AE 95007 August 11, 1995

THE PROJECTED IMPACT OF FARM PROGRAM SPENDING CAPS ON NORTH DAKOTA REPRESENTATIVE FARMS

Marvin Duncan
Won W. Koo
Richard D. Taylor
Dwight G. Aakre

Department of Agricultural Economics • Agricultural Experiment Station
North Dakota State University • Fargo, ND 58105-5636

Executive Summary

- Under the Base scenario, average net farm income declines from $57,946 in 1995 to $54,355 in 2003.
- Under the Administration scenario, the average net farm income falls to $54,110 by 2003.
- Under the Conference scenario, the average farm income falls to $53,503 by 2003.
- Under the Grassley scenario, average net farm income falls to $53,633 by 2003.
- The Conference scenario results in the largest rise in debt-to-asset ratios for each representative farm over the forecast period; the Administration scenario results in the smallest rise.
- Only in the case of the low profit farm do debt-to-asset ratios rise above 60 percent under the scenarios evaluated.
- On average, the representative farm would be willing to pay $95.80 per acre less for farmland in 2003 than in 1995 under the Conference scenario. Under the Administration scenario, that farm would be willing to pay $75.90 less in 2003 than in 1995.
- On average, the representative farm would be willing to pay $2.58 per acre less for cash rent on farmland to produce the five program crops in 2003 than in 1995. Under the Administration scenario, that farm would be willing to pay $5.69 less per acre in 2003 than in 1995.
- High and average profit representative farm's debt-to-asset ratios do not rise enough to jeopardize creditworthiness under any of the three scenarios evaluated. The debt-to-asset ratio for the low profit representative farm rises to levels that may adversely affect creditworthiness under each of the scenarios evaluated.

THE PROJECTED IMPACT OF FARM PROGRAM SPENDING CAPS ON NORTH DAKOTA REPRESENTATIVE FARMS

By
Marvin Duncan, Won W. Koo, Richard D. Taylor, and Dwight Aakre*

The objective of this analysis was to evaluate the impact of farm program spending caps on the net income, farmland prices, cash rental rates, and debt-to-asset ratios of representative farms selected from the North Dakota Farm and Ranch Management Association farm records.

In this analysis we look at the impact of three spending cap alternatives, as compared to extending current farm legislation (**Base**) (Table 1).

Table 1. Proposed Reductions from Current Baseline Funding Levels

	Conference Budget Agreement	Administration Budget Proposal	Grassley Amendment
FY 1996	0.992 bil	0.4 bil	0.50 bil
5 yrs	8.477 bil	3.0 bil	5.81 bil
7 yrs	13.386 bil	4.2 bil	9.68 bil

The alternatives evaluated are summarized as follows:

1. **The Administration Budget Proposal Scenario (Administration)** - Reduce spending for government farm programs from its 1995 approved outlay level of $14 billion to levels that would achieve a savings of $4.2 billion over a seven-year period beginning in 1996.

2. **The Senate/House of Representatives Conference Report Proposal Scenario (Conference)** - Reduce spending for government farm programs from the 1995 approved outlay level of $14 billion to levels that would achieve a savings of $13.386 billion over a seven-year period beginning in 1996.

---

*Duncan and Koo are professors, Taylor is a research associate, and Aakre is an extension specialist in the Department of Agricultural Economics at North Dakota State University, Fargo. This research is supported by a grant from the CSRS Northern Plains Agricultural Trade Research Program.

3. **Senator Grassley's Proposal Scenario (Grassley)** - Cut back the spending cuts proposed under the Senate/House of Representatives Conference Report Proposal by 20 percent each year over the seven-year period beginning in 1996.

Methodology

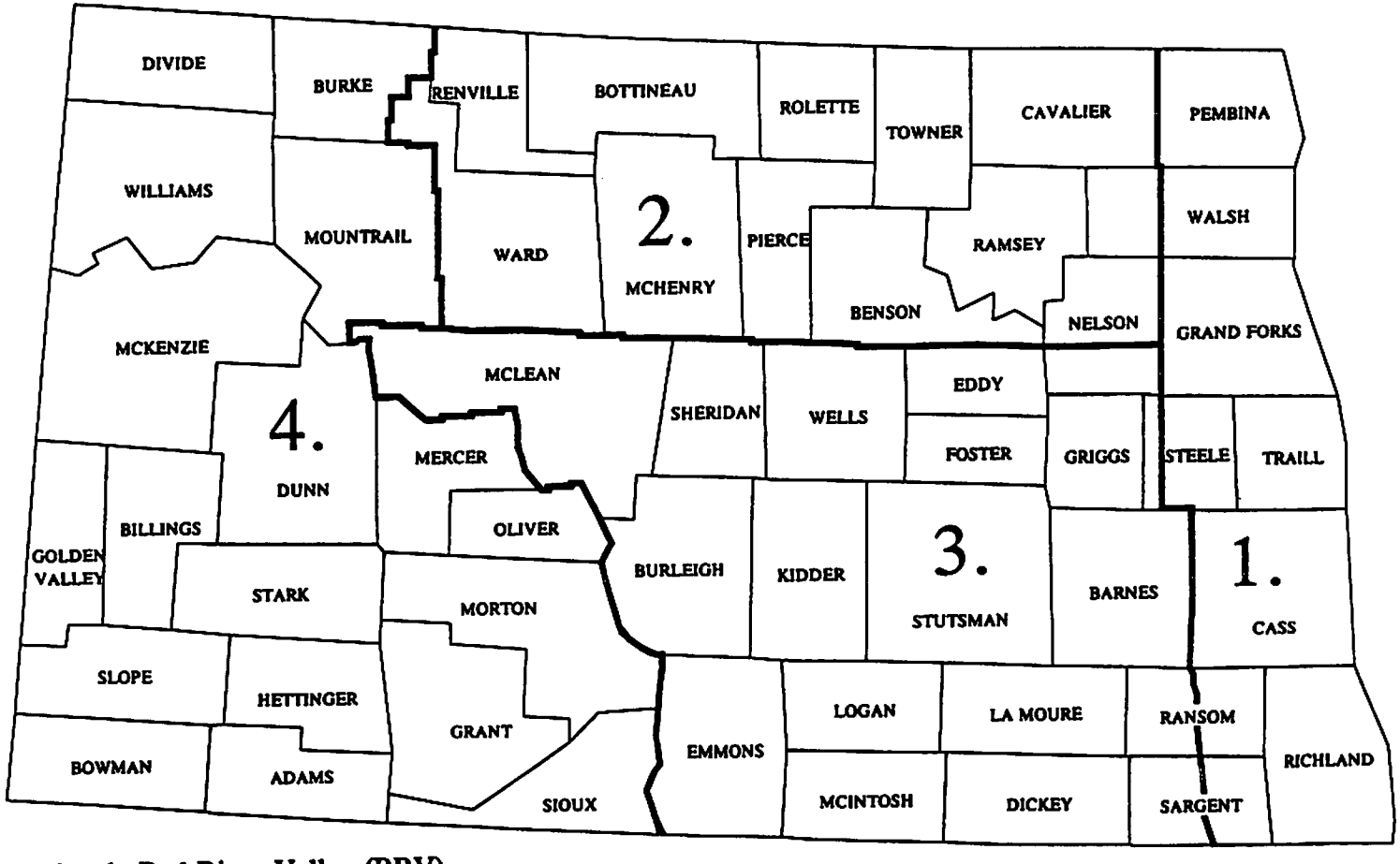
This analysis is based on the North Dakota Representative Farm and Ranch Model which uses the FAPRI price projections as an input. The model has 12 representative farms, three farms in each of four regions: the Red River Valley (RRV), North Central (NC), South Central (SC), and Western (WEST) (Figure 1). The farms in each region are representative of the average, high, and low profit farms enrolled in the North Dakota Farm and Ranch Business Management Association. The representative farms are developed from the North Dakota Vocational Agriculture Department farm record system data provided by cooperating North Dakota farmers.

