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ECONOMIC IMPACT OF ALTERNATIVE FARM PROGRAM SCENARIOS ON THE NORTH DAKOTA ECONOMY

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Executive Summary

The results reported here are from an analysis of the North Dakota economy based on the impact of specified farm program changes on a set of representative farms. These representative farms are developed from records of a group of farmers participating in the North Dakota Farm and Ranch Business Management Association records program.

The **Base Case** scenario results in total economic activity increase from $9.507 billion in 1995 to $10.051 billion in 2000 and employment growth of 2,211 jobs.

The **No Farm Program** scenario results in an average economic activity decrease of 18.2 percent from the base case for the 1996-2000 period.

The **Marketing Loan** scenario results in an average economic activity decrease of 10.9 percent from the base case for the 1996-2000 period.

The **Revenue Assurance** scenario results in an average economic activity decrease of 8.7 percent from the base case for the 1996-2000 period.

The **Lugar** scenario results in an average economic activity decrease of 6.9 percent from the base case for the 1996-2000 period.

The **Grassley** scenario results in an average economic activity decrease of 3.3 percent from the base case for the 1996-2000 period.

The **No Farm Program** scenario results in an average employment reduction of 15,909 jobs from the base case for the 1996-2000 period.

The **Marketing Loan** scenario results in an average employment reduction of 11,098 jobs from the base case for the 1996-2000 period.

The **Revenue Assurance** scenario results in an average employment reduction of 10,001 jobs from the base case for the 1996-2000 period.

The **Lugar** scenario results in an average employment reduction of 11,035 jobs from the base case for the 1996-2000 period.

The **Grassley** scenario results in an average employment reduction of 2,969 jobs from the base case for the 1996-2000 period.

Economic Impact of Alternative Farm Program Scenarios on the North Dakota Economy

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The objective of this analysis was to evaluate the impact of alternative farm programs on the North Dakota economy.

The alternative farm programs considered in this study were those considered in the 1995 FAPRI analysis plus Senator Lugar's and Senator Grassley's proposals. The alternative scenarios are summarized as follows:

1. No Farm Program (No Program) - Eliminate target prices, loan rates, export enhancement programs, sunflower and cottonseed oil assistance programs, dairy export incentive program, and dairy program. This option eliminates all federal programs that involve direct spending to support agricultural sector income. The option also eliminates acreage reduction program authority and the 0/85 or 92 and 50/85 options.

2. Marketing Loan Program (Marketing Loan) - Eliminate target prices, loan rates, ARP authority, and 0/85 or 92 and 50/85 options. Replace them with nonrecourse marketing loans with loan rates set in proportion to the current target prices. The export enhancement program is eliminated. Dairy and other programs operate under current law.

3. Revenue Assurance Program (Revenue Assurance) - Eliminate target prices, loan rates, ARP authority, and 0/85 or 92 and 50/85 options. Replace them with a program that ensures producer revenues at 70% of gross revenue calculated by multiplying the 5-year moving average posted county price (or equivalent) by a producer's 5-year average yields. In addition, producers are provided decoupled transition payments of 80% of historical deficiency payments based on the 1990 farm program in 1996, 60% in 1997, 40% in 1998, 20% in 1999, and 0% in 2000. This program maintains export enhancement programs. Dairy and other programs are the same as under current law.

4. Lugar's Target Price Program (Lugar) - This program is the same as the present program except for reducing target prices. Target prices decline by 15% over the 5-year period, 3% annually. At the end of the fifth year, the target prices remain at the reduced level.

5. Senator Grassley's Proposal Scenario (Grassley) - Reduce spending for government farm program from the 1995 approved outlay of $14 billion to levels that would achieve a savings of $9.68 billion over a seven-year period beginning in 1996.

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Method

The secondary and total (direct plus secondary) economic impacts of the alternative farm program scenarios were estimated using the North Dakota Input-Output Model (Coon et al. 1989). The results of the North Dakota Representative Farm and Ranch Model (Koo et al. 1995, Duncan et al. 1995) were used as inputs for the North Dakota Input-Output Model. The North Dakota Representative Farm and Ranch Model estimates the gross farm income for 12 representative farms in 4 regions across the state. To conduct this analysis total crop sector receipts were calculated from gross farm income in each region for each scenario during the period of 1995-2003. Total crop sector receipts were based on scaling up of representative farms' income. Total cropland acres (1992 Census of Agriculture) in each region were divided by representative farm size to estimate the number of average profit farms needed to cover each of the 4 regions. That number was multiplied by gross farm income to estimate gross agricultural income in each region. Gross income from livestock was removed to estimate total crop sector receipts. The input-output model was applied to these values to estimate the total economic impacts of changes in crop sector revenues.

