

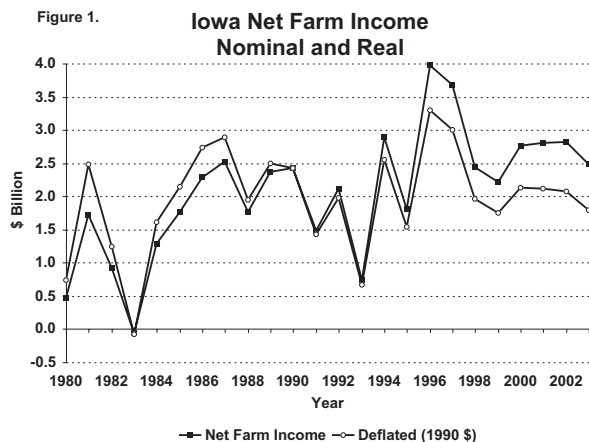
Are Iowa's Commercial Farm Businesses Ready for the Competition?

Background

The year 1998 reminded everybody involved in food and fiber production that agriculture has a downside. Prices for all of Iowa's major commodities, save milk, were down sharply from the previous year. As happened in 1994, the pork industry ran headlong into a slaughter capacity constraint and for a few weeks late in 1998 experienced the lowest prices for its product in decades. The federal government responded in its usual fashion by increasing crop-related subsidies through its feed grain apparatus. In addition an obscure farm program provision, the loan deficiency payment, kicked in and pumped additional money into the checking accounts of some corn and soybean growers. The federal farm program payments, estimated to be around \$1.2 billion for Iowa farmers in 1998, took the edge off the potential drop in farm income. But increased subsidies did little to assuage farmers' concerns about their ability to compete in a market with basic commodities at prices averaging below those received over the past decade or so.

For the agricultural sector in Iowa, 1998 net farm income is estimated to be down 30 percent from a year earlier. For individual producers, particularly those with narrow profit margins, the percentage decline in net farm income can be much greater—100–200 percent would not be unusual. In fairness, however, 1996 and 1997 were extremely high income years. Consequently part of the shock induced by 1998 is simply the result of the contrast with the preceding two years. In fact, the aggregate farm income measure for Iowa was down only slightly

from the previous five-year average. As shown in figure 1, however, sectoral-level farm income has followed a boom and bust pattern with downturns lasting only a year or two before a sharp recovery. The concern many Iowa farmers



and farm leaders are now expressing is that economic conditions over the next few years may limit the likelihood that a sharp recovery will rescue struggling operations. The forecasts shown in figure 1 suggest that several years of slowly increasing nominal income seem likely. However, forecasts, at best, give us information on fundamental trends. Reality usually gives us a much bumpier ride than any prediction.

The short-term decline in prices can largely be attributed to basic supply and demand fundamentals. Global agricultural production capacity for both crops and livestock has outstripped demand growth. Economic problems in Asia and Russia have significantly worsened the short-term price problem. And, as experienced in the pork industry, rapid expansion combined with a reduction in slaughter capacity resulted in

sharply increased processing and retailing margins. In the near term, farmers have relatively few managerial options. Business reorganization and meaningful unit cost reduction take time. Consequently, the impact of reduced commodity prices for many farm businesses will be a reduction in liquid assets or an increase in debt loads. For these operations loss management and financial restructuring will be the primary managerial task. And the skill with which short-term finances are managed will have a significant impact on farmers' viability and competitive capacity.

Against the backdrop of these more immediate supply and demand problems, Iowa farmers also face some significant longer-term challenges. The first stems from increased consolidation and coordination throughout the agricultural sector. The changes underway in the pork sector offer one of the clearest examples of this trend. Very large scale pork production businesses with coordinated breeding, gestation, finishing, nutrition, logistics, and in some cases processing and retailing functions are a competitive threat to fragmented small scale producers whose economic activity is only coordinated through markets. The same forces have already altered the poultry and cattle feeding industry. New technology and business relationships will transform the grain sector as well. In the near future Iowa's agricultural sector likely will be characterized by a limited number of competing supply chains. For farmers this change will require choosing among supply chains or remaining unaligned and competing independently.

The second challenge comes from changes in farm and trade policy. The ongoing efforts to privatize agriculture's safety net and increase the efficacy of market forces are essentially untested. Many of the changes as reflected in the 1996 Farm Bill seem reasonable given the global nature of agriculture and commitments to limit government spending. But the hard reality is that no one knows if or how these changes will impact agriculture.

Consequently Iowa farmers face two difficult and interrelated management problems: to survive a period of low prices—one of uncertain intensity and duration—and at the same time to make strategic decisions on whether and how to compete in a world of giants with increasing risk and uncertainty. This report examines one aspect of Iowa farmers' competitive readiness—their financial strength to survive the current economic downturn and their financial capacity to restructure and reposition their farm businesses. Other significant factors such as their managerial or organizational readiness cannot be assessed. Consequently the picture that emerges from this analysis is incomplete.

Approach

The financial condition and capacity of farm businesses can only be meaningfully assessed with farm-level data. This report uses financial data obtained from members of the Iowa Farm Business Association (IFBA). The data set includes complete financial information from nearly 1,200 operations. The reliability of the financial data is very good, since they are derived from summaries of formal accounting systems. However, the data set is not representative of all farms in Iowa. Tables 1 and 2 compare farm size and operator age of the IFBA sample with the most recent Iowa Agricultural Census. It is clear the IFBA farms are larger than those in the Census. Further, the IFBA operators are mid-career—most in the 35-55 age group. The IFBA data, however, are probably more representative of Iowa's commercial family farms than are the Census data. Recall that the Census enumerates all "farms" that sell at least \$1,000 of agricultural commodities per year.

Each farm in the data set has a complete market-value beginning-year balance sheet for 1997 and 1998. In addition each farm has a complete accrual adjusted income statement along with information on physical inventory and production levels and selected demographic characteristics for 1977.

Income projections are made from the 1997 income statement by proportionately changing those revenue and cost items that are impacted by changes in commodity price and yield levels. Price and yield assumptions used in this analysis are presented in table 3. Note that operating expenses, rent, and depreciation charges are held constant. Costs of purchased feed and feeder livestock are adjusted to reflect commodity price changes. The financial status of farms in this data set are examined from three perspectives based on:

1. Actual 1997 incomes
2. A baseline reflecting projected average prices and yields over the 1998-2000 period
3. Estimated 1998 income using actual 1998 price, yield, and farm program information

Farm financial conditions are assessed using a simple financial scoring model. Farms in the IFBA data set are classified according to two ratios. The first ratio (CFE) measures the relationship between cash flow from all sources—farm and nonfarm—for the operator’s household and equity position. This measure is calculated as follows:

$$1) \text{ CFE} = (\text{NFI} + \text{Dep} + \text{OFI} - \text{FL}) \div \text{E}$$

Where:

CFE	=	cashflow to equity ratio
NFI	=	accrual net farm income
Dep	=	depreciation
OFI	=	off-farm income from labor and investments
FL	=	withdrawals for family living expenditures
E	=	equity

The net cash flow measure, in parentheses, used in computing this ratio does not include scheduled principal payments on term debt or income taxes. If the CFE ratio is positive, cash is available to contribute to taxes, reduce debt, expand or replace capital. If the CFE ratio is negative, the shortfall must be borrowed once available liquid assets have been exhausted. The CFE

ratio allows one to compare the magnitude of net cash flow relative to the equity base of the business. For example, if the CFE ratio for a farm operation is –20 percent, then the business has lost 20 percent of its equity, before tax payments and depreciation. Note too, that cash flow has been adjusted to account for inventory changes. This adjustment captures the business’s cash flow potential—not just its cash sales for the current year. The second ratio used in the scoring model is the debt-to-asset (D/A) ratio. The D/A ratio shows, in percentage terms, the business’s level of indebtedness.

Table 4 presents a matrix that combines the two measures into a financial score. The financial score attempts to reflect the near term (one to three years) strength of the business if income conditions continue at the assumed levels. In other words, the scoring model projects the financial status of a farm business under a specific set of economic conditions. The financial categories in the scoring model are defined as follows:

1. **Strong.** Farms in this group show adequate to excellent liquidity and acceptable solvency. Expansion may be feasible.
2. **Stable.** Farms in this group will not likely fail. However they may experience moderate cash flow problems or capital replacement may be less than levels required to remain in business long term.
3. **Weak.** Farms in this group can survive if operating changes and asset or debt restructuring occur. Farms are vulnerable to income losses or asset value declines. Note this group contains farms with large losses and high equity as well as those with positive earnings and low equity.
4. **Severe.** Survival of farms in this group is unlikely.

The assignment of cells within the matrix to financial stress categories is based, in part, on estimated principal repayment rates, vulnerability to loss or asset value declines and rates of

equity loss. As with most scoring models, this one suffers from the arbitrariness of boundaries and the inescapable reliance on judgment. It shares a common ancestry with the classification model employed by ERS since the mid-1980s. (Jolly and Olsen, 1995, Jolly et al, 1985, Morehart and Prescott, 1986.)

Table 4 also gives information on the distribution of farms across the CFE and D/A ratio categories. For example, a farm business with a CFE ratio between -5 percent and 5 percent and a D/A ratio between 40 percent and 70 percent is assigned to group 3, weak financial condition. In 1997, 33 farms or 2.86 percent of the entire sample fell into this specific category.

Actual 1997 Financial Conditions

Tables 5a-5d give estimates of financial conditions prevailing in 1997. The financial scores are based on 1997 beginning balance sheets and actual 1997 incomes. Figures 2 and 3 summarize information on income as well as operator and liability distributions.

