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An Analytical Study of Production Cost for Camel Herds in Riyadh Area, Saudi Arabia

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Abstract. This is a report of biological and economic characteristics of 43 traditional camel herds near Riyadh, Saudi Arabia. The camel ranchers were personally surveyed during the summer of 2001 by the senior author. The sample contained 21 medium size herds averaging 38 head and 22 large herds averaging 92 head. The age-sex distribution of animals was similar across the two herd sizes. Owners of medium herds were more likely to have ranches closer to Riyadh that were part time "hobby" operations. Large herds suffered fewer death losses, possibly due to using more labor.

Medium herds' total costs were 3279 SR/animal/year and large herds' total costs were 2318 SR /animal/year. (At the fixed rate 1.0 Saudi Riyal (SR) = 0.2667 U.S. Dollar). Medium herds' fixed costs were 458 riyal/head/year and large herds fixed costs were 242 SR /head/yr. Variable costs for large herds were 2077 SR /animal/year, or 74% of the medium herds' variable cost of 3821 SR /animal/year. The large herds used less machinery and feed per animal than the medium herds, but the large herds employed more labor per camel. Feed for medium herds represented 66% of their total costs, a sum of $577/animal/year. In contrast, feed cost for large herds was 79% of their total costs, a sum of $490/animal/year.

Informal information collected during the survey indicated that ranchers with large herds tended to be more profit oriented. Ranchers with large herds were more likely to live closer to their herds and to maintain cooperative arrangements with other ranchers, for example buying feed collectively or sharing machinery with other ranchers. On the other hand, ranchers with medium herds appeared more likely to keep camels as a traditional activity or hobby and were less profit oriented. More research would be necessary to formally test these tentative explanations of cost differences by herd size.

Introduction

The enormous deserts of the Arabian Peninsula distinguish this area from the rest of the world. These deserts provided the birthplace for the single hump camel, "*Camelus dromedarius.*" There animals are well adapted to desert conditions. The camel has played an important role in Saudi Arabia's history. Camels have been called "the ship of the desert." They provide a key link to survival for the people of the region. Moreover, the camel has been an important source of meat, milk and transportation. The camel was

the main transportation source for the army, for traders, and for farmers. However, after the discovery and extraction of oil in the Arabian Peninsula, Saudis have become less dependent on the camel for transportation, but camels remain an important source of meat.

Anyone examining the agricultural industry in Saudi Arabia will notice great change in recent years due to successive five-year government plans. The main objectives of this planning are (1) to increase local agricultural production by using natural resources efficiently, (2) to improve the efficiency of agricultural marketing, and (3) to improve the quality of the nomad's life style by creating new career opportunities. Because of the development that has taken place, the share of agriculture in the total economy reached 10.3% in 1998 [1]. Camels are a major enterprise in Saudi Arabia's agriculture [2]. The objective of this paper is to provide original survey data on herd characteristics and the cost of production for medium and large camel herds near Riyadh, Saudi Arabia.

Having an up-to-date review of the economic structure and cost of production for camels will be useful to Saudi Arabia. It will provide an economic benchmark for existing and future Saudi camel ranchers. It will provide information on the capital requirements and profitability of the industry for agricultural banks and other lenders. It will be useful to government planners seeking information on the potential contribution to the national economy of camel production.

The Arab states possess 60% of the total population of one-hump camels in the world [3-6]. Camels represent 16% of the total animal units in Arab countries. Moreover, camels contribute 7% of red meat, 23% of milk, 9% of wool and 8% of leather for the Arab states [4, 6-8]. Bedouin people own 50% of the camels in these countries [5, 8, 9].

In recent times, with the increase in human population, there has been a rise in red meat demand. Consequently, it is important to increase efficiency in camel production [9]. Rural Saudis raise camels for spiritual reasons and for material profit [5, 6, 8]. Saudi camel producers are most challenged during hot summer droughts. Consumers buy at this time of the year when prices drop [6, 8]. Therefore, it becomes important to study the production cost of camels to assess year long profitability.

