

Table S6. Contribution margin analysis and net farm incomes from operations, large-scale individual farm.

Large-scale farm						
Revenues						
<i>Cash revenue</i>	Number of traded livestock (head)	Weight of meat (kg head⁻¹)	Selling price (USD kg⁻¹)		Sum (USD yr⁻¹)	share of total revenues (%)
Sale of beef (two-year-old bulls)	16	170	4,4		11.968	
Sale of beef (one-year-old bulls)	18	130	4,4		10.296	
			Sum of cash revenues		22.264	31
<i>Inventory changes</i>	Herd size at end of the year (head)	Additional calves (head)	Selling price (USD kg⁻¹)	Selling price (USD head⁻¹)		share of total revenues (%)
Cow calves	170	34		502	17.068	
Bull calves	170	16	4,4		9.152	
			Sum of inventory changes		26.220	37
<i>Government program payments (elite bull program)</i>	Number of cows (head)	Annual payment (USD per cow)	Amount of traded elite beef (kg yr⁻¹)	Premium payment for elite beef (USD kg⁻¹)		share of total revenues (%)
Support for cows	120	95			11.400	
Traded elite beef			5.060	1,6	8.096	

	Number of elite bulls (head per stock)	Weight of meat (kg head ⁻¹)	Selling price (USD kg ⁻¹)	Premium payment for elite beef (USD kg ⁻¹)			
Beef of elite bulls	4	300	4,4	1,6	3.600		
					Sum of government program payments	23.096	32
					Total revenues	71.580	100

Variable costs independent of water inflow

<i>Veterinary</i>	Ear tags per head	Number of reared livestock (head)	Total number of ear tags (piece)	Price per ear tag (USD)	Sum (USD yr ⁻¹)		
Calves	2	68	136	0,8	109	0,47397	
<i>Transport for beef trading</i>	Trips per year	Average diesel consumption (L)	Annual diesel consumption (L yr ⁻¹)	Diesel price (USD L ⁻¹)			
	3	300	900	0,5	450	2	
<i>Kombi corn</i>	Amount (kg d ⁻¹ per head)	Livestock number (head)	Feeding period (d)	Purchase price (USD kg ⁻¹)			
Cows	1	120	135	0,2	3.240		
Workhorses	1	2	365	0,2	146		
					Sum of costs for kombi corn	3.386	14,7505

<i>Annual purchase of elite bulls</i>	Number of elite bulls (heads per stock)	Purchase price (USD yr⁻¹ per bull)		
Elite bulls	4	924	3.696	16,1009
Sum of variable costs independent of water inflow			7.641	33,2857

Variable costs depending on water inflow

<i>Demand winter fodder (hay)</i>	Amount of hay (kg d⁻¹ per head)	Livestock number (head)	Feeding period (d)	Annual amount (kg yr⁻¹)	Total demand (kg yr⁻¹)
Cattle	20	140	135	378.000	382.860
Workhorses	18	2	135	4.860	
<i>Feed costs (hay for winter period)</i>	Specification	Total demand (kg yr⁻¹)	Production or purchase price (USD kg⁻¹)	Production or purchase costs (USD yr⁻¹)	Sum (USD yr⁻¹)
Normal situation	Farm own production of reed hay	382.860	0,04	15.314	15.314
Decreasing water inflow	Farm own production of reed hay	191.430	0,04	7.657	26.800
	Purchase of lucerne hay	191.430	0,10	19.143	
Worst case	Purchase of reed hay	191.430	0,08	15.314	42.115
	Purchase of lucerne hay	191.430	0,14	26.800	
Total variable costs, normal situation					22.955
Total variable costs, decreasing water inflow					34.441
Total variable costs, worst case					49.755

Contribution margin (USD yr ⁻¹ per stock)			
	Normal situation	48.625	
	Decreasing water inflow	37.139	23,6213
	Worst case	21.825	55,1163
Contribution margin ratio (%)			
	Normal situation	68	
	Decreasing water inflow	52	
	Worst case	30	

Fixed costs

<i>Labor</i>	Number of employees	Monthly salary (USD)	Months per year	Sum (USD yr ⁻¹)	
Permanent employed cowboys	2	317	12	7608	
<i>Land</i>	Total area (ha)	Leasing price (USD yr ⁻¹)		Sum (USD yr ⁻¹)	
	917	0,29		266	
<i>Farm buildings</i>	Material costs (USD)	Useful life (years)	Salvage value (USD)	Annual depreciation (USD yr ⁻¹)	Sum (USD yr ⁻¹)
Stone stable including feed storage	2244	49	0	46	46
House for employees	2112	49	0	43	43
Pasture fence	1056	5	0	211	211
				Sum of building costs	300

<i>Farm vehicles and machinery</i>	Purchase price + 10% delivery fees and transport costs for new machinery (USD)	Useful life (years)	Salvage value (USD)	Annual depreciation (USD yr⁻¹)	Taxes (USD yr⁻¹)	Number	
Used truck	10000	6	0	1667	106	1	1773
New tractor	26766	15	6692	1338	40	1	1378
Used tractor	4900	6	0	817	40	1	857
Used trailer	1000	6	0	167	0	2	333
New mower	3300	12	891	201	0	1	201
New swather	3300	12	759	212	0	1	212
New hay baler (round bales)	14850	12	3713	928	0	1	928
							Sum of machinery costs 5682
							Total fixed costs 13856
							Net farm income (USD yr⁻¹ per stock)
							Normal situation 34.769
							Decreasing water inflow 23.283
							Worst case 7.969