

2011 NATIONAL FFA FARM BUSINESS MANAGEMENT CAREER DEVELOPMENT EVENT

Resource Information

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Introduction to Redrock Ranch

Redrock Ranch is a Limited Liability Company (LLC) that is run by Roger Kingston, Larry Kingston and Charlie Johanson. The company started as a partnership in 1924 and was built around a breeding sheep enterprise. After a disaster that all but eliminated the sheep operation, the ranch switched to a cow/calf operation.

The Redrock Ranch is located in high plains area of the western United States. There are basically three separate ranch units that are managed by three different managers. Each can seemingly stand alone but operate in tandem to the benefit of all owners. In total, there are 21 owners of the business, with varying percentages of ownership; but there are 11 owners who are actively engaged in the business. The 11 owners engaged in the business include the three primary managers. Each unit or property in the business is described below.

The main ranch unit, Medicine Bow, is managed by Roger Kingston and totals about 33,000 acres. They have 5,500 Angus yearling steers and 700 cow calf pairs on this property. The calves that are raised at this site are sold as certified Angus beef select yearlings; they sell the calves when they weigh between 900-950 pounds. When steers are brought in they are kept in a corral until they are used to eating range cake. Once they are used to the cake feed, the steers are then turned out on pasture. While the cattle are out on pasture, cake is still fed once a day. Some hay is purchased for winter feed and the cattle stay in the pastures closest to the houses during the winter. These feeders put on a desirable finish from pasture which is comparable to a feedlot; plus the pasture is more cost effective. Due to the drought over the years, the ranch is not running at full capacity so they do not over-graze the grass. Some hay is bought when the grass is covered with snow.

Windmills and electric well pumps are providing water to the cattle. The operators are looking at putting in some solar operated pumps. They have no irrigation rights off of Sheep Creek and if there is any irrigation, it is sub-irrigated. There are 5 different species of grasses found on this unit, all of which are excellent for grazing and suited for the combined summer and winter grazing system. Sage and cactus are slightly problematic weeds and are sprayed to control them. Average frost free days are 140 with 13-15 inches precipitation between March and June. There are three houses, corrals, a shop, and a barn on the main unit.

The Foxhole Flats unit is managed by Charlie Johanson and is located several miles north of the Medicine Bow. There are 11,500 acres and another 2,400 that was previously owned by them but is now leased. They run 1,400 steers at full capacity. The steers arrive in small bunches beginning in December and the unit is at full capacity from June to September. The cattle are put into corrals and then fed cake just like at the main unit. Steers are fed cake every day and hay as needed. The cattle are given a 5-way vaccine, tagged and branded (calves). On average the ranch will purchase 600 large round bales of hay a year. Normally there is some hay that is left over at the end of the year.

This property maintains about 70 miles of fence and the state manages the rest, since some fence lines run along the interstate highway. East of the interstate highway they own land that is sectioned off into three parts, and the leased acres are sectioned into two parts. There are windmills on the property however; the cattle have to walk up to three miles to the nearest water.

The Winding River unit is the third unit of the ranch. It is managed by Larry Kingston and operated by one full-time hired man. This property is located several miles west of the main unit. There are 45,000 acres on this unit. At one point 3,500 heifers were pastured on this unit but due to the drought they have only been able to pasture 1,500 spayed heifers from May to October. The heifers can only be run between May and October due to harsh winter weather of that region. The heifers are grass fed with a mineral supplement.

The hired man lives there year-round, keeping up on general maintenance during the winter. The animals at this unit are all grass fed with mineral supplements. The unit has several windmills spaced out with water pits. Recently they have added two solar panels to replace old tired windmills. The solar panels have allowed the cattle to utilize more pasture than they could not use before due to water issues.

There are an estimated 3,000 head of antelope that also live on this property, along with a large number of prairie dogs. The land is open to hunting through the state Game and Fish for antelope and there are different methods being tried to rid the pastures of prairie dogs. One problem with the prairie dogs is they are unable to thin them out without the help of neighbors. Lightning is another problem at this unit. Cattle do not have a place to get cover so there is a death loss due to lightning. Finally, one year five head were lost in one night due to lightning. There is one section of the property that has high alkaline soil. Nothing really grows in that section and the animals will not eat nor drink anything that is in that area.

The Roger Kingston family is a two income family, with his wife Rachel working off the ranch at the local accounting office. They have one son, Steven, who is 13 years old and one daughter, Mary, who is 16 years old.

The Larry Kingston family has two sons, Michael, who is 17 years old and James, who is 16 years old. Larry's wife Lynnette assists with the business on occasion.

The Charlie Johanson family also is a two income family, with his wife Clarice employed at the local college. They have one daughter, Sheri, who is 15 years old and one son, Dan, who is 17 years old.

Redrock Ranch pastures 1,500 heifers and 5,500 steers each year. Both the home raised and purchased steers and heifers are sold by custom contract to individual finishing operations or to custom feedlots in two regional locations. When marketing the feeders to a regional outlet, one site is the target market for the remaining steers and heifers being sold. The owners prefer to sell to individuals because the buyer comes to the ranch to view the animals and picks the animals up at the ranch. The operators/owners of the ranch are cautious about outside visitors because the ranch is

well into the country and very large in size. It is very difficult to cover the whole property to prevent potential damage or theft from outsiders.

There has been some talk of wind generation however there are some pros and cons that are being looked into. One concern is the effect the wind towers will have on the cattle and they wonder whether the wind energy may become the primary enterprise. The owners/operators have a strong commitment to the land and the beef industry. An addition concern is the impact on neighbors and scenery.

Further, oil and gas production is eminent in the area and this also has the potential to also turn ranch management into a serious challenge because of serious impact on contracting and leasing, environmental impact, traffic through the property, production challenges, and of course the huge impact on cash income.

Some discussion has also occurred regarding the addition of new enterprises to diversify the business. The owners see that they have limited options for use of their land and that there is potential for volatility in a single livestock emphasis business; so diversification is a concern. Enterprises such as buffalo and sheep are being considered.

Improvements or modifications to the current operation have been considered as well. Ideas such as expanding the cow/calf operation, the addition of center pivot irrigation, and intensive pasture practices are being evaluated for potential benefit to the operation. Like any sound business, consideration is also given to improvements within current business processes that will enhance net revenue.