Figure 2. **Percentage Distributions, Operators & Liabilities by 1997 Financial Status**

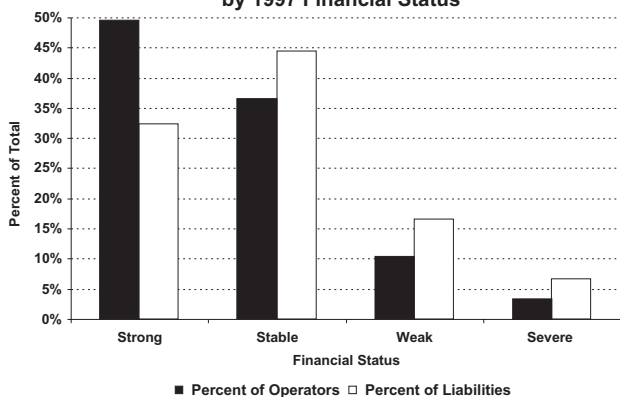
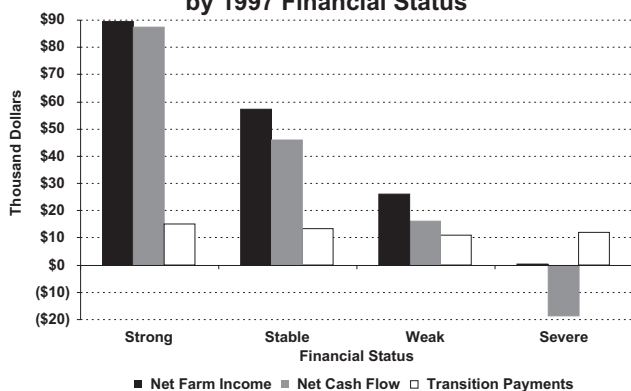


Figure 3. **Income Measures for 1997 by 1997 Financial Status**



Under 1997 income conditions:

- Most farm businesses were in strong (49.6 percent) or stable (36.6 percent) condition.
- Only 3.5 percent were in severe financial condition and 10.3 percent in weak condition.
- Financially stressed farm businesses held 23.1 percent of liabilities in the data set.
- Businesses in strong financial condition earned more than \$89,000 in farm income plus an additional \$12,000 from off-farm sources.
- Strong farm businesses received more than \$15,000 per farm in government payments.
- Farms classified as severe only break even in terms of farm income. However, their accrual net cash flow shortfall was more than -\$18,000.
- Farms in strong and stable condition were larger than those classified as weak or severe.
- Strong and stable farms showed more dependence on cash grain enterprises.
- Weak and severe businesses were operated by younger managers.
- Operator age was greatest for stable farms.

In general, the financial picture that emerges from the 1997 data is a rather strong one. Most farms are financially sound, earning acceptable incomes with excellent risk-bearing ability and expansion potential. Relatively few farms are financially stressed. Even these groups, on average, show positive net worth and would have some restructuring options available to them.

Farm Financial Conditions with Lower Prices

The estimated financial scores presented in the previous tables were based on 1997 income conditions. Suppose, however, that lower com-

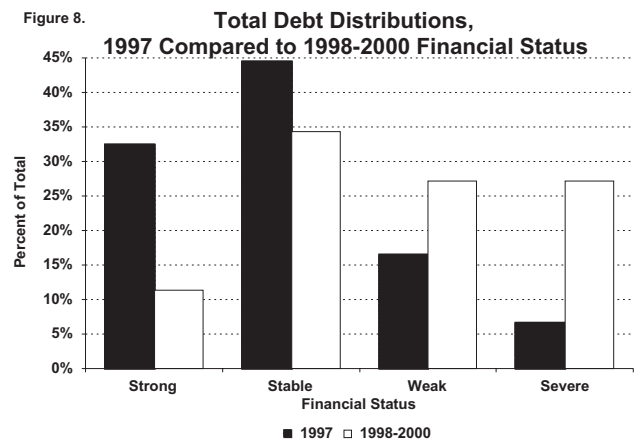
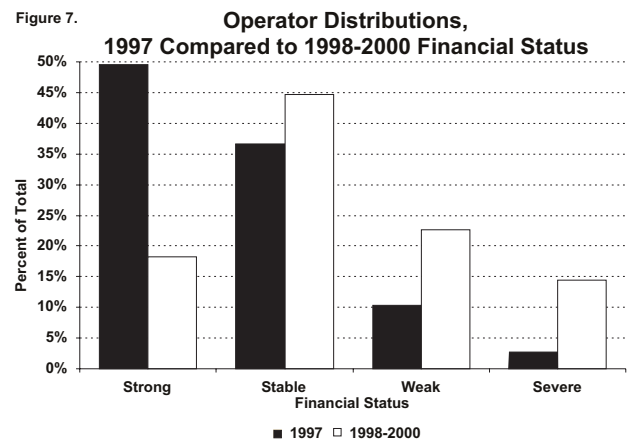
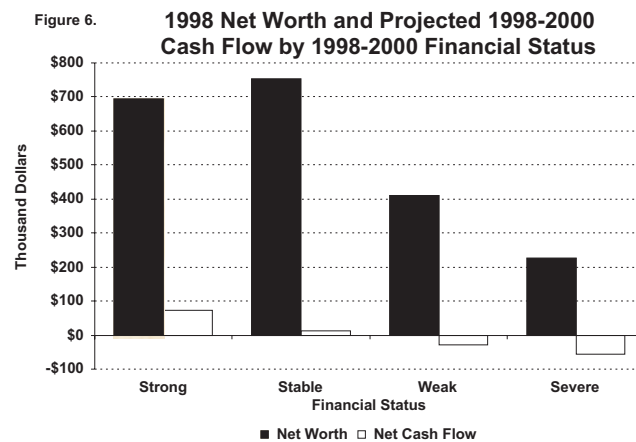
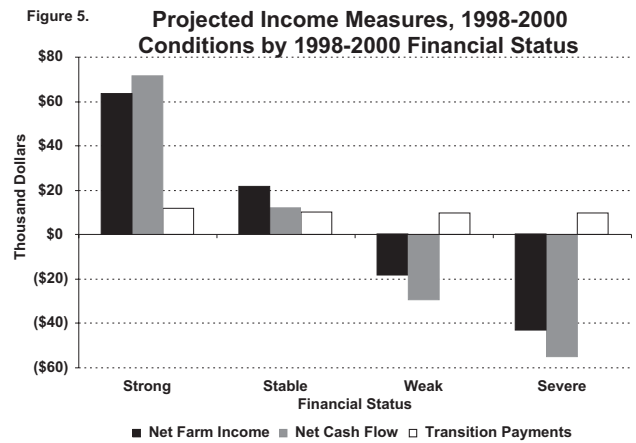
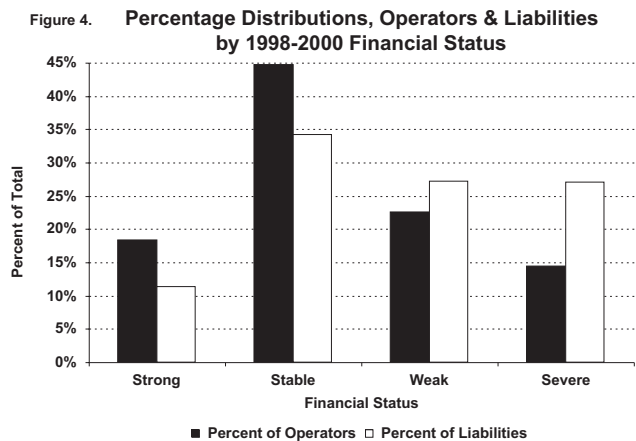
modity price conditions would persist over the next one to three years? To examine this situation, farm businesses in the data set are reclassified using their actual 1998 balance sheets and projected income based on the assumed 1998-2000 averages presented in table 3.

Table 6 summarizes the results of the financial scoring procedure. Note that the distribution across D/A categories in 1998 is only slightly changed from 1997. Average debt loads increase from 24.3 to 25.6 percent. As expected, however, there are significant downward shifts in the projected CFE ratio.

Table 7 shows the shift in farm financial status from 1997 to 1998-2000 economic conditions. The overall erosion in financial capacity is clearly evident. Further note that some operations show a significant increase in vulnerability moving from strong or stable condition to weak or severe.

Tables 8a-8d present a complete set of financial statements using the projected 1998-2000 financial scores to classify the farms in the data set. Figure 4 summarizes the operator and debt distributions across the financial groups. Figures 5 and 6 give information on selected income, cash flow, and net worth measures. Figures 7 and 8 compare the 1998-2000 estimates with 1997 conditions.

- Strong operations decline from nearly 50 percent of the data set under 1997 conditions to 18 percent. They tend to be well-capital-



ized cash grain operations and are clearly well-positioned for the assumed economic conditions. Off-farm income is above the average for the other groups. Most of the traditional financial measures indicate excellent efficiency and liquidity. Only 11 percent of outstanding liabilities are held by this group.

- Stable operations are the dominant group in the data set at nearly 45 percent—an increase from 1997 results. They have the highest net worth but exhibit limited liquidity. Farms in this group are survivable in the near term. However, they are not likely to be profitable should poor economic conditions continue. They hold about a third of all debt.
- Financially stressed operations, those in weak and severe financial condition, comprise 37 percent of the data set and control over 54 percent of outstanding debt.
- The severe group has, on average, more equity than the severe group in 1997. This implies more restructuring flexibility. Note this reflects the fact that the number of farms in this group has increased significantly.
- Financially stressed farms were smaller in terms of assets and total sales than strong and stable operations.
- Farms in severe financial condition are operated by younger farmers.
- Financially stressed farms are more reliant on livestock earnings than cash grain.

Tables 9a-9d present financial information for pork producers in the data set for the 1998-2000 period. In this case, a pork producer is defined as any farm reporting pork sales. Figures 9 and 10 summarize the distribution and income information for swine farms. The projected financial condition for pork producers is significantly worse than the data set average.