This study focused on changes in net farm income, land prices, cash rental rates, and farm debt-to-asset ratios for high, average, and low profit farms. Changes in land prices and cash rental rates are for land used to produce five major crops: wheat, barley, corn, soybeans, and sunflowers under the alternative farm program options.

Characteristics of average representative farms in each region are shown in Table 2. The average representative farm is an average of all farms in the Farm and Ranch Management Records program for the state or for each production region. The high profit representative farm is an average of farms in the top 20 percent of farm profitability for the state or for each production region. The low profit representative farm is an average of farms in the low 20 percent of farm profitability for the state or for each production region.

Net farm income per farm, land prices per acre, and cash rental rates for the high, average, and low profit representative farms are calculated by using the North Dakota Representative Farm model operational at the Department of Agricultural Economics, Agricultural Experiment Station, North Dakota State University (Analysis of Alternative Farm Programs).

It is assumed that the farm equipment stock remains constant in the analysis. In other words, depreciation allowances are assumed to be invested back into farm equipment. A market determined capitalization rate is used in calculating land prices. Changes in residual income attributable to land determine land prices based on a weighted four-year moving average. Changes in land prices determine cash rental rates charged for rented land based on the market determined relationship of land prices to cash rental rates. Cash rental rates adjust on a three-year moving average of land prices.



Region 1.-Red River Valley (RRV)
Region 2.-North Central (NC)
Region 3.-South Central (SC)
Region 4.-Western (WEST)

Figure 1. North Dakota Farm and Ranch Business Management Regions

Table 2. Characteristics of Average Representative Farms in North Dakota

	RRV	NC	SC	WEST
	----------acres----------			
Cropland	1234	1181	1369	1017
Owned land	217	385	504	489
Wheat	550	733	706	625
Barley	162	217	142	90
Sunflower	66	61	136	0
Corn	77	0	43	0
Soybeans	244	0	37	0
Sugarbeet	55	0	0	0
Pasture	23	340	351	927

This study assumed that net farm income from livestock operations and production of other crops, including sugar beets, remain constant during the forecast period.

Analysis of alternative farm policy options are reflected in changes in net farm income and land prices for the representative farms. These changes in turn affect the debt-to-asset ratios of the representative farms and the cash rental rates for farmland used in production of wheat, barley, corn, soybeans, and sunflowers.

Lower farm income is reflected in reduced allocation of income to owned farmland used in production of the crops in the analyses. Reduced allocation of income to farmland, given the market determined capitalization rate, results in lowered land prices. Reduced land prices result in lower cash rental rates farmers are willing to pay on land used in production of the crops in the analyses. Withdrawal for family living and reductions in owned land prices reduce farm asset levels, resulting in an increase of debt-to-asset ratios for representative farms.

The FAPRI Base model prices are used in these analyses. The Base model is a forecast based on a continuation of current farm programs. The representative farm model is used to determine net farm income, land prices, cash rental rates, and farm debt-to-asset ratios under alternative spending caps.

Results

The study results are divided into four parts. The first part focuses on the changes in net farm income. The second part focuses on the changes in farmland prices. The third part focuses on changes in cash rental rates. The fourth part focuses on changes in debt-to-asset ratios for high, average, and low profit representative farms.

Changes in Net Farm Income Under the Alternative Spending Caps

Figure 2 shows the state average net farm income for the representative farms under the alternative spending caps. Under the Base scenario, the average net farm income falls from $57,946 in 1995 to $54,355 in 2003. Under the Administration scenario, the average net farm income falls to $54,110 in 2003. Under the Conference scenario, average net farm income falls to $53,503 by 2003. The Grassley scenario results in a fall in average net farm income to $53,633 by 2003. Under each of these scenarios, declines in net farm income by the end of the forecast period are held to less than 7 percent. The Administration scenario results in the smallest decline, 6.6 percent. Even under the Base scenario (no change in farm programs), average net farm income declines by 6.1 percent.

Tables 3-6 show the net farm income under the Base and alternative scenarios for production regions within North Dakota and by high, average, and low profit representative farms. Here it is important to note that the impact of farm program spending cutbacks are very different on the high profit, average profit, and low profit representative farms. Under the Administration scenario, net farm income increased for the high income farm in the RRV and NC production regions (Table 4). Other than for these two production regions, net income fell for each representative farm in each production region. Net farm income was negative for the low profit representative farm over all or most of the forecast period in the RRV and NC production regions. Under the Conference scenario (Table 5), net farm income fell over the forecast period for each of the three representative farms. In the RRV region, the low profit farm lost money each of the forecast years and in the SC region, the low profit farm lost money from 1996 onward. The Grassley scenario yielded outcomes that fell between the other two scenarios (Table 6).

Finally, it is important to note that under the Base scenario, while net farm income increased over the forecast period for the RRV and NC production regions, net farm income for average and low profit representative farms declined in each of the regions. Indeed, net farm income for the low profit farm was negative throughout the forecast period in the RRV production region and negative for most of the forecast period in the SC production region. Irrespective of changes in farm policy, the low profit farm is unable to maintain initial net farm income levels.