Six of the 11 Redrock Ranch LLC owners/operators are over the age of 55. This can cause a concern when considering the work that needs to be done, major business decisions, and at the times of business transition, bringing the next generation into the business. Even with the Redrock Ranch transition plan in place, this can be difficult because of the number of families involved; the lack of financial resources available to members of the next generation, thus limiting their ability to buy into the operation; the potential for legal challenges if marital issues arise with any of the partners; and business decisions needed to establish guidelines for adding new partners from within the family.

The ability to effectively implement a shared vision for the future can be very difficult in this type of operation. Because of the size and complexity of this business, being informed of the activities of all areas of the business is very difficult. The Redrock Ranch owners/operators have worked hard to establish a communication system that enables each of them to keep in touch with ongoing decisions. Regular meetings among the group and the use of electronic communication (i.e. cell phones, email) have successfully limited conflicts in this area. Even though the communications are implemented at a high level, challenges arise due to the unique situations that arise with family members working in the same business.

BALANCE SHEETS (Modified Market Basis)

<u>ASSETS</u>	12/31/09	12/31/10
Current Farm Assets		
Bank Balance	\$ 10,000	\$ 114,548
Savings Balance	\$ 40,000	\$ 45,000
Market Livestock	\$ -	\$ 225,992
Feed Inventory	\$ 63,000	\$ 63,000
Fuel & Supplies	\$ 7,040	\$ 4,500
Total Current Assets	\$ 120,040	\$ 453,040
Non-Current Farm Assets		
Life Insurance Cash Value	\$ 50,000	\$ 50,500
Machinery & Equipment	\$ 280,277	\$ 214,317
Breeding Livestock	\$ 507,500	\$ 492,922
Fences	\$ 1,162,000	\$ 1,162,000
Buildings	\$ 825,090	\$ 816,832
Land	\$ 18,765,000	\$ 18,765,000
Total Non-Current Assets	\$ 21,589,867	\$ 21,501,571
Total Farm Assets	\$ 21,709,907	\$ 21,954,611
<u>LIABILITIES</u>		
Current Farm Liabilities		
Accounts Payable w/merchants	\$ 4,500	\$ 15,000
Operating/Short Term Notes	\$ -	\$ 594,759
Accrued Interest	\$ -	\$ 2,974
Accrued Property Taxes	\$ 25,744	\$ 25,744
Term Debt Principal Due Next Year	\$ 874,561	\$ 927,034
Total Current Farm Liabilities	\$ 904,805	\$ 1,565,511
Non-Current Farm Liabilities		
Machinery & Equipment Notes	\$ 79,825	\$ 70,808
Land & Building Notes	\$ 8,127,328	\$ 7,209,311
Total Non-Current Farm Liabilities	\$ 8,207,153	\$ 7,280,119
Total Farm Liabilities	\$ 9,111,958	\$ 8,845,630
Farm Net Worth (Equity)	\$ 12,597,949	\$ 13,108,981
Change in Net Worth		\$ 511,032

2010 INCOME STATEMENT

Redrock Ranch, LLC

Income		
Cash Income		
Market Livestock Sales	\$	5,979,600
Cull Cows/Bulls	\$	93,800
Game & Fish Walk-in Program	\$	6,804
Wind Energy Income	\$	180,000
Total Cash Income	\$	6,260,204
Revenue Adjustments		
Change in Livestock Inventory	\$	225,992
Change in Feed Inventory	\$	-
Total Adjustments	\$	225,992
Total Income		\$ 6,486,196
Expenses		
Cash Operating Expenses		
Feed - Hay	\$	29,400
Feed - Salt, Mineral, etc.	\$	44,050
Freight & Trucking	\$	22,755
Fuel/Oil/Gasoline	\$	2,540
Insurance	\$	24,218
Hired Labor - Nonfamily Employees	\$	50,000
Hired Labor - Family Employees	\$	175,674
Lease Payments	\$	31,155
Marketing Commissions	\$	121,884
Marketing Video	\$	63,596
Miscellaneous	\$	5,306
Property Taxes	\$	25,742
Purchased Livestock	\$	4,052,400
Ranch Overhead	\$	50,004
Repairs/Maintenance	\$	18,000
Self-employment & Income Tax	\$	109,745
Utilities for Ranch	\$	11,280
Vehicle Licenses & Fees	\$	946
Vet and Medicine	\$	30,764
Yardage	\$	331,560
Total Cash Operating Expenses		5,201,019
Cash Financing Expenses		
Cash Interest Paid - Operating Loan	\$	125,432
Cash Interest Paid - Term Loans	\$	544,903
Total Cash Financing Expense	\$	670,335
Total Cash Expenses		\$ 5,871,354
Expense Adjustments		
Change - Accounts Payable	\$	10,500
Change - Fuel & Supplies	\$	2,540
Change - Accrued Interest	\$	2,974
Change - Accrued Property Tax	\$	-
Depreciation	\$	88,796
Total Adjustments	\$	104,810
Total Expenses		\$ 5,976,164
Net Cash Income		\$ 388,850
Net Farm Income from Operations		\$ 510,032