- More than half of the operations are classified in weak or severe financial condition.
- For pork producers in severe condition,

Figure 9. Percentage Distributions, Operators & Liabilities by 1998-2000 Financial Status for Swine Farms

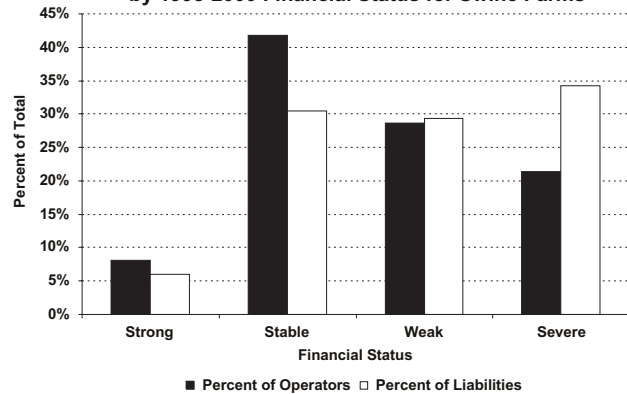
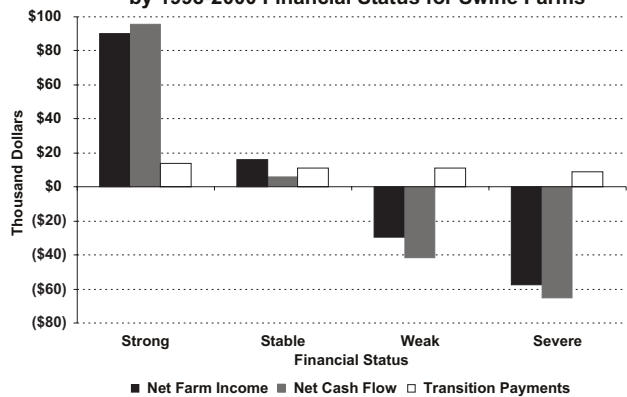


Figure 10. Projected Income Measures, 1998-2000 Conditions by 1998-2000 Financial Status for Swine Farms



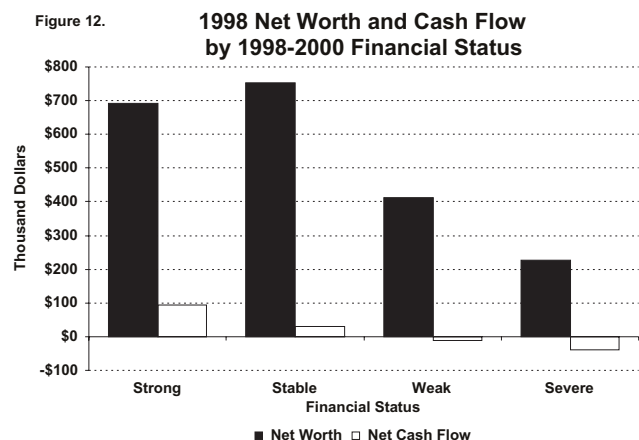
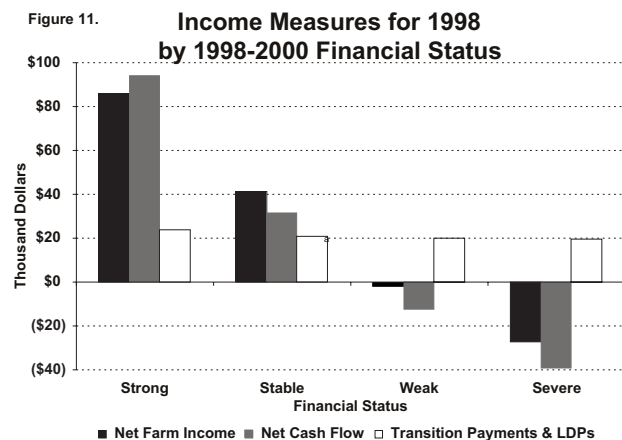
annual equity loss from earnings is approximately 25 percent or \$65,000.

- Only 8 percent of swine farmers in the data set are classified as strong. The majority of these operations sell fewer than 1,000 head per year.
- Swine farms marketing over 2,000 head per year tend to be concentrated in the weak and severe groups.

Estimated 1998 Financial Conditions

Tables 10a-10b estimate 1998 incomes for the farms previously classified using the 1998-2000 baseline data. The purpose for this analysis is simply to assess the financial condition of these operations at the close of the year. The income statement is based on actual prices and yields for calendar year 1998 given in table 3. Note that the analysis has assumed farmers will receive loan deficiency payments in addition to calendar year average prices. Further, the transi-

tion payment on corn has been increased to reflect the additional payment authorized at the end of 1998. Finally, crop insurance indemnities were increased to estimated 1998 levels. Figures 11 and 12 summarize selected income and net worth measures.



- For the nearly 1,200 farms in the data set, projected average net farm income declines approximately 56 percent—from \$68,000 in 1997 to slightly less than \$30,000 in 1998 even after accounting for increased subsidization rates. The percentage reduction in income based on individual farm estimates is significantly greater than the decline estimated at the sectoral level. This is primarily due to the fact that very large scale production units and many small part-time operations are not included in the farm-level data set.

- Average net farm income for 1998 is estimated to be higher than the average projected for the 1998-2000 period. This is due to higher than average yields in 1998, increased farm payments and higher prices for soybeans.
- Farms in severe financial condition show average equity losses of approximately 17 percent from earnings alone.

Increased government payments late in 1998 did not eliminate losses for financially stressed farm businesses. However, average losses were reduced by approximately \$10,000 per farm. Note that the largest average payments were received by farms in strong or stable condition due, for the most part, to their larger land bases.

Estimated 1998 income for pork producers in the four financial groups is given in tables 11a-11b. Note that the small federal pork subsidy announced late in 1998 is not included in these estimates. Average 1998 incomes for swine producers are significantly lower than the data set average presented in tables 10a-10b.

For pork producers in weak condition, 1998 equity losses from earnings are estimated to be approximately \$26,000 or about 5 percent of equity. For pork producers in severe financial condition, 1998 losses averaged about \$54,000—a little over 21 percent of equity. As with the entire data set, however, 1998 incomes and cash flows for swine producers are greater than those projected for the 1998-2000 period. In 1998 pork producers also benefited from higher crop yields and increased grain subsidies.

Management and Policy Implications

This analysis explores in a preliminary way the capacity of Iowa farm businesses to survive an extended period of lower prices. In a sense, this is an attempt to determine the size and composition of the at-risk farm population. In addition, however, it also is an attempt to gain some insight into the financial capacity of farm businesses to restructure and reposition themselves for a marketplace that will offer increasing competition as well as volatility.

If, as seems likely, commodity prices will remain low over the next few years, a significant segment of Iowa's family-operated commercial farm businesses are potentially at risk. The estimates in this analysis put this number at over a third—37 percent. The primary managerial challenge these businesses face is survival. They must manage accumulated losses and financially restructure if they are to continue. For some, restructuring simply means refinancing and stretching out loan repayment terms. For others, restructuring will require changes in enterprises, partial liquidation of assets, and possible debt forgiveness. And for others, restructuring will not be feasible and they will go out of business.

This at-risk population is younger and more likely to be involved in livestock production. The operators hold more than half the outstanding liabilities in the data set. This concentration of debt in the hands of financially-stressed farm businesses poses a potential threat to lenders as well as the functioning of asset markets.

About 20 percent of the farm businesses represented by this data set are in strong position. Even with lower prices and diminished government subsidies these operations remain profitable with sufficient liquidity to support expansion. Strong farm businesses tend to be concentrated in cash grain production. Some may have a smaller livestock enterprise in addition to cash grain. Strong operations have significantly more off-farm income than average. The average operator age is 45 years—a managerial time horizon of 10-20 years. Clearly these businesses are survivable in the short run. And, financially at least, they appear to be well positioned for the future.

The remaining farm businesses in the data set—nearly half, remain in stable condition. Stable farms have significant equity—close to \$800,000 on average. But their projected return to equity under 1998-2000 conditions is close to zero. Further they have extremely limited liquidity from operations. Stable farm businesses can ride out a period of low prices with-

out being placed in jeopardy. However, they are clearly not well-positioned to compete. Although they possess the financial strength to redirect their businesses, any new venture or expansion must be able to generate immediate cash. They simply don't have the luxury of sinking funds into a slowly developing investment. Finally, note that stable farms are operated, on average, by the oldest producers. For these operations, repositioning must be undertaken within the context of succession planning and retirement. Repositioning requires an adequate managerial time horizon. Consequently stable businesses with older operators must seek out joint ventures, alliances, or multigeneration business arrangements that extend the life of their farms.

For farm leaders and public officials, the re-emergence of farm stress poses a number of policy dilemmas.

- Financial conditions are highly variable across farm businesses. Consequently a single policy solution is unlikely to prove successful. Further the dispersion in financial status among farmers would make it difficult to form a political consensus on the need for or direction of public intervention.
- The objectives of public policy during a financial downturn can become a little murky. Elected officials often speak in terms of “keeping people on the land,” “saving the family farm,” or “protecting the independent operator.” This usually implies increased levels of subsidization for everyone. Unfortunately traditional output-based subsidies may do little to facilitate short-term financial restructuring, ease the departure of failing businesses or reposition those operations with the likely potential to succeed in the agricultural sector of the future.
- On the other hand, policies that offer incentives and resources to manage the financial consequences of loss are often rejected by those who would most benefit from them. For many farmers faced with an unexpected

and sizable loss, a check in the mailbox is likely to be much more appealing than programs offering loan guarantees, interest rate subsidies, or financial intermediation and counseling. Moreover, targeted financial restructuring policies are often opposed by ineligible farmers because the policies are seen as aiding “bad managers.” Although targeting assistance to farm businesses in need makes sense from an efficiency perspective, the result, in many cases, is a general lack of support throughout the farm community. If fragmentation is sufficient, no policy response is forthcoming.

- Lending institutions serving agriculture are well capitalized and have been quite profitable over the past decade. Moreover, many financially stressed farm businesses, at the moment, have sufficient resources to allow restructuring. Unfortunately, when lenders and borrowers have the resources to manage loss and restructure affected businesses, the most common managerial response is to delay action.
- Long-term efforts to increase efficiency through research, market development, or improved market access are likely to be beneficial. However, they hold little promise for resolving near-term financial stress.
- Much of the current policy debate centers around improved risk management instruments, institutions, and markets. These efforts to privatize and extend agriculture’s safety net are extremely important. However, risk management and insurance schemes cannot, in themselves, resolve financial problems resulting from long-term price declines. Under these conditions restructuring and repositioning the business to increase revenues, reduce unit production costs, or capture margins is the only meaningful way to resolve financial stress. Risk management can play an important support-

ing role in this process – but it’s not the main event.

