

IMPACT OF DROUGHT ON TEXAS AGRICULTURE: AN UPDATE

AFPC Policy Briefing Series 98-6

August 1998



Agricultural and Food Policy Center
Department of Agricultural Economics
Texas Agricultural Experiment Station
Texas Agricultural Extension Service
Texas A&M University

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Impact of Drought on Texas Agriculture: An Update

Briefing for Senator Phil Gramm
College Station, Texas
August 3, 1998

Edward G. Smith
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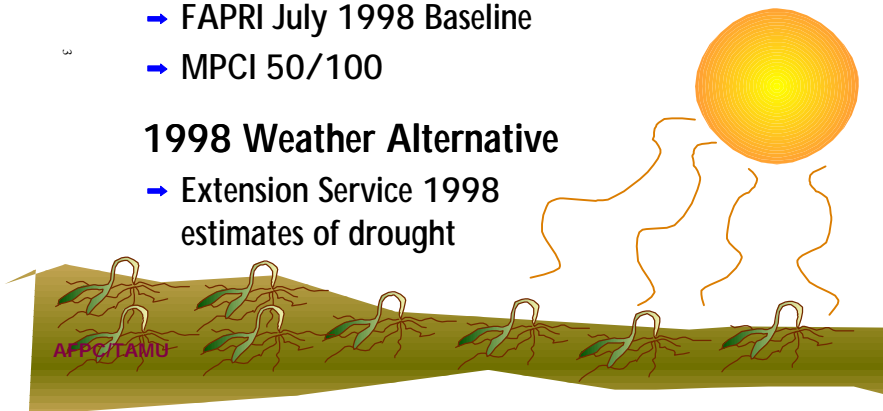
Impact of 1998 Weather Adversities: Assumptions

BASELINE

- TASS 1996 production conditions
- FAPRI July 1998 Baseline
- MPC1 50/100

1998 Weather Alternative

- Extension Service 1998 estimates of drought



Status of Federal Farm Policy

Lump sum payments

- Higher than would have been under target price through 1998
- Indeterminate through 2002
- Increased diversification resulting from flexibility provisions