Table 1 shows that the total red meat consumption from camels has increased and has reached 40% of the total during 1993-1995 [1]. Beef, buffalo, mutton, lamb and goat remained at the same level of consumption until 1996 when the consumption of camel and beef dropped sharply. Total camel numbers have doubled since the seventies, increasing by 23% every decade (Table 2) [10]. The total number of camels continued to increase through 1993-1995 and then remained at the same level with fluctuations of about 5000 head per year.

Table 2 shows that the Saudi camel population nearly doubled in the seventies compared to the sixties. The population increased in the eighties and nineties by 20% per decade.

Table 1. Saudi production of camel and other red meat (1000 metric tons)

Year	Beef and buffalo	Mutton, lamb and goat	Camel	Percentage of camel (%)
1979	8	30	22	36
1980	9	25	21	38
1981	9	30	21	35
1982	13	31	17	28
1983	15	38	21	28
1984	20	45	28	30
1985	21	86	25	19
1986	25	111	20	13
1987	25	111	20	13
1988	25	118	20	12
1989	25	92	31	21
1990	28	96	31	20
1991	27	97	31	20
1992	28	100	35	21
1993	35	125	120	43
1994	37	118	112	42
1995	29	110	105	43
1996	15	101	31	21
1997	51	135	31	14
1998	27	125	40	21

*Ministry of Agriculture and Water, Saudi Arabia, Yearbook of Agricultural Statistics 1979-1998 [1].

Table 2. Saudi camel population (head)

Year	Head	Year	Head	Year	Head	Year	Head
1961	80,000	*1972*	170,000	*1983*	367,411	*1994*	415,468
1962	82,000	*1973*	210,000	*1984*	391,247	*1995*	421,700
1963	84,000	*1974*	270,000	*1985*	372,126	*1996*	423,504
1964	85,700	*1975*	260,000	*1986*	376,741	*1997*	426,015
1965	87,500	*1976*	252,000	*1987*	396,626	*1998*	415,000
1966	89,000	*1977*	240,000	*1988*	390,250	*1999*	410,000
1967	91,500	*1978*	241,000	*1989*	406,073	*2000*	415,000
1968	112,189	*1979*	282,000	*1990*	405,916	*2001*	415,000
1969	110,000	*1980*	279,000	*1991*	405,261		
1970	120,000	*1981*	290,000	*1992*	409,788		
1971	150,000	*1982*	311,068	*1993*	412,629		

http://apps.fao.org/page/collections?subset=agriculture accessed on November 20, 2002 [10].

Table 3. Saudi camel imports: Quantity (head) and value (1000$)

Year	Qty	Val	Year	Qty	Val	Year	Qty	Val	Year	Qty	Val
1961	16,600	1,075	*1971*	26,630	3,498	*1981*	15,313	7,139	*1991*	200	100
1962	16,600	1,075	*1972*	22,293	3,090	*1982*	14,272	6,352	*1992*	1,211	1,040
1963	16,587	1,073	*1973*	25,909	3,559	*1983*	11,775	5,882	*1993*	27,407	6,349
1964	16,439	1,996	*1974*	19,865	4,586	*1984*	5,255	2,899	*1994*	55,296	12,224
1965	24,103	2,876	*1975*	35,405	9,344	*1985*	6,457	3,523	*1995*	41,267	10,231
1966	30,163	3,439	*1976*	38,988	11,166	*1986*	10,298	4,990	*1996*	66,472	17,156
1967	11,641	1,406	*1977*	20,626	6,129	*1987*	13,612	8,019	*1997*	62,855	13,369
1968	35,047	4,230	*1978*	28,985	8,829	*1988*	11,188	6,503	*1998*	22,343	3,372
1969	29,900	2,570	*1979*	15,366	6,193	*1989*	4,781	2,595	*1999*	22,343	3,372
1970	23,725	3,010	*1980*	17,856	7,839	*1990*	934	427			

http://apps.fao.org/page/collections?subset=agriculture accessed on November 20, 2002 [10].