- The Freedom-to-Farm Act needs to be carefully assessed both in terms of its objectives and design. More attention needs to be paid to the adequacy of this legislation to deal with price volatility, efficiency, food security and the cost of increased risk-bearing. Moreover the concept of transition implicit in the bill needs to be broadened to include not just transition from subsidies to the market, but also transition for some producers out of agriculture and for others transition to a highly coordinated and competitive industry.
- Finally, in Iowa, where agriculture figures significantly into the state’s economy, it is not really feasible to offer generous income transfer to financially troubled farmers. The budget consequences quickly become unmanageable. However one way the state can respond meaningfully, is to offer support to individuals affected by financial stress. Financial counseling, mediation, job placement, and mental health programs offer some of the most appropriate and cost effective options that the state budget can support. Although programs of this sort may lack political resonance, they need to be carefully considered by elected officials and agricultural leaders.

Very few people can see around corners. Certainly economists are blessed with no more prescience than anyone else. What looks like a period of extreme price pressure for grain and livestock might quickly turn around – or suddenly get worse. However, farm financial stress is very real. This problem warrants a careful and serious response from farmers and farm leaders. The long-term viability of Iowa agriculture depends on their solid and informed long-term decisions.

References

- Jolly, Robert W., Arnold Paulsen, James D. Johnson, Kenneth H. Baum and Richard Prescott. 1985. "Incidence, Intensity, and Duration of Financial Stress Among Farm Firms." *American Journal of Agricultural Economics*, Vol. 67, No. 1.
- Jolly, Robert W. and Douglas R. Olsen. 1985. "1985 Iowa Farm Finance Survey." FM-1821, Cooperative Extension Service, Iowa State University, Ames, Iowa.
- Jolly, Robert W. and Alan Vontalge. 1998. "How Many Iowa Commercial Farm Businesses Will Survive Until 2000?" Department of Economics Staff Paper #306, Iowa State University, Ames, Iowa.
- Morehart, Mitchell J. and Richard Prescott. 1986. "Farm Operating and Financial Characteristics, January 1985." USDA, Economic Research Service, National Economics Division, Washington, D.C.

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Table 1. Comparison of Farm Size Distribution between 1997 Farm Business Association and 1997 Ag Census

Farm Size (Acres)	Farm Business Association		1997 Iowa Ag Census	
	Number of Observations	Percent	Number of Observations	Percent
1 to 9	0	0.0%	5,049	5.6%
10 to 49	6	0.5%	11,580	12.8%
50 to 179	80	7.1%	24,525	27.0%
180 to 499	433	38.4%	28,918	31.9%
500 to 999	473	41.9%	14,833	16.3%
1000 and up	136	12.1%	5,887	6.5%
Average Acres	599		343	

Table 2. Comparison of Farm Age Distribution between 1997 Farm Business Association and 1997 Ag Census

Age Group	Farm Business Association		1997 Iowa Ag Census	
	Number of Observations	Percent	Number of Observations	Percent
Under 25	6	0.5%	1,468	1.6%
25 to 34	92	8.1%	7,554	8.3%
35 to 44	382	33.5%	20,841	23.0%
45 to 54	323	28.3%	21,513	23.7%
55 to 64	253	22.2%	19,200	21.1%
65 and up	85	7.4%	20,216	22.3%
Average Age	47.6		52.4	

Table 3. Iowa Price and Yield Assumptions (calendar year basis)

	1997 ¹	1998 ¹	% Chg. from 1997	1998–2000 ²	% Chg. from 1997
Corn					
Price (\$/bu.)	2.52	2.08	(17.5)	2.15	(14.7)
Yield (bu./a.)	138	145	5.1	138	0.0
Transition payment (\$/bu.)	0.46	0.55 ²	19.6	0.35	(23.9)
Loan deficiency payment (\$/bu.)	0.00	0.05 ²	0.00	0.00	0.00
Soybeans					
Price (\$/bu.)	7.32	5.84	(20.2)	5.50	(24.7)
Yield (bu./ac.)	46.0	48.0	4.3	46.0	0.0
Loan deficiency payment (\$/bu.)	0.00	0.20 ²	0.00	0.00	0.0
Market Hogs					
Price (\$/cwt.)	54.18	34.17	(36.9)	36.00	(33.6)
Market Steers					
Price (\$/cwt.)	64.92	59.85	(7.8)	63.00	(2.9)
Milk					
Price (\$/cwt.)	13.20	14.80	12.1	13.20	0.0

¹ Actual, Iowa average, Iowa Ag Statistics

² Author's projection

Table 4. Financial Scoring Model, 1997 Conditions

DA (Debt/Asset Ratio)		CFE (Accrual Cash Flow/Equity Ratio)					
Frequency		Less Than	-20% to	-5% to	5% to	Over	Totals
Percent		-20%	to -5%	5%	20%	20%	
Row Percent							
Column Percent							
Financial Status	Group	Insolvent					
		13	0	0	0	0	13
		1.1					1.1
	Insolvent	100.0					
		100.0					
		Severe					
		0	4	4	2	11	58
			0.3	0.3	0.2	1.0	5.0
	70 % to 100%		6.9	6.9	3.4	19.0	63.8
			26.7	8.3	0.8	1.9	15.4
			Severe	Severe	Weak	Weak	Weak
		0	3	16	33	109	243
			0.3	1.4	2.9	9.5	21.1
	40 % to 70%		1.2	6.6	13.6	44.9	33.7
			20.0	33.3	12.4	19.1	34.2
			Severe	Severe	Weak	Stable	Stable
		0	0	14	88	222	387
			0.0	1.2	7.6	19.3	33.6
	10 % to 40%		0.0	3.6	22.7	57.4	16.3
			0.0	29.2	33.1	38.9	26.3
			Weak	Weak	Stable	Strong	Strong
		0	8	14	143	229	452
			0.7	1.2	12.4	19.9	39.2
	0 % to 10%		1.8	3.1	31.6	50.7	12.8
			53.3	29.2	53.8	40.1	24.2
			Weak	Weak	Stable	Strong	Strong
	Totals	13	15	48	266	571	1,153
		1.1	1.3	4.2	23.1	49.5	100.0

Source: 1997 Iowa Farm Business Association.

Table 5a. 1997 Beginning Balance Sheet by 1997 Financial Status

	Financial Status				
	Total	Strong	Stable	Weak	Severe
Number of Observations	1153	572	422	119	40
Farm Assets					
Feeding livestock	\$49,967	\$48,590	\$49,729	\$47,226	\$80,341
Corn	75,208	81,439	72,965	59,858	55,436
Soybeans	52,084	60,715	48,102	30,573	34,666
Other feed	5,959	6,068	6,313	3,374	8,350
Supplies, prepaid expenses	<u>30,845</u>	<u>35,503</u>	<u>30,900</u>	<u>14,873</u>	<u>11,168</u>
Total short-term assets	\$214,062	\$232,314	\$208,008	\$155,904	\$189,961
Breeding livestock	21,311	20,182	22,366	21,414	26,031
Machinery, equipment	<u>110,413</u>	<u>118,301</u>	<u>108,613</u>	<u>92,431</u>	<u>70,100</u>
Total intermediate assets	\$131,724	\$138,483	\$130,979	\$113,845	\$96,131
Land and improvements	<u>393,874</u>	<u>413,828</u>	<u>430,616</u>	<u>247,324</u>	<u>156,879</u>
Total assets	\$739,660	\$784,625	\$769,603	\$517,073	\$442,971
Farm Liabilities					
Operating notes, accounts payable	59,468	37,596	71,105	95,064	143,569
Intermediate and long-term due	2,219	1,871	2,299	3,967	1,169
CCC Loans	<u>3,732</u>	<u>1,579</u>	<u>5,672</u>	<u>6,202</u>	<u>6,702</u>
Total short term-debt	65,419	41,045	79,076	105,233	151,440
Intermediate-term debts	31,495	19,878	38,178	55,717	55,065
Long-term debts	<u>82,528</u>	<u>56,243</u>	<u>100,601</u>	<u>126,563</u>	<u>136,722</u>
Total liabilities	\$179,442	\$117,165	\$217,855	\$287,513	\$343,226
Farm Net Worth					
Working capital	\$148,643	\$191,269	\$128,932	\$50,671	\$38,521
Percent of observations	100.0%	49.6%	36.6%	10.3%	3.5%
Percent of total short-term liabilities	100.0%	31.1%	44.2%	16.6%	8.0%
Percent of total intermediate liabilities	100.0%	31.3%	44.4%	18.3%	6.1%
Percent of total long-term liabilities	100.0%	33.8%	44.6%	15.8%	5.7%
Percent of total liabilities	100.0%	32.4%	44.4%	16.5%	6.6%

Source: 1997 IFBA Data.

Table 5b. 1997 Income Statement by 1997 Financial Status¹

	Financial Status				
	Total	Strong	Stable	Weak	Severe
Number of Observations	1153	572	422	119	40
Income					
Crops:					
Corn	\$73,670	\$80,941	\$68,407	\$61,606	\$61,118
Soybeans	82,116	92,592	75,661	65,798	48,957
Crop insurance	598	586	448	1,106	841
Transition payments	13,862	15,051	13,274	10,918	11,820
Other crop income	<u>11,121</u>	<u>10,741</u>	<u>11,165</u>	<u>12,062</u>	<u>13,296</u>
Total Crop Income	\$181,367	\$199,910	\$168,955	\$151,489	\$136,032
Livestock:					
Swine	\$99,296	\$100,477	\$93,750	\$110,690	\$107,032
Beef	53,584	50,581	57,246	37,978	104,324
Dairy	3,977	3,435	5,187	3,629	0
Other livestock	<u>1,649</u>	<u>1,359</u>	<u>2,501</u>	<u>174</u>	<u>1,201</u>
Total Livestock Income	\$158,507	\$155,852	\$158,684	\$152,472	\$212,557
Other Farm Income	<u>3,997</u>	<u>4,930</u>	<u>3,310</u>	<u>1,772</u>	<u>4,533</u>
Total Farm Income	\$343,871	\$360,693	\$330,948	\$305,733	\$353,121
Expenses					
Operating expenses	\$100,870	\$103,813	\$99,377	\$93,181	\$97,419
Purchased feed	45,318	42,130	44,201	54,839	74,374
Purchased livestock	45,503	41,526	46,556	46,610	87,965
Other cash expenses	16,290	16,783	16,216	13,781	17,482
Rent	30,813	32,367	28,008	32,123	34,279
Interest	17,140	13,077	19,782	23,624	28,086
Depreciation	<u>20,009</u>	<u>21,719</u>	<u>19,557</u>	<u>15,660</u>	<u>13,272</u>
Total Expenses	\$275,943	\$271,414	\$273,697	\$279,820	\$352,877
Accrual Net Farm Income	\$67,928	\$89,279	\$57,251	\$25,913	\$244
+ Depreciation	\$20,009	\$21,719	\$19,557	\$15,660	\$13,272
+ Off Farm Income	10,249	12,062	8,436	9,593	5,398
- Family living expenses	<u>37,226</u>	<u>35,966</u>	<u>39,482</u>	<u>35,129</u>	<u>37,674</u>
Accrual Net Cash Flow	\$60,960	\$87,093	\$45,762	\$16,038	(\$18,760)

¹ Accrual statement, adjusted for inventory changes.