2010 CASH FLOW

Redrock Ranch, LLC - Consolidated

Item	JAN	FEB	MAR	APR	MAY	JUN
RECEIPTS						
Calves	0	0	0	0	0	0
Yearlings	0	0	0	0	0	0
Game & Fish Walk-in	0	0	0	0	0	0
Wind Energy	0	0	0	0	0	0
Operating Sales Total	0	0	0	0	0	0
Inflow from term loans	0	0	0	0	0	0
Capital sales (Cows & Bulls)	93,800	0	0	0	0	0
Total Farm Receipts	93,800	0	0	0	0	0
Non-farm income	0	0	0	0	0	0
TOTAL CASH INFLOWS	93,800	0	0	0	0	0
EXPENSES						
Accounts payable	4,500	0	0	0	0	0
Feed - Hay	0	0	0	0	0	0
Feed - Salt, Mineral, etc.	0	0	35,770	8,280	0	0
Freight and Trucking	0	0	0	0	11,273	0
Fuel/Oil/Gasoline	2,540	0	0	0	0	0
Hired Labor - Nonfamily Members	4,000	4,000	4,000	4,000	6,000	4,000
Insurance	0	0	0	0	0	0
Lease Payments	31,155	0	0	0	0	0
Marketing Commissions	0	0	52,641	0	0	0
Marketing Video	0	0	0	0	0	0
Miscellaneous	0	0	0	0	0	0
Property Taxes	0	0	0	0	12,871	0
Purchased Livestock	0	0	4,052,400	0	0	0
Ranch Overhead	4,167	4,167	4,167	4,167	4,167	4,167
Repairs/Maintenance	0	0	0	0	15,000	0
FICA & Income Tax	109,745	0	0	0	0	0
Supplies	0	0	0	0	0	0
Utilities for Ranch	460	460	460	460	460	460
Vehicle Licenses & Fees	946	0	0	0	0	0
Vet and Medicine	499	0	0	9,856	9,096	4,700
Yardage	0	0	0	331,560	0	0
Term loan principal payments	0	0	0	0	0	0
Term loan interest payments	0	0	0	0	0	0
Total Farm Expenses	158,012	8,627	4,149,438	358,323	58,867	13,327
Withdrawals	14,667	14,817	14,562	14,667	14,487	14,667
Non-farm expenses	0	0	0	0	0	0
TOTAL CASH OUTFLOWS	172,679	23,444	4,164,000	372,990	73,354	27,994
SUMMARY OF PROJECTED CASH FLOW						
Cash Difference for Month						
Beginning Cash Balance						
Cash Position	(68,879)	4,576	(4,144,508)	(368,490)	(68,854)	(23,494)
Money Borrowed This Period	96,899	14,916	4,149,008	372,990	73,354	27,994
Interest Payments	0	0	0	0	0	0
Accrued Interest	0	485	1,044	22,349	45,518	69,054
Principal Payments	0	0	0	0	0	0
Op.Loan Accumulated Borrowing	96,899	111,815	4,260,823	4,633,813	4,707,167	4,735,161

2010 CASH FLOW - Cont.							
Redrock Ranch, LLC - Consolidated							
Item	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
RECEIPTS							
Calves	0	0	0	0	0	0	0
Yearlings	0	4,098,600	1,881,000	0	0	0	5,979,600
Game & Fish Walk-in	0	0	0	0	0	6,804	6,804
Wind Energy	0	0	0	0	0	180,000	180,000
Operating Sales Total	0	4,098,600	1,881,000	0	0	186,804	6,166,404
Inflow from term loans	0	0	0	0	0	0	0
Capital sales (Cows & Bulls)	0	0	0	0	0	0	93,800
Total Farm Receipts	0	4,098,600	1,881,000	0	0	186,804	6,260,204
Non-farm income	0	0	0	0	0	0	0
TOTAL CASH INFLOWS	0	4,098,600	1,881,000	0	0	186,804	6,260,204
EXPENSES							
Accounts payable	0	0	0	0	0	0	4,500
Feed - Hay	0	0	29,400	0	0	0	29,400
Feed - Salt, Mineral, etc.	0	0	0	0	0	0	44,050
Freight and Trucking	0	7,994	3,488	0	0	0	22,755
Fuel/Oil/Gasoline	0	0	0	0	0	0	2,540
Hired Labor - Nonfamily Members	4,000	6,000	6,000	2,000	2,000	4,000	50,000
Insurance	0	0	0	0	0	24,218	24,218
Lease Payments	0	0	0	0	0	0	31,155
Marketing Commissions	0	44,795	24,448	0	0	0	121,884
Marketing Video	63,596	0	0	0	0	0	63,596
Miscellaneous	0	0	0	0	0	5,306	5,306
Property Taxes	0	0	0	0	12,871	0	25,742
Purchased Livestock	0	0	0	0	0	0	4,052,400
Ranch Overhead	4,167	4,167	4,167	4,167	4,167	4,167	50,004
Repairs/Maintenance	0	0	0	0	0	3,000	18,000
FICA & Income Tax	0	0	0	0	0	0	109,745
Supplies	0	0	0	0	0	0	0
Utilities for Ranch	6,220	460	460	460	460	460	11,280
Vehicle Licenses & Fees	0	0	0	0	0	0	946
Vet and Medicine	0	0	2,086	4,527	0	0	30,764
Yardage	0	0	0	0	0	0	331,560
Term loan principal payments	0	0	0	0	0	874,561	874,561
Term loan interest payments	0	0	0	0	0	544,903	544,903
Total Farm Expenses	77,983	63,416	70,049	11,154	19,498	1,460,615	6,449,309
Withdrawals	14,277	14,667	14,442	14,217	14,217	15,987	175,674
Non-farm expenses	0	0	0	0	0	0	0
TOTAL CASH OUTFLOWS	92,260	78,083	84,491	25,371	33,715	1,476,602	6,624,983
SUMMARY OF PROJECTED CASH FLOW							
Cash Difference for Month							
Beginning Cash Balance							
Cash Position	(87,760)	4,025,017	2,631,537	843,302	809,587	(480,211)	4,500
Money Borrowed This Period	92,260	16,816	0	0	0	594,759	5,438,996
Interest Payments	0	75,683	49,749	0	0	0	125,432
Accrued Interest	92,729	41,183	0	0	0	0	2,974
Principal Payments	0	3,131,122	1,713,115	0	0	0	4,844,237
Op.Loan Accumulated Borrowing	4,827,421	1,713,115	0	0	0	594,759	594,759

Beginning Bank Account Balance	\$ 10,000	Interest Rate on Operating Loan	6.00%
Minimum Monthly Bank Balance	\$ 4,500	Ending Accrued Interest Due	\$2,974
Beginning Operating Loan Amount	\$ -	Ending Operating Loan Amount	\$594,759
Beginning Accrued Interest Due	\$ -		

