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STARTING OR RE-ENTERING FARMING:  
IS THE TIMING RIGHT?

by

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STARTING OR RE-ENTERING FARMING:  
IS THE TIMING RIGHT?

Fred Benson and Michael Boehlje\*

Most of the news in agriculture centers around low crop prices, falling land values, farm foreclosures, huge grain surpluses and stress on the family farm. To be sure, many farm families are currently encountering severe financial stress. But there is another dimension of the changes and adjustments in agriculture; they may provide an opportunity for new entrants or displaced farmers with production experience to get started or re-enter farming. In some cases, the opportunity for entering may come at the expense of those in financial stress -- a younger generation may have the chance to start, while their older brothers are being forced to exit.

This phenomenon has occurred before in both agriculture and business. A good example that most can relate to is the beginning of a new business such as a restaurant. A new restaurant that can't produce the income needed to cover overhead costs will be refinanced at a lower level with a new operator. Some businesses may be refinanced three to four times before the investment cost can be covered by the business's cash flows. What generally happens is that at each turn the new owners that are making the investment will lose their down payments and maybe more. An example closer to agriculture is the restructuring of the ownership of feedlots in the Southern Plains during the mid-1970s. Many feedlots failed during this period; they

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were acquired by a new owner at a substantial discount, and became a profitable operation. Feedlots or restaurants may fail for many of the same reasons that a farm may fail. These reasons may include reduced demand for their product, low productivity, poor management, excessive leverage, or overhead costs that are too high for the business to cover. Therefore, entry or re-entry into agriculture must be evaluated carefully, and the risk associated with borrowed money or the potential for low commodity prices and productivity must be assessed and minimized through proper management techniques.

The improved chances for survival and success for a beginning or recycling farmer today compared to the last ten years are the result of at least five changes: (1) the purchase price of capital assets such as machinery and equipment has declined significantly, allowing a beginning or recycling farmer to obtain the necessary asset base to operate with a significantly lower capital outlay; (2) purchased input prices, including seed, fertilizer, chemicals and energy, have stabilized and in some cases are declining, thus reducing operating costs as well as the amount of operating capital needed to farm; (3) government programs in the form of the 1985 Food Security Act and the multi-peril crop insurance program administered by the Federal Crop Insurance Corporation provide mechanisms for downside risk protection with respect to both commodity prices and crop yields; (4) land rental options and rental rates are becoming increasingly favorable for tenants; and (5) interest rates are at lower levels and will be less burdensome if they remain at their current levels or continue to fall.

The following discussion attempts to analyze the potential to begin farming under the economic conditions that will exist during the remaining years of the 1980s. Our purpose is not to promote entry into agriculture, but to provide information so that those who are contemplating entry or recycling decisions can evaluate the economic potential of various alternatives, as well as present the procedures that can be used to evaluate the opportunity to get started or restart in farming.

#### The Initial Conditions

To complete the relatively straightforward budgeting analysis of the economic potential to start farming, a number of assumptions were made: (1) a line of used machinery to farm 400 acres of cropland in South Central Minnesota can be acquired for \$60,000; the specific machines and their cost are identified in Table 1; (2) the beginning farmer has \$20,000 of capital to invest in the operation and can borrow the remaining \$40,000 for machinery purchase at 12½% interest for 5 years; (3) three alternative methods for obtaining the use of land are evaluated -- cash rent at \$85 per acre, 50/50 crop share rent, and purchase of land by borrowing \$1,000 per acre at 13% interest with a 25-year loan. (4) A lender will provide adequate operating funds to finance the farming operation at 13% interest; see Table 2 for credit requirements. (5) The 400 acres of land to be farmed are all tillable and have a 200 acre government program corn base; the farm also has a set of buildings which can be used in a farrow to finish hog operation;

Table 1. Farm Machinery Set and Approximate Used Price to Farm 400 Acres in South Central Minnesota

<u>Item</u>	<u>Approximate Cost Used</u>
Utility tractor 80-100 HP	\$ 8,000
Main tractor 130-145 HP	12,000
Disk chisel 11 FT	3,000
Disk 20 FT	4,000
Field cultivator 18-24 FT	2,000
Planter 6 Row	1,500
Row cultivator	600
Sprayer	300
Combine with heads medium sized	22,000
Gravity wagons (3)	900
Grain auger 60 FT	<u>2,000</u>
TOTAL COST	\$ 56,300