Total Economic Impact

The **Base Case** scenario serves as the basis for comparison for other scenarios. In 1995 the **Base Case** scenario resulted in total crop sector revenues of about $2.58 billion, increasing to about $2.83 billion in 2003 (Table 1). The 1995 level of crop sector receipts resulted in a total economic impact (summation of gross receipts of all sectors) of $9.5 billion (Table 2). Thus, the initial $2.58 billion of crop sector receipts resulted in secondary impacts in other economic sectors that totaled about $6.9 billion. Sectors with substantial impacts included ***households*** with a secondary impact of $2.5 billion, which reflects the change in personal income attributable to the agricultural crops sector revenues, and **retail trade** with a secondary impact of $2.1 billion. The 1995 **Base Case** scenario also resulted in total employment of about 96,720 resulting directly and indirectly from ***agricultural crops*** sector revenues (Table 3). This was comprised of about 35,660 direct on-farm jobs (i.e., farm operators and hired workers) and about 61,060 jobs created in other sectors of the North Dakota economy.

Table 1. Total Crop Sector Receipts (Crop Sales plus Government Payments), North Dakota, 1995-2003, with Alternative Farm Program Scenarios

Year	Base	No Farm Program	Marketing Loan	Revenue Assurance	Lugar	Grassley
	----------million dollars----------					
1995	2,579.74	2,579.45	2,580.95	2,580.55	2,579.45	2,579.74
1996	2,608.47	2,113.28	2,323.51	2,489.45	2,531.45	2,541.69
1997	2,629.64	2,104.81	2,347.48	2,393.53	2,501.59	2,536.83
1998	2,655.92	2,167.31	2,371.58	2,400.42	2,474.02	2,548.74
1999	2,690.91	2,223.43	2,395.82	2,415.22	2,452.91	2,597.72
2000	2,727.38	2,288.82	2,421.42	2,451.68	2,423.17	2,645.55
2001	2,761.03	2,347.75	2,453.00	2,505.57	2,347.75	2,686.39
2002	2,802.20	2,401.93	2,486.02	2,568.72	2,399.06	2,733.03
2003	2,833.29	2,467.90	2,518.99	2,648.88	2,467.90	2,780.13
	----------percent change from base----------					
1995	..	0	0	0	0	0
1996	..	(18.98)	(10.92)	(4.56)	(2.95)	(2.56)
1997	..	(19.96)	(10.73)	(8.98)	(4.87)	(3.53)
1998	..	(18.40)	(10.71)	(9.62)	(6.85)	(4.04)
1999	..	(17.37)	(10.97)	(10.25)	(8.84)	(3.46)
2000	..	(16.08)	(11.22)	(10.11)	(11.15)	(3.00)
2001	..	(14.97)	(11.16)	(9.25)	(14.97)	(2.70)
2002	..	(14.28)	(11.28)	(8.33)	(14.39)	(2.47)
2003	..	(12.90)	(11.09)	(6.51)	(12.90)	(1.88)
Average (1996-2000) % Change		(18.16)	(10.91)	(8.70)	(6.93)	(3.32)

Numbers in parentheses are negative.

Table 2. Total Economic Activities Associated with Agriculture Crop Sector in North Dakota, 1995-2003, with Alternative Farm Program Scenarios