Table 3 reports the quantity and value of imported camels. It shows a significant increase in imported camels since 1993 [10]. Even though imports decreased again in 1998 and 1999, imports were high in 1996 and 1997. Local meat production from camels decreased in the same period 1996-1998 (Table 1). Perhaps, local camel ranchers held back their camel sales intending to keep their herds for future markets.

Material and Methods

Survey information was collected on 43 camel herds, mainly from the area near Riyadh, the capital of Saudi Arabia. Herds were surveyed from the south, southeast and

west of Riyadh in June, July and August of 2001. Surveys were done by interviewing the respondents directly. Questions were mainly focused on the producers' camel inventories, variable and fixed costs, and camel sales and purchases during the last three years [11].

Herds were divided by size, less and larger than 60 head. There were 21 respondents with medium herds with an average size of 38 head and standard deviation of 11. There were 22 respondents with large herds averaging of 92 head with a standard deviation of 33.

Standard enterprise budgeting methods were used for tabulating variable and fixed costs of camel production [12]. Following typical Saudi accounting standards, no opportunity cost is assigned to the producer and family labor. Costs were included for hired labor but not for family labor. Due to government subsidies in Saudi Arabia, there is no tax or insurance charge among machinery fixed costs (Table 10).

Survey Results

Figures 1 and 2 and Table 4 show that the age-sex distribution is similar for medium and large herds. Medium size herds represent 21 respondents with small to average herds averaging 38 head. There are 22 respondents with large herds averaging 92 head. The two groups have the same proportion of females' aged one year and less and aged 4-15 years. The major difference is that the females aged 1 to 4 years are more frequent in large herds (16% versus 5%) while females 15 years and above are more frequent in medium herds (16% versus 7%). Possibly producers with large herds desire to keep an inventory of younger females because they are viewed as more productive in terms of milk and breeding. In contrast, owners of medium herds might desire to keep some reliable older females for use in transportation or as tourist animals.

Table 4. Age-sex distribution by herd size (%)

Size	Male				Female			
	0 – 1 yr.	1 - 4 yr.	4 - 15 yr.	> 15 yr.	0 - 1 yr.	1 – 4 yr.	4 - 15 yr.	> 15 yr.
Medium	13	3	5	3	18	8	34	16
Large	11	3	3	1	20	18	37	7

Productivity and economic comparisons

The breeding season for camels starts in winter and continues into spring with one male per 15 females in a herd [6, 13]. The gestation period for female camels is 13 months and they breed only every two years [6, 9].

As reported in Table 5, the calving rate in medium herds slightly exceeds that in large herds (93% versus 86%).

Table 5. Calving rate (%) for camels by herd size

Herd size	Rate	Sample size
Medium	93	20
Large	86	22

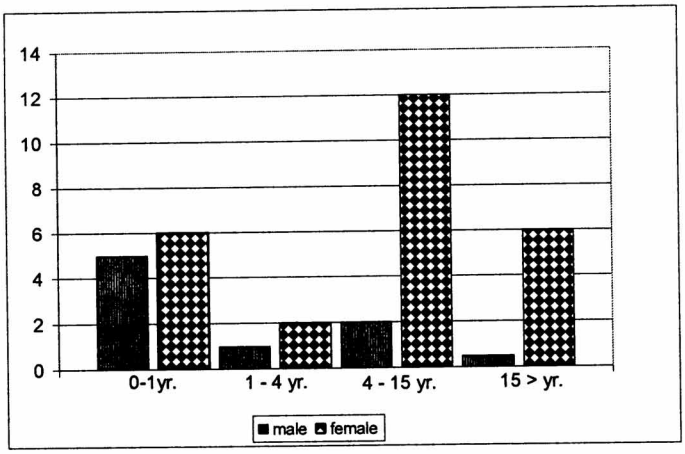

Fig. 1. Age-sex distribution of large camel herds.