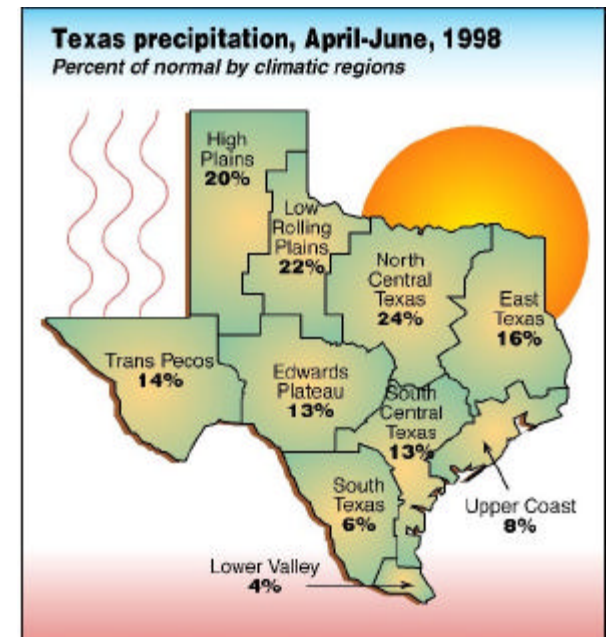
Crop Insurance

- Most common coverage is approximately 50% yield 100% price MPC1 policy

1998 situation particularly unfavorable for Texas

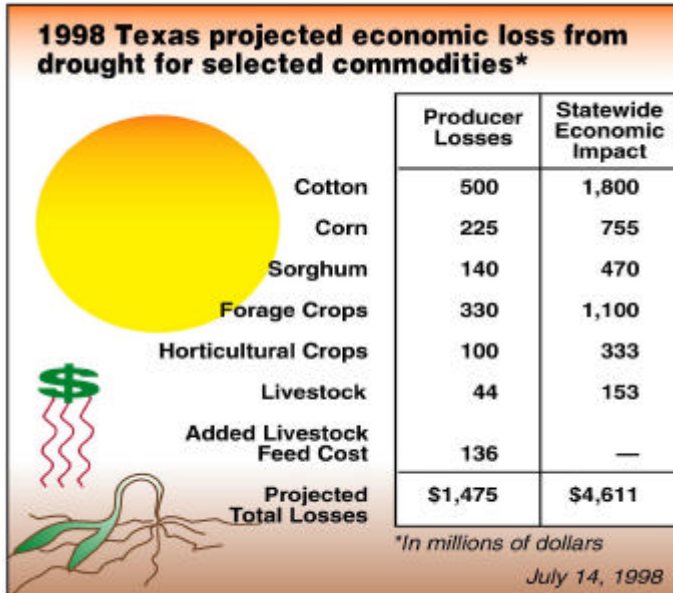
- Reduced yield
- Depressed prices
- Compounded by 1996 adversities

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Graphic: Agricultural Communications, The Texas A&M University System
Source: National Weather Service and Texas Agricultural Statistics Service

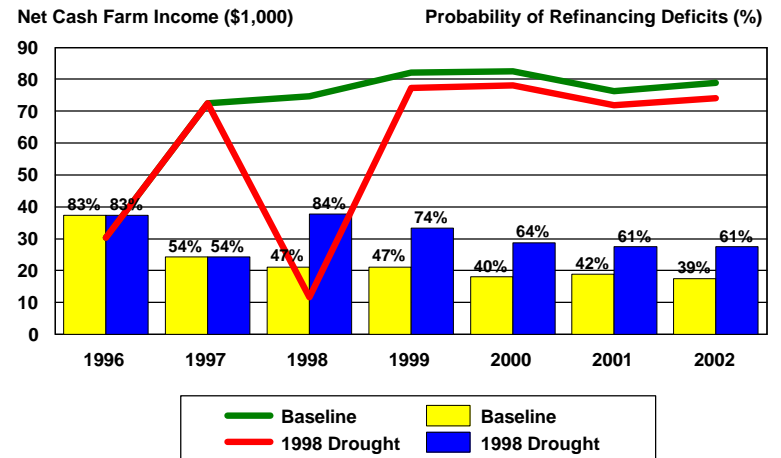
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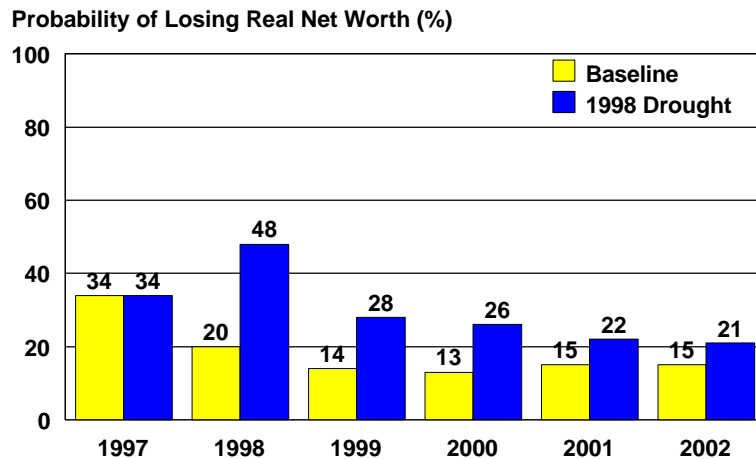
Graphic: Agricultural Communications, The Texas A&M University System
Source: Texas Agricultural Extension Service