Year	Base	No Farm Program	Marketing Loan	Revenue Assurance	Lugar	Grassley
	million dollars					
1995	9,507	9,506	9,511	9,510	9,506	9,507
1996	9,612	7,788	8,562	9,174	9,329	9,366
1997	9,691	7,756	8,650	8,820	9,219	9,348
1998	9,787	7,987	8,740	8,846	9,117	9,392
1999	9,916	8,194	8,829	8,900	9,039	9,573
2000	10,051	8,435	8,923	9,035	8,930	9,749
2001	10,175	8,652	9,040	9,233	8,652	9,900
2002	10,326	8,851	9,161	9,466	8,841	10,071
2003	10,441	9,094	9,283	9,761	9,094	10,245
	percent change from base					
1995	..	0.00	0.00	0.00	0.00	0.00
1996	..	(18.98)	(10.92)	(4.56)	(2.94)	(2.54)
1997	..	(19.97)	(10.74)	(8.99)	(4.87)	(3.54)
1998	..	(18.39)	(10.70)	(9.61)	(6.85)	(4.04)
1999	..	(17.37)	(10.96)	(10.25)	(8.84)	(3.46)
2000	..	(16.08)	(11.22)	(10.11)	(11.15)	(3.00)
2001	..	(14.97)	(11.15)	(9.26)	(14.97)	(2.70)
2002	..	(14.28)	(11.28)	(8.33)	(14.38)	(2.47)
2003	..	(12.90)	(11.09)	(6.51)	(12.90)	(1.88)
Average (1996-2000) % Change		(18.16)	(10.91)	(8.70)	(6.93)	(3.32)

Numbers in parentheses are negative.

Table 3. Total Employment Associated with Agricultural Crop Sector in North Dakota, 1995-2003, with Alternative Farm Program Scenarios

Year	Base	No Farm Program	Marketing Loan	Revenue Assurance	Lugar	Grassley
1995	96,718	96,709	96,766	96,751	96,709	96,718
1996	97,120	78,681	86,509	92,688	94,252	94,632
1997	97,248	77,838	86,813	88,512	92,510	93,814
1998	97,571	79,622	87,124	88,184	90,888	93,633
1999	98,221	81,158	87,449	88,157	89,535	94,821
2000	98,929	83,020	87,831	88,928	87,894	95,960
2001	99,539	84,634	88,429	90,326	84,634	96,845
2002	100,413	86,070	89,085	92,047	85,966	97,937
2003	100,934	87,918	89,736	94,364	87,918	99,042
	----------	----------	numerical change from base	----------	----------	----------
1995	..	(9)	48	33	(9)	0
1996	..	(18,439)	(10,611)	(4,432)	(2,868)	(2,488)
1997	..	(19,410)	(10,435)	(8,736)	(4,738)	(3,434)
1998	..	(17,949)	(10,447)	(9,387)	(6,683)	(3,938)
1999	..	(17,063)	(10,772)	(10,064)	(8,686)	(3,400)
2000	..	(15,909)	(11,098)	(10,001)	(11,035)	(2,969)
2001	..	(14,905)	(11,110)	(9,213)	(14,905)	(2,694)
2002	..	(14,343)	(11,328)	(8,366)	(14,447)	(2,476)
2003	..	(13,016)	(11,198)	(6,570)	(13,016)	(1,892)
Average (1996-2000) Change		(17,754)	(10,673)	(8,524)	(6,802)	(3,246)

Numbers in parentheses are negative.

The **Base Case** scenario results in moderate increases in direct and secondary impacts of the ***agricultural crops*** sector over the period 1995-2000. The total economic impact increases from $9.5 billion in 1995 to $10.1 billion in 2000 and $10.4 billion in 2003 (Table 2). Total employment associated with ***agricultural crops*** sector impacts increases from 96,718 in 1995 to 98,929 in 2000 to 100,934 in 2003 (Table 3). This estimate suggests that increasing secondary employment is sufficient to more than offset any decline in direct on-farm employment during this period.

The changes in crop sector receipts and total economic activity resulting from the five alternative farm program scenarios are shown in Tables 1 and 2, respectively, and compared with corresponding values for the **Base Case** scenario. The **No Farm Program** scenario results in the largest impacts. Under this alternative, total economic activity decreases 20 percent from the base case in 1997, and the average decrease for the period 1996-2000 is 18.2 percent. The **Marketing Loan** alternative resulted in the next largest impact, a decline in total economic activity of 10.9 percent for the period 1996-2000. The **Grassley** alternative resulted in the smallest impact. The average reduction in total economic activity was 3.2%. The other two alternatives resulted in impacts between these two alternatives.

Figure 1 shows the total economic impact of the **Base Case** and alternative farm bill scenarios. After the initial shock of 1996 and 1997 all scenarios except the **Lugar** scenario experience a return to growth in total economic activity but at a lower level than the **Base Case**.