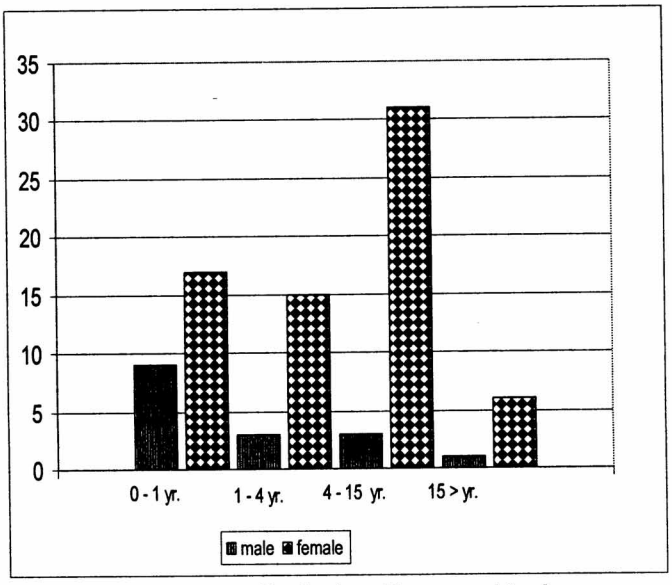

Fig. 2. Age-sex distribution of large camel herds.

According to Almutary, there are no firm statistics about the mortality rate for camels in the open desert [3]. The rate is highest among young calves when the milk supply dwindles in summer. Our survey estimates that mortality rate was 10% and 8% per year for medium and large herds (Table 6). Mortality among calves under one year is highest, 15 to 23%, for both herd sizes. Prime breeding females of 4-15 years. [13] suffer only a 3 to 5% annual death rate. This rate rises to 10 to 12% for older females.

Table 6. Mortality rate (%) by age and sex and by herd size

Herd size	0 - 1 yr. Male	0 – 1 yr. Female	1 - 4 yr. Male	1 - 4 yr. Female	4 - 15 yr. Male	4 - 15 yr. Female	> 15 yr. Male	> 15 yr. Female	Overall
Medium	22	23	-	-	-	5	-	10	10
Large	23	15	-	4	-	3	-	12	8

Note: Dashes indicate no rate calculated for inventories of less than four animals.

Tables 7 and 8 report the sales and purchases for each herd size group and by age-sex group. Ranchers mainly sell camels for slaughter. Saudis use camels as meat at weddings and other celebrations. In general, Saudi consumers prefer camel meat to beef. Many camel ranchers prefer to deal directly with consumers. Some ranchers make regular deliveries to particular clients. Camel ranchers attend daily auctions located in the south of Riyadh for selling and trading camels for slaughter. Ranchers mainly sell younger male camels and unproductive animals. However, all sampled ranchers preferred buying and breeding females of 1 to 15 years.

Table 7. Average sales per herd by age-sex group and by herd size (head per herd)

Herd size	Age (yrs.)	Males			Females		
		1998	1999	2000	1998	1999	2000
Medium	0-1	2	2	3	1	1	1
	1 - 4	3	4	3	2	1	1
	4 - 15	0	0	0	1	1	2
	> 15	0	0	0	0	0	0
Large	0-1	5	5	4	3	3	3
	1 - 4	6	7	6	5	2	4
	4 - 15	1	1	1	2	4	4
	> 15	0	1	1	1	1	1

Table 8. Average purchases by age-sex group and by herd size (head per herd)

Herd size	Age (yrs.)	Males			Females		
		1998	1999	2000	1998	1999	2000
Medium	0-1	0	0	1	0	0	0
	1 - 4	0	0	0	2	1	1
	4 - 15	0	0	0	2	3	3
	> 15	0	0	0	0	0	0
Large	0-1	0	0	0	0	0	0
	1 - 4	0	0	0	2	3	3
	4 - 15	1	0	0	2	6	3
	> 15	0	0	0	0	0	0

Statistical tests

It is of interest to test whether age-sex and mortality distributions of herds are uniform across medium and large herds. To answer these questions, we can use the Chi-Square test. For the age-sex distribution in Table 4, the calculated Chi-Square test statistic value is 0.547, and the corresponding tabulated value of Chi-Square test for 21 degrees of freedom, and 1% level of significance is 38.932. Since the calculated value is much smaller than the tabulated value, we fail to reject the null hypothesis of identical distributions. We conclude that the age-sex distribution of herd population is the same across the two herd sizes. The same result held for mortality among groups, where the Chi-Square is 0.922 and the critical value with 12 degree of freedom is 26.217 at 1% level of significance.