2010 CASH FLOW		Foxhole Flats				
Item	JAN	FEB	MAR	APR	MAY	JUN
RECEIPTS						
Calves	0	0	0	0	0	0
Yearlings	0	0	0	0	0	0
Game & Fish Walk-in	0	0	0	0	0	0
Wind Energy	0	0	0	0	0	0
Operating Sales Total	0	0	0	0	0	0
Inflow from term loans	0	0	0	0	0	0
Capital sales (Cows & Bulls)	0	0	0	0	0	0
Total Farm Receipts	0	0	0	0	0	0
Non-farm income	0	0	0	0	0	0
TOTAL CASH INFLOWS	0	0	0	0	0	0
EXPENSES						
Accounts payable						
Feed - Hay						
Feed - Salt, Mineral, etc.			8,943	2,070		
Freight and Trucking					1,836	
Fuel/Oil/Gasoline	750					
Hired Labor - Nonfamily Members	2,000	2,000				
Insurance						
Lease Payments						
Marketing Commissions						
Marketing Video						
Miscellaneous						
Property Taxes					4,291	
Purchased Livestock			660,000			
Ranch Overhead	1,389	1,389	1,389	1,389	1,389	1,389
Repairs/Maintenance					5,000	
FICA & Income Tax	25,292					
Supplies						
Utilities for Ranch	130	130	130	130	130	130
Vehicle Licenses & Fees	316					
Vet and Medicine					4,548	
Yardage				54,000		
Term loan principal payments						
Term loan interest payments						
Total Farm Expenses	29,877	3,519	670,462	57,589	17,194	1,519
Withdrawals	4,889	4,939	4,854	4,889	4,829	4,889
Non-farm expenses	0	0	0	0	0	0
TOTAL CASH OUTFLOWS	34,766	8,458	675,316	62,478	22,023	6,408
SUMMARY OF PROJECTED CASH FLOW						
Cash Difference for Month	(34,766)	(8,458)	(675,316)	(62,478)	(22,023)	(6,408)
Beginning Cash Balance	2,500	1,500	1,500	1,500	1,500	1,500
Cash Position	(32,266)	(6,958)	(673,816)	(60,978)	(20,523)	(4,908)
Money Borrowed This Period	33,766	8,458	675,316	62,478	22,023	6,408
Interest Payments	0	0	0	0	0	0
Accrued Interest	0	169	380	3,968	7,868	11,878
Principal Payments	0	0	0	0	0	0
Op.Loan Accumulated Borrowing	33,766	42,224	717,540	780,018	802,041	808,449
ENDING CASH BALANCE	1,500	1,500	1,500	1,500	1,500	1,500
	JAN	FEB	MAR	APR	MAY	JUN

2010 CASH FLOW - Cont.

Foxhole Flats

Item	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
RECEIPTS							
Calves	0	0	0	0	0	0	0
Yearlings	0	0	940,500	0	0	0	940,500
Game & Fish Walk-in	0	0	0	0	0	2,268	2,268
Wind Energy	0	0	0	0	0	0	0
Operating Sales Total	0	0	940,500	0	0	2,268	942,768
Inflow from term loans	0	0	0	0	0	0	0
Capital sales (Cows & Bulls)	0	0	0	0	0	0	0
Total Farm Receipts	0	0	940,500	0	0	2,268	942,768
Non-farm income	0	0	0	0	0	0	0
TOTAL CASH INFLOWS	0	0	940,500	0	0	2,268	942,768
EXPENSES							
Accounts payable							0
Feed - Hay							0
Feed - Salt, Mineral, etc.							11,013
Freight and Trucking			1,744				3,580
Fuel/Oil/Gasoline							750
Hired Labor - Nonfamily Members		2,000	2,000			2,000	10,000
Insurance						7,706	7,706
Lease Payments							0
Marketing Commissions			12,224				12,224
Marketing Video	14,820						14,820
Miscellaneous							0
Property Taxes					4,291		8,582
Purchased Livestock							660,000
Ranch Overhead	1,389	1,389	1,389	1,389	1,389	1,389	16,668
Repairs/Maintenance						1,000	6,000
FICA & Income Tax							25,292
Supplies							0
Utilities for Ranch	2,050	130	130	130	130	130	3,480
Vehicle Licenses & Fees							316
Vet and Medicine							4,548
Yardage							54,000
Term loan principal payments						253,828	253,828
Term loan interest payments						158,150	158,150
Total Farm Expenses	18,259	3,519	17,487	1,519	5,810	424,203	1,250,957
Withdrawals	4,759	4,889	4,814	4,739	4,739	5,329	58,558
Non-farm expenses	0	0	0	0	0	0	0
TOTAL CASH OUTFLOWS	23,018	8,408	22,301	6,258	10,549	429,532	1,309,515
SUMMARY OF PROJECTED CASH FLOW							
Cash Difference for Month	(23,018)	(8,408)	918,199	(6,258)	(10,549)	(427,264)	
Beginning Cash Balance	1,500	1,500	1,500	55,547	49,289	38,740	2,500
Cash Position	(21,518)	(6,908)	919,699	49,289	38,740	(388,524)	
Money Borrowed This Period	23,018	8,408	0	0	0	390,024	1,229,899
Interest Payments	0	0	24,277	0	0	0	24,277
Accrued Interest	15,920	20,077	0	0	0	0	1,950
Principal Payments	0	0	839,875	0	0	0	839,875
Op.Loan Accumulated Borrowing	831,467	839,875	0	0	0	390,024	390,024
ENDING CASH BALANCE	1,500	1,500	55,547	49,289	38,740	1,500	1,500
	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS

Beginning Bank Account Balance	\$ 2,500	Ending Bank Account Balance	\$1,500
Minimum Monthly Bank Balance	\$ 1,500	Ending Accrued Interest Due	\$1,950
Beginning Operating Loan Amount	\$ -	Ending Operating Loan Amount	\$390,024
Beginning Accrued Interest Due	\$ -	Interest Rate on Operating Loan	6.00%

