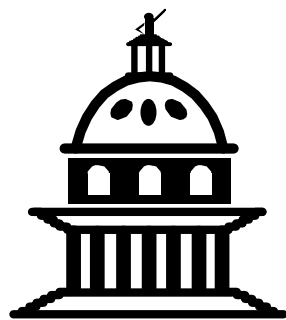


**OVERVIEW OF IMPACT OF DROUGHT ON
TEXAS AGRICULTURE: STATE AND FEDERAL POLICY OPTIONS**

AFPC Policy Briefing Series 98-7

August 1998



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Agricultural and Food Policy Center
Department of Agricultural Economics
Texas Agricultural Experiment Station
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Ronald D. Knutson
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AFPC Briefing Series

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Agricultural and Food Policy Center
Department of Agricultural Economics
Texas A&M University
College Station, TX 77843-2124

or call 409-845-5913.

Overview of Impact of Drought on Texas Agriculture: State and Federal Policy Options

Testimony for Joint Hearing of the Texas Senate Finance Committee and the House Committee on Appropriations
Austin, Texas
August 7, 1998

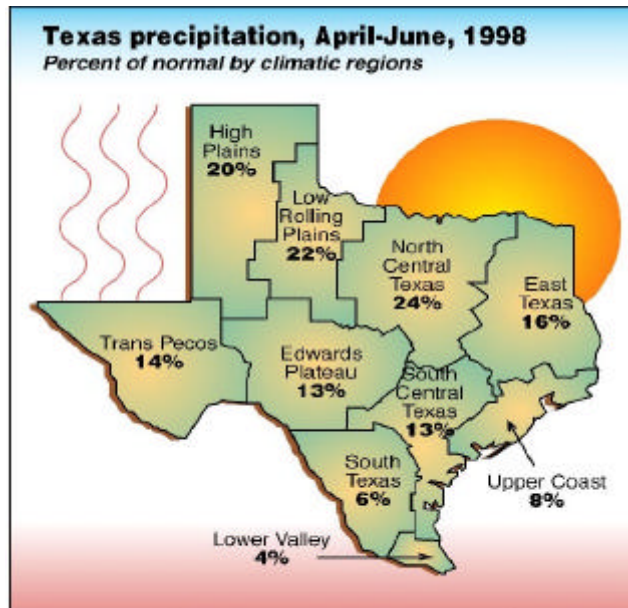
Ronald D. Knutson

Carl G. Anderson

Travis D. Miller



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

Executive Summary

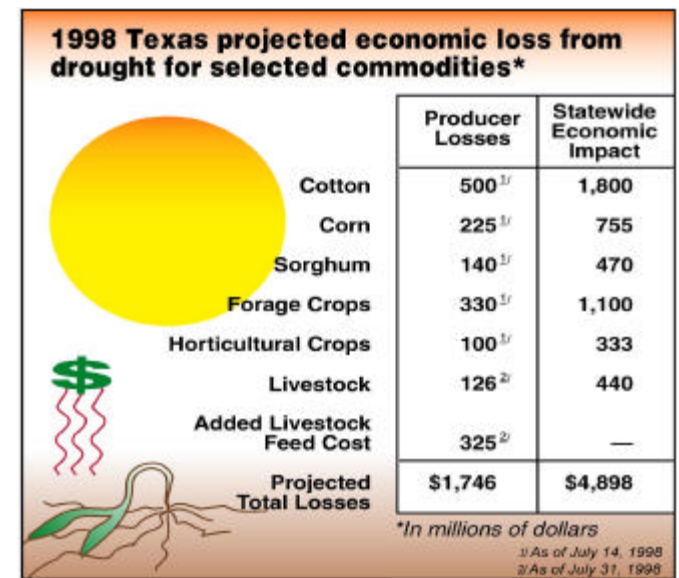
Combination of 1996 and 1998 drought conditions create serious cash flow problems requiring extensive refinancing of debt

Federal policy changes inadequate to cope with current situation

State options for reducing impacts include:

- Offset costs where there is sharply reduced revenue
- Provide farm level assistance in strategic planning for managing risk (FARM Assist)
- Provide state support for evaluating state and federal policies for dealing with the problems confronting Texas agriculture
- Expand research and extension programs to help farmers better manage stress factors for crops and livestock
- Evaluate the status of Texas water policies for dealing with water availability for agriculture

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

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Status of Federal Farm Policy

Lump sum contract payments under 1996 Farm Bill

- Peaked in 1997 at \$6.32 B US, TX peaked in 1996 at \$502 M
- Decline through 2002 to \$4 B US, \$338 M TX
- Bill to accelerate payments for 1999 waiting President Clinton's signature. Includes no increase in level of assistance.

Crop Insurance

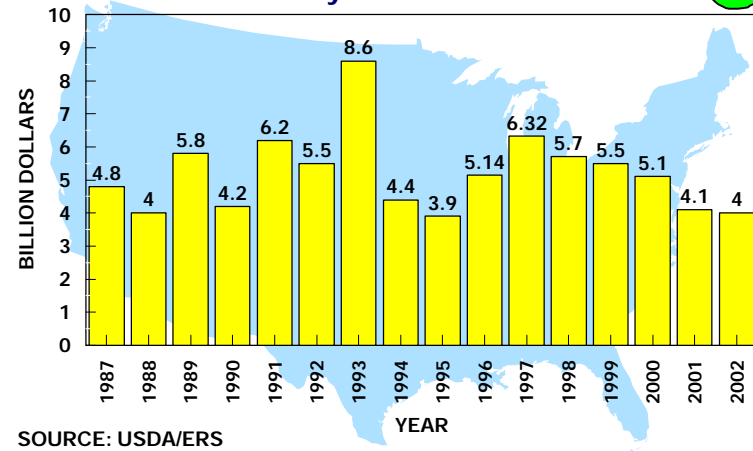
- Most common coverage is approximately 50% yield 100% price MPC policy

Disaster Relief

- Senate: \$500 M includes supplemental livestock feeding.
- House: No formal action until September. \$500 M believed to be inadequate. Will likely include livestock feeding assistance and supplemental payment to crop insurance.

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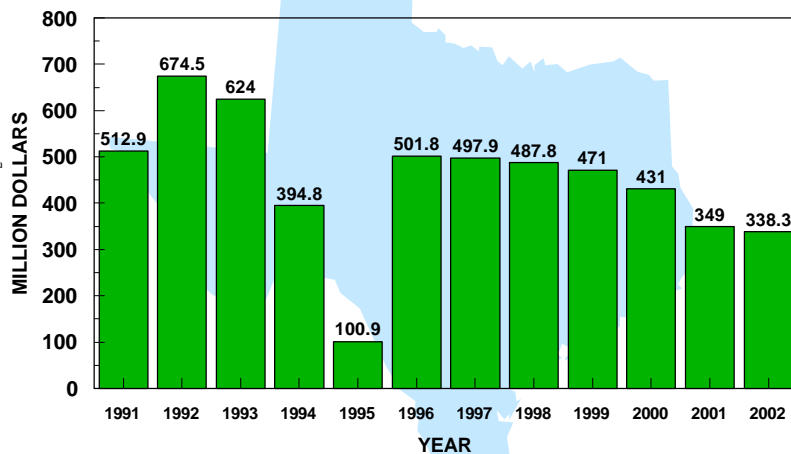
U.S. Farm Program Payments By Crop Year:
Deficiency Payments 1987/95
Contract Payments 1996/2002



SOURCE: USDA/ERS

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Texas Farm Program Payments By Crop Year:
Deficiency Payments 1991/95
Contract Payments 1996/2002



SOURCE: USDA/FSA FOR 1991/1994 AFPC PROJECTIONS THEREAFTER

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Cap on Payment Levels (Million Dollars)

Fiscal Year	Total	Wheat	Corn	Sorghum	Cotton	Rice
1996	5,140	1,349	2,376	263	598	436
1997	6,320	1,660	2,921	323	735	535
1998	5,700	1,497	2,635	292	663	483
1999	5,500	1,444	2,542	281	640	465
2000	5,130	1,347	2,371	262	597	434
2001	4,130	1,084	1,909	211	480	350
2002	4,008	1,052	1,853	205	466	339

*1996 payment levels will be adjusted downward by any payments accruing to the 1994 crop that was paid in FY 1996 and upward by any repayments of unearned deficiency payments for the 1995 crop that must be repaid in FY 1996.