Capital assets

Only seven respondents reported loans. Five of those seven respondents had medium herds. Repayment costs of loans represent about 30% of the total financial outflow in medium herds and around 28% in large herds (Table 9).

Table 9. Average loan balances per herd for herds with loans

Item	Medium herds		Large herds	
	Sample size	Mean	Sample size	Mean
Amount of loan (R)	5	68200	2	185000
Interest rate (%)	5	5	2	5
Length (yrs.)	5	1.6	2	3
Amortized Pmt./yr. (R)	5	55200	2	85000

1 Saudi Riyal (SR) = 0.2667 U.S. Dollar. The rate is fixed.

The ranchers depend on heavy-duty machines to provide feed, transportation and water to their herds. A tank truck, lorry, pickup, crane, generator and pump comprise a large proportion of capital assets for medium herds. Large herds had no crane and pump (Table 10). Due to government subsidies in Saudi Arabia, there is no tax or insurance charge among machinery fixed costs (Table 10).

Table 10. Annual fixed costs (R) for machinery by herd size for herds reporting machinery

Equipment	Cost item	Medium herds	Large herds
Tank truck	Average investment	67042	85691
	Depreciation	2171	2518
	Interest	3352	4285
Lorry	Average investment	32333	83115
	Depreciation	1444	2744
	Interest	1617	4156
Pickup	Average investment	33300	42263
	Depreciation	1546	2073
	Interest	1665	2113
Crane	Average investment	2500	--
	Depreciation	100	--
	Interest	125	--
Generator	Average investment	2485	1000
	Depreciation	188	120
	Interest	124	50
Pump	Average investment	11834	--
	Depreciation	1028	--
	Interest	592	--

1 Saudi Riyal (SR) = 0.2667 U.S. Dollar. The rate is fixed.

Generally, medium herds have more machines than large herds. First, all medium ranchers had well paid governmental jobs and that explain their access to buy the machines. Second, ranchers with large herds are usually located close to each other near highways or main roads and they have direct access to consumers. This permits cooperation between the large producers, so they share some machinery such as cranes and water pumps.

The remaining fixed assets include tents, troughs, metal fences and different tools. Only four of the total respondents reported using mobile houses for overnight stays at the ranch (Table 11).

Table 11. Annual fixed costs (R) for facilities and buildings for herds reporting these facilities

Equipment	Cost	Medium herd	Large herd
Tents	Depreciation/yr	202	330
	Repairs/yr	55	78
	Interest /yr	31	46
	Sum/yr	288	454
Terraces	Depreciation/yr	73	78
	Repairs/yr	39	104
	Interest /yr	18	18
	Sum/yr	130	200
Trough	Depreciation/yr	80	129
	Repairs/yr	37	58
	Interest /yr	12	18
	Sum/yr	129	205
Metal fences	Depreciation/yr	143	135
	Repairs/yr	248	187
	Interest /yr	46	48
	Sum/yr	437	370
Different tools	Depreciation/yr	96	96
	Repairs/yr	63	88
	Interest /yr	24	19
	Sum/yr	183	201
Mobile houses	Depreciation/yr	210	1871
	Repairs/yr	150	267
	Interest /yr	53	619
	Sum/yr	413	2757
Wells	Depreciation/yr	1116	--
	Repairs/yr	117	--
	Interest /yr	642	--
	Sum/yr	1875	--

1 Saudi Riyal (SR) = 0.2667 U.S. Dollar. The rate is fixed.

Variable inputs

Feed (Table 12) represents over 60% of total variable costs for both herd sizes (Table 15). The dry climate in Saudi Arabia necessitates high feed purchases. The feed cost for medium herds' averages 2165 R/animal/year or 66% of total cost. Feed cost for the large herds averages 1838 R/animal/year or 79% of total cost.

