magut	Illula, Eldoret	8093.7	100	200	0	0	0	0	300	3000	4500	800	1200	0	0	0	0	2000	600000	800000
Farmmaid farm - Jane Wanja Joseph	Kija, Imenti	8093.7	10000	30000	0	0	0	0	40000	400000	600000	0	40	0	0	0	0	40	12000	16000

Costs, Income and Profit from Alternative Crops

farm_name	maize_avg_costs_yr1	maize_avg_costs_yr2_yr10	maize_avg_income_yr1	maize_avg_income_yr2_yr10	maize_avg_profit_yr1	maize_avg_profit_yr2_yr10	vegetable_avg_costs_yr1	vegetable_avg_costs_yr2_yr10	vegetable_avg_income_yr1	vegetable_avg_income_yr2_yr10	vegetable_avg_profit_yr1	vegetable_avg_profit_yr2_yr10	coffee_avg_costs_yr1	coffee_avg_costs_yr2_yr10	coffee_avg_income_yr1	coffee_avg_income_yr2_yr10	coffee_avg_profit_yr1	coffee_avg_profit_yr2_yr10	tea_avg_costs_yr1	tea_avg_costs_yr2_yr10	tea_avg_income_yr1	tea_avg_income_yr2_yr10	tea_avg_profit_yr1	tea_avg_profit_yr2_yr10
Illula farm- Mr. Magut	0	20000	72000	72000	52000	52000	100000	100000	200000	200000	100000	100000	0	0	0	0	0	0	0	0	0	0	0	0
Leketeton farm - Chris	50000	50000	70000	70000	20000	20000	62000	42000	100000	120000	38000	78000	0	0	0	0	0	0	0	0	0	0	0	0
Farmmaid farm - Jane Wanja Joseph	38500	38500	90000	90000	51500	51500	0	0	0	0	0	0	0	0	0	0	0	0	25000	70000	65000	227500	40000	157500
Joska farm - Joseph Munyi Kimathi	65000	65000	90000	90000	25000	25000	0	0	0	0	0	0	0	0	0	0	0	0	105000	115000	25000	357000	-80000	242000
Chure Dairy Co-operative Society	46000	46000	30000	30000	-16000	-16000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sikiru farm - Silvia Kiruja	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rarama farm - Joseph Gatubo Rarama	20000	20000	28800	28800	8800	8800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nkuriga farm - Margaret Riungu	30000	30000	40000	40000	10000	10000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Makamu farm - Eric Magaju	40000	40000	40000	40000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Itiri farm - Timothy Itiri	0	0	0	0	0	0	0	0	0	0	0	0	60000	45000	37000	91500	-23000	46500	0	0	0	0	0	0
Kinoti fram - Nathan Kinoti	30000	30000	30000	30000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Susan and Davis Kiumbe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Florence Thuranira	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RK farm - Rachel Kinyua	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Samson Muroki farm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Batch farm - Mary Kaburu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arithi farm - Elias Kimathi	0	0	0	0	0	0	0	0	0	0	0	0	300000	200000	200000	270000	-100000	270000	0	0	0	0	0	0
Jackson Mukaria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geoffrey Muuru	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arimi farm - Simon Guantai	70000	70000	80000	80000	10000	10000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manene farm - Mburugu, Justus and Sabella	0	0	0	0	0	0	90000	90000	480000	480000	390000	390000	0	0	0	0	0	0	0	0	0	0	0	0
John Gitonga	75600	75600	300000	300000	224400	224400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nkaabu farm - Bernard Gitobu Ngabu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Susan Kangai	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
David Mwiti	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fortune farm - Steven Muriuki	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lupa farm - Patrick Murimi Nkanata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Briaton dairy farm - Zipporah Arithi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mwiboini farm - Grace	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Meved farm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AVERAGE/Acre	42281.8	44100.0	79163.6	79163.6	35063.6	35063.6	84000.0	77333.3	260000.0	266666.7	176000.0	189333.3	180000.0	122500.0	118500.0	180750.0	-61500.0	158250.0	65000.0	92500.0	45000.0	292250.0	-20000.0	199750.0
Per plot	5285.2	5512.5	9895.5	9895.5	4383.0	4383.0	10500.0	9666.7	32500.0	33333.3	22000.0	23666.7	22500.0	15312.5	14812.5	22593.8	-7687.5	19781.3	8125.0	11562.5	5625.0	36531.3	-2500.0	24968.8
Per ha	105704.5	110250.0	197909.1	197909.1	87659.1	87659.1	210000.0	193333.3	650000.0	666666.7	440000.0	473333.3	450000.0	306250.0	296250.0	451875.0	-153750.0	395625.0	162500.0	231250.0	112500.0	730625.0	-50000.0	499375.0