Source: 1997 IFBA Data.

Table 5c. 1997 Financial Ratios by 1997 Financial Status

Number of Observations	Financial Status				
	Total 1153	Strong 572	Stable 422	Weak 119	Severe 40
Ratios ¹					
ROA	9.3%	11.9%	7.5%	4.8%	3.4
PM	17.8%	22.8%	14.9%	8.1%	2.3%
TO	59.0%	59.1%	51.7%	70.0%	103.5%
OER	0.66	0.62	0.68	0.76	0.80
DER	0.07	0.07	0.07	0.06	0.04
IER	0.05	0.04	0.06	0.08	0.08
NFIR	0.22	0.27	0.19	0.10	0.07
ROE	10.2%	12.0%	9.6%	12.5%	-14.7%
COD	7.8%	7.8%	8.0%	7.9%	7.6%
D/A	0.26	0.14	0.30	0.52	0.96
Current Ratio	3.01	5.86	2.50	1.52	1.04

¹ Ratio Definitions are as follows:

$$\text{ROA (Return on Assets)} = \frac{\text{Accrual Net Farm Income} + \text{Interest Expense} - \text{Unpaid Family Labor}}{\text{Total Assets}}$$

$$\text{PM (Profit Margin)} = \frac{\text{Accrual Net Farm Income} + \text{Interest Expense} - \text{Unpaid Family Labor}}{\text{Gross Farm Revenue}}$$

$$\text{TO (Turnover Ratio)} = \frac{\text{Gross Farm Revenue}}{\text{Total Assets}}$$

$$\text{OER (Operating Expense Ratio)} = \frac{\text{Total Operating Expense} + \text{Fixed Expense} - \text{Interest Expense} - \text{Depreciation Expense}}{\text{Gross Farm Revenue}}$$

$$\text{DER (Depreciation Expense Ratio)} = \frac{\text{Depreciation Expense}}{\text{Gross Farm Revenue}}$$

$$\text{IER (Interest Expense Ratio)} = \frac{\text{Interest Expense}}{\text{Gross Farm Revenue}}$$

$$\text{NFIR (Net Farm Income Ratio)} = \frac{\text{Accrual Net Farm Income}}{\text{Gross Farm Revenue}}$$

$$\text{ROE (Return on Equity)} = \frac{\text{Accrual Net Farm Income} - \text{Unpaid Family Labor}}{\text{Net Worth}}$$

$$\text{COD (Cost of Debt)} = \frac{\text{Interest Expense}}{\text{Total Liabilities}}$$

$$\text{D/A (Debt/Asset Ratio)} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Source: 1997 IFBA Data.

Table 5d. 1997 Descriptive Information by 1997 Financial Status

Number of Observations	Financial Status				
	Total	Strong	Stable	Weak	Severe
	1153	572	422	119	40
Total Acres Operated	599	620	604	520	475
Row Crop Acres	499	561	469	393	332
Hay/Pasture Acres	100	59	135	127	143
Labor Months	16.8	17.4	16.3	16.3	15.3
Average Corn Yield	137.5	140.8	135.1	132.1	131.5
Average Corn Price	\$2.51	\$2.53	\$2.51	\$2.47	\$2.48
Livestock Returns/\$100 Feed Fed	\$154.44	\$162.55	\$148.83	\$147.03	\$134.23
Sources of Farm Income:					
Crops	57%	60%	55%	52%	45%
Livestock	34%	31%	36%	38%	44%
Other	9%	9%	9%	9%	10%
Value of Farm Production Per Person	\$191,155	\$205,867	\$183,223	\$162,768	\$149,264
Value of Farm Production Per \$1 Exp.	\$1.41	\$1.53	\$1.33	\$1.17	\$1.09
Farm Types: ¹					
Cash Grain	33.6%	36.9%	32.5%	26.1%	20.0%
Grain-Livestock	29.0%	30.8%	26.3%	30.3%	27.5%
Hog	24.3%	22.7%	25.8%	26.1%	25.0%
Beef	7.3%	5.1%	8.5%	9.2%	20.0%
Dairy	1.6%	1.2%	2.1%	1.7%	0.0%
Mixed	4.3%	3.3%	4.7%	6.7%	7.5%
	100.0%	100.0%	100.0%	100.0%	100.0%
Operator Age	47.6	46.9	49.7	44.1	44.4

¹ Farm type definitions are as follows:

Cash grain farms if crops are greater than 95 percent of gross farm income.

Grain-livestock farms if crops are greater than 50 percent but less than 95 percent of gross farm income.

Hog farms if pork is greater than 50 percent of gross farm income.

Beef farms if beef is greater than 50 percent of gross farm income.

Dairy farms if dairy is greater than 50 percent of gross farm income.

Mixed farms are all other farms.

Source: 1997 IFBA Data.

Table 6. Financial Scoring Model by Projected 1998-2000 Financial Status

DA (Debt/Asset Ratio)		CFE (Accrual Cash Flow/Equity Ratio)					
Frequency							
Percent							
Row Percent							
Column Percent		Less Than	-20% to	-5% to	5% to	Over	Totals
Financial Status Group	Insolvent	-20%	to -5%	5%	20%	20%	
	10	0	0	0	0	0	10
	0.9						0.9
	Insolvent	100.0					
		100.0					
	Severe						
	0	36	9	8	10	14	77
		3.1	0.8	0.7	0.9	1.2	6.7
	70 % to 100%	46.8	11.7	10.4	13.0	18.2	
		34.0	4.5	1.5	4.2	21.2	
		Severe	Severe	Weak	Weak	Weak	
	0	34	77	78	52	17	258
		2.9	6.7	6.8	4.5	1.5	22.4
	40 % to 70%	13.2	29.8	30.2	20.2	6.6	
		32.1	38.3	14.7	21.8	25.8	
		Severe	Severe	Weak	Stable	Stable	
	0	15	49	197	87	18	366
		1.3	4.2	17.1	7.5	1.6	31.7
	10 % to 40%	0.1	13.4	53.8	23.8	4.9	
		0.0	24.4	37.0	36.6	27.3	
		Weak	Weak	Stable	Strong	Strong	
	0	21	66	249	89	17	442
		1.8	5.7	21.6	7.7	1.5	38.3
	0 % to 10%	4.8	14.9	56.3	20.1	3.8	
		19.8	32.8	46.8	37.4	25.8	
		Weak	Weak	Stable	Strong	Strong	
Totals	10	106	201	532	238	66	1,153
	0.9	9.2	17.4	46.1	20.6	5.7	100.0

Source: 1997 IFBA Data.

Table 7. Changes in Financial Status from 1997 to 1998-2000

1997 Financial Status

Frequency

Percent

1998-2000 Financial Status

Row Percent

Column Percent

	Strong	Stable	Weak	Severe	Totals
	191	298	65	18	572
Strong	16.6	25.8	5.6	1.6	49.6
	33.4	52.1	11.4	3.1	
	90.5	57.9	24.9	10.8	
	20	206	133	63	422
Stable	1.7	17.9	11.5	5.5	36.6
	4.7	48.8	31.5	14.9	
	9.5	40.0	51.0	38.0	
	0	11	57	51	119
Weak	0.0	1.0	4.9	4.4	10.3
	0.0	9.2	47.9	42.9	
	0.0	2.1	21.8	30.7	
	0	0	6	34	40
Severe	0.0	0.0	0.5	2.9	3.5
	0.0	0.0	15.0	85.0	
	0.0	0.0	2.3	20.5	
Totals	211	515	261	166	1,153
	18.3	44.7	22.6	14.4	100.0

Source: 1997 IFBA Data.