In fact, in both herd sizes, there is an indication of ranchers purchasing more feed than the requirement per animal annually. A shortage of feed took place in 1993 through 1999. The government then intervened in the market to stop the export of local feed to nearby countries. Ranchers bought more feed during the shortage and resold it again on the black market.

A second variable cost category is fuel and repair (Table 13). This item costs 544 R/head/yr or 16% of total cost for medium herds. For large herds, fuel and repair cost 160 R/head/yr., almost 7% of total cost. Table 13 discusses in more detail repair and fuel cost. It shows that ranchers with medium herds depend more on machinery for daily activities. One respondent in the medium herds group has a crane, five have generators, and three have pumps and lorries. Twelve producers reported that they have tank trucks and fifteen have pickups. Among large herds, 21 have tank trucks, 13 have lorries and 19 have pickups. Only one large producer has a generator.

The rest of the variable costs include transportation, medication, non-family labor and relocation to new pastures. Ranchers move to new pastures on average once a year for the medium herds and twice for the large herds to improve feed supplies and nutrition (Table 14). These miscellaneous items account for only 2% of the total cost. Due to typical Saudi accounting standards, no opportunity cost is assigned to the producer and family labor.

Table 12. Camel feed components by herd size (Riyals or units/head/year)

Feed	Medium herds	Large herds
Clover (bale)	61	34
Clover (cost)	671	396
Barley (bushel)	30	37
Barley (cost)	605	744
Barley straw (bale)	55	39
Barley straw (cost)	221	203
Bread and leftovers (bushel)	29	17
Bread and leftovers (cost)	172	116
Bran (bushel)	38	22
Bran (cost)	497	380
Total	**2165**	**1838**

1 Saudi Riyal (SR) = 0.2667 U.S. Dollar. The rate is fixed.

Table 13. Machinery variable cost (Riyal/year)

Cost item	Medium herds	Large herds
Tank truck repair	2150	1671
Tank truck fuel/yr	1558	2191
Lorry repair	800	2192
Lorry fuel/yr	2833	2448
Pickup hours of use/yr	1427	1137
Crane % for camel	3409	3117
Crane repair	200	--
Crane fuel/yr	1680	--
Generator repair	175	100
Generator fuel/yr	3841	1825
Pump interest	1300	--
Pump repair	1287	--

1 Saudi Riyal (SR) = 0.2667 U.S. Dollar. The rate is fixed.

Table 14. Other variable cost items by herd size (unit or Riyal/herd / year)

Item	Medium	Large
Antiseptic (bottle)	6	4
Cost of antiseptic	252	393
Udder cream (bottle)	4	5
Cost of udder cream	393	618
Cleaning and other tools (by total No. of purchase)	10	6
Cost of cleaning and other tools	1232	1907
Hired labor (No. workers)	1	3
Hired labor (cost)	11592	12000
Moving to new pastures (No. times)	1	2
Cost of transporting camels to new pasturing	585	1581

1 Saudi Riyal (SR) = 0.2667 U.S. Dollar. The rate is fixed.

Table 15. Cost of production by herd size (Riyal/head/yr)

Cost component	Medium herds	Large herds
Fixed cost		
Machinery	367	196
Facilities	91	46
Total fixed cost	**458**	**242**
Variable cost		
Water	24	19
Feed	2165	1838
Machinery fuel & repair	544	160
Transport	15	17
Medication supplies	49	32
Labor	25	11
Total variable cost	**2821**	**2077**
Total	**3279**	**2319**

1 Saudi Riyal (SR) = 0.2667 U.S. Dollar. The rate is fixed.

Table 15 shows the total cost of production for both medium and large herds. It shows that the large herd owners had lower cost per camel by more than a 1000 Riyal compared to medium herd owners. Ranchers with large herds were more efficient in using machinery and feed. Large herds had 29% lower costs per camel.

Summary and Conclusions

There is a major difference between the medium and large herds' costs. The large herds use less machinery and use less feed than medium herds, but the large herds employ three times more labor. However, owner and family labor were not included in this study. Also, large herds suffer lower death losses, possibly due to using more labor. The mortality pattern among age-sex groups is similar in the two herd sizes. The age-sex distribution was also similar across the two herd sizes. Feed for medium herds represented 66% of their total costs, a sum of 2165 R/animal/year. In contrast, feed cost for large herds was 79% of their total costs, a sum of 1838 R/animal/year.