Table 2. Total credit required for each of the three land tenure options

	<u>Cash Rent</u>	<u>Crop Share</u>	<u>Ownership</u>
Enterprise operating expense	62,702	31,351	62,702
Machinery	40,000	40,000	40,000
Land	<u>17,000<sup>1</sup></u>	<u>--</u>	<u>--</u>
Total Credit Line	119,702	71,351	502,702

<sup>1</sup>One half of cash rent paid prior to planting.

(6) the farming operation includes 160 acres of corn, 200 acres of soybeans, 40 acres of set-aside, and a 25-head farrow-finish hog operation farrowing twice a year; see Appendix tables for enterprise budgets. (7) The farm operator participates in the federal feedgrains price support program and also buys multi-peril crop insurance; government program assumptions are summarized in Table 3; (8) price assumptions include \$1.75 per bushel corn, \$4.67 per bushel soybeans and \$45 per cwt. hogs; (9) three levels of productivity are assumed -- high level productivity (150 bu. corn, 45 bu. soybeans and 1.8 litters per sow per year); average productivity (115 bu. corn, 30 bu. soybeans and 1.7 litters per sow per year); and low productivity (80 bu. corn, 25 bu. soybeans and 1.6 litters per sow per year, see Table 3); (10) cost assumptions for each productivity level reflect the recommended input levels and expected prices of seed, fertilizer, chemicals, fuel, etc., for yields attained by the high productivity level. Actually, if lower yield goals are used for planning, costs will be reduced because of typical reductions in inputs such as fertilizer, etc.

Table 4 illustrates the economic analysis for the high productivity level for 1986 using cash rent as the land tenure option. Similar analyses were completed for the crop share option and the ownership or purchase option for land tenure, see Tables 5 and 6, respectively. The three land tenure options were analyzed for three years to reflect the scheduled changes in government price and income supports (including Gramm-Rudman cuts) for agriculture at the three levels of productivity.

Table 3. Basic assumptions used in developing budgets for getting started or re-entering farming

	PRODUCTIVITY LEVEL		
	<u>High</u>	<u>Average</u>	<u>Low</u>
<b>Production</b>			
Corn Yield	150 bu.	115 bu.	80 bu.
Soybean Yield	45 bu.	30 bu.	25 bu.
ASCS Base Yield for Corn	130 bu.	100 bu.	100 bu.
Far-fin Yield litters/sow/yr	1.8	1.7	1.6
<b>Crop Insurance<sup>1</sup></b>			
Corn Yield Base	120 bu.	95 bu.	90 bu.
SB Yield Base	38 bu.	25 bu.	20 bu.
Premium corn	\$ 8.88	\$ 7.98	\$ 8.64
Premium SB	\$ 3.80	\$ 4.20	\$ 4.32
<b>Deficiency Payments<sup>2</sup></b>			
Year One	\$.98	\$.98	\$.98
Year Two	\$.95	\$.95	\$.95
Year Three	\$.92	\$.92	\$.92

<sup>1</sup> Assumes 65% coverage level and middle price election

<sup>2</sup> Without/with estimated Gramm-Rudman impacts



Table 4. Annual economic analysis for the high productivity level using cash rent as the land tenure option for 1986

	<u>Crop 1 Corn</u>	<u>Crop 2 Soybeans</u>	<u>Crop 3 Set-aside</u>	<u>Livestock Far-Fin</u>	<u>Total Farm</u>
Assumptions: Size of farm in acres				400	
Government program base				200.00	
Expected payment/set-aside acre				480.35	
Interest rate on operating				13.00%	
Acres - head	160	200	40	25	
Yield	150	45		1.80	
Price	1.75	4.67		779.63	
Total return	262.50	210.15	532.35	1,403.33	140,407
Operating expenses	165.60	66.68	15.00	890.80	62,702
Interest on cash expenses	10.76	4.33	.98	57.90	
Land charge	85.00	85.00	85.00		
Insurance	8.88	3.80		42.50	
Total cash expenses	270.24	159.81	100.98	991.20	104,021
Net cash/unit	-7.74	50.34	431.38	412.13	
Net cash total	-1,239.04	10,067.16	17,255.00	10,303.30	36,386
Total net cash farm income before debt service				36,386.42	
Farm machinery loan				40,000.00	
Annual payment -- principal and interest				11,234.16	
Returns to labor, management and operator capital				25,152.26	
Total Operating Capital				79,702.00	

