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Cultivating Financial Security: A Guide on Farm Finances, Taxes, and Crop Insurance

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Overview

Crop insurance as it relates to agricultural finance is important when creating financial security for a successful farm. Crop insurance has both financial and tax implications that directly impact a producer's tax bill and budget at the farm level. Understanding the impact of these factors is imperative for informed farm planning, debt financing, and determining correct taxable income during the tax reporting season. These concepts serve as foundational knowledge so a farmer can be prepared when creating budgets and managing their production and financial risk. We discuss the Schedule F tax form (e.g., profit and loss from farming) and provide a hypothetical pre-harvest budget including crop insurance. All serve to highlight the importance of planning early to find financial peace of mind when uncontrollable and catastrophic production losses occur.

A Brief History

The United States (U.S.) agricultural sector experienced the most extreme financial crisis – only superseded by the Great Depression – from 1981-1986 (Barnett, 2000). During the decade prior to 1980, a bubble (similar to the 2008 housing crisis) was created in agriculture with sharp increases in debt levels, land values, and demands for U.S. commodities leading to increased production and investment in farmland. During this time, the real price of corn increased by 35% while farmland values rose by 88% (Bergman et al. 2020). In other words, the potential for high returns in a stable sector attracted more investment in agriculture. Additionally, the U.S. tax code leading up to the 1980s created incentives for investment, with the "income tax deduction" being the most important incentive (Barnett, 2000). The income tax deduction incentive meant interest expenses could be used to reduce taxable income, thus dropping the "effective" interest rate a producer pays on a loan – creating an incentive to increase farm debt. With increasing inflation, producers and investors alike saw the need to invest their money in appreciating assets, such as farmland, rather than retaining cash reserves.

The financial crisis began in 1981 by a combination of 1) tightening monetary policy by the Federal Reserve in 1979 that increased interest rates and raised the farm debt burden, 2) the strengthening U.S. dollar

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making U.S. commodities more expensive in the global market, and 3) a 1980 ban on grain exported to the Soviet Union that plunged export demand (Bergman et al. 2020). These factors exacerbated leveraging issues since producers had heavily invested in agriculture during the boom of the '70s. These producers faced declining markets resulting from reduced export demand due to a strong U.S. dollar coupled with sharp increases in borrowing costs following monetary policy decisions in 1979. Thus, the 1980s in agriculture was a period of financial distress from declines in farm income, steep declines in farmland values, and tight credit conditions (Bergman et al. 2020). For example, the average value of farmland and commodity prices dropped by 50% during the farm crisis. The effects of the crisis were felt well beyond the farm gate; over 100 agricultural banks failed during this period (Barnett, 2000).

The farm crisis greatly increased producer interest in crop insurance policies as a means of stabilizing farm revenue to alleviate similar crises that could arise in the future[1]. These policies aim to strengthen the farm sector's balance sheets by providing additional tools with which producers could better manage their financial risks. Over the years, the federal crop insurance program offerings have expanded and evolved to offer more and better risk management products. Today, by far the most popular insurance products on commercial crops are revenue protection (RP) policies, which allow producers to guarantee a designated level of revenue protection against falling commodity prices (Biram and Rainey, 2023b). RP allows producers to better equip themselves to cover farm debt obligations since they are guaranteed to receive a portion of their expected revenue.

The "Schedule F" and Tax Implications of Crop Insurance

The Schedule F (commonly referred to as the "Profit and Loss from Farming") is an Internal Revenue Service (IRS) form that allows producers to report their net profit (or losses) from agricultural production (IRS, 2022). Schedule F pertains to reporting revenues and expenses from principal farming activities, such as grain and livestock sold, income from cooperatives, farm program payments, and federal crop insurance distributions. An example Schedule F is provided in this fact sheet so producers can familiarize themselves with the form and any income and cost categories included. Discussion here will not focus on the intricacies of filling out a Schedule F but will focus on crop insurance premiums and indemnities as they relate to Schedule F and taxes.

Crop insurance proceeds (or indemnities) are included on Schedule F as farm income and can be reported in several ways. Consider lines 6a-d where crop insurance income is reported. Line 6 on Schedule F is income reporting for crop insurance and federal crop disaster payments, while line 6a pertains to the amount received from these programs and 6b is the taxable amount of that income. A producer who is awarded a $50,000 crop insurance indemnity would receive a 1099-MISC from the crop insurance company containing that payment amount. The $50,000 would then be reported on line 6a as the amount received that year. The producer is then presented with two options: they can elect to have the indemnity included in that year's taxable income (in which case, the producer would include the dollar amount on line 6b) or have the income deferred to next year. Income can be deferred if, and only if, the insured crop (or crops) are typically sold the year after production (checkmark line 6c while leaving 6b blank). The deferment of income protects the producer from being taxed on excess income in one year if their regular practice would have been to sell the crop the following year (Tidgren, 2019). If crop insurance payments are deferred, next year's Schedule F would include the amount deferred from the previous year on line 6d. Furthermore, a producer is eligible to deduct their crop insurance premium expenses from their tax bill by recording the amount they paid for crop insurance policies in that year on Schedule F – Part II, line 20 (insurance (other than health)). For example, if a producer paid $40,000 in total for their premiums, then line 20 would include $40,000.

Crop Insurance and Debt Obligations

Using crop insurance to guarantee debt obligation coverage is one of many ways insurance can be used as a risk management tool. Operating loans are typically revolving lines of credit that assist in covering pre-harvest expenses (e.g., seed cost, fertilizer, fuel, etc.). Table 1 below contains example revenue and pre-harvest expenses that might be incurred by a soybean producer in Arkansas. We assume the farm-level Actual

[1] The premium subsidy was first introduced into the federal multiple peril crop insurance (MPCI) program in 1980 with the Federal Crop Insurance Act (Biram, 2023, Biram and Coble, 2023), and crop insurance participation was relatively low until the passage of this act (Knight and Coble, 1997).

Table 1. Simplified Sample Budget for an Arkansas Soybean Producer

REVENUE		
APH Yield	Per Acre	50