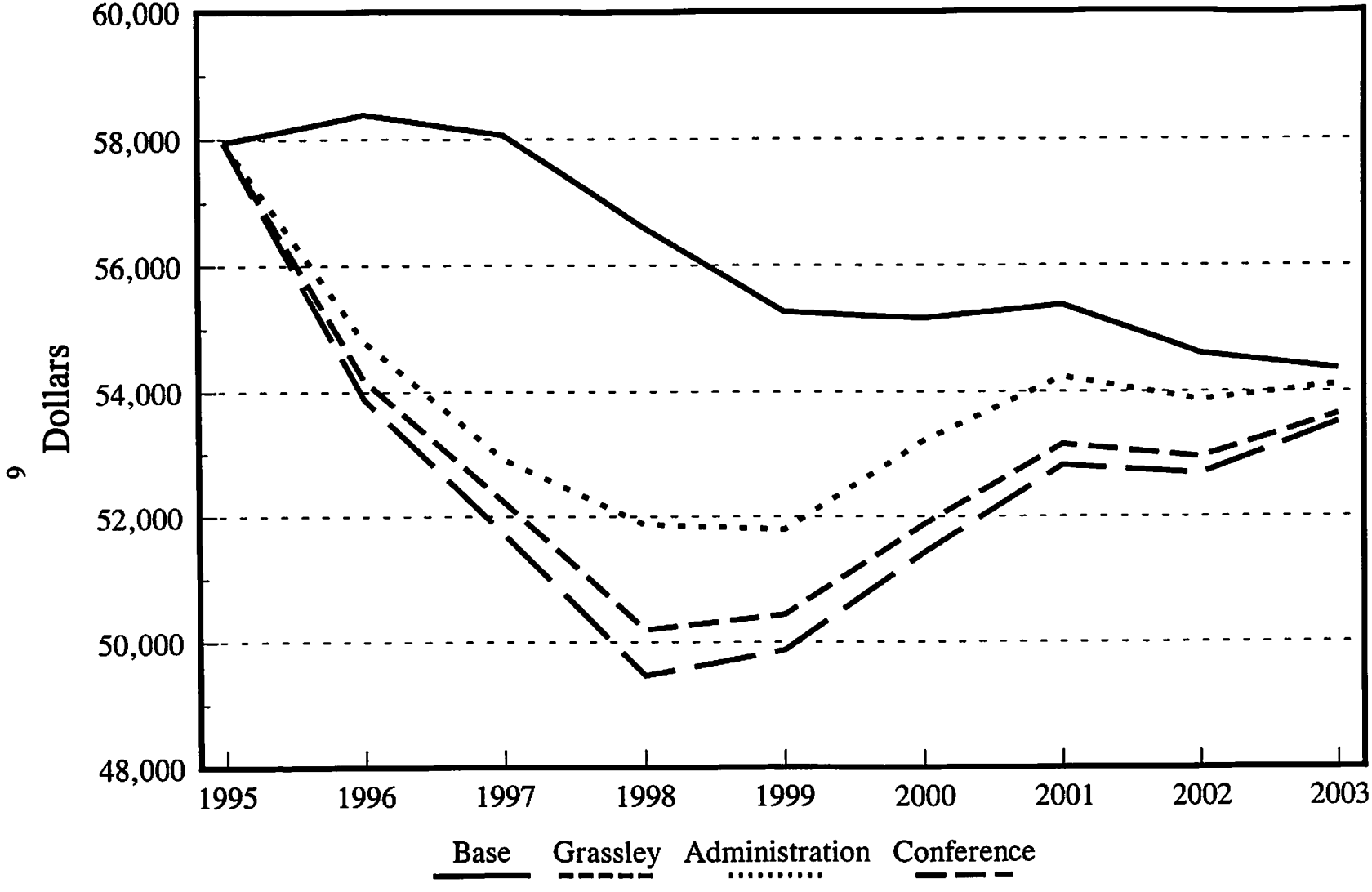


Figure 2. Net farm income per farm under the base and alternative farm program scenarios

Table 3. Net Farm Income Under Base Scenario

	RRV Region			NC Region		
	High	Avg	Low	High	Avg	Low
	profit					
1995	111449	46853	-28157	104810	71039	34454
1996	116334	50008	-25499	98422	71023	34282
1997	117729	50491	-26380	104518	70547	33718
1998	116684	48911	-30828	103998	69893	32922
1999	114818	46766	-36680	104129	69639	32365
2000	114996	46265	-39710	105496	70266	32495
2001	116853	47077	-40864	106459	70656	32504
2002	117436	46416	-44883	106057	69999	31677
2003	119382	46982	-46285	106705	70111	31439
Average (1996-2000)	116112	48488	-31819	103313	70273	33156
Average (1996-2003)	116779	47864	-36391	104473	70267	32675

	SC Region			West Region		
	High	Avg	Low	High	Avg	Low
	profit					
1995	105166	51614	3901	88380	62279	20858
1996	104772	50955	2749	87329	61548	20291
1997	104748	50667	1931	85950	60555	19512
1998	102400	48590	-519	83857	58971	18234
1999	100732	46950	-2786	82368	57720	17098
2000	98164	46673	-3862	82317	57446	16596
2001	101839	47032	-4443	81560	56729	15915
2002	102109	46664	-6041	79934	55339	14656
2003	100859	45459	-7768	79620	54866	14007
Average (1996-2000)	102163	48767	-497	84364	59248	18346
Average (1996-2003)	101953	47874	-2592	82867	57897	17039

Table 4. Net Farm Income Under the Administration Budget Proposal Scenario

	RRV Region			NC Region		
	High	Avg	Low	High	Avg	Low
	----------profit----------					
1995	111449	46853	-28157	104810	71039	34454
1996	111000	46027	-29775	93076	67360	32012
1997	110024	44739	-32605	96405	65203	30400
1998	109841	43769	-36198	96233	64778	29779
1999	110005	43056	-40101	97716	65416	29843
2000	112955	44514	-40464	100919	67254	30818
2001	116605	46582	-39813	102820	68257	31283
2002	118008	46501	-43059	103079	68036	30750
2003	120746	47670	-43860	104716	68798	30904
Average (1996-2000)	110765	44421	-35829	96870	66002	30571
Average (1996-2003)	113648	45357	-38234	99371	66888	30724

	SC Region			West Region		
	High	Avg	Low	High	Avg	Low
	----------		-----profit-----			
1995	105166	51614	3901	88380	62279	20858
1996	98862	47009	412	83070	58817	18939
1997	96287	45014	-1409	79933	56700	17605
1998	94717	43503	-3449	78342	55431	16505
1999	95397	43532	-4561	78409	55166	15901
2000	95501	45085	-4402	80105	56000	15988
2001	100262	46263	-4421	80211	55834	15601
2002	101049	46238	-5820	78954	54680	14457
2003	100495	45466	-7344	79099	54505	13939
Average (1996-2000)	96153	44829	-2682	79972	56423	16987
Average (1996-2003)	97821	45264	-3874	79765	55892	16117

Table 5. Net Farm Income Under Senate/House Budget Proposal Scenario

	RRV Region			NC Region		
	High	Avg	Low	High	Avg	Low
	----------profit----------					
1995	111449	46853	-28157	104810	71039	34454
1996	109630	45004	-30873	91703	66419	31429
1997	108232	43401	-34053	94519	63961	29629
1998	106317	41130	-39003	92345	62218	28198
1999	107217	40945	-42244	94449	63266	28533
2000	110449	42573	-42239	97607	65076	29523
2001	114871	45177	-40792	99858	66309	30166
2002	116823	45466	-43450	100382	66262	29773
2003	120581	47378	-43337	102884	67591	30296
Average (1996-2000)	108369	42611	-37682	94125	64188	29462
Average (1996-2003)	111765	43884	-39499	96718	65138	29693

	SC Region			West Region		
	High	Avg	Low	High	Avg	Low
	----------		-----profit-----			
1995	105166	51614	3901	88380	62279	20858
1996	97344	45995	-188	81976	58116	18592
1997	94319	43700	-2186	78533	55804	17162
1998	90774	40880	-4979	75527	53626	15617
1999	92344	41528	-5684	76208	53751	15218
2000	92786	43314	-5324	78086	54699	15378
2001	98130	44949	-5011	78665	54833	15157
2002	99264	45175	-6228	77638	53824	14093
2003	99626	45024	-7373	78362	54018	13759
Average (1996-2000)	93514	43083	-3672	78066	55199	16393
Average (1996-2003)	95573	43821	-4622	78125	54834	15622

Table 6. Net Farm Income Under Grassley Budget Proposal Scenario

	RRV Region			NC Region		
	High	Avg	Low	High	Avg	Low
	----------profit----------					
1995	111449	46853	-28157	104810	71039	34454
1996	110084	45342	-30509	92158	66731	31622
1997	109006	43979	-33428	95334	64497	29962
1998	107382	41928	-38156	93524	62994	28677
1999	108028	41562	-41630	95428	63910	28923
2000	111058	43052	-41838	98493	65659	29865
2001	115227	45480	-40650	100626	66814	30448
2002	117025	45664	-43468	101063	66710	30012
2003	120541	47398	-43567	103345	67895	30443
Average (1996-2000)	109112	43173	-37112	94987	64758	29810
Average (1996-2003)	112294	44301	-39156	97496	65651	29994

	SC Region			West Region		
	High	Avg	Low	High	Avg	Low
	----------		-----profit-----			
1995	105166	51614	3901	88380	62279	20858
1996	97847	46331	11	82338	58348	18707
1997	95169	44267	-1851	79138	56191	17353
1998	91966	41673	-4517	76379	54173	15885
1999	93235	42110	-5363	76854	54167	15417
2000	93459	43745	-5113	78597	55030	15530
2001	98629	45246	-4896	79038	55075	15260
2002	99666	45404	-6161	77946	54025	14174
2003	99813	45109	-7390	78532	54131	13798
Average (1996-2000)	94335	43625	-3367	78661	55582	16578
Average (1996-2003)	97217	44236	-4410	78603	55142	15766

Debt-to-Asset Ratios for Representative Farms

Figures 3 through 5 indicate the debt-to-asset ratios that are forecast for the high, average, and low profit representative farms under the Base scenario and under each of the three spending cap scenarios. Under the Base scenario forecasts the debt-to-asset ratio rises about 0.2 percentage points for the high profit representative farm over the forecast period, about 3.0 percentage points for the average profit representative farm, and 5.4 percentage points for the low profit representative farm. Even with no change in farm programs, all the representative farms were more heavily leveraged by the end of the forecast period.