2010 CASH FLOW		Medicine Bow				
Item	JAN	FEB	MAR	APR	MAY	JUN
RECEIPTS						
Calves	0	0	0	0	0	0
Yearlings	0	0	0	0	0	0
Game & Fish Walk-in	0	0	0	0	0	0
Wind Energy	0	0	0	0	0	0
Operating Sales Total	0	0	0	0	0	0
Inflow from term loans	0	0	0	0	0	0
Capital sales (Cows & Bulls)	93,800	0	0	0	0	0
Total Farm Receipts	93,800	0	0	0	0	0
Non-farm income	0	0	0	0	0	0
TOTAL CASH INFLOWS	93,800	0	0	0	0	0
EXPENSES						
Accounts payable	4,500					
Feed - Hay						
Feed - Salt, Mineral, etc.			17,885	4,140		
Freight and Trucking					7,601	
Fuel/Oil/Gasoline	1,100					
Hired Labor - Nonfamily Members	2,000	2,000	4,000	4,000	4,000	2,000
Insurance						
Lease Payments	3,255					
Marketing Commissions			52,641			
Marketing Video						
Miscellaneous						
Property Taxes					4,290	
Purchased Livestock			2,732,400			
Ranch Overhead	1,389	1,389	1,389	1,389	1,389	1,389
Repairs/Maintenance					5,000	
FICA & Income Tax	55,448					
Supplies						
Utilities for Ranch	200	200	200	200	200	200
Vehicle Licenses & Fees	500					
Vet and Medicine	499			9,856		4,700
Yardage				223,560		
Term loan principal payments						
Term loan interest payments						
Total Farm Expenses	68,891	3,589	2,808,515	243,145	22,480	8,289
Withdrawals	4,889	4,939	4,854	4,889	4,829	4,889
Non-farm expenses	0	0	0	0	0	0
TOTAL CASH OUTFLOWS	73,780	8,528	2,813,369	248,034	27,309	13,178
SUMMARY OF PROJECTED CASH FLOW						
Cash Difference for Month	20,020	(8,528)	(2,813,369)	(248,034)	(27,309)	(13,178)
Beginning Cash Balance	5,000	25,020	16,492	1,500	1,500	1,500
Cash Position	25,020	16,492	(2,796,877)	(246,534)	(25,809)	(11,678)
Money Borrowed This Period	0	0	2,796,877	248,034	27,309	13,178
Interest Payments	0	0	0	0	0	0
Accrued Interest	0	0	0	13,992	29,224	44,593
Principal Payments	0	0	0	0	0	0
Op.Loan Accumulated Borrowing	0	0	2,796,877	3,046,411	3,073,720	3,086,898
ENDING CASH BALANCE	25,020	16,492	1,500	1,500	1,500	1,500
	JAN	FEB	MAR	APR	MAY	JUN

2010 CASH FLOW - Cont.		Medicine Bow					
Item	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
RECEIPTS							
Calves	0	0	0	0	0	0	0
Yearlings	0	4,098,600	0	0	0	0	4,098,600
Game & Fish Walk-in	0	0	0	0	0	2,268	2,268
Wind Energy	0	0	0	0	0	0	0
Operating Sales Total	0	4,098,600	0	0	0	2,268	4,100,868
Inflow from term loans	0		0	0	0	0	0
Capital sales (Cows & Bulls)	0		0	0	0	0	93,800
Total Farm Receipts	0	4,098,600	0	0	0	2,268	4,194,668
Non-farm income	0		0	0	0	0	0
TOTAL CASH INFLOWS	0	4,098,600	0	0	0	2,268	4,194,668
EXPENSES							
Accounts payable							4,500
Feed - Hay			29,400				29,400
Feed - Salt, Mineral, etc.							22,025
Freight and Trucking		7,994					15,595
Fuel/Oil/Gasoline							1,100
Hired Labor - Nonfamily Members	2,000	2,000	2,000	2,000	2,000	2,000	30,000
Insurance						8,806	8,806
Lease Payments							3,255
Marketing Commissions		44,795					97,436
Marketing Video	33,956						33,956
Miscellaneous						5,306	5,306
Property Taxes					4,290		8,580
Purchased Livestock							2,732,400
Ranch Overhead	1,389	1,389	1,389	1,389	1,389	1,389	16,668
Repairs/Maintenance						1,000	6,000
FICA & Income Tax							55,448
Supplies							0
Utilities for Ranch	2,120	200	200	200	200	200	4,320
Vehicle Licenses & Fees							500
Vet and Medicine			2,086	4,527			21,668
Yardage							223,560
Term loan principal payments						390,224	390,224
Term loan interest payments						243,132	243,132
Total Farm Expenses	39,465	56,378	35,075	8,116	7,879	652,057	3,953,879
Withdrawals	4,759	4,889	4,814	4,739	4,739	5,329	58,558
Non-farm expenses	0	0	0	0	0	0	0
TOTAL CASH OUTFLOWS	44,224	61,267	39,889	12,855	12,618	657,386	4,012,437
SUMMARY OF PROJECTED CASH FLOW							
Cash Difference for Month	(44,224)	4,037,333	(39,889)	(12,855)	(12,618)	(655,118)	
Beginning Cash Balance	1,500	1,500	832,028	792,139	779,284	766,666	5,000
Cash Position	42,724	4,038,833	792,139	779,284	766,666	111,548	
Money Borrowed This Period	44,224	0	0	0	0	0	3,131,122
Interest Payments	0	75,683	0	0	0	0	75,683
Accrued Interest	60,027	0	0	0	0	0	0
Principal Payments	0	3,131,122	0	0	0	0	3,131,122
Op.Loan Accumulated Borrowing	3,131,122	0	0	0	0	0	0
ENDING CASH BALANCE	1,500	832,028	792,139	779,284	766,666	111,548	111,548
	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS

Beginning Bank Account Balance \$ 5,000
Minimum Monthly Bank Balance \$ 1,500
Beginning Operating Loan Amount \$0
Beginning Accrued Interest Due \$0

Ending Bank Account Balance \$111,548
Ending Accrued Interest Due \$0
Ending Operating Loan Amount \$0
Interest Rate on Operating Loan 6.00%