Table 8a. 1998 Beginning Balance Sheet by Projected 1998-2000 Financial Status

Number of Observations	Financial Status				
	Total 1153	Strong 211	Stable 515	Weak 261	Severe 166
Farm Assets					
Feeding livestock	\$54,814	\$59,394	\$50,051	\$56,484	\$61,145
Corn	76,703	84,255	79,713	70,290	67,849
Soybeans	58,817	70,987	63,464	48,598	45,001
Other feed	7,750	9,960	8,539	6,048	5,173
Supplies, prepaid expenses	<u>34,283</u>	<u>54,279</u>	<u>38,008</u>	<u>20,187</u>	<u>19,470</u>
Total short-term assets	\$232,367	\$278,875	\$239,774	\$201,606	\$198,638
Breeding livestock	22,298	21,566	22,479	21,737	23,545
Machinery, equipment	<u>123,920</u>	<u>126,929</u>	<u>127,671</u>	<u>122,135</u>	<u>111,260</u>
Total intermediate assets	\$146,217	\$148,495	\$150,150	\$143,872	\$134,805
Land and improvements	<u>412,343</u>	<u>390,287</u>	<u>518,305</u>	<u>308,847</u>	<u>274,364</u>
Total assets	\$790,927	\$817,657	\$908,230	\$654,326	\$607,807
Farm Liabilities					
Operating notes, accounts payable	68,414	41,614	51,763	81,556	133,473
Intermediate and long-term due	2,648	2,975	2,119	2,499	4,110
CCC Loans	<u>5,325</u>	<u>2,088</u>	<u>4,139</u>	<u>7,157</u>	<u>10,242</u>
Total short term-debt	76,387	46,677	58,021	91,212	147,825
Intermediate-term debts	37,273	21,330	28,195	47,577	69,504
Long-term debts	<u>88,555</u>	<u>57,977</u>	<u>68,884</u>	<u>104,348</u>	<u>163,622</u>
Total liabilities	\$202,216	\$125,984	\$155,099	\$243,136	\$380,951
Farm Net Worth					
Net worth change for 1997	\$32,848	\$74,975	\$41,579	\$11,400	(\$14,064)
Working capital	\$155,980	\$232,198	\$181,754	\$110,394	\$50,813
Percent of observations	100.0%	18.3%	44.7%	22.6%	14.4%
Percent of total short-term liabilities	100.0%	11.2%	33.9%	27.0%	27.9%
Percent of total intermediate liabilities	100.0%	10.5%	33.8%	28.9%	26.8%
Percent of total long-term liabilities	100.0%	12.0%	34.7%	26.7%	26.6%
Percent of total liabilities	100.0%	11.4%	34.3%	27.2%	27.1%

Source: 1997 IFBA Data.

Table 8b. Projected 1998-2000 Average Annual Income Statement by Projected 1998-2000 Financial Status ¹

	Financial Status				
	Total	Strong	Stable	Weak	Severe
Number of Observations	1153	211	515	261	166
Income					
Crops:					
Corn	\$62,819	\$76,644	\$62,325	\$54,746	\$59,472
Soybeans	61,702	68,729	62,750	57,270	56,488
Crop insurance	598	836	497	611	585
Transition payments	10,345	12,026	10,176	9,766	9,643
Other crop income	<u>11,121</u>	<u>13,111</u>	<u>11,101</u>	<u>10,203</u>	<u>10,096</u>
Total Crop Income	\$146,585	\$171,347	\$146,850	\$132,597	\$136,285
Livestock:					
Swine	\$65,982	\$27,771	\$49,694	\$93,039	\$122,545
Beef	51,998	89,266	52,256	38,886	24,441
Dairy	3,977	5,412	5,388	1,634	1,462
Other livestock	<u>1,649</u>	<u>2,369</u>	<u>1,471</u>	<u>323</u>	<u>3,370</u>
Total Livestock Income	\$123,607	\$124,818	\$108,810	\$133,882	\$151,819
Other Farm Income	<u>3,997</u>	<u>9,415</u>	<u>3,207</u>	<u>2,012</u>	<u>2,684</u>
Total Farm Income	\$274,189	\$305,579	\$258,867	\$268,491	\$290,787
Expenses					
Operating expenses	\$100,870	\$94,175	\$97,293	\$106,515	\$111,603
Purchased feed	35,857	19,658	26,526	48,816	65,023
Purchased livestock	40,952	52,040	35,393	39,124	46,981
Other cash expenses	16,290	12,950	16,900	16,923	17,648
Rent	30,813	31,269	25,292	34,496	41,567
Interest	18,422	11,036	15,311	21,869	32,041
Depreciation	20,009	20,729	20,421	19,167	19,141
Total Expenses	<u>\$263,213</u>	<u>\$241,857</u>	<u>\$237,136</u>	<u>\$286,909</u>	<u>\$334,004</u>
Accrual Net Farm Income	\$10,976	\$63,722	\$21,731	(\$18,418)	(\$43,217)
+ Depreciation	\$20,009	\$20,729	\$20,421	\$19,167	\$19,141
+ Off Farm Income	10,249	18,925	9,263	6,552	8,090
- Family living expenses	<u>37,226</u>	<u>31,620</u>	<u>39,335</u>	<u>36,571</u>	<u>38,837</u>
Accrual Net Cash Flow	\$4,008	\$71,756	\$12,080	(\$29,271)	(\$54,822)

¹ Accrual statement, adjusted for inventory changes.

Source: 1997 IFBA Data.

Table 8c. Projected 1998-2000 Average Financial Ratios by Projected 1998-2000 Financial Status

Number of Observations	Financial Status				
	Total 1153	Strong 211	Stable 515	Weak 261	Severe 166
Ratios ¹					
ROA	-0.5%	6.7%	1.4%	-5.6%	-7.6%
PM	0.0%	14.5%	3.4%	-10.5%	-12.6%
TO	42.3%	44.8%	32.5%	48.8%	59.3%
OER	0.79	0.65	0.76	0.89	0.94
DER	0.08	0.09	0.09	0.08	0.07
IER	0.07	0.04	0.06	0.09	0.12
NFIR	0.05	0.22	0.09	(0.06)	(0.12)
ROE	-6.7%	5.5%	0.4%	-10.4%	-34.8%
COD	7.9%	7.4%	7.5%	8.3%	8.4%
D/A	0.28	0.14	0.17	0.32	0.73
Current Ratio	2.92	7.12	4.23	2.36	1.25

¹ Ratio Definitions are as follows:

$$\text{ROA (Return on Assets)} = \frac{\text{Accrual Net Farm Income} + \text{Interest Expense} - \text{Unpaid Family Labor}}{\text{Total Assets}}$$

$$\text{PM (Profit Margin)} = \frac{\text{Accrual Net Farm Income} + \text{Interest Expense} - \text{Unpaid Family Labor}}{\text{Gross Farm Revenue}}$$

$$\text{TO (Turnover Ratio)} = \frac{\text{Gross Farm Revenue}}{\text{Total Assets}}$$

$$\text{OER (Operating Expense Ratio)} = \frac{\text{Total Operating Expense} + \text{Fixed Expense} - \text{Interest Expense} - \text{Depreciation Expense}}{\text{Gross Farm Revenue}}$$

$$\text{DER (Depreciation Expense Ratio)} = \frac{\text{Depreciation Expense}}{\text{Gross Farm Revenue}}$$

$$\text{IER (Interest Expense Ratio)} = \frac{\text{Interest Expense}}{\text{Gross Farm Revenue}}$$

$$\text{NFIR (Net Farm Income Ratio)} = \frac{\text{Accrual Net Farm Income}}{\text{Gross Farm Revenue}}$$

$$\text{ROE (Return on Equity)} = \frac{\text{Accrual Net Farm Income} - \text{Unpaid Family Labor}}{\text{Net Worth}}$$

$$\text{COD (Cost of Debt)} = \frac{\text{Interest Expense}}{\text{Total Liabilities}}$$

$$\text{D/A (Debt/Asset Ratio)} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Source: 1997 IFBA Data.

Table 8d. 1998 Descriptive Information by Projected 1998-2000 Financial Status

	Financial Status				
	Total	Strong	Stable	Weak	Severe
Number of Observations	1153	211	515	261	166
Total Acres Operated	599	615	624	550	577
Row Crop Acres	499	510	550	416	471
Hay/Pasture Acres	100	105	74	134	105
Labor Months	16.8	16.5	16.5	17.3	17.4
Livestock Returns/\$100 Feed Fed	\$154.44	\$170.73	\$155.72	\$151.66	\$142.05
Sources of Farm Income:					
Crops	57%	66%	59%	50%	47%
Livestock	34%	23%	31%	40%	45%
Other	9%	12%	9%	9%	8%
Value of Farm Production Per Person	\$191,155	\$218,584	\$191,642	\$173,257	\$183,426
Value of Farm Production Per \$1 Exp.	\$1.41	\$1.67	\$1.45	\$1.26	\$1.19
Farm Types: ¹					
Cash Grain	33.6%	49.3%	34.6%	26.1%	22.3%
Grain-Livestock	29.0%	28.0%	31.3%	28.4%	24.1%
Hog	24.3%	7.1%	19.8%	33.7%	45.2%
Beef	7.3%	10.0%	7.8%	6.9%	3.0%
Dairy	1.6%	2.8%	1.6%	0.8%	1.2%
Mixed	<u>4.3%</u>	<u>2.8%</u>	<u>5.0%</u>	<u>4.2%</u>	<u>4.2%</u>
	100.0%	100.0%	100.0%	100.0%	100.0%
Operator Age	47.6	45.2	50.8	46.2	42.8

¹ Farm type definitions are as follows:

Cash grain farms if crops are greater than 95 percent of gross farm income.

Grain-livestock farms if crops are greater than 50 percent but less than 95 percent of gross farm income.

Hog farms if pork is greater than 50 percent of gross farm income.

Beef farms if beef is greater than 50 percent of gross farm income.

Dairy farms if dairy is greater than 50 percent of gross farm income.

Mixed farms are all other farms.

Source: 1997 IFBA Data.