The employment impacts of the alternative scenarios were similar in percentage terms to the impacts on total economic activity. The resulting job losses would be substantial, particularly under the **No Farm Program** alternative (Table 3). In 1997, the **No Farm Program** scenario results in a decrease of about 19,410 jobs compared to the base case. The **Grassley** alternative resulted in a decrease of 3,434 in 1997.

Figure 2 shows the total employment decrease for the **Base Case** and alternative farm bill scenarios. Similarly, total employment begins to increase after 1997 for all scenarios except the **Lugar** and **Marketing Loan** scenarios.

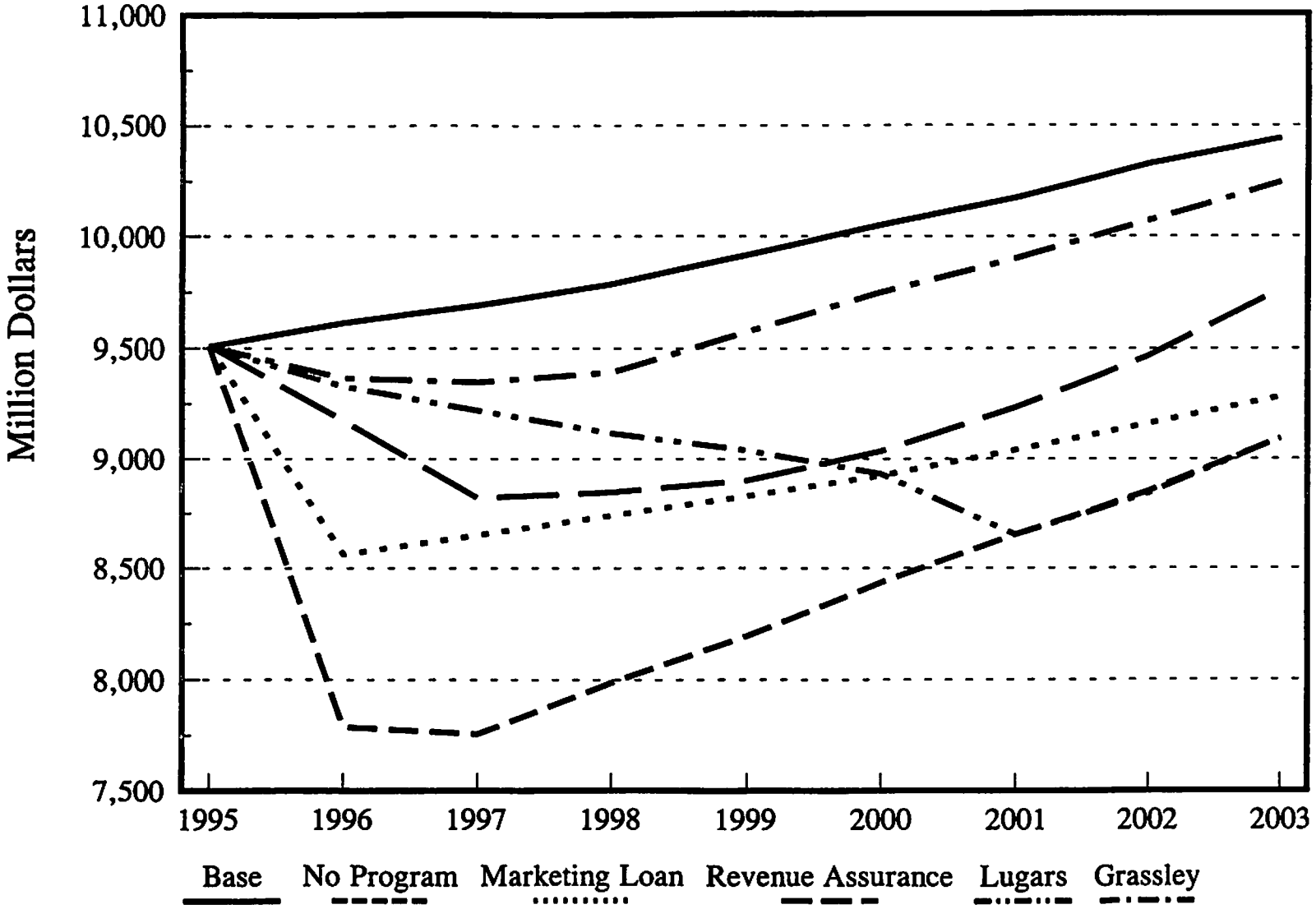

Figure 1. Total Economic Activity Associated with Agriculture Crops Sector in North Dakota, 1995-2003, with Alternative Farm Program Scenarios

