

Table S5. Contribution margin analysis and net farm incomes from operations, medium-scale individual farm.

Medium-scale farm						
Revenues						
<i>Cash revenue</i>	Number of traded livestock (head)	Weight of meat (kg head⁻¹)	Selling price (USD kg⁻¹)	Selling price (USD head⁻¹)	Sum (USD yr⁻¹)	
Sale of beef	7	159	4,4		4.897	share of total revenues
Sale of goat (head)	17			92,4	1.571	(%)
Sale of sheep (head)	20			158,4	3.168	(%)
				Sum of cash revenues	9.636	57,3
<i>Value of own consumption</i>	Number of consumed livestock (head yr⁻¹)	Weight of meat (kg head⁻¹)	Selling price (USD kg⁻¹)	Selling price (USD head⁻¹)		
Consumption of beef	3	165	5,1		2.525	share of total revenues
Consumption of goat meat	15			92,4	1.386	(%)
Consumption of sheep meat	8			158,4	1.267	(%)
				Sum of value of own consumption	5.178	30,8
<i>Inventory changes</i>	Herd size at end of the year (head)	Additional cow calves (head)		Selling price (USD head⁻¹)		
Cattle	61	4		502	2.008	share of total revenues (%)
				Total revenues	16.822	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)
Calve	2	14	28	0,8	22
Kids	1	32	32	0,8	26
Lambs	1	28	28	0,8	22
Sum of veterinary costs					70
<i>Transport for beef trading</i>	Trips per year	Average diesel consumption (L)	Annual diesel consumption (L yr ⁻¹)	Diesel price (USD L ⁻¹)	
	2	98	196	0,5	98
Sum of variable costs independent of water inflow					168

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	10	57	148	84360	123.728
Goat	2	67	148	19832	
Sheep	2	57	148	16872	
Workhorses	9	2	148	2664	

<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	123728	0,03	3712	3.712	
Decreasing water inflow	Farm own production of reed hay	61864	0,03	1856	8.042	
	Purchase of lucerne hay	61864	0,10	6186		
Worst case	Purchase of reed hay	61864	0,08	4949	13.610	
	Purchase of lucerne hay	61864	0,14	8661		
Total variable costs, normal situation					3.880	
Total variable costs, decreasing water inflow					8.211	
Total variable costs, worst case					13.778	
Contribution margin (USD yr⁻¹ per stock)						
Normal situation					12.941	
Decreasing water inflow					8.611	33,462067
Worst case					3.043	76,484724
Contribution margin ratio (%)						
Normal situation					77	
Decreasing water inflow					51	
Worst case					18	

Fixed costs

<i>Labor</i>	Number of employees	Monthly salary (USD)	Months per year	Sum (USD yr⁻¹)
Permanent employed shepherd	1	174	12	2088,0

<i>Land</i>	Total area (ha)	Leasing price (USD yr⁻¹)					
	443	0,29					129
<i>Farm buildings</i>	Material costs (USD)	Useful life (years)	Salvage value (USD)	Annual depreciation (USD yr⁻¹)			
Wood stable including hay storage	1716	49	0	35			35
House for employees	2112	49	0	43			43
					Sum of building costs		78,1
<i>Farm vehicles and machinery</i>	Purchase price (USD)	Useful life (years)	Salvage value (USD)	Annual depreciation (USD yr⁻¹)	Taxes (USD yr⁻¹)		
Used car (mainly private use)	2425	6	0	404	34		438
Used tractor	4900	6	0	817	40		857
Used trailer	1000	6	0	167	0		167
Used mower	1000	6	0	167	0		167
						Sum of machinery costs	1628
						Total fixed costs	3923
Net farm income (USD yr⁻¹ per stock)							
Normal situation							9.018
Decreasing water inflow							4.688
Worst case							-880