The Conference scenario results in the largest rise in debt-to-asset ratios for each representative farm over the forecast period. The Administration scenario resulted in the smallest rise in debt-to-asset ratios. At the end of the forecast period, the differences in debt-to-asset ratios for the Base scenario and the three spending cap scenarios evaluated were less than 1 percent. None of the spending cap scenarios appear likely to jeopardize the creditworthiness of the high income and average income representative farms. However, in the case of the low profit representative farm, each scenario results in debt-to-asset ratios between 60 and 62 percent at the end of the forecast period. Put another way, the low profit representative farm might need a federal loan guarantee on new borrowing to be creditworthy by the end of the forecast period.

Tables 7-10 indicate the debt-to-asset ratios for high, average, and low profit farms in each of the production regions under each of the spending cap scenarios. Again, the low profit representative farm experiences a rise in its debt-to-asset ratio to a high of 68 percent in the WEST production region under the Conference scenario, and to 67 percent under the Administration scenario by the end of the forecast period.

Average Land Prices

Figure 6 indicates the average land price the North Dakota average profit representative farm would be willing to pay for farmland on which to produce wheat, barley, corn, soybeans, and sunflowers. Even under the Base scenario, the representative farm, on average, would be willing to pay about $46 less per acre at the end of the forecast period in 2003. Remember net farm income, on average, fell over the period for the representative farm, leaving it with less money to annually allocate to farmland. Land prices the representative farm, on average, would be willing to pay fell farthest under the Conference scenario, by $95.80 over the forecast period. Conversely, prices fell least under the Administration scenario, by $75.90 over the forecast period. The Grassley scenario resulted in land price falling by $90.38 per acre over the forecast period. Recall that land prices are adjusted in the representative farm model on the basis of a weighted four-year moving average of the money the representative farm has to allocate to farmland.

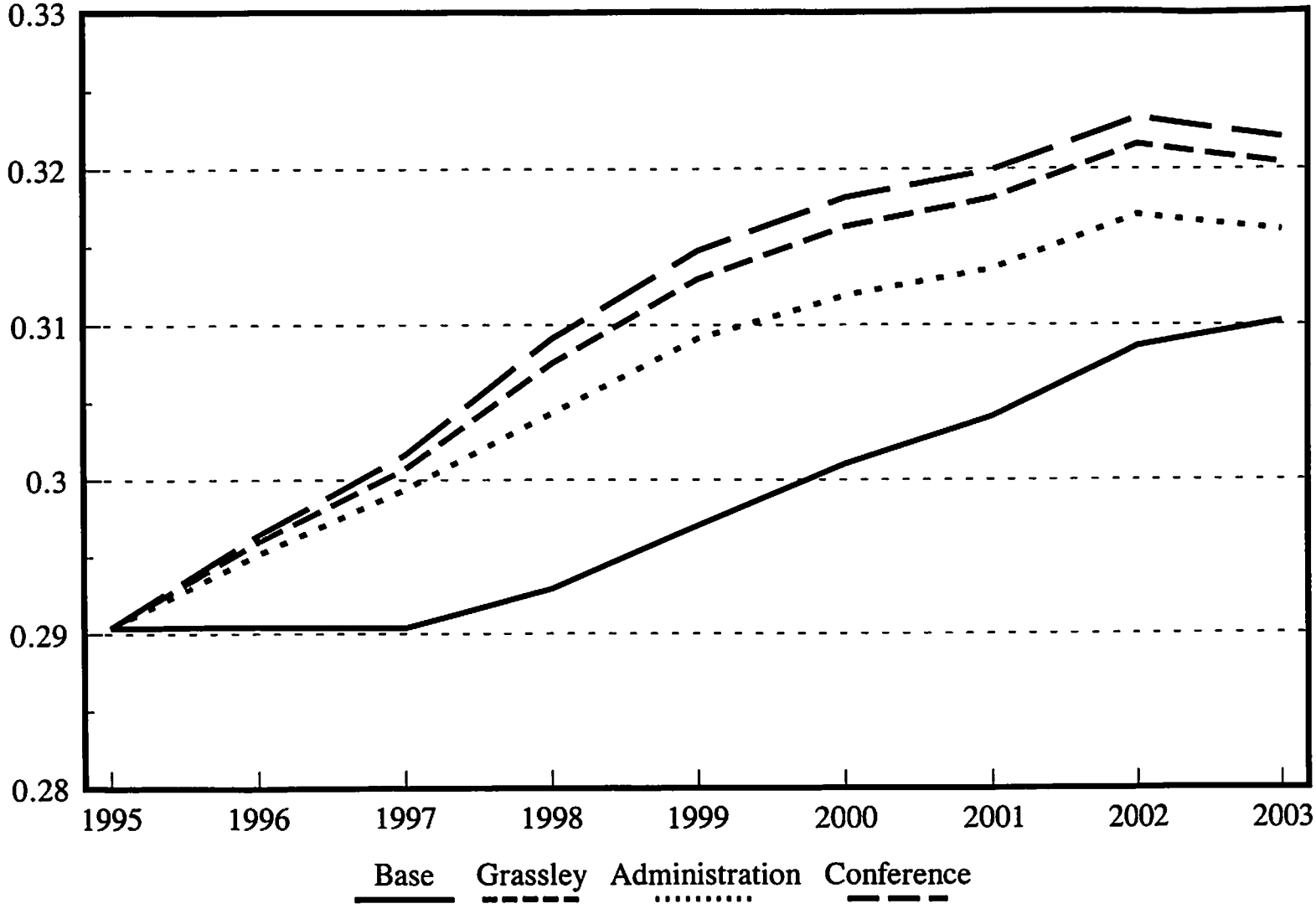


Figure 3. Debt/Asset ratio for High profit farms under the base and alternative farm policy scenarios