Table 5. Annual economic analysis for the high productivity level using crop share as the land tenure option for 1986

Assumptions:	Tenant's share					.5
	Size of farm					400
	Government program base					200.00
	Expected payment/set-aside acre					480.35
	Interest rate on operating					.13
		<u>Crop 1</u>	<u>Crop 2</u>	<u>Crop 3</u>	<u>Livestock</u>	<u>Total</u>
		<u>Corn</u>	<u>Soybeans</u>	<u>Set-aside</u>	<u>Far-Fin</u>	<u>Farm</u>
Acres - head		160	200	40	25	
Yield		150	45		1.80	
Price		1.75	4.67		779.63	
Total return		131.25	105.08	266.18	1,403.33	87,745
Operating expenses		165.60	66.68	15.00	890.80	31,357
Interest on cash expenses		10.76	4.33	.98	57.90	
Land charge		.00	.00	.00		
Insurance		6.56	5.25		42.50	
Total cash expenses		91.46	38.13	7.99	991.20	47,360
Net cash/unit		39.79	66.94	258.19	412.13	
Net cash total		6,366.08	13,388.58	10,327.50	10,303.30	40,385
	Total net cash farm income before debt service				40,385.46	
	Farm machinery loan				40,000.00	
	Annual payment -- principal and interest				11,234.16	
	Returns to labor, management and operator capital				29,151.30	
	Total Operating Capital				31,351.00	

Table 6. Annual economic analysis for the high productivity level using land purchase as the land tenure option for 1986

Assumptions:	Size of farm	400			
	Government program base	200.00			
	Expected payment/set-aside acre	480.35			
	Land purchase price/acre	1000			
	Land interest rate	.13			
	Length of loan	25			
	Land tax/acre	12.00			
	Interest rate on operating	.13			
	<u>Crop 1</u>	<u>Crop 2</u>	<u>Crop 3</u>	<u>Livestock</u>	<u>Total</u>
	<u>Corn</u>	<u>Soybeans</u>	<u>Set-aside</u>	<u>Far-Fin</u>	<u>Farm</u>
Acres - head	160	200	40	25	
Yield	150	45		1.80	
Price	1.75	4.67		779.63	
Total return	262.50	210.15	532.35	1,403.33	140,407
Cash expense	165.60	66.68	15.00	890.80	62,702
Interest on cash expenses	10.76	4.33	.98	57.90	
Land charge	136.43	136.43	136.43		
Land tax	12.00	12.00	12.00		
Insurance	8.88	3.80		42.50	
Total cash expenses	333.67	223.24	164.40	919.20	129,391
Net cash/unit	-71.17	-13.09	367.95	412.13	
Net cash total	-11,387.19	-2,618.03	14,717.96	10,303.30	11,016
	Total net cash farm income before debt service			11,016.05	
	Farm machinery loan			40,000.00	
	Annual payment -- principal and interest			11,234.16	
	Returns to labor, management and operator capital			-218.11	
	Total Operating Capital			62,702.00	

### Results

Table 7 summarizes the budgeted three-year average net cash income before land payments and debt service on machinery purchases, and Table 8 summarizes total net cash income after land payments and machinery debt service for the specified productivity levels and land acquisition strategies. Note that after servicing all debt, operators with average productivity are projected to generate \$-16,690 by cash renting, \$38,361 with a crop share arrangement, and \$-92,802 if the land is purchased. Incomes increase significantly for operations with high level productivity -- cash income after debt service is \$75,040, \$87,246 and \$-1,070 for cash rent, crop share rent and ownership strategies, respectively. In the case of low level productivity, only the crop share rent land acquisition strategy generates a positive cash income after debt servicing.