Texas Southern Plains Moderate Cotton Farm



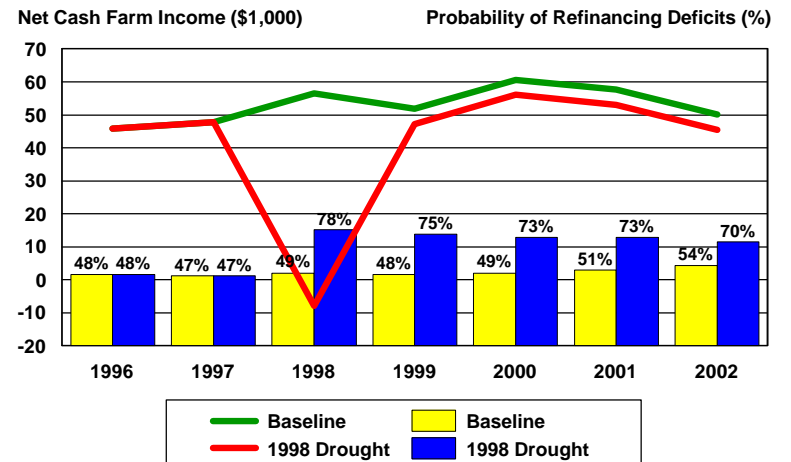
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Texas Southern Plains Moderate Cotton Farm



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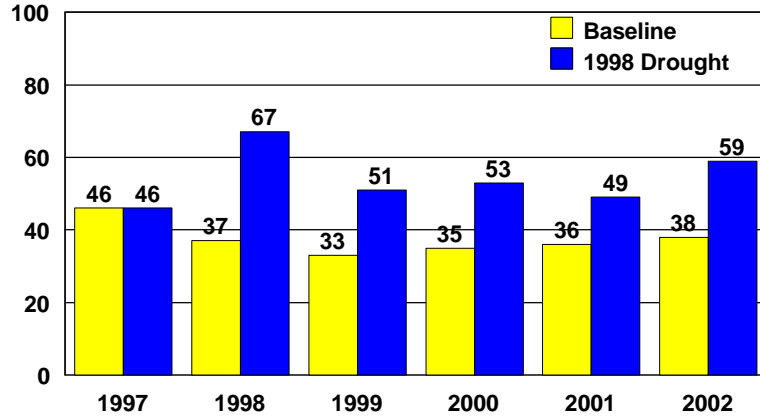
Texas Rolling Plains Cotton Farm



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Texas Rolling Plains Cotton Farm

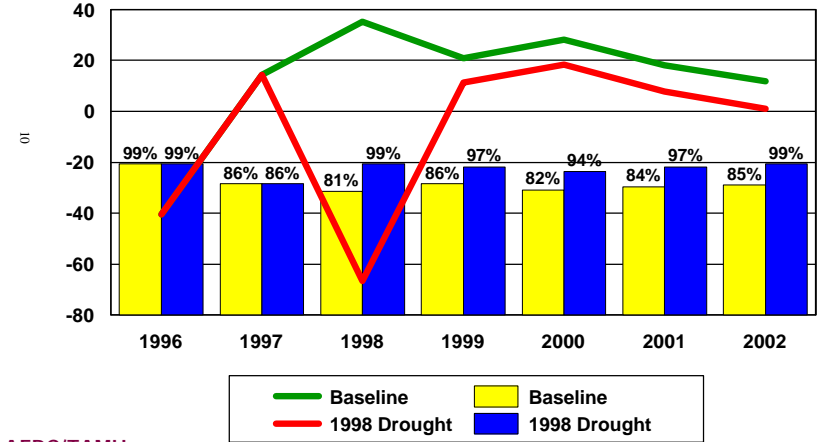
Probability of Losing Real Net Worth (%)



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Texas Coastal Bend Cotton Farm