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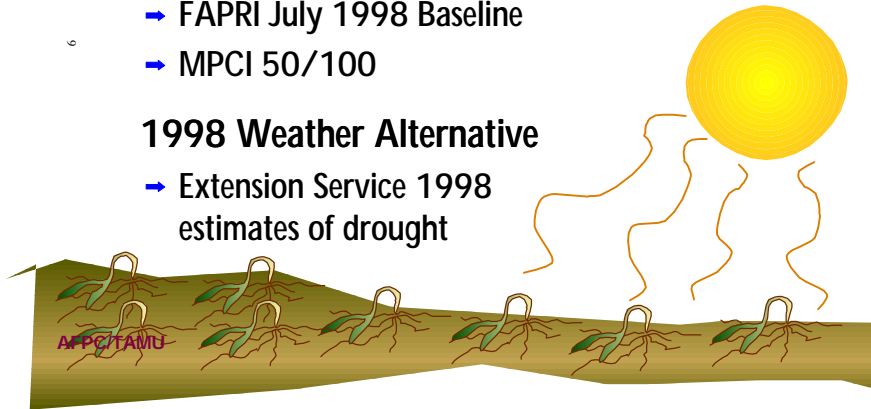
Impact of 1998 Weather Adversities: Assumptions

BASELINE

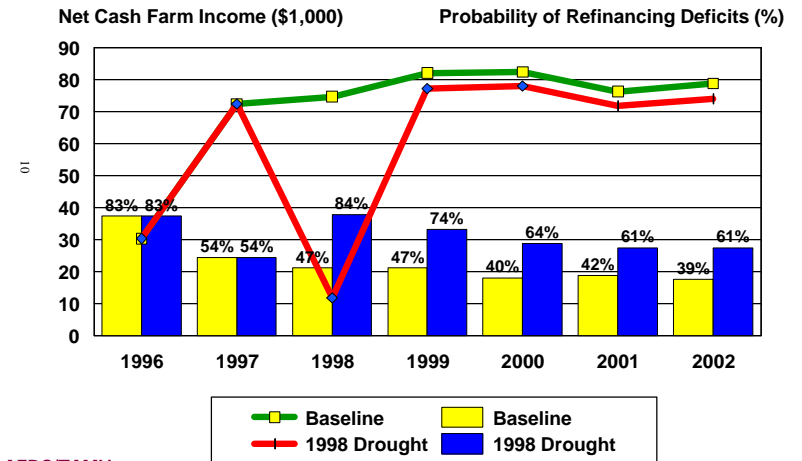
- TASS 1996 production conditions
- FAPRI July 1998 Baseline
- MPC1 50/100

1998 Weather Alternative

- Extension Service 1998 estimates of drought



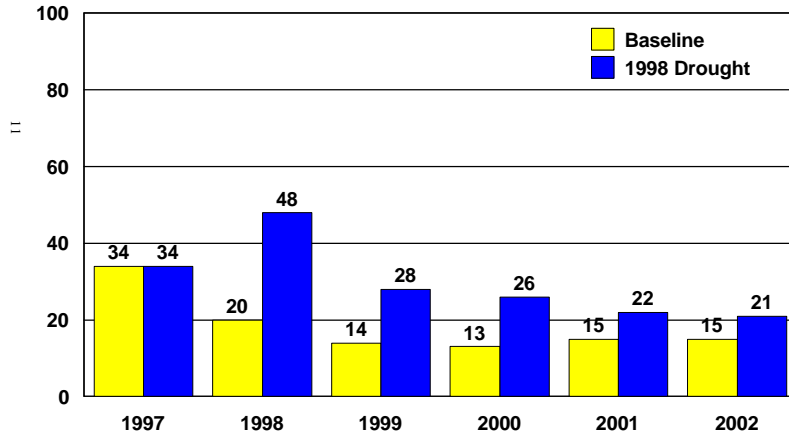
Texas Southern Plains Moderate Cotton Farm