The results of Tables 7 and 8 clearly illustrate the importance of productivity and the land use strategy in determining the income level as well as the risk associated with recycling or entering farming. Managers with low and even average level productivity may find that the income levels generated are not adequate to compensate for the risk of deficient cash flows; managers with high productivity, on the other hand, generate significantly higher levels of income for all three land acquisition strategies. However, even assuming high productivity, the cash income after debt servicing using the ownership land acquisition strategy does not generate enough income to cover operating, machinery and land acquisition (ownership) costs.

Table 7. Average annual net cash income before debt service on machinery for three productivity levels and three land tenure options\*

	Productivity Level		
	<u>Average</u>	<u>High</u>	<u>Low</u>
Cash Rent	\$ 5,671	\$ 36,248	\$-10,878
Crop Share	24,021	40,316	14,837
Ownership	-19,700	10,877	-36,248

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\*Assumes Gramm-Rudman budget cuts reduce expected deficiency payments reduced to \$0.88 per bushel for corn in 1986, \$0.90 in 1987 and \$0.88 in 1988.

Table 8. Total net cash income after machinery and land payments for the three productivity levels and three methods of obtaining use of the land for the three-year period 1986 through 1988\*

	Productivity Level		
	<u>Average</u>	<u>High</u>	<u>Low</u>
Cash Rent	\$-16,690	\$ 75,040	\$-66,336
Crop Share	38,361	87,246	10,808
Ownership	-92,802	-1,070	-142,448

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\*Assumes Gramm-Rudman in effect.

Net cash income after all cash flow costs with the ownership options is lower than those generated using either cash rent or crop share rental arrangements. Land prices for the high productivity farmer, using our stated assumptions, would have to decline to approximately \$990 per acre in order to generate break-even cash flows. Land prices would have to decline to \$430 per acre for the average farmer and to \$130 per acre for the low productivity farmer in order to cash flow. But a breakeven cash flow does not allow a margin breakdown that must be considered in order to cover the possible negative cash flows resulting from yields or prices varying below the stated planning yields and prices.

Note that in all cases the crop share rental arrangement generates higher levels of cash income after debt servicing than cash rent or ownership acquisition strategies. Furthermore, even in the case of low productivity, cash income is positive with the crop share rent arrangement, compared to negative cash incomes with cash rent and ownership. Consequently, the risk is lower and the return higher to beginning or re-entering farmers with the crop share rent strategy compared to cash rent or ownership options.

The crop share rent strategy has the lowest credit requirements. Operating capital needs total \$79,702 for the cash rent strategy, \$31,351 for the crop share rent alternative, and \$62,702 for the ownership strategy; see Table 2. Total borrowed capital for machinery purchases, annual operating and land use with the crop share rental option is \$71,351 compared

to \$502,702 for the ownership option. Therefore, because of the reduced capital requirements, the crop share option will likely be the easiest way into or back into farming.

The total amount of labor utilized for this operation, 3,573 hours (see Appendix, Table 4), suggests that adequate time should be available for machinery and equipment maintenance and repair, and possibly even to obtain some off-farm employment.

#### Conclusions

The opportunities for beginning or re-entering farmers to succeed in the agricultural industry have improved significantly in the last few years. This improvement is a result of lower-priced capital assets, slightly lower costs of purchased inputs, government programs that provide protection from low prices and yields, lower cost land rental and purchase options, and reduced interest rates and capital costs. The result of this study indicate that if a crop share rental arrangement is utilized, the downside risk of not being able to service machinery and operating debt is very low. In contrast, the ownership option of land acquisition results in significantly lower cash incomes after debt servicing and substantially more downside risk; in fact, with all productivity levels, cash income after debt servicing is negative if land is purchased. This suggests that land purchasing may not be an attractive entry or recycling strategy, but that rental, particularly crop share rental, may provide an attractive option for starting or re-starting in farming.

Entry or recycling should be evaluated carefully and strategies to reduce risk exposure, including government program participation and the purchase of crop insurance as well as land rental, should be seriously considered as key components of the entry or recycling plan. If appropriate risk management strategies are used, reasonable starting or re-entry opportunities exist in agriculture today.