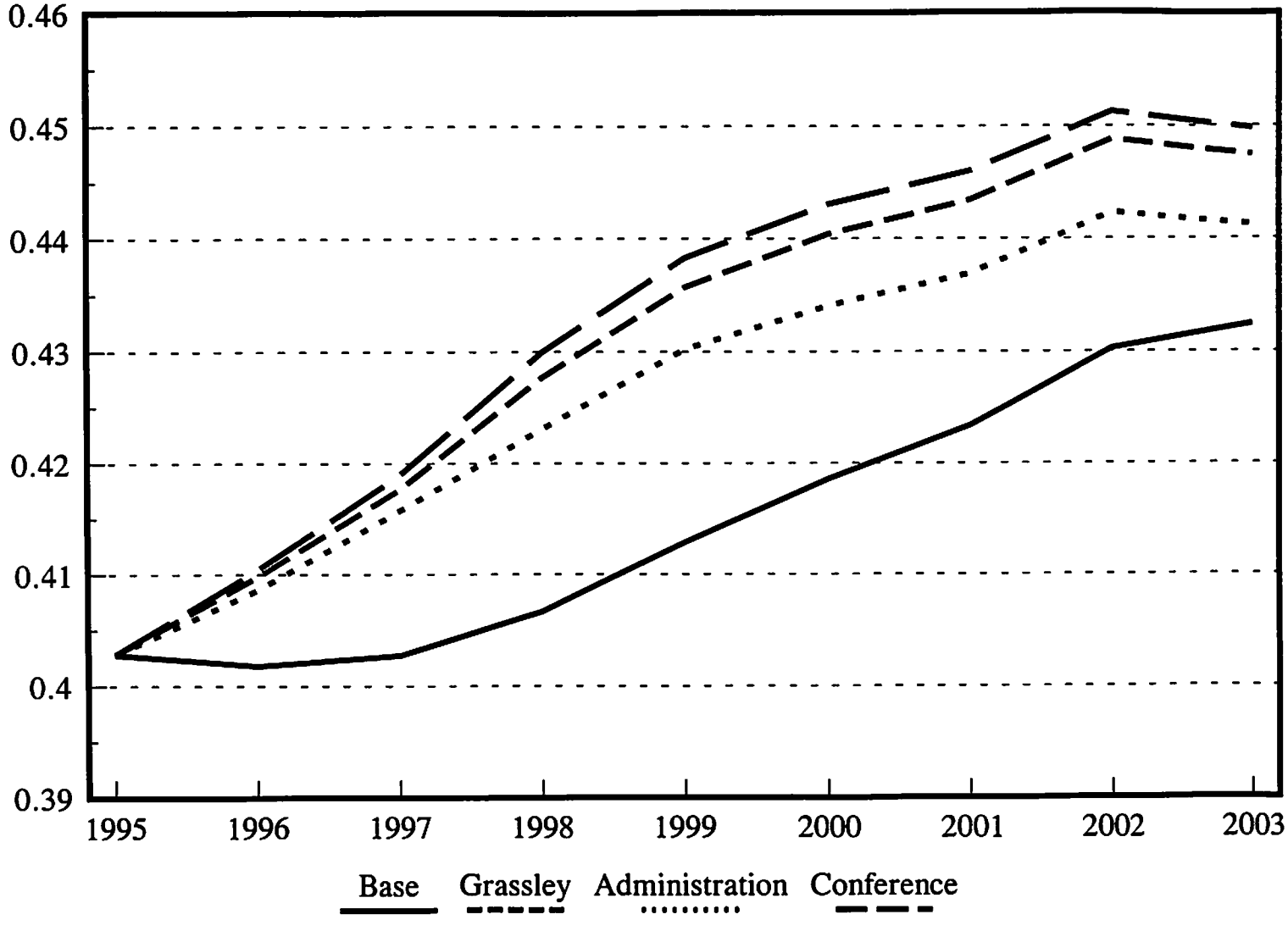


Figure 4. Debt/Asset ratio for Average profit farms under the base and alternative farm policy scenarios

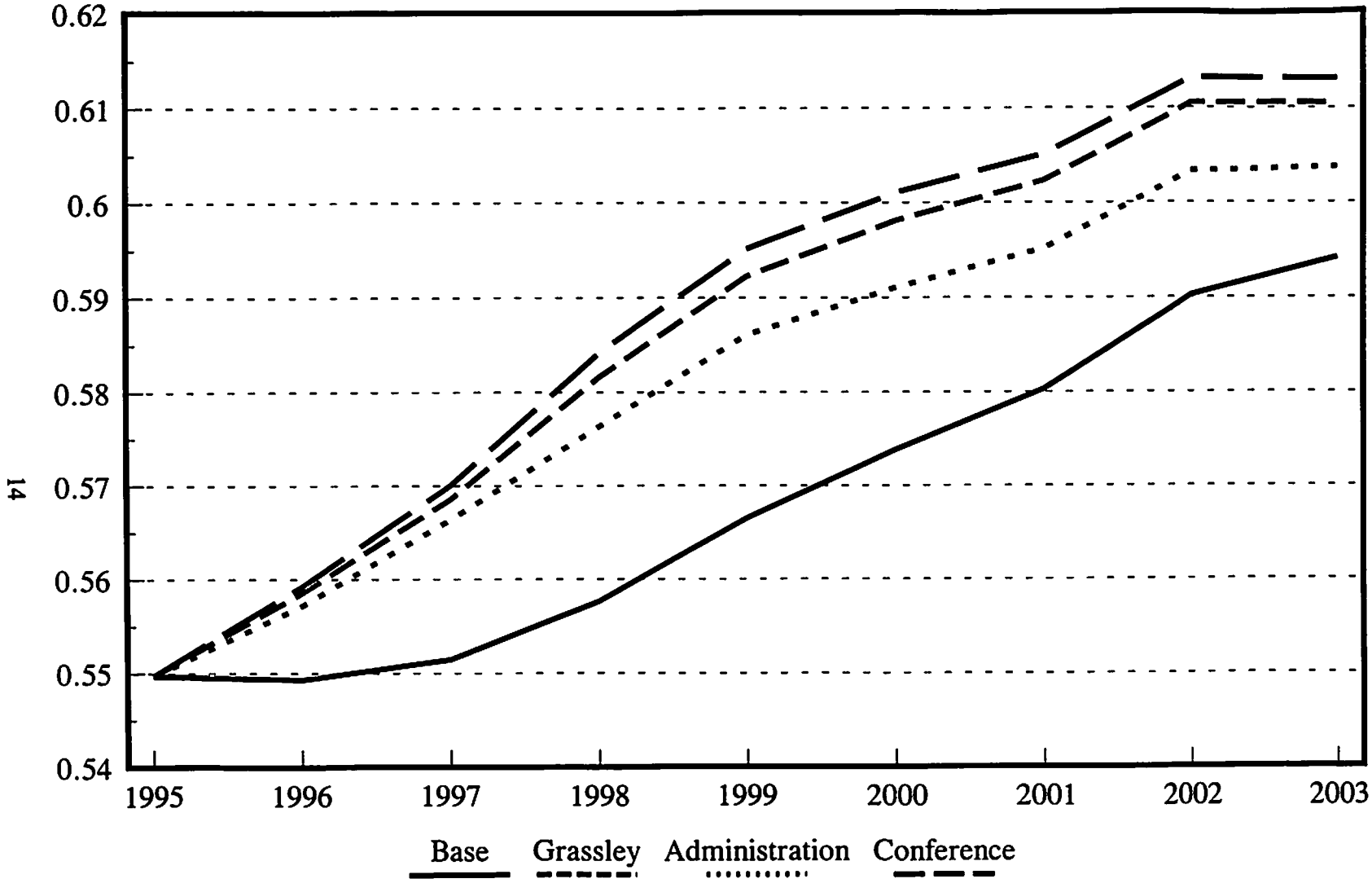


Figure 5. Debt/Asset ratio for Low profit farms under base and alternative farm policy scenarios

Table 7. North Dakota Debt-to-Asset Ratios Under Base Scenarios

Year	RRV	NC	SC	West	State
Average farms					
1995	0.444	0.351	0.392	0.423	0.403
1996	0.441	0.351	0.391	0.425	0.402
1997	0.440	0.352	0.392	0.427	0.403
1998	0.443	0.354	0.397	0.433	0.407
1999	0.449	0.356	0.406	0.440	0.413
2000	0.458	0.357	0.414	0.445	0.419
2001	0.463	0.358	0.420	0.452	0.423
2002	0.470	0.361	0.428	0.461	0.430
2003	0.469	0.360	0.440	0.461	0.432
Average (1996-2000)	0.446	0.354	0.400	0.434	0.409
High profit farms					
1995	0.285	0.253	0.279	0.344	0.290
1996	0.283	0.256	0.278	0.345	0.290
1997	0.282	0.254	0.278	0.348	0.290
1998	0.283	0.255	0.282	0.352	0.293
1999	0.287	0.256	0.288	0.357	0.297
2000	0.291	0.256	0.295	0.362	0.301
2001	0.294	0.257	0.299	0.367	0.304
2002	0.297	0.258	0.305	0.374	0.309
2003	0.296	0.258	0.313	0.374	0.310
Average (1996-2000)	0.285	0.255	0.284	0.353	0.294
Low profit farms					
1995	0.613	0.460	0.537	0.588	0.550
1996	0.610	0.461	0.536	0.591	0.549
1997	0.610	0.462	0.538	0.596	0.551
1998	0.615	0.466	0.546	0.605	0.558
1999	0.623	0.470	0.557	0.616	0.567
2000	0.631	0.472	0.567	0.626	0.574
2001	0.635	0.474	0.576	0.636	0.580
2002	0.643	0.478	0.588	0.652	0.590
2003	0.644	0.477	0.602	0.654	0.594
Average (1996-2000)	0.617	0.466	0.549	0.607	0.560