AFPC/TAMU

Texas Southern Plains Moderate Cotton Farm

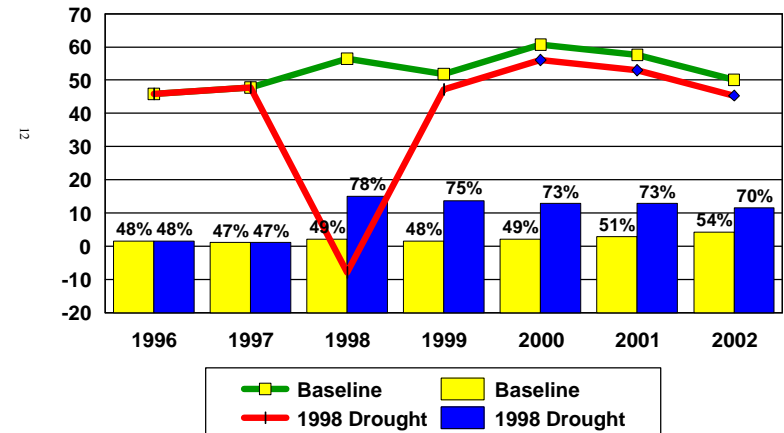
Probability of Losing Real Net Worth (%)



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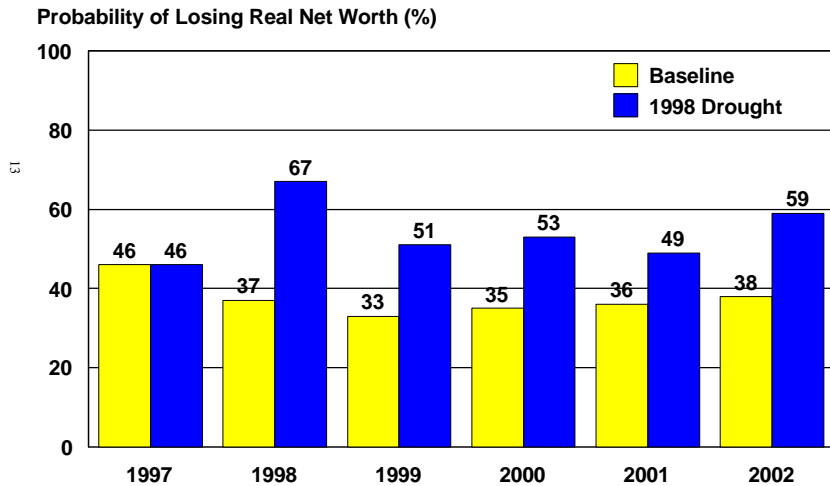
Texas Rolling Plains Cotton Farm

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



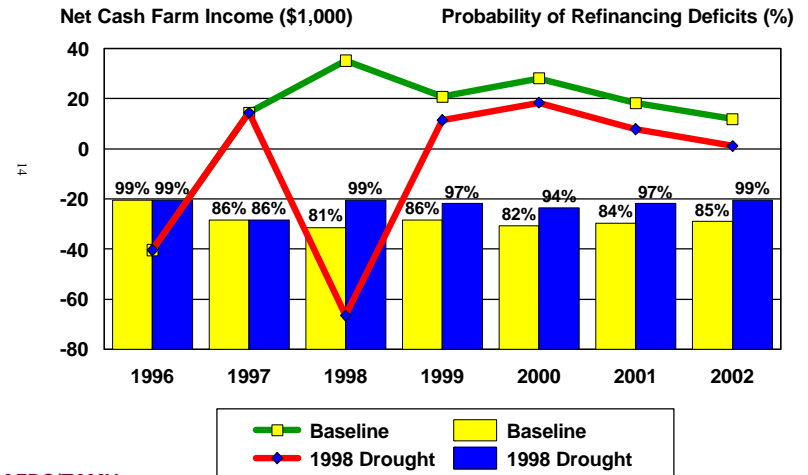
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Texas Rolling Plains Cotton Farm