2010 CASH FLOW		Winding River				
Item	JAN	FEB	MAR	APR	MAY	JUN
RECEIPTS						
Calves	0	0	0	0	0	0
Yearlings	0	0	0	0	0	0
Game & Fish Walk-in	0	0	0	0	0	0
Wind Energy	0	0	0	0	0	0
Operating Sales Total	0	0	0	0	0	0
Inflow from term loans	0	0	0	0	0	0
Capital sales (Cows & Bulls)	0	0	0	0	0	0
Total Farm Receipts	0	0	0	0	0	0
Non-farm income	0	0	0	0	0	0
TOTAL CASH INFLOWS	0	0	0	0	0	0
EXPENSES						
Accounts payable						
Feed - Hay						
Feed - Salt, Mineral, etc.			8,942	2,070		
Freight and Trucking					1,836	
Fuel/Oil/Gasoline	690					
Hired Labor - Nonfamily Members					2,000	2,000
Insurance						
Lease Payments	27,900					
Marketing Commissions						
Marketing Video						
Miscellaneous						
Property Taxes					4,290	
Purchased Livestock			660,000			
Ranch Overhead	1,389	1,389	1,389	1,389	1,389	1,389
Repairs/Maintenance					5,000	
FICA & Income Tax	29,005					
Supplies						
Utilities for Ranch	130	130	130	130	130	130
Vehicle Licenses & Fees	130					
Vet and Medicine					4,548	
Yardage				54,000		
Term loan principal payments						
Term loan interest payments						
Total Farm Expenses	59,244	1,519	670,461	57,589	19,193	3,519
Withdrawals	4,889	4,939	4,854	4,889	4,829	4,889
Non-farm expenses	0	0	0	0	0	0
TOTAL CASH OUTFLOWS	64,133	6,458	675,315	62,478	24,022	8,408
SUMMARY OF PROJECTED CASH FLOW						
Cash Difference for Month	(64,133)	(6,458)	(675,315)	(62,478)	(24,022)	(8,408)
Beginning Cash Balance	2,500	1,500	1,500	1,500	1,500	1,500
Cash Position	(61,633)	(4,958)	(673,815)	(60,978)	(22,522)	(6,908)
Money Borrowed This Period	63,133	6,458	675,315	62,478	24,022	8,408
Interest Payments	0	0	0	0	0	0
Accrued Interest	0	316	664	4,389	8,426	12,583
Principal Payments	0	0	0	0	0	0
Op.Loan Accumulated Borrowing	63,133	69,591	744,906	807,384	831,406	839,814
ENDING CASH BALANCE	1,500	1,500	1,500	1,500	1,500	1,500
	JAN	FEB	MAR	APR	MAY	JUN

2010 CASH FLOW - Cont.		Winding River					
Item	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
RECEIPTS							
Calves	0	0	0	0	0	0	0
Yearlings	0	0	940,500	0	0	0	940,500
Game & Fish Walk-in	0	0	0	0	0	2,268	2,268
Wind Energy	0	0	0	0	0	180,000	180,000
Operating Sales Total	0	0	940,500	0	0	182,268	1,122,768
Inflow from term loans	0	0	0	0	0	0	0
Capital sales (Cows & Bulls)	0	0	0	0	0	0	0
Total Farm Receipts	0	0	940,500	0	0	182,268	1,122,768
Non-farm income	0	0	0	0	0	0	0
TOTAL CASH INFLOWS	0	0	940,500	0	0	182,268	1,122,768
EXPENSES							
Accounts payable							0
Feed - Hay							0
Feed - Salt, Mineral, etc.							11,012
Freight and Trucking			1,744				3,580
Fuel/Oil/Gasoline							690
Hired Labor - Nonfamily Members	2,000	2,000	2,000				10,000
Insurance						7,706	7,706
Lease Payments							27,900
Marketing Commissions			12,224				12,224
Marketing Video	14,820						14,820
Miscellaneous							0
Property Taxes					4,290		8,580
Purchased Livestock							660,000
Ranch Overhead	1,389	1,389	1,389	1,389	1,389	1,389	16,668
Repairs/Maintenance						1,000	6,000
FICA & Income Tax							29,005
Supplies							0
Utilities for Ranch	2,050	130	130	130	130	130	3,480
Vehicle Licenses & Fees							130
Vet and Medicine							4,548
Yardage							54,000
Term loan principal payments						230,509	230,509
Term loan interest payments						143,621	143,621
Total Farm Expenses	20,259	3,519	17,487	1,519	5,809	384,355	1,244,473
Withdrawals	4,759	4,889	4,814	4,739	4,739	5,329	58,558
Non-farm expenses	0	0	0	0	0	0	0
TOTAL CASH OUTFLOWS	25,018	8,408	22,301	6,258	10,548	389,684	1,303,031
SUMMARY OF PROJECTED CASH FLOW							
Cash Difference for Month	(25,018)	(8,408)	918,199	(6,258)	(10,548)	(207,416)	
Beginning Cash Balance	1,500	1,500	1,500	20,987	14,729	4,181	2,500
Cash Position	(23,518)	(6,908)	919,699	14,729	4,181	(203,235)	
Money Borrowed This Period	25,018	8,408	0	0	0	204,735	1,077,975
Interest Payments	0	0	25,472	0	0	0	25,472
Accrued Interest	16,782	21,106	0	0	0	0	1,024
Principal Payments	0	0	873,240	0	0	0	873,240
Op.Loan Accumulated Borrowing	864,832	873,240	0	0	0	204,735	204,735
ENDING CASH BALANCE	1,500	1,500	20,987	14,729	4,181	1,500	1,500
	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS

Beginning Bank Account Balance \$ 2,500
Minimum Monthly Bank Balance \$ 1,500
Beginning Operating Loan Amount \$0
Beginning Accrued Interest Due \$0

Ending Bank Account Balance \$1,500
Ending Accrued Interest Due \$1,024
Ending Operating Loan Amount \$204,735
Interest Rate on Operating Loan 6.00%

Ewe - Lamb Budget				
	Units	Price	Quantity	Value
VARIABLE COSTS				
Pasture	month	\$ 2.00	12	\$ 24.00
Hay	ton	\$109.00	0.3	\$ 32.70
Purchased feed	lbs.	\$ 0.05	46.2	\$ 2.31
Salt & mineral	lbs.	\$ 0.17	15	\$ 2.55
Ram cost	head	\$ 1.25	1.00	\$ 1.25
Vaccines	head	\$ 2.50	1	\$ 2.50
Shearing cost	head	\$ 2.46	1	\$ 2.46
Utilities	head	\$ 0.31	1	\$ 0.31
Supplies	head	\$ 2.46	1	\$ 2.46
Hired labor	hour	\$ 9.00	1.7	\$ 15.30
Machinery oper. expense	head	\$ 0.51	1	\$ 0.51
Miscellaneous	head	\$ 0.51	1	\$ 0.51
Interest on operating capital	dollars	6.00%	40.00	\$ 2.40
TOTAL VARIABLE COSTS				\$ 89.26
FIXED COSTS				
Overhead	head	\$ 1.20	1	\$ 1.20
Insurance	head	\$ 0.66	1	\$ 0.66
Amortization of ewes	head	\$ 2.08	1	\$ 2.08
TOTAL FIXED COSTS				\$ 3.94
PRODUCTION				
Ewe lambs	lbs.	\$ 0.82	48.20	\$ 39.52
Wethers	lbs.	\$ 0.82	70.50	\$ 57.81
Cull ewes	lbs.	\$ 0.25	26.90	\$ 6.73
Wool	lbs.	\$ 1.00	9.00	\$ 9.00
Cull rams	lbs.	\$ 0.25	1.40	\$ 0.35
TOTAL RECEIPTS				\$113.41