Table 8. North Dakota Debt-to-Asset Ratios Under the Administration Budget Proposal Scenario

Year	RRV	NC	SC	West	State
Average farms					
1995	0.444	0.351	0.392	0.423	0.403
1996	0.447	0.357	0.400	0.430	0.409
1997	0.452	0.363	0.410	0.438	0.416
1998	0.457	0.367	0.421	0.446	0.423
1999	0.464	0.370	0.433	0.454	0.430
2000	0.470	0.370	0.438	0.458	0.434
2001	0.473	0.369	0.442	0.464	0.437
2002	0.479	0.371	0.448	0.471	0.442
2003	0.477	0.369	0.448	0.471	0.441
Average (1996-2000)	0.458	0.365	0.420	0.446	0.422
High profit farms					
1995	0.285	0.253	0.279	0.344	0.290
1996	0.286	0.259	0.285	0.350	0.295
1997	0.289	0.260	0.292	0.356	0.299
1998	0.291	0.263	0.301	0.363	0.304
1999	0.295	0.264	0.309	0.369	0.309
2000	0.298	0.263	0.314	0.372	0.312
2001	0.299	0.263	0.316	0.376	0.314
2002	0.302	0.264	0.320	0.382	0.317
2003	0.301	0.263	0.319	0.382	0.316
Average (1996-2000)	0.292	0.262	0.300	0.362	0.304
Low profit farms					
1995	0.613	0.460	0.537	0.588	0.550
1996	0.616	0.468	0.546	0.599	0.557
1997	0.620	0.477	0.558	0.610	0.566
1998	0.626	0.484	0.572	0.623	0.576
1999	0.634	0.489	0.586	0.636	0.586
2000	0.639	0.489	0.593	0.643	0.591
2001	0.641	0.488	0.599	0.652	0.595
2002	0.647	0.491	0.609	0.666	0.603
2003	0.647	0.490	0.610	0.668	0.604
Average (1996-2000)	0.627	0.481	0.571	0.622	0.575

Table 9. North Dakota Debt-to-Asset Ratios Under the Senate/House Budget Proposal Scenario

Year	RRV	NC	SC	West	State
Average farms					
1995	0.444	0.351	0.392	0.423	0.403
1996	0.449	0.358	0.403	0.432	0.410
1997	0.454	0.365	0.415	0.441	0.419
1998	0.463	0.373	0.431	0.452	0.430
1999	0.471	0.377	0.445	0.461	0.438
2000	0.478	0.377	0.452	0.466	0.443
2001	0.480	0.376	0.456	0.471	0.446
2002	0.486	0.378	0.462	0.479	0.451
2003	0.484	0.375	0.462	0.478	0.450
Average (1996-2000)	0.463	0.370	0.429	0.450	0.428
High profit farms					
1995	0.285	0.253	0.279	0.344	0.290
1996	0.287	0.260	0.287	0.351	0.296
1997	0.290	0.262	0.296	0.358	0.302
1998	0.295	0.266	0.308	0.367	0.309
1999	0.299	0.268	0.319	0.374	0.315
2000	0.302	0.267	0.325	0.378	0.318
2001	0.304	0.267	0.327	0.382	0.320
2002	0.306	0.268	0.331	0.388	0.323
2003	0.304	0.266	0.330	0.387	0.322
Average (1996-2000)	0.295	0.265	0.307	0.366	0.308
Low profit farms					
1995	0.613	0.460	0.537	0.588	0.550
1996	0.617	0.470	0.549	0.601	0.559
1997	0.623	0.480	0.563	0.614	0.570
1998	0.632	0.492	0.583	0.631	0.584
1999	0.639	0.497	0.599	0.645	0.595
2000	0.644	0.498	0.608	0.653	0.601
2001	0.646	0.498	0.614	0.662	0.605
2002	0.652	0.501	0.624	0.676	0.613
2003	0.651	0.499	0.626	0.677	0.613
Average (1996-2000)	0.631	0.488	0.580	0.629	0.582

Table 10. North Dakota Debt-to-Asset Ratios Under Grassley Proposal Scenario

Year	RRV	NC	SC	West	State
Average farms					
1995	0.444	0.351	0.392	0.423	0.403
1996	0.448	0.358	0.402	0.431	0.410
1997	0.453	0.364	0.413	0.440	0.418
1998	0.461	0.371	0.428	0.450	0.428
1999	0.468	0.375	0.441	0.459	0.436
2000	0.475	0.375	0.448	0.464	0.440
2001	0.478	0.374	0.452	0.469	0.443
2002	0.484	0.376	0.458	0.477	0.449
2003	0.482	0.373	0.458	0.476	0.447
Average (1996-2000)	0.461	0.369	0.426	0.449	0.426
High profit farms					
1995	0.285	0.253	0.279	0.344	0.290
1996	0.287	0.260	0.286	0.351	0.296
1997	0.290	0.261	0.294	0.358	0.301
1998	0.294	0.265	0.306	0.366	0.308
1999	0.297	0.266	0.316	0.372	0.313
2000	0.301	0.266	0.322	0.376	0.316
2001	0.302	0.266	0.324	0.380	0.318
2002	0.305	0.267	0.328	0.386	0.322
2003	0.303	0.265	0.327	0.386	0.320
Average (1996-2000)	0.294	0.264	0.305	0.365	0.307
Low profit farms					
1995	0.613	0.460	0.537	0.588	0.550
1996	0.617	0.470	0.548	0.600	0.559
1997	0.622	0.479	0.561	0.612	0.569
1998	0.630	0.489	0.579	0.628	0.582
1999	0.638	0.495	0.595	0.642	0.592
2000	0.643	0.495	0.604	0.650	0.598
2001	0.644	0.495	0.610	0.659	0.602
2002	0.651	0.498	0.620	0.673	0.610
2003	0.650	0.496	0.621	0.675	0.611
Average (1996-2000)	0.630	0.486	0.577	0.627	0.580