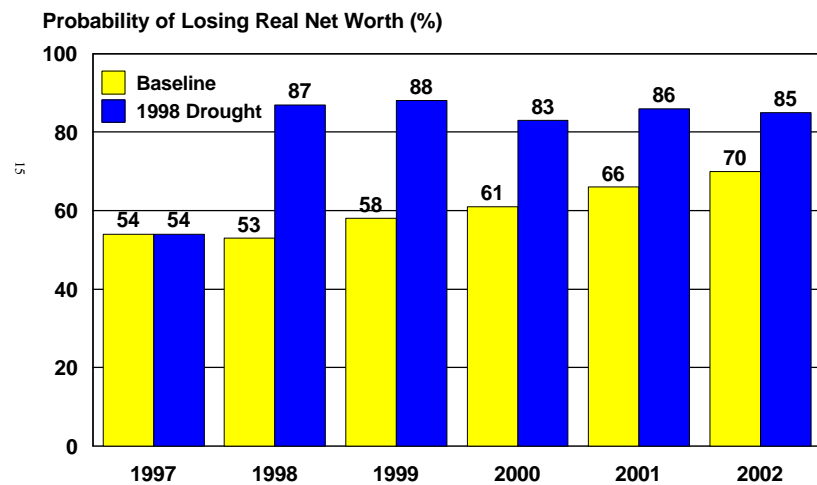
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Texas Coastal Bend Cotton Farm



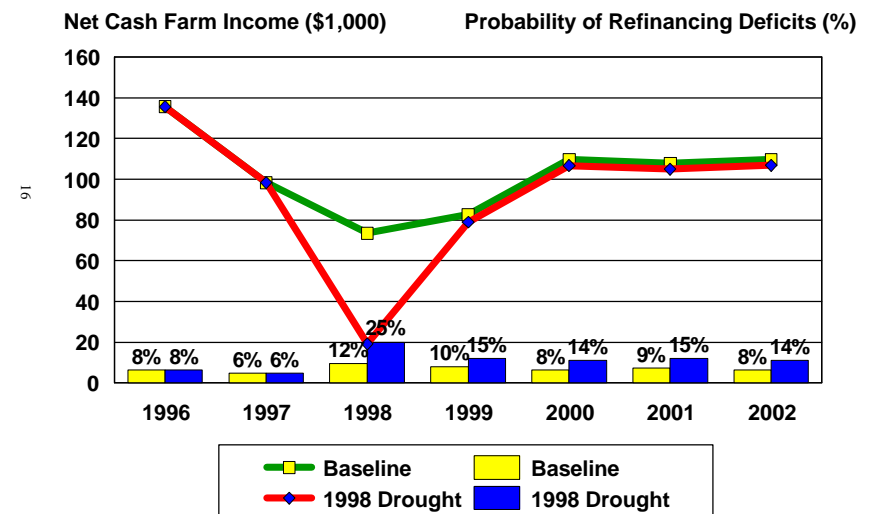
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Texas Coastal Bend Cotton Farm



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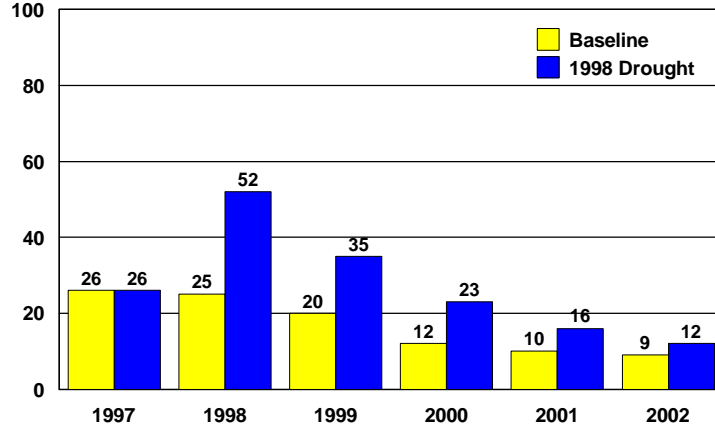
Texas Northern Plains Moderate Grain Farm