TOTAL RECEIPTS	\$113.41
TOTAL VARIABLE COSTS	\$ 89.26
RETURNS ABOVE TOTAL VARIABLE COSTS	\$ 24.15
TOTAL FIXED COSTS	\$ 3.94
RETURNS ABOVE ALL SPECIFIED COSTS	\$ 20.21

Comments: Production assumes 1.50 lambs per ewe.

Stocker Steer Budget				
	Units	Price	Quantity	Value
VARIABLE COSTS				
Steer Calves	lbs.	\$ 1.20	530	\$ 636.00
Hay	tons	\$ 93.00	0.15	\$ 13.95
Supplement and minerals	lbs.	\$ 0.17	90	\$ 15.30
Veterinary medicine	head	\$ 3.79	1	\$ 3.79
Utilities and maintenance	head	\$ 4.50	1	\$ 4.50
Hired labor	hrs.	\$ 9.00	0.6	\$ 5.40
Marketing expenses	head	\$ 76.32	1	\$ 76.32
Death loss	head	\$ 12.72	1	\$ 12.72
Interest on operating capital	dol.	6.00%	42.94	\$ 2.58
TOTAL VARIABLE COSTS				\$ 770.56
FIXED COSTS				
Overhead	head	\$ 1.58	1	\$ 1.58
Insurance	head	\$ 0.10	1	\$ 0.10
Interest	head	\$ 19.08	1	\$ 19.08
Depreciation	head	\$ 1.30	1	\$ 1.30
TOTAL FIXED COSTS				\$ 22.06
PRODUCTION				
Yearling Steers	lbs.	\$ 0.90	900	\$ 810.00
TOTAL RECEIPTS				\$ 810.00

TOTAL RECEIPTS	\$ 810.00
TOTAL VARIABLE COSTS	\$ 770.56
RETURNS ABOVE TOTAL VARIABLE COSTS	\$ 39.44
TOTAL FIXED COSTS	\$ 22.06
RETURNS ABOVE ALL SPECIFIED COSTS	\$ 17.38

Comments: Death loss is assumed to be 2% of steer calf purchase costs.

Stocker Spayed Heifer Budget				
	Units	Price	Quantity	Value
VARIABLE COSTS				
Heifer calves	lbs.	\$ 1.06	520	\$ 551.20
Hay	tons	\$ 93.00	0.15	\$ 13.95
Supplement and minerals	lbs.	\$ 0.17	90	\$ 15.30
Veterinary medicine	head	\$ 3.79	1	\$ 3.79
Utilities and maintenance	head	\$ 4.50	1	\$ 4.50
Spayed Cost	head	\$ 5.50	1	\$ 5.50
Hired labor	hour	\$ 9.00	0.6	\$ 5.40
Marketing expenses	head	\$ 66.14	1	\$ 66.14
Death loss	head	\$ 11.02	1	\$ 11.02
Interest on operating capital	dollars	6.00%	48.44	\$ 2.91
TOTAL VARIABLE COSTS				\$ 679.71
FIXED COSTS				
Overhead	head	\$ 1.58	1	\$ 1.58
Insurance	head	\$ 0.10	1	\$ 0.10
Interest	head	\$ 16.54	1	\$ 16.54
Depreciation	head	\$ 1.30	1	\$ 1.30
TOTAL FIXED COSTS				\$ 19.52
PRODUCTION				
Yearling Heifers	lbs.	\$ 0.79	900	\$ 711.00
TOTAL RECEIPTS				\$ 711.00

TOTAL RECEIPTS	\$ 711.00
TOTAL VARIABLE COSTS	\$ 679.71
RETURNS ABOVE TOTAL VARIABLE COSTS	\$ 31.29
TOTAL FIXED COSTS	\$ 19.52
RETURNS ABOVE ALL SPECIFIED COSTS	\$ 11.77

Comments: Death loss is assumed to be 2% of heifer calf purchase costs.

Stocker Heifer Budget				
	Units	Price	Quantity	Value
VARIABLE COSTS				
Heifer calves	lbs.	\$ 1.06	520	\$ 551.20
Hay	tons	\$ 93.00	0.15	\$ 13.95
Supplement and minerals	lbs.	\$ 0.17	90	\$ 15.30
Veterinary medicine	head	\$ 3.79	1	\$ 3.79
Utilities and maintenance	head	\$ 4.50	1	\$ 4.50
Hired labor	hour	\$ 9.00	0.6	\$ 5.40
Marketing expenses	head	\$ 66.14	1	\$ 66.14
Death loss	head	\$ 11.02	1	\$ 11.02
Interest on operating capital	dollars	6.00%	42.94	\$ 2.58
TOTAL VARIABLE COSTS				\$ 673.88
FIXED COSTS				
Overhead	head	\$ 1.58	1	\$ 1.58
Insurance	head	\$ 0.10	1	\$ 0.10
Interest	head	\$ 16.54	1	\$ 16.54
Depreciation	head	\$ 1.30	1	\$ 1.30
TOTAL FIXED COSTS				\$ 19.52
PRODUCTION				
Yearling Steers	lbs.	\$ 0.79	900	\$ 711.00
TOTAL RECEIPTS				\$ 711.00

TOTAL RECEIPTS	\$ 711.00
TOTAL VARIABLE COSTS	\$ 673.88
RETURNS ABOVE TOTAL VARIABLE COSTS	\$ 37.12
TOTAL FIXED COSTS	\$ 19.52
RETURNS ABOVE ALL SPECIFIED COSTS	\$ 17.60

Comments: Death loss is assumed to be 2% of heifer calf purchase costs.