Table 9a. 1998 Beginning Balance Sheet by Projected 1998-2000 Financial Status for Swine Farms

Number of Observations	Financial Status				
	Total 527	Strong 43	Stable 220	Weak 151	Severe 113
Farm Assets					
Feeding livestock	\$84,778	\$156,953	\$79,166	\$76,250	\$79,635
Corn	80,286	96,325	87,641	77,963	62,967
Soybeans	59,162	75,816	67,215	55,136	42,525
Other feed	10,024	27,957	11,102	7,012	5,125
Supplies, prepaid expenses	<u>32,368</u>	<u>68,962</u>	<u>39,653</u>	<u>23,570</u>	<u>16,017</u>
Total short-term assets	\$266,617	\$426,012	\$284,776	\$239,931	\$206,269
Breeding livestock	31,358	56,616	28,987	29,737	28,528
Machinery, equipment	<u>139,449</u>	<u>155,238</u>	<u>149,192</u>	<u>138,630</u>	<u>115,565</u>
Total intermediate assets	\$170,807	\$211,854	\$178,179	\$168,367	\$144,093
Land and improvements	<u>468,842</u>	<u>513,501</u>	<u>607,264</u>	<u>368,114</u>	<u>316,955</u>
Total assets	\$906,266	\$1,151,367	\$1,070,219	\$776,412	\$667,317
Farm Liabilities					
Operating notes, accounts payable	81,229	69,789	57,463	81,468	131,532
Intermediate and long-term due	2,430	3,548	1,647	2,067	4,013
CCC Loans	<u>6,517</u>	<u>1,266</u>	<u>3,790</u>	<u>9,038</u>	<u>10,455</u>
Total short term-debt	90,176	74,603	62,901	92,573	145,999
Intermediate-term debts	49,926	26,952	38,253	50,031	81,253
Long-term debts	<u>115,336</u>	<u>86,365</u>	<u>85,347</u>	<u>118,481</u>	<u>180,546</u>
Total liabilities	\$255,438	\$187,920	\$186,500	\$261,086	\$407,798
Farm Net Worth					
Net worth change for 1997	\$39,555	\$133,929	\$55,092	\$20,662	(\$1,359)
Working capital	\$176,442	\$351,409	\$221,875	\$147,358	\$60,269
Percent of observations	100.0%	8.2%	41.7%	28.7%	21.4%
Percent of total short-term liabilities	100.0%	6.8%	29.1%	29.4%	34.7%
Percent of total intermediate liabilities	100.0%	4.4%	32.0%	28.7%	34.9%
Percent of total long-term liabilities	100.0%	6.1%	30.9%	29.4%	33.6%
Percent of total liabilities	100.0%	6.0%	30.5%	29.3%	34.2%

Source: 1997 IFBA Data.

Table 9b. Projected 1998-2000 Average Annual Income Statement by Projected 1998-2000 Financial Status for Swine Farms ¹

	Financial Status				
	Total	Strong	Stable	Weak	Severe
Number of Observations	527	43	220	151	113
Income					
Crops:					
Corn	\$52,064	\$64,882	\$52,575	\$52,027	\$46,242
Soybeans	63,161	71,840	67,202	63,739	51,217
Crop insurance	499	1,452	365	460	450
Transition payments	10,942	13,893	11,249	10,991	9,154
Other crop income	<u>10,209</u>	<u>8,839</u>	<u>10,967</u>	<u>9,653</u>	<u>9,998</u>
Total Crop Income	\$136,875	\$160,907	\$142,359	\$136,870	\$117,061
Livestock:					
Swine	\$142,407	\$136,272	\$114,566	\$157,882	\$178,266
Beef	51,478	182,966	60,010	25,837	19,098
Dairy	1,596	1,588	2,973	0	1,050
Other livestock	<u>2,070</u>	<u>1,106</u>	<u>2,319</u>	<u>265</u>	<u>4,364</u>
Total Livestock Income	\$197,551	\$321,933	\$179,868	\$183,983	\$202,777
Other Farm Income	<u>4,731</u>	<u>21,450</u>	<u>3,460</u>	<u>2,775</u>	<u>3,460</u>
Total Farm Income	\$339,158	\$504,290	\$325,687	\$323,629	\$323,298
Expenses					
Operating expenses	\$118,762	\$125,241	\$114,668	\$125,733	\$114,952
Purchased feed	68,427	68,053	52,454	75,564	90,130
Purchased livestock	57,242	120,199	52,015	43,630	61,649
Other cash expenses	20,072	19,210	20,803	20,079	18,970
Rent	34,987	40,555	27,253	41,855	38,750
Interest	22,140	14,269	16,764	22,940	34,536
Depreciation	<u>24,377</u>	<u>26,781</u>	<u>25,752</u>	<u>23,428</u>	<u>22,052</u>
Total Expenses	\$346,007	\$414,307	\$309,708	\$353,228	\$381,039
Accrual Net Farm Income	(\$6,849)	\$89,982	\$15,979	(\$29,600)	(\$57,740)
+ Depreciation	\$24,377	\$26,781	\$25,752	\$23,428	\$22,052
+ Off Farm Income	8,468	21,696	7,780	6,244	7,746
- Family living expenses	<u>41,852</u>	<u>42,773</u>	<u>44,175</u>	<u>41,704</u>	<u>37,175</u>
Accrual Net Cash Flow	(\$15,856)	\$95,687	\$5,335	(\$41,631)	(\$65,117)

¹ Accrual statement, adjusted for inventory changes.

Source: 1997 IFBA Data.

Table 9c. Projected 1998-2000 Average Financial Ratios by Projected 1998-2000 Financial Status for Swine Farms

Number of Observations	Financial Status				
	Total 527	Strong 43	Stable 220	Weak 151	Severe 113
Ratios ¹					
ROA	-3.0%	9.4%	0.4%	-7.0%	-9.1%
PM	-5.4%	16.2%	0.0%	-11.9%	-15.6%
TO	46.7%	53.3%	34.4%	51.3%	61.9%
OER	0.87	0.67	0.81	0.94	0.98
DER	0.08	0.07	0.09	0.07	0.07
IER	0.07	0.04	0.05	0.07	0.11
NFIR	(0.02)	0.21	0.05	(0.09)	(0.16)
ROE	-11.8%	6.2%	-0.7%	-12.5%	-37.4%
COD	7.9%	7.5%	7.5%	7.9%	8.5%
D/A	0.32	0.16	0.17	0.29	0.72
Current Ratio	2.67	8.18	4.60	2.67	1.29

¹ Ratio Definitions are as follows:

$$\text{ROA (Return on Assets)} = \frac{\text{Accrual Net Farm Income} + \text{Interest Expense} - \text{Unpaid Family Labor}}{\text{Total Assets}}$$

$$\text{PM (Profit Margin)} = \frac{\text{Accrual Net Farm Income} + \text{Interest Expense} - \text{Unpaid Family Labor}}{\text{Gross Farm Revenue}}$$

$$\text{TO (Turnover Ratio)} = \frac{\text{Gross Farm Revenue}}{\text{Total Assets}}$$

$$\text{OER (Operating Expense Ratio)} = \frac{\text{Total Operating Expense} + \text{Fixed Expense} - \text{Interest Expense} - \text{Depreciation Expense}}{\text{Gross Farm Revenue}}$$

$$\text{DER (Depreciation Expense Ratio)} = \frac{\text{Depreciation Expense}}{\text{Gross Farm Revenue}}$$

$$\text{IER (Interest Expense Ratio)} = \frac{\text{Interest Expense}}{\text{Gross Farm Revenue}}$$

$$\text{NFIR (Net Farm Income Ratio)} = \frac{\text{Accrual Net Farm Income}}{\text{Gross Farm Revenue}}$$

$$\text{ROE (Return on Equity)} = \frac{\text{Accrual Net Farm Income} - \text{Unpaid Family Labor}}{\text{Net Worth}}$$

$$\text{COD (Cost of Debt)} = \frac{\text{Interest Expense}}{\text{Total Liabilities}}$$

$$\text{D/A (Debt/Asset Ratio)} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Source: 1997 IFBA Data.

Table 9d. 1998 Descriptive Information by Projected 1998-2000 Financial Status for Swine Farms

Number of Observations	Financial Status				
	Total	Strong	Stable	Weak	Severe
	527	43	220	151	113
Total Acres Operated	626	735	665	607	534
Row Crop Acres	545	591	655	475	425
Hay/Pasture Acres	81	144	10	132	108
Labor Months	19.6	21.1	19.4	20.3	18.7
Livestock Returns/\$100 Feed Fed	\$153.40	\$171.89	\$155.16	\$149.82	\$147.83
Sources of Farm Income:					
Crops	38%	40%	40%	37%	34%
Livestock	56%	53%	53%	57%	60%
Other	7%	7%	7%	7%	6%
Value of Farm Production Per Person	\$187,108	\$222,066	\$188,008	\$181,612	\$179,328
Value of Farm Production Per \$1 Exp.	\$1.39	\$1.81	\$1.47	\$1.29	\$1.19
Annual Swine Marketings					
Less than 1,000	49.5%	62.8%	52.7%	48.3%	39.8%
1,000 to 1,999	28.7%	11.6%	32.3%	27.2%	30.1%
2,000 to 2,999	10.6%	9.3%	7.7%	7.3%	21.2%
3,000 to 4,999	7.6%	9.3%	5.5%	13.2%	3.5%
5,000 and above	<u>3.6%</u>	<u>7.0%</u>	<u>1.8%</u>	<u>4.0%</u>	<u>5.3%</u>
	100.0%	100.0%	100.0%	100.0%	100.0%
Farm Types: ¹					
Cash Grain	1.5%	2.3%	0.5%	3.3%	0.9%
Grain-Livestock	33.6%	37.2%	38.2%	31.1%	26.5%
Hog	52.4%	34.9%	45.9%	57.0%	65.5%
Beef	3.2%	11.6%	4.1%	2.0%	0.0%
Dairy	0.2%	0.0%	0.0%	0.0%	0.9%
Mixed	<u>9.1%</u>	<u>14.0%</u>	<u>11.4%</u>	<u>6.6%</u>	<u>6.2%</u>
	100.0%	100.0%	100.0%	100.0%	100.0%
Operator Age	45.9	43.6	48.6	45.2	42.6

¹ Farm type definitions are as follows:

Cash grain farms if crops are greater than 95 percent of gross farm income.

Grain-livestock farms if crops are greater than 50 percent but less than 95 percent of gross farm income.

Hog farms if pork is greater than 50 percent of gross farm income.

Beef farms if beef is greater than 50 percent of gross farm income.

Dairy farms if dairy is greater than 50 percent of gross farm income.

Mixed farms are all other farms.

Source: 1997 IFBA Data.