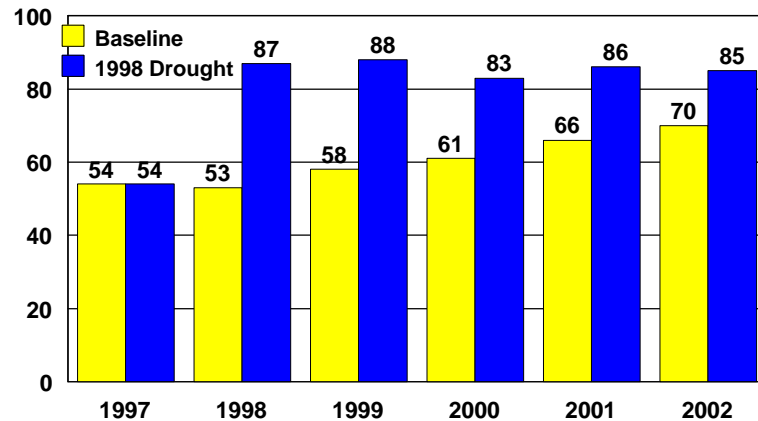
Net Cash Farm Income (\$1,000) and Probability of Refinancing Deficits (%)



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Texas Coastal Bend Cotton Farm

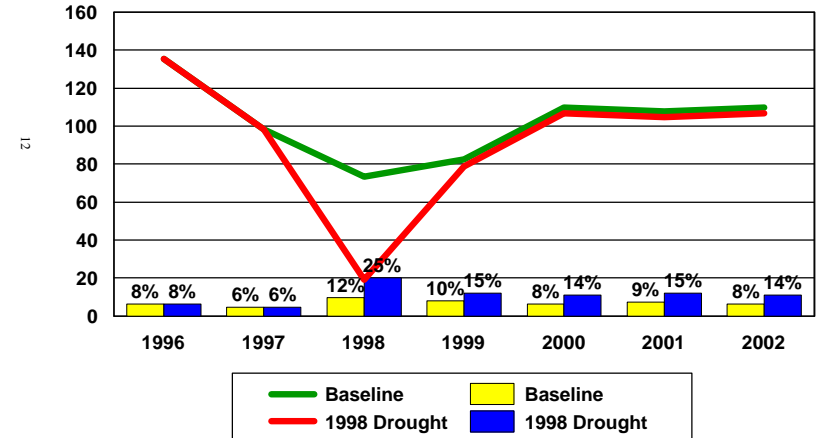
Probability of Losing Real Net Worth (%)



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Texas Northern Plains Moderate Grain Farm

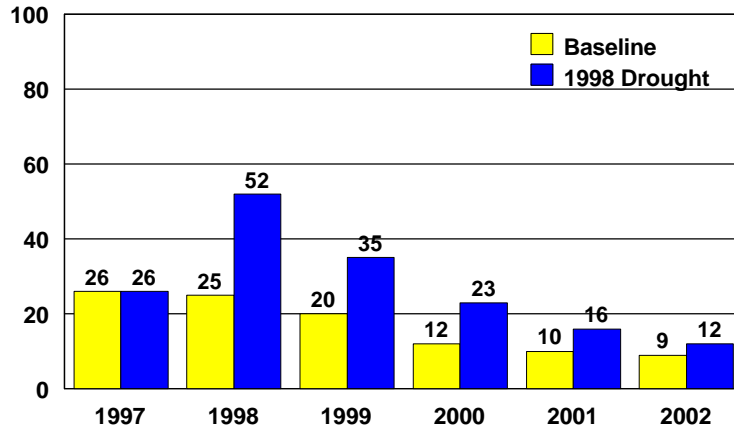
Net Cash Farm Income (\$1,000) and Probability of Refinancing Deficits (%)



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Texas Northern Plains Moderate Grain Farm

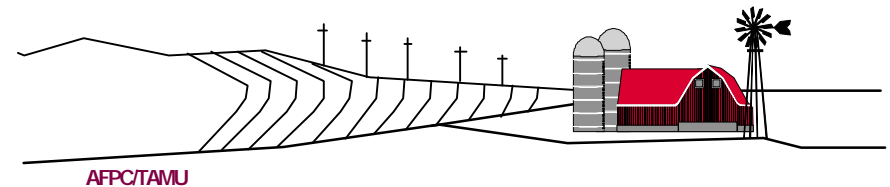
Probability of Losing Real Net Worth (%)



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FARM Assist Pilot Program

A whole farm *strategic planning tool* designed to provide farmers and ranchers the flexibility to *proforma analyze their operation under risk* employing a wide array of risk management tools.