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Texas Northern Plains Moderate Grain Farm

Probability of Losing Real Net Worth (%)



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Options for What Texas Could Do

- Offset costs where there is sharply reduced revenue
- Provide farm level assistance in strategic planning for managing risk (FARM Assist)
- Provide state support for evaluating state and federal policies for dealing with the problems confronting Texas agriculture
- Expand research and extension programs to help farmers better manage stress factors for crops and livestock
- Evaluate the status of Texas water policies for dealing with water availability for agriculture

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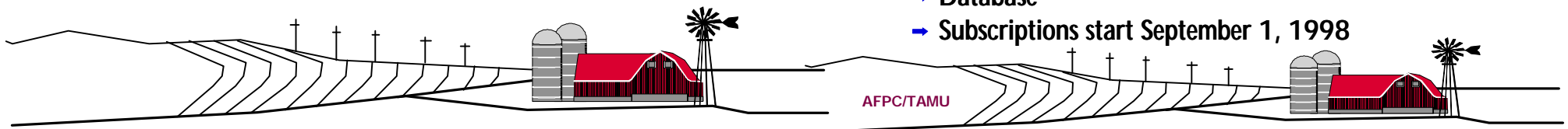
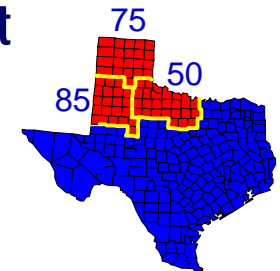
FARM Assist Pilot Program

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.

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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Agriculture is changing!

**As you read this, the business
of production agriculture
grows more risky.**

Are you prepared for the future?

FARM Assist can help...



A program of
Agricultural Economics Department
Texas Agricultural Extension Service
Texas A&M University System
An Initiative of the
75th Texas Legislature

What can FARM Assist do?

It is a fact: most farms and ranches will have to change their existing structure to survive and thrive long-term. **FARM Assist** can help producers assess likely outcomes of strategic decisions. **FARM Assist** evaluates the potential impacts of business alternatives before you actually implement them. Some of these strategic decisions include:

- Should I increase the size of my operation and/or my livestock inventories?
- Should I alter my current land lease arrangements?
- Should my current crop and livestock enterprise mix be changed?
- Should I buy or lease equipment?
- Should my current debt structure be changed?
- Should I buy Multi-Peril Crop Insurance (MPCI) or Crop Revenue Coverage (CRC)?
- How might different retirement strategies affect my business?

Risk management economists will tailor **FARM Assist** analyses to help address these and other questions presented by individual producers. **FARM Assist** analysis focuses on the production, management, financial, and economic characteristics of individual farm businesses.

**FARM Assist evaluates the
likely impacts of business
alternatives before you
actually implement them.**

What is FARM Assist?

FARM Assist is Financial and Risk Management Assistance. It is a whole-farm/ranch decision support system for Texas farmers and ranchers. A major focus of the Texas Risk Management Education Program, **FARM Assist** can aid producers in evaluating the existing structure of the operation and of likely alternatives for the future.

FARM Assist is designed to help you make long-term strategic planning decisions under risk. A **FARM Assist** analysis can focus solely on farm and ranch business activity, or include non-farm activities as well. Extension risk management economists will work one-on-one with producers to:

- Gather data necessary to analyze individual operations.
- Conduct whole-farm/ranch analyses using the **FARM Assist** computerized decision aid.
- Prepare, deliver, and explain reports describing the whole-farm analyses.
- Work with producers to increase their knowledge level of risk management.