Table 10a. Estimated 1998 Income Statement by Projected 1998-2000 Financial Status ¹

Total	Financial Status				166
	Strong 1153	Stable 211	Weak 515	Severe 261	
Number of Observations					
Income					
Crops:					
Corn	\$66,610	\$80,744	\$66,102	\$58,412	\$63,108
Soybeans	68,473	76,272	69,636	63,555	62,688
Crop insurance	3,380	4,727	2,812	3,458	3,307
Transition payments	16,574	19,268	16,304	15,646	15,449
Loan deficiency payments	4,343	4,562	4,401	4,155	4,177
Other crop income	<u>11,121</u>	<u>13,111</u>	<u>11,101</u>	<u>10,203</u>	<u>10,096</u>
Total Crop Income	\$170,501	\$198,684	\$170,356	\$155,429	\$158,825
Livestock:					
Swine	\$62,924	\$26,484	\$47,391	\$88,726	\$116,865
Beef	49,415	84,832	49,661	36,955	23,227
Dairy	4,547	6,186	6,160	1,868	1,671
Other livestock	<u>1,649</u>	<u>2,369</u>	<u>1,471</u>	<u>323</u>	<u>3,370</u>
Total Livestock Income	\$118,535	\$119,872	\$104,682	\$127,872	\$145,134
Other Farm Income	<u>3,997</u>	<u>9,415</u>	<u>3,207</u>	<u>2,012</u>	<u>2,684</u>
Total Farm Income	\$293,034	\$327,971	\$278,246	\$285,313	\$306,643
Expenses					
Operating expenses	\$100,870	\$94,175	\$97,293	\$106,515	\$111,603
Purchased feed	35,857	19,658	26,526	48,816	65,023
Purchased livestock	40,952	52,040	35,393	39,124	46,981
Other cash expenses	16,290	12,950	16,900	16,923	17,648
Rent	30,813	31,269	25,292	34,496	41,567
Interest	18,422	11,036	15,311	21,869	32,041
Depreciation	<u>20,009</u>	<u>20,729</u>	<u>20,421</u>	<u>19,167</u>	<u>19,141</u>
Total Expenses	\$263,213	\$241,857	\$237,136	\$286,909	\$334,004
Accrual Net Farm Income	\$29,821	\$86,114	\$41,110	(\$1,595)	(\$27,361)
+ Depreciation	\$20,009	\$20,729	\$20,421	\$19,167	\$19,141
+ Off Farm Income	10,249	18,925	9,263	6,552	8,090
- Family living expenses	<u>37,226</u>	<u>31,620</u>	<u>39,335</u>	<u>36,571</u>	<u>38,837</u>
Accrual Net Cash Flow	\$22,852	\$94,147	\$31,459	(\$12,448)	(\$38,967)

¹ Accrual statement, adjusted for inventory changes.

Source: 1997 IFBA Data.

Table 10b. Estimated 1998 Financial Ratios by Projected 1998-2000 Financial Status

	Financial Status				
	Total	Strong	Stable	Weak	Severe
Number of Observations	1153	211	515	261	166
Ratios: ¹					
ROA	2.4%	10.4%	3.8%	-2.6%	-4.5%
PM	7.0%	21.8%	10.7%	-3.5%	-6.5%
TO	45.1%	48.4%	34.9%	51.8%	62.4%
OER	0.74	0.60	0.70	0.84	0.88
DER	0.08	0.08	0.08	0.07	0.06
IER	0.07	0.04	0.06	0.08	0.11
NFIR	0.12	0.28	0.16	0.01	(0.05)
ROE	-1.6%	10.0%	3.8%	-3.9%	-25.9%
COD	7.9%	7.4%	7.5%	8.3%	8.4%
D/A	0.28	0.14	0.17	0.32	0.73
Current Ratio	2.92	7.12	4.23	2.36	1.25

¹ Ratio Definitions are as follows:

$$\text{ROA (Return on Assets)} = \frac{(\text{Accrual Net Farm Income} + \text{Interest Expense} - \text{Unpaid Family Labor})}{\text{Total Assets}}$$

$$\text{PM (Profit Margin)} = \frac{(\text{Accrual Net Farm Income} + \text{Interest Expense} - \text{Unpaid Family Labor})}{\text{Gross Farm Revenue}}$$

$$\text{TO (Turnover Ratio)} = \frac{\text{Gross Farm Revenue}}{\text{Total Assets}}$$

$$\text{OER (Operating Expense Ratio)} = \frac{(\text{Total Operating Expense} + \text{Fixed Expense} - \text{Interest Expense} - \text{Depreciation Expense})}{\text{Gross Farm Revenue}}$$

$$\text{DER (Depreciation Expense Ratio)} = \frac{\text{Depreciation Expense}}{\text{Gross Farm Revenue}}$$

$$\text{IER (Interest Expense Ratio)} = \frac{\text{Interest Expense}}{\text{Gross Farm Revenue}}$$

$$\text{NFIR (Net Farm Income Ratio)} = \frac{\text{Accrual Net Farm Income}}{\text{Gross Farm Revenue}}$$

$$\text{ROE (Return on Equity)} = \frac{(\text{Accrual Net Farm Income} - \text{Unpaid Family Labor})}{\text{Net Worth}}$$

$$\text{COD (Cost of Debt)} = \frac{\text{Interest Expense}}{\text{Total Liabilities}}$$

$$\text{D/A (Debt/Asset Ratio)} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Source: 1997 IFBA Data.

Table 11a. Estimated 1998 Income Statement by Projected 1998-2000 Financial Status for Swine Farms ¹

	Financial Status				
	Total	Strong	Stable	Weak	Severe
Number of Observations	527	43	220	151	113
Income					
Crops:					
Corn	\$56,193	\$69,970	\$56,844	\$56,163	\$49,724
Soybeans	70,092	79,724	74,577	70,734	56,838
Crop insurance	2,824	8,210	2,066	2,604	2,546
Transition payments	17,530	22,258	18,022	17,609	14,666
Loan deficiency payments	4,532	4,973	4,767	4,576	3,846
Other crop income	<u>10,209</u>	<u>8,839</u>	<u>10,967</u>	<u>9,653</u>	<u>9,998</u>
Total Crop Income	\$161,380	\$193,974	\$167,244	\$161,338	\$137,618
Livestock:					
Swine	\$135,806	\$129,956	\$109,256	\$150,564	\$170,003
Beef	48,922	173,878	57,029	24,554	18,150
Dairy	1,825	1,816	3,399	0	1,201
Other livestock	<u>2,070</u>	<u>1,106</u>	<u>2,319</u>	<u>265</u>	<u>4,364</u>
Total Livestock Income	\$188,622	\$306,756	\$172,003	\$175,382	\$193,717
Other Farm Income	<u>4,731</u>	<u>21,450</u>	<u>3,460</u>	<u>2,775</u>	<u>3,460</u>
Total Farm Income	\$354,734	\$522,180	\$342,707	\$339,495	\$334,794
Expenses					
Operating expenses	\$118,762	\$125,241	\$114,668	\$125,733	\$114,952
Purchased feed	68,427	68,053	52,454	75,564	90,130
Purchased livestock	57,242	120,199	52,015	43,630	61,649
Other cash expenses	20,072	19,210	20,803	20,079	18,970
Rent	34,987	40,555	27,253	41,855	38,750
Interest	22,140	14,269	16,764	22,940	34,536
Depreciation	<u>24,377</u>	<u>26,781</u>	<u>25,752</u>	<u>23,428</u>	<u>22,052</u>
Total Expenses	\$346,007	\$414,307	\$309,708	\$353,228	\$381,039
Accrual Net Farm Income	\$8,727	\$107,873	\$32,999	(\$13,734)	(\$46,244)
+ Depreciation	\$24,377	\$26,781	\$25,752	\$23,428	\$22,052
+ Off Farm Income	8,468	21,696	7,780	6,244	7,746
- Family living expenses	<u>41,852</u>	<u>42,773</u>	<u>44,175</u>	<u>41,704</u>	<u>37,175</u>
Accrual Net Cash Flow	(\$280)	\$113,578	\$22,355	(\$25,765)	(\$53,621)

¹ Accrual statement, adjusted for inventory changes.

Source: 1997 IFBA Data.

Table 11b. Estimated 1998 Financial Ratios by Projected 1998-2000 Financial Status for Swine Farms

	Financial Status				
	Total	Strong	Stable	Weak	Severe
Number of Observations	527	43	220	151	113
Ratios: ¹					
ROA	-1.1%	11.2%	2.2%	-4.9%	-7.2%
PM	-0.5%	20.0%	5.4%	-6.9%	-11.4%
TO	48.6%	55.2%	36.2%	53.3%	63.8%
OER	0.83	0.64	0.77	0.90	0.94
DER	0.07	0.07	0.08	0.07	0.07
IER	0.07	0.04	0.05	0.07	0.10
NFIR	0.03	0.25	0.10	(0.04)	(0.11)
ROE	-8.7%	8.4%	1.8%	-8.5%	-33.9%
COD	7.9%	7.5%	7.5%	7.9%	8.5%
D/A	0.32	0.16	0.17	0.29	0.72
Current Ratio	2.67	8.18	4.60	2.67	1.29

¹ Ratio Definitions are as follows:

$$\text{ROA (Return on Assets)} = \frac{(\text{Accrual Net Farm Income} + \text{Interest Expense} - \text{Unpaid Family Labor})}{\text{Total Assets}}$$

$$\text{PM (Profit Margin)} = \frac{(\text{Accrual Net Farm Income} + \text{Interest Expense} - \text{Unpaid Family Labor})}{\text{Gross Farm Revenue}}$$

$$\text{TO (Turnover Ratio)} = \frac{\text{Gross Farm Revenue}}{\text{Total Assets}}$$

$$\text{OER (Operating Expense Ratio)} = \frac{(\text{Total Operating Expense} + \text{Fixed Expense} - \text{Interest Expense} - \text{Depreciation Expense})}{\text{Gross Farm Revenue}}$$

$$\text{DER (Depreciation Expense Ratio)} = \frac{\text{Depreciation Expense}}{\text{Gross Farm Revenue}}$$

$$\text{IER (Interest Expense Ratio)} = \frac{\text{Interest Expense}}{\text{Gross Farm Revenue}}$$

$$\text{NFIR (Net Farm Income Ratio)} = \frac{\text{Accrual Net Farm Income}}{\text{Gross Farm Revenue}}$$

$$\text{ROE (Return on Equity)} = \frac{(\text{Accrual Net Farm Income} - \text{Unpaid Family Labor})}{\text{Net Worth}}$$

$$\text{COD (Cost of Debt)} = \frac{\text{Interest Expense}}{\text{Total Liabilities}}$$

$$\text{D/A (Debt/Asset Ratio)} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Source: 1997 IFBA Data.

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