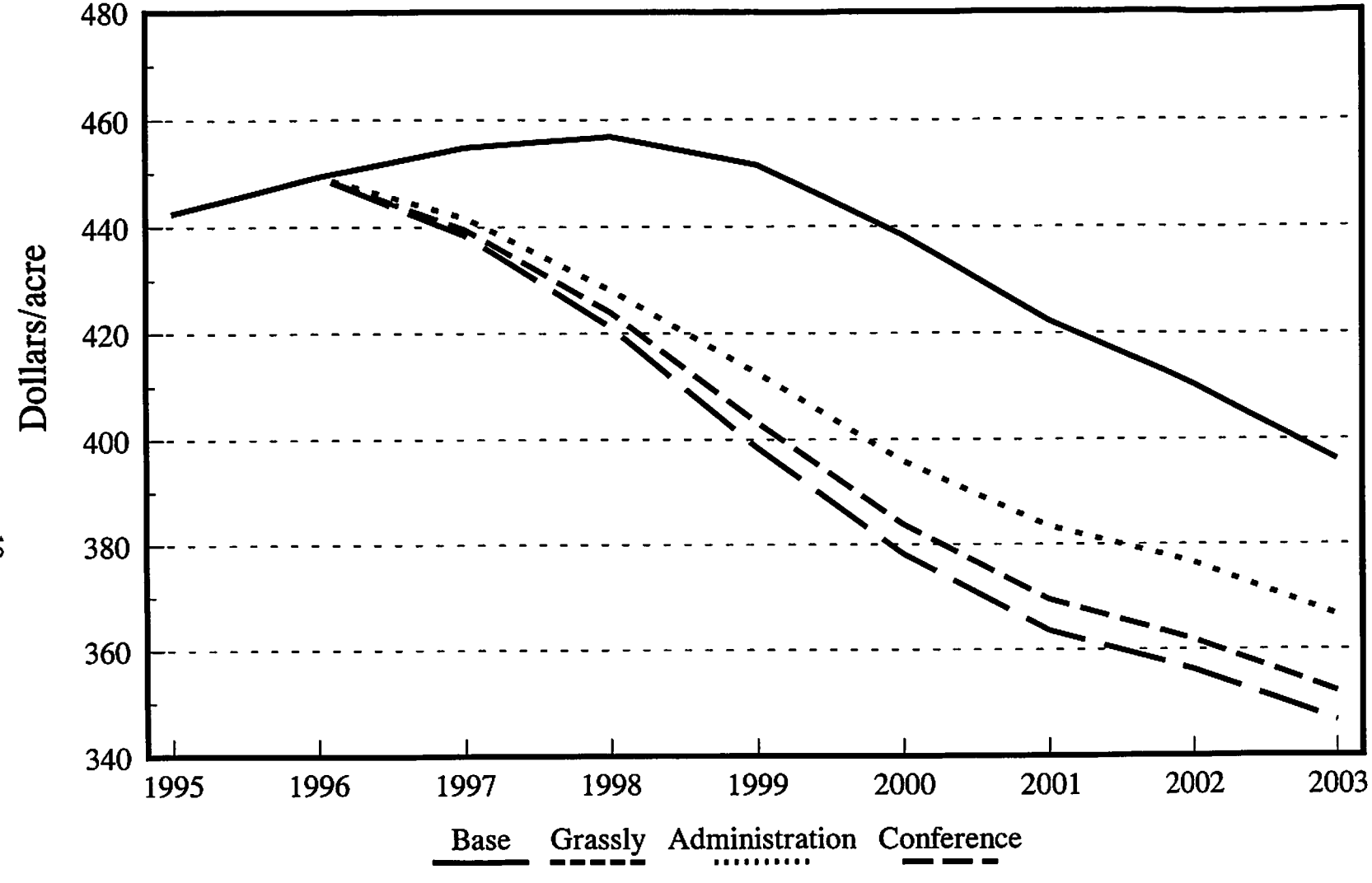


Figure 6. Average prices of cropland under the base and alternative farm policy scenarios

Table 11 indicates the decline in farmland prices the average profit representative farm would be willing to pay under the Base scenario and the other scenarios. Farmland prices fall in each production region under each scenario, including the Base scenario.

Table 11. Land Prices Under Base and Alternative Farm Program Scenarios

	RRV	NC	SC	WEST	State Average
	dollars/acre				
Base					
1995	736.33	367.97	399.89	265.50	442.42
1996	744.35	374.20	407.52	271.57	449.41
1997	758.80	376.25	412.66	271.74	454.86
1998	767.35	376.84	413.76	269.25	456.80
1999	763.09	374.44	406.59	261.93	451.51
2000	741.83	370.20	390.29	250.89	438.30
2001	703.86	368.22	375.55	241.43	422.27
2002	678.01	367.45	364.25	231.61	410.33
2003	649.80	364.28	351.29	218.99	396.09
Average (1996-2000)	755.08	374.38	406.16	265.08	450.18

	RRV	NC	SC	WEST	State Average
	dollars/acre				
Grassley					
1995	736.33	367.97	399.89	265.50	442.42
1996	744.35	374.20	407.52	271.57	449.41
1997	735.88	365.71	394.01	262.32	439.48
1998	718.18	354.09	373.97	249.33	423.89
1999	691.18	340.80	348.01	232.72	403.18
2000	660.39	332.21	324.49	218.23	383.83
2001	623.97	331.43	312.38	210.31	369.52
2002	603.69	333.61	306.44	203.67	361.85
2003	581.05	333.67	299.18	194.29	352.05
Average (1996-2000)	710.00	353.40	369.60	246.83	419.96

(Continued)

Table 11. (Continued)

	RRV	NC	SC	WEST	State Average
	----------dollars/acre----------				
Administration					
1995	736.33	367.97	399.89	265.50	442.42
1996	744.35	374.20	407.52	271.57	449.41
1997	739.24	367.26	396.75	263.70	441.74
1998	724.44	356.98	379.03	251.87	428.08
1999	705.02	347.30	359.31	238.35	412.49
2000	678.36	340.60	339.01	225.43	395.85
2001	645.16	341.16	329.06	218.52	383.48
2002	626.21	343.84	323.91	212.09	376.51
2003	603.68	343.73	316.30	202.39	366.52
Average (1996-2000)	718.28	357.27	376.32	250.18	425.51

	RRV	NC	SC	WEST	State Average
	----------dollars/acre----------				
Conference					
1995	736.33	367.97	399.89	265.50	442.42
1996	744.35	374.20	407.52	271.57	449.41
1997	734.22	364.95	392.66	261.63	438.36
1998	714.10	352.20	370.67	247.68	421.16
1999	684.15	337.50	342.28	229.86	398.45
2000	651.93	328.26	317.65	214.84	378.17
2001	614.99	327.29	305.28	206.82	363.59
2002	594.88	329.60	299.59	200.36	356.11
2003	572.58	329.90	292.77	191.25	346.63
Average (1996-2000)	705.75	351.42	366.16	245.12	417.11

Cash Rental Rates

Figure 7 indicates cash rental rates the average representative farm would be willing to pay for farmland on which to produce wheat, barley, corn, soybeans, and corn, are lower at the end of the forecast period in 2003 for the Base scenario by less than $3 per acre, after having first increased by about $1 per acre. Under the Conference scenario, the cash rental rate falls by $7.33 to $29.90 by the end of the forecast period. Under the Administration scenario, the cash rental rate falls by $5.69 to $31.54 by the end of the forecast period. The Grassley scenario results in a fall of about $6.85 to $30.38 by the end of the forecast period. Recall that cash rental rates in the representative farm model are based on a three-year moving average of farmland prices and an assumption that the representative farm does not change the proportion of farmland value paid in cash rent.

Table 12 indicates the cash rental rates the average profit representative farm would be willing to pay under the Base scenario and each of the other spending cap scenarios. Cash rental rates fall in all production regions under all scenarios, except for the NC and SC production regions under the Base scenario where rates increase a few cents per acre by the end of the forecast period. Under the Base scenario, cash rental rates fall by slightly less than 9 percent in the RRV and WEST production regions. Under the Conference scenario, cash rental rates fall by just under 17.3 and 20.4 percent, respectively, in the RRV and WEST production regions by 2003. Under the Administration scenario, cash rental rates fall by 15.5 and 19.2 percent, respectively, in the RRV and WEST production regions by 2003. The Grassley scenario results in rental rate declines between the Conference and Administration scenarios.

Conclusion

The farm program scenarios evaluated in these analyses are much less severe in their impact on the North Dakota representative farms than were the previous scenarios evaluated in a study by Koo, Duncan, Taylor, and Aakre. Moreover, it seems likely that the Conference and Administration scenarios may now represent the range of likely outcomes for farm program spending under the next farm bill.

Net farm income under the scenarios evaluated is forecast to fall to levels several thousand dollars below the Base scenario by 1998. Net farm income is forecast to rise after that to end the forecast period. In 2003, the differences among net farm income under the four farm program scenarios range from less than $1,000 below the Base scenario.