Appendix Table 1. 1986 Enterprise Budgets for South Central Minnesota

<u>Returns/acre</u>	<u>Corn after beans</u>	<u>Soybeans per acre</u>
Yield/acre	150.00 bu.	45.00 bu.
Price/unit	1.75	4.67
Second product yield	--	--
Second product price/unit	--	--
TOTAL RETURNS	262.50	210.15
<u>Cash expense/acre</u>		
Seed	21.45	11.00
Fertilizer	29.35	9.90
Lime	--	--
Chemical	25.00	27.00
Special labor	--	--
Fuel	11.71	5.16
Repairs and maintenance	33.09	13.62
Drying	45.00	--
Irrigation operation	--	--
Land taxes	12.00	12.00
Other cash expenses	--	--
TOTAL CASH EXPENSE	177.60	78.68
<u>Overhead cost/acre</u>		
Interest on cash expenses	11.54	5.11
Family or hired labor	18.25	8.12
Machine ownership cost	50.13	24.31
Land charge	68.00	68.00
Insurance or risk	6.56	5.25
Other overhead costs	--	--
TOTAL OVERHEAD COST	154.48	110.79
<u>Total Cost</u>	332.08	189.47
<u>Return over total cost</u>	-69.58	20.68
<u>Return over cash cost</u>	84.90	131.47
<u>Production cost/unit</u>		
110 pct. yield given	2.01	3.83
100 pct. yield given	2.21	4.21
90 pct. yield given	2.46	4.68

Source: What to Grow in 1986 - Crop Budgets for Soil Area 4, Fred J. Benson and Karen E. Gensmer, Minnesota Extension Service, University of MN, AG-FS-0937, revised 1986.

Appendix Table 2. Government Program Assumptions for Corn

	<u>1986</u>	<u>1987</u>	<u>1988</u>
Target price	\$ 3.03	\$ 3.03	\$ 2.97
Loan rate	\$ 2.40		
Actual loan rate	1.92	1.81	1.74
Maximum deficiency payment	1.11	1.22	1.23
Expected deficiency payments	1.03	1.15	1.15
Gramm-Rudman expected cuts in deficiency payments <sup>1</sup>	4.3%	17%	20%
Expected deficiency payments after Gramm-Rudman	0.98	0.95	0.92

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<sup>1</sup> Assumes a worse case scenario.

Appendix Table 3. Complete hog program - farrow to finish, 3-year forward planning

	Productivity Level		
	High	Average	Low
Litters/year	1.80	1.70	1.60
Litter size	7.6	7.6	7.6
Slaughter price	\$45	\$45	\$45
Cull sow price	\$30	\$30	\$30
Market weight	225	225	225
Market weight sows	450	450	450
<u>Returns</u>			
7.3 pigs x litters/year	1330	1256	1182
.3 sows x litters/year	73	69	65
Total returns/sow/year	1403	1325	1247
<u>Operating costs</u> <sup>1</sup>			
Corn at 2.00/bu	357	357	357
Supplement \$13/cwt.	280	280	280
Marketing and hauling	26	26	26
Breeding	7	7	7
Vet and medicine	29	29	29
Electricity and fuel	59	59	59
Tractor and equipment repair	39	39	39
Interest on livestock	34	34	34
Miscellaneous <sup>2</sup>	60	60	60
Total Operating	891	891	891
Returns to Labor, Management and Facilities <sup>3</sup>	512	434	356

<sup>1</sup>Calculated at 1.7 litters/year

<sup>2</sup>Added to cover added expenses in converting buildings and equipment to hog production

<sup>3</sup>Does not include insurance which is added in later.

Source: "Hog Producers Planning Guide," Hasbargen, Paul, et al., Minnesota Extension Service, University of Minnesota, St. Paul, Farm Management Series FM-503, revised November 1984.

Appendix Table 4. Hours of labor by enterprise for beginning or re-entering farmers

Corn	2.93 Hrs./AC. x 160 acres =	469 hrs.
Soybeans	1.23 Hrs./AC. x 200 acres =	246 hrs.
Set-aside	0.20 Hrs./AC. x 40 acres =	<u>8 hrs.</u>
	Total hours required for crops	723 hrs.
Swine	20 hrs./litter x 1.7 litters/yr x 25 sows	<u>850 hrs.</u>
	Total hours required	1,573 hrs.