The **FARM Assist** computerized decision aid was designed with the help of farmers and ranchers. This tool analyzes all types and sizes of livestock operations and crop farms under risk up to ten years into the future.

**FARM Assist is ... risk
management economists
working one-on-one with you
to help you make informed
decisions.**

**If you are interested in
learning more about FARM
Assist, detach this form,
affix postage, and mail to
the address provided.**

Name: _____

Address: _____

City: _____

State: _____ Zip: _____

Home Phone: _____

Mobile Phone: _____

Fax: _____

E-mail: _____



First
Class
Postage

Craig Fincham
Extension Economist, Risk Management
Texas Agricultural Extension Service
Route 3, Box 213AA
Lubbock, TX 79401-9746

How does FARM Assist work?

FARM Assist allows producers to analyze their operations up to ten years into the future. The program links actual production and financial data from the farm or ranch with long-term projections of prices, yields, interest rates, and inflation rates.

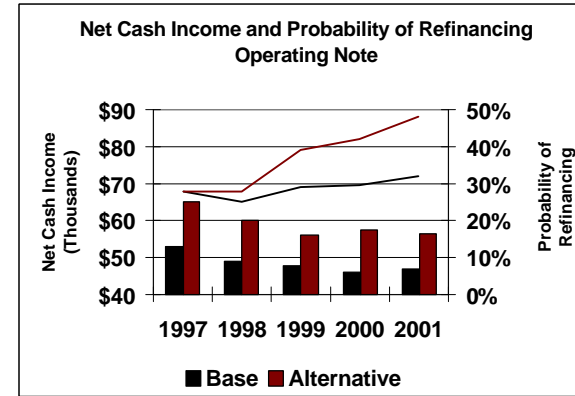
Unique to FARM Assist is its ability to analyze a farm or ranch business under risk. This means that an individual producer's actual historic variability in prices, yields, and animal performance are part of the strategic analysis. FARM Assist provides realistic projections because it uses your specific history to project your operation's future variability.

What do you get from FARM Assist?

For a \$250 subscription fee, participants receive individual, **confidential** service from a risk management economist in their geographic area. The components of this service include:

- 1 Setting up the farm or ranch for FARM Assist. The risk management economist works with you to understand the types of information necessary for analysis and sets the stage for you to provide that information.
- 2 Ongoing assistance from the risk management economist during the data-gathering process.
- 3 Assistance in determining specific farm business alternatives to analyze.
- 4 A professional, easy-to-understand FARM Assist report and interpretation by the risk management economist. This report includes an executive summary, graphs and performance measures that meet the producer's information preferences, and projected financial statements for the farm business.

Here is a sample graph. The bars represent projected net cash income for the base analysis and one alternative, measured on the left axis. The lines represent the probability the producer will have to refinance his operating note under each scenario, measured on the right axis. Remember, all graphs and performance measures are customized to look at the variables of most interest to the individual.



- 5 Identification of how alternative strategic decisions impact your business under risk.
- 6 Follow-up access to the risk management economist to assess additional alternatives as needed.

FARM Assist is ... working with a professional risk management economist using the latest tools to help you evaluate long-term strategic decisions under risk.

Why should you participate in FARM Assist?

Production agriculture is changing. The future is uncertain. FARM Assist allows you one-on-one access to a risk management economist who can use a state-of-the-art analysis tool to help you prepare for a risky future.

Who can you talk to about FARM Assist?

Contact the Texas Agricultural Extension Service risk management economist in your area:

South Plains

Craig Fincham
Extension Economist, Risk Management
Route 3, Box 213AA
Lubbock, TX 79401-9764
(806) 746-4056
e-mail: c-fincham@tamu.edu

..or contact your local county Extension agent.

If you're interested in participating in the FARM Assist program or would like more information, please feel free to return the attached tear-off postcard to the address provided.

Educational programs of the Texas Agricultural Extension Service are open to all citizens without regard to race, color, sex, disability, religion, age or national origin.

Appendix

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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