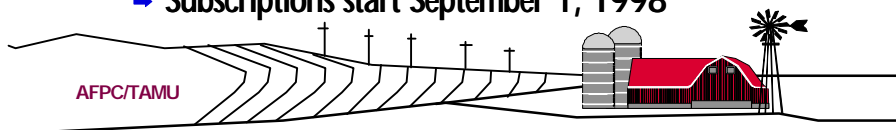
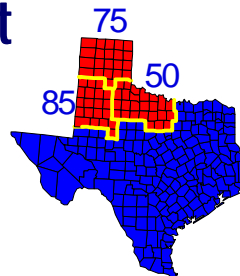


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FARM Assist

How will it work?

- Pilot Regions
- One-on-one assistance
- Risk Management Specialist
- Professional Report
 - Specifically tailored to each subscriber
 - Delivered and explained
- Fee based
- Database
- Subscriptions start September 1, 1998



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Implications

Dryland farmers in big trouble

- Affects whole agriculture community

Relative benefits of 1996 Farm Bill indeterminate over full life of bill

- Need strong export demand to fulfill objectives

Producers must be able to assess risk management alternatives

- History no longer sufficient
- Must strategically plan
- Capability of stress testing the firm under alternative risk management strategies

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Policy Options For Drought Relief

Basic need is to generate income to offset production losses and cover substantial cash flow deficits.

Short-run options

- Ad hoc disaster assistance will provide income but will tend to undermine the Federal crop insurance program.
- Tie disaster assistance to crop insurance to provide a higher level of payments while tending to preserve the integrity of the insurance program. This will not help those producers who have chosen not to purchase crop insurance due to perceived program problems and high costs.
- Accelerated lump-sum payments would allow farmers to draw on future contract payments under the 1996 Farm Bill. This could aid current cash flow deficits for eligible producers but would expose them to greater income risk in later years.

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Long-term options

- Restructure crop insurance to avoid calculating premiums based on the loss experience of past participation which may have fostered adverse selection—highest risk borrowers taking out insurance. Option would be designed to make insurance affordable in high risk areas. Probably requires increased government support.
- Provide support for the Financial Risk Management Assistance (FARM Assist) program. This program is a computer-assisted decision support system designed to help farmers manage risk. This strategic planning program is being developed with the assistance of farmer/lender focus groups. It is currently being tested with farmers in three Texas Panhandle pilot areas. This stochastic risk management decision system provides proforma financial analysis unique to the individual farmer's or rancher's operation based on the firm's historical price and production risk history. It allows farmers to project and compare outcomes using alternative risk management strategies.
- Provide a basis for long-term financial restructuring of farm operations adversely affected by the drought. If handled through loan guarantees, the process needs to be streamlined.
- Enact a farmer-deferred income account. Such a policy would be designed to allow farmers to defer taxes in years with favorable incomes while drawing on the account in years of unfavorable incomes. While of little short-run assistance to areas having adverse weather this year, such a program could provide a basis for reducing income variability in the future and thus would tend to decrease the pressure for disaster assistance.

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Appendix

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Table 1. FINANCIAL IMPACTS OF THE 1998 DROUGHT ON REPRESENTATIVE TEXAS SOUTHERN PLAINS(TXSP1682, TXSP3697) COTTON FARMS.