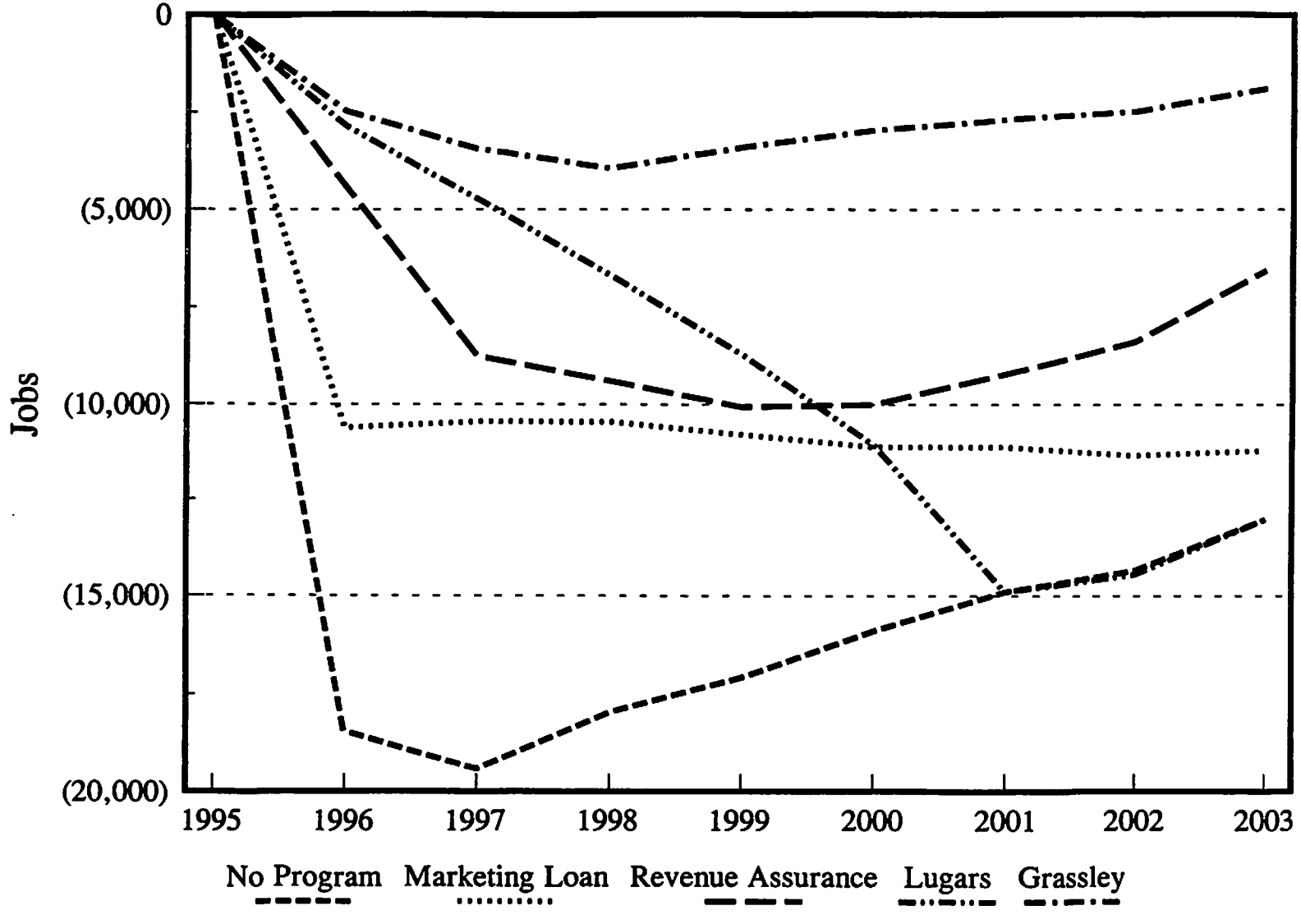

Figure 2. Total Employment Decrease with Agriculture Crops Sector in North Dakota, 1995-2003, with Alternative Farm Program Scenarios