Cow - Calf Budget				
	Units	Price	Quantity	Value
VARIABLE COSTS				
Grass pasture	month	\$ 7.50	12	\$ 90.00
Hay	tons	\$ 109.00	0.6	\$ 65.40
Salt & minerals	lbs.	\$ 0.17	43	\$ 7.31
Protein supplement	lbs.	\$ 0.13	343	\$ 44.59
Artificial insemination	head	\$ 47.00	0.14	\$ 6.58
Herd bulls	head	\$ 41.50	0.86	\$ 35.69
Veterinary medicine	head	\$ 3.79	1	\$ 3.79
Vaccines	head	\$ 14.08	1	\$ 14.08
Livestock hauling	head	\$ 4.50	1	\$ 4.50
Hired labor	hour	\$ 9.00	1.3	\$ 11.70
Machinery oper. expense	head	\$ 1.30	1	\$ 1.30
Weaning/pre-conditioning	head	\$ 8.51	1	\$ 8.51
Interest on operating capital	dollars	6.00%	149.00	\$ 8.94
Miscellaneous	head			
TOTAL VARIABLE COSTS				\$ 302.39
FIXED COSTS				
Overhead	head	\$ 16.00	1	\$ 16.00
Insurance	head	\$ 1.15	1	\$ 1.15
Amortization of cows	head	\$ 60.08	1	\$ 60.08
TOTAL FIXED COSTS				\$ 77.23
PRODUCTION				
Steer calves	lbs.	242.00	\$ 1.20	\$ 290.40
Heifer calves	lbs.	156.00	\$ 1.10	\$ 171.60
Culls	lbs.	165.00	\$ 0.57	\$ 94.05
TOTAL RECEIPTS				\$ 462.00

TOTAL RECEIPTS	\$ 462.00
TOTAL VARIABLE COSTS	\$ 302.39
RETURNS ABOVE TOTAL VARIABLE COSTS	\$ 159.61
TOTAL FIXED COSTS	\$ 77.23
RETURNS ABOVE ALL SPECIFIED COSTS	\$ 82.38

Comments: Death loss is assumed to be 10% of calves.

FAMILY LIVING
Average of all Redrock Ranch families

	<u>2010</u>	<u>State Average</u>
<u>Non-Farm Income</u>		
Wages	\$ 7,439	\$ 18,401
Interest	\$ 1,183	\$ 339
Dividends	\$ 7,432	\$ 211
Sale of Cap. Assets	\$ -	NA
Rental Property	\$ -	\$ 1,089
Business Income	\$ -	\$ 2,692
Gifts/Inheritances	\$ 600	NA
Other Income	\$ 2,830	\$ 3,776
Total Non-Farm Income	\$ 19,484	\$ 26,508
Farm Withdrawals	\$ 58,558	
Total Income	\$ 78,042	\$ 26,508
<u>Family Living Expenses</u>		
Contributions	\$ 6,540	\$ 2,233
Medical Care	\$ 3,579	\$ 3,945
Health Insurance	\$ 5,811	\$ 4,182
Personal Property Taxes	\$ 1,436	\$ 281
Personal Mortgage Interest	\$ -	
Childcare Expense	\$ -	\$ 450
Total Tax Deductible Expenses	\$ 17,366	\$ 11,091
Life Insurance	\$ 3,541	\$ 2,462
Personal Utilities	\$ 2,512	\$ 2,312
Personal Insurance	\$ 2,100	\$ 308
Food	\$ 8,400	\$ 7,181
Household Operating	\$ 6,574	\$ 4,756
Household Equipment	\$ 1,257	\$ 841
House Repairs/Rent	\$ 900	\$ 2,066
Clothing	\$ 3,000	\$ 1,802
Personal Items	\$ 2,900	\$ 2,662
Entertainment/Recreation	\$ 3,600	\$ 3,714
Education	\$ 3,751	\$ 2,078
Gifts	\$ 1,260	\$ 2,444
Transportation	\$ 4,846	\$ 3,552
Personal Interest		\$ 1,670
Household Labor		\$ -
Unallocated Family Living	\$ 4,888	\$ 3,809
Investments	\$ 9,576	\$ 12,249
Other nonfarm expenditures	\$ 10,561	\$ 28,099
Total Non-Deductible Family Living	\$ 69,666	\$ 82,005
Income (federal & State)Tax & FICA Tax	\$ 8,376	\$ 11,953
Total Personal Taxes	\$ 8,376	\$ 11,953
Total Family Living Expenses	\$ 78,042	\$ 93,958
Net Non-Farm Income	\$ -	\$ (67,450)

INPUT ANALYSIS
Input-Output Relationships
(Estimating the Most Efficient Use of Inputs)

Redrock Ranch management has been considering irrigating some pasture. Based on research data for their land-grant university they have obtained the the following data. They are expecting to have additional research data soon. Once they have the additional data, they will conduct and analysis to determine the profit maximizing level of irrigation to use.

TABLE 1: Physical Production Function

Units of Input	Total Production TPP	Average Production APP	Marginal Production MPP
0	0	0	0
1	5	5.00	5
2	16	8.00	11
3	26	8.67	10
4	35	8.75	9
5	42	8.40	7
6			
7			
8			
9			
10			

Present value interest factor of an (ordinary) annuity of \$1 per period at i% for n periods, PVIFA(i,n).																				
Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.818	9.129	8.514	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.823	9.077	8.422	7.843	7.330	6.873	6.464	6.097	5.766	5.467	5.195	4.948
30	25.808	22.396	19.600	17.292	15.372	13.765	12.409	11.258	10.274	9.427	8.694	8.055	7.496	7.003	6.566	6.177	5.829	5.517	5.235	4.979
35	29.409	24.999	21.487	18.665	16.374	14.498	12.948	11.655	10.567	9.644	8.855	8.176	7.586	7.070	6.617	6.215	5.858	5.539	5.251	4.992
40	32.835	27.355	23.115	19.793	17.159	15.046	13.332	11.925	10.757	9.779	8.951	8.244	7.634	7.105	6.642	6.233	5.871	5.548	5.258	4.997
50	39.196	31.424	25.730	21.482	18.256	15.762	13.801	12.233	10.962	9.915	9.042	8.304	7.675	7.133	6.661	6.246	5.880	5.554	5.262	4.999