	TXSP1682 BASE	TXSP1682 98 DROUGHT	TXSP3697 BASE	TXSP3697 98 DROUGHT
Cost to Receipts Ratio (%)				
1996	87.40	87.40	81.89	81.89
1997	78.58	78.58	78.86	78.86
1998	78.55	94.89	78.90	93.31
1999	76.06	77.70	76.60	77.71
2000	76.26	77.81	76.49	77.56
2001	78.87	80.48	77.41	78.45
2002	78.11	79.79	76.67	77.76
1996-2002 Average	79.12	82.38	78.12	80.79
Total Cash Receipts (\$1000)				
1996	233.21	233.21	876.68	876.68
1997	296.20	296.20	947.15	947.15
1998	307.05	214.72	989.87	745.84
1999	306.93	306.93	989.61	989.61
2000	309.40	309.40	1002.91	1002.91
2001	311.04	311.04	1010.64	1010.64
2002	315.54	315.54	1027.73	1027.73
1996-2002 Average	297.05	283.86	977.80	942.94
Total Govt Payments (\$1000)				
1996	18.58	18.58	51.99	51.99
1997	20.20	20.20	57.52	57.52
1998	20.35	20.35	56.95	56.95
1999	19.77	19.77	55.35	55.35
2000	18.08	18.08	50.59	50.59
2001	14.56	14.56	40.75	40.75
2002	14.11	14.11	39.50	39.50
1996-2002 Average	17.95	17.95	50.38	50.38
Net Cash Farm Income (\$1000)				
1996	30.31	30.31	173.77	173.77
1997	72.50	72.50	223.89	223.89
1998	74.75	11.77	235.07	64.14
1999	82.11	77.22	253.87	243.10
2000	82.43	78.00	261.68	251.53
2001	76.53	71.88	255.95	245.89
2002	78.81	74.00	264.84	254.37
1996-2002 Average	71.06	59.38	238.44	208.10
Prob. of a Cash Flow Deficit (%)				
1996	83.00	83.00	37.00	37.00
1997	55.00	55.00	34.00	34.00
1998	58.00	99.00	41.00	79.00
1999	67.00	76.00	48.00	48.00
2000	59.00	70.00	43.00	47.00
2001	63.00	74.00	47.00	52.00
2002	66.00	75.00	38.00	43.00
Ending Cash Reserves (\$1000)				
1996	-15.86	-15.86	39.83	39.83
1997	-9.10	-9.10	121.59	121.59
1998	-0.63	-55.77	177.10	35.64
1999	5.53	-43.43	219.51	96.14
2000	19.03	-32.31	274.79	147.84
2001	22.65	-32.60	308.81	174.46
2002	29.64	-29.58	363.11	221.32
1996-2002 Average	7.32	-31.23	214.96	119.55
Prob. of Refinancing Deficits (%)				
1996	83.00	83.00	37.00	37.00
1997	54.00	54.00	20.00	20.00
1998	47.00	84.00	22.00	36.00
1999	47.00	74.00	19.00	29.00
2000	40.00	64.00	16.00	27.00
2001	42.00	61.00	16.00	26.00
2002	39.00	61.00	13.00	24.00
Prob. of Losing Real Net Worth (%)				
1996	1.00	1.00	1.00	1.00
1997	34.00	34.00	23.00	23.00
1998	20.00	48.00	18.00	38.00
1999	14.00	28.00	12.00	15.00
2000	13.00	26.00	6.00	13.00
2001	15.00	22.00	5.00	12.00
2002	15.00	21.00	2.00	7.00

Table 2. FINANCIAL IMPACTS OF THE 1998 DROUGHT ON REPRESENTATIVE TEXAS ROLLING PLAINS (TXRP2065), BLACKLAND(TXBL1200), AND COASTAL BEND(TXCB1700) COTTON FARMS.