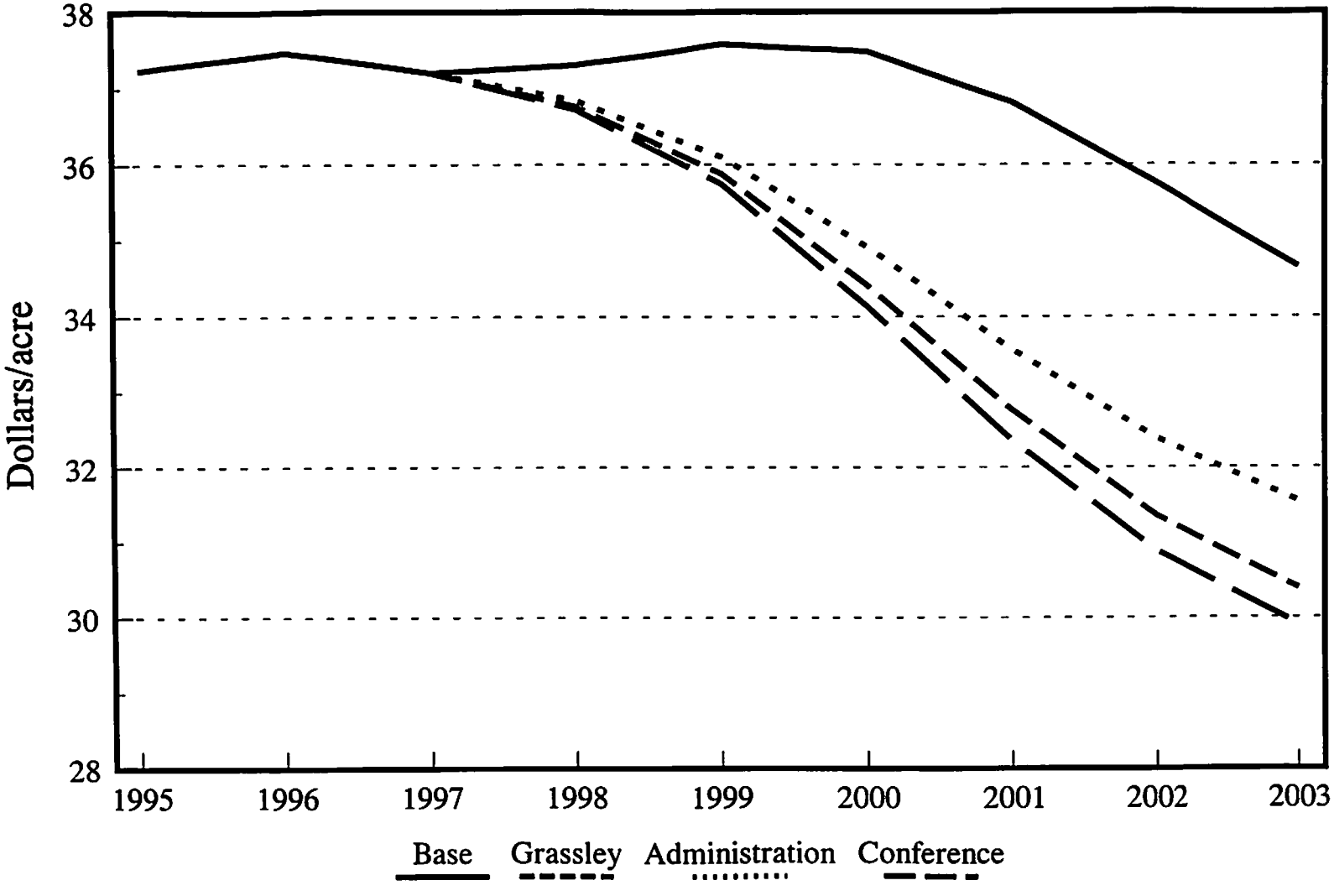


Figure 7. Cash rent paid by North Dakota farmers for the base and alternative scenarios

Table 12. Cash Rent Under the Base and Alternative Scenarios for North Dakota Farms in the Analysis

	RRV	NC	SC	WEST	State
	dollars/acre				
Base					
1995	55.29	29.34	33.42	30.89	37.24
1996	54.12	29.32	35.36	31.09	37.47
1997	53.16	29.52	34.82	31.32	37.21
1998	52.48	29.68	35.37	31.68	37.30
1999	53.21	29.91	35.64	31.55	37.58
2000	53.65	29.92	35.38	30.98	37.48
2001	53.25	29.76	34.37	29.91	36.82
2002	51.76	29.53	33.03	28.71	35.76
2003	49.77	29.34	31.91	27.59	34.65
Average % Change (1996-2003)	-8.04	0.07	-9.76	-11.27	-7.53

	RRV	NC	SC	WEST	State
	dollars/acre				
Grassley					
1995	55.29	29.34	33.42	30.89	37.24
1996	54.12	29.32	35.36	31.09	37.47
1997	53.16	29.52	34.82	31.32	37.21
1998	51.94	29.40	34.57	31.14	36.76
1999	51.52	29.03	33.12	29.84	35.88
2000	50.27	28.14	31.14	28.11	34.42
2001	48.50	27.25	29.00	26.30	32.76
2002	46.29	26.65	27.47	24.99	31.35
2003	44.24	26.46	26.69	24.14	30.38
Average % Change (1996-2003)	-18.24	-9.76	-24.52	-22.35	-18.92

(Continued)

Table 12. Continued

	RRV	NC	SC	WEST	State
	----------dollars/acre----------				
Administration					
1995	55.29	29.34	33.42	30.89	37.24
1996	54.12	29.32	35.36	31.09	37.47
1997	53.16	29.52	34.82	31.32	37.21
1998	52.02	29.44	34.69	31.22	36.84
1999	51.74	29.15	33.46	30.07	36.10
2000	50.82	28.43	31.84	28.59	34.92
2001	49.39	27.73	30.12	27.05	33.57
2002	47.54	27.31	28.81	25.89	32.39
2003	45.69	27.21	28.16	25.11	31.54
Average % Change (1996-2003)	-15.57	-7.20	-20.35	-19.23	-15.82

	RRV	NC	SC	WEST	State
	----------dollars/acre----------				
Conference					
1995	55.29	29.34	33.42	30.89	37.24
1996	54.12	29.32	35.36	31.09	37.47
1997	53.16	29.52	34.82	31.32	37.21
1998	51.90	29.38	34.51	31.10	36.72
1999	51.38	28.96	32.92	29.70	35.74
2000	49.97	27.98	30.75	27.85	34.14
2001	48.04	27.01	28.46	25.93	32.36
2002	45.72	26.35	26.87	24.59	30.88
2003	43.63	26.14	26.09	23.75	29.90
Average % Change (1996-2003)	-19.38	-10.86	-26.22	-23.62	-20.21

Both farmland prices and cash rental rates fall under the alternatives evaluated by 2003. But, they also fall under the Base scenario. The declines in farmland prices forecast range from about 9 percent under the Base scenario to about 16 percent under the Administration scenario to about 20 percent under the Conference scenario. Cash rental rates fall by about 7.5 percent under the Base scenario, to about 17 percent under the Administration scenario, and to about 16 percent under the Conference scenario.

Only in the case of the low profit representative farm, does the debt-to-asset ratio rise above 60 percent. The survivability of the high profit and average profit representative farms based on changes in debt-to-asset ratios, is not jeopardized, as compared to the Base scenario by the proposed farm policy alternatives evaluated.

In summary, the high profit and average profit representative farms will not be seriously impacted by any of the farm bill scenarios evaluated. The low profit representative farm will, however, face a substantial challenge to its financial viability under all of the farm bill scenarios evaluated.

cjj/fmbil395.wpd