Total cost per animal is less in large herds by 30%. Medium herds fixed costs were 458 Riyal/head/yr. and large herds fixed costs were 242 Riyal/head/yr. Moreover, variable costs for large herd were 2077 Riyal/animal/year or 74% of the medium herd's variable cost of 2821 Riyal/animal/year. Finally, medium herds' total cost was 3279 riyal/animal/year and large herds' total cost was 2319 riyal/animal/year.

Ranchers with both medium and large herds had generally inherited their herds from parents or grandparents. Virtually all the sampled ranchers had government jobs as well. Informal information collected during the survey indicated that ranchers with large herds tended to be more profit oriented and saw their herds as a source of additional income. Ranchers of the large herds were more likely to live closer to their herds and to maintain cooperative arrangements with other ranchers, for example buying feed collectively or sharing machinery with other ranchers. On the other hand, ranchers with medium herds appeared more likely to keep camels as a traditional activity or hobby and were less profit oriented. Most if not all of the ranchers with medium herds had well paid government jobs which might explain their access to more machinery. While these tentative explanations for differential efficiency and production costs for different herd sizes offer interesting hypotheses, more research would be necessary to formally test these explanations. Additional socio-demographic variables need to be considered in further research. Level of outside employment could help distinguish whether the rancher depends on outside income for ranching expenditures. Moreover, ranchers' age can also be an important variable. In Saudi Arabia, it would also be useful to know the number of family members and relatives that help out on the ranch regularly or occasionally.

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دراسة تحليلية لتكاليف منتجي الإبل في مدينة الرياض بالمملكة العربية السعودية

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(قدم للنشر في ١٤٢٤/٧/٢هـ ؛ وقبل للنشر في ١٤٢٦/١٠/١٨هـ)

ملخص البحث. تم ولله الحمد في هذه الدراسة جمع ثلاثة وأربعون (٤٣) استبانة لمنتجي الإبل في منطقة الرياض في صيف عام ٢٠٠١م وذلك بغرض تحليل تكاليفهم الإنتاجية.

قسمت هذه الاستبانات إلى جزئين رئيسيين. الأول يتعلق بقطعان الإبل والتي تتضمن على عدد أقل من أو يساوي الستين (٦٠) رأسا من الإبل، والقسم الثاني يتضمن القطعان التي تحتوي على عدد أكبر من الستين (٦٠) رأسا، كما قسم المحتوى في كل فئة من القطعان إلى ذكور وإناث ثم قسم كل جنس على أربع فئات عمرية، سنة عمرية أو أقل، أكبر من سنة وأقل من أربع سنوات، أكبر من أربع وأقل من ١٥ سنة، وأخيرا أكبر من ١٥ سنة.

تم بعد ذلك قياس التجانس بين الفئات العمرية في كلا الفئتين من القطعان باستخدام Chi-Square test وكانت النتيجة بتماثل محتوى كل قطيع من الفئات العمرية.

التكاليف الكلية للفئة الأولى من القطعان كانت ٣٢٧٩ ريال/حيوان/سنة، تمثل نسبة التكاليف الثابتة ١٤٪، و٨٦٪ للتكاليف المتغيرة. يرجع السبب الرئيسي في ارتفاع التكاليف المتغيرة إلى ارتفاع تكاليف الأعلاف اللازمة للقطيع ويأتي في المرتبة الثانية التكاليف المتغيرة للآلات المستخدمة. تتماثل النتائج للفئة الثانية من القطعان والتي تحتوي على عدد أكبر من الحيوانات فكانت التكاليف الكلية ٢٣١٨ ريال /حيوان /سنة تبلغ نسبة التكاليف الثابتة ١٠٪ والمتغيرة ٩٠٪. يرجع الانخفاض في التكاليف للفئة الثانية عن الفئة الأولى إلى انخفاض تكاليف الأعلاف التي يستخدمها المربون المنتمون للفئة الثانية.