	TXRP2065 BASE	TXRP2065 98 DROUGHT	TXBL1200 BASE	TXBL1200 98 DROUGHT	TXCB1700 BASE	TXCB1700 98 DROUGHT
Cost to Receipts Ratio (%)						
1996	83.83	83.83	124.21	124.21	115.26	115.26
1997	84.65	84.65	98.13	98.13	102.05	102.05
1998	83.15	106.39	101.04	148.02	97.76	124.76
1999	84.27	86.27	92.02	94.55	100.04	102.40
2000	81.79	83.78	89.54	92.08	99.67	102.05
2001	83.17	85.24	91.92	94.57	101.86	104.44
2002	87.20	89.33	92.12	95.07	102.46	104.95
1996-2002 Average	84.01	88.50	98.43	106.66	102.73	107.99
Total Cash Receipts (\$1000)						
1996	225.95	225.95	156.14	156.14	289.26	289.26
1997	234.50	234.50	184.61	184.61	410.40	410.40
1998	245.84	166.62	185.41	120.79	435.94	280.02
1999	244.84	244.84	260.80	260.80	429.21	429.21
2000	256.06	256.06	276.38	276.38	443.96	443.96
2001	256.54	256.54	281.64	281.64	447.06	447.06
2002	258.10	258.10	274.97	274.97	449.56	449.56
1996-2002 Average	245.97	234.66	231.42	222.19	415.06	392.78
Total Govt Payments (\$1000)						
1996	25.05	25.05	17.27	17.27	34.38	34.38
1997	27.47	27.47	18.79	18.79	37.09	37.09
1998	29.65	28.93	24.03	22.28	43.57	41.45
1999	27.69	27.69	24.54	24.54	42.68	42.68
2000	25.08	25.08	20.33	20.33	37.14	37.14
2001	20.21	20.21	16.29	16.29	29.92	29.92
2002	19.59	19.59	15.88	15.88	28.96	28.96
1996-2002 Average	24.96	24.86	19.59	19.34	36.25	35.94
Net Cash Farm Income (\$1000)						
1996	45.86	45.86	-35.36	-35.36	-40.42	-40.42
1997	47.83	47.83	8.64	8.64	14.39	14.39
1998	56.52	-7.89	3.68	-56.42	35.19	-66.55
1999	51.81	47.22	26.63	20.23	20.77	11.35
2000	60.65	56.12	35.92	29.24	28.08	18.36
2001	57.70	53.02	31.15	23.96	18.16	7.81
2002	50.16	45.36	30.31	22.69	11.83	1.08
1996-2002 Average	52.93	41.07	14.42	1.85	12.57	-7.71
Prob. of a Cash Flow Deficit (%)						
1996	48.00	48.00	99.00	99.00	99.00	99.00
1997	62.00	62.00	99.00	99.00	86.00	86.00
1998	64.00	99.00	99.00	99.00	84.00	99.00
1999	69.00	82.00	96.00	99.00	89.00	97.00
2000	66.00	80.00	96.00	99.00	86.00	94.00
2001	67.00	78.00	99.00	99.00	90.00	98.00
2002	72.00	80.00	94.00	99.00	91.00	99.00
Ending Cash Reserves (\$1000)						
1996	0.98	0.98	-68.92	-68.92	-79.14	-79.14
1997	1.18	1.18	-95.32	-95.32	-102.05	-102.05
1998	3.87	-52.01	-128.42	-188.16	-115.00	-211.65
1999	-11.91	-66.72	-149.78	-214.94	-148.34	-245.12
2000	-5.01	-62.37	-167.29	-237.88	-177.64	-281.17
2001	-4.29	-65.31	-194.08	-270.35	-223.80	-333.81
2002	-16.69	-81.59	-214.02	-296.62	-269.32	-387.92
1996-2002 Average	-4.55	-46.55	-145.40	-196.03	-159.33	-234.41
Prob. of Refinancing Deficits (%)						
1996	48.00	48.00	99.00	99.00	99.00	99.00
1997	47.00	47.00	99.00	99.00	86.00	86.00
1998	49.00	78.00	99.00	99.00	81.00	99.00
1999	48.00	75.00	96.00	99.00	86.00	97.00
2000	49.00	73.00	95.00	99.00	82.00	94.00
2001	51.00	73.00	96.00	99.00	84.00	97.00
2002	54.00	70.00	93.00	99.00	85.00	99.00
Prob. of Losing Real Net Worth (%)						
1996	1.00	1.00	1.00	1.00	1.00	1.00
1997	46.00	46.00	65.00	65.00	54.00	54.00
1998	37.00	67.00	84.00	99.00	53.00	87.00
1999	33.00	51.00	82.00	94.00	58.00	88.00
2000	35.00	53.00	81.00	94.00	61.00	83.00
2001	36.00	49.00	79.00	94.00	66.00	86.00
2002	38.00	59.00	86.00	93.00	70.00	85.00

Table 3. FINANCIAL IMPACTS OF THE 1998 DROUGHT ON REPRESENTATIVE TEXAS NORTHERN HIGH PLAINS(TXNP1600, TXNP5500) GRAIN FARMS.

	TXNP1600 BASE	TXNP1600 98 DROUGHT	TXNP5500 BASE	TXNP5500 98 DROUGHT
Cost to Receipts Ratio (%)				
1996	68.02	68.02	62.45	62.45
1997	73.85	73.85	69.54	69.54
1998	79.09	94.79	73.83	89.57
1999	76.50	77.65	71.04	71.92
2000	71.24	72.14	65.85	66.51
2001	71.67	72.52	65.52	66.08
2002	72.71	73.56	66.27	66.70
1996-2002 Average	73.30	76.08	67.79	70.40
Total Cash Receipts (\$1000)				
1996	394.09	394.09	1494.91	1494.91
1997	342.85	342.85	1293.43	1293.43
1998	325.46	270.86	1218.62	1001.05
1999	325.52	325.52	1221.26	1221.26
2000	355.68	355.68	1332.71	1332.71
2001	356.09	356.09	1342.51	1342.51
2002	362.73	362.73	1366.58	1366.58
1996-2002 Average	351.77	343.97	1324.29	1293.21
Total Govt Payments (\$1000)				
1996	27.67	27.67	84.53	84.53
1997	33.27	33.27	106.91	106.91
1998	46.82	44.33	153.90	143.78
1999	43.89	43.89	146.14	146.14
2000	35.45	35.45	115.41	115.41
2001	29.15	29.15	96.04	96.04
2002	27.85	27.85	90.87	90.87
1996-2002 Average	34.87	34.52	113.40	111.95
Net Cash Farm Income (\$1000)				
1996	135.51	135.51	598.15	598.15
1997	98.35	98.35	429.43	429.43
1998	73.56	19.11	341.53	124.41
1999	82.61	78.94	377.82	367.35
2000	109.72	106.64	482.28	473.74
2001	107.83	104.91	489.12	481.85
2002	109.65	106.77	501.11	495.58
1996-2002 Average	102.46	92.89	459.92	424.36
Prob. of a Cash Flow Deficit (%)				
1996	8.00	8.00	9.00	9.00
1997	26.00	26.00	30.00	30.00
1998	53.00	87.00	52.00	87.00
1999	40.00	36.00	26.00	28.00
2000	36.00	39.00	15.00	22.00
2001	42.00	46.00	13.00	13.00
2002	33.00	38.00	24.00	24.00
Ending Cash Reserves (\$1000)				
1996	69.57	69.57	264.35	264.35
1997	104.83	104.83	374.55	374.55
1998	109.70	64.69	408.64	233.40
1999	125.46	86.14	522.97	368.86
2000	156.58	116.57	696.81	546.72
2001	175.21	133.34	882.85	725.23
2002	199.65	155.04	1055.25	890.82
1996-2002 Average	134.43	104.31	600.77	486.28
Prob. of Refinancing Deficits (%)				
1996	8.00	8.00	9.00	9.00
1997	6.00	6.00	6.00	6.00
1998	12.00	25.00	7.00	23.00
1999	10.00	15.00	6.00	14.00
2000	8.00	14.00	1.00	8.00
2001	9.00	15.00	1.00	1.00
2002	8.00	14.00	1.00	3.00
Prob. of Losing Real Net Worth (%)				
1996	1.00	1.00	1.00	1.00
1997	26.00	26.00	18.00	18.00
1998	25.00	52.00	9.00	37.00
1999	20.00	35.00	5.00	15.00
2000	12.00	23.00	1.00	3.00
2001	10.00	16.00	1.00	1.00
2002	9.00	12.00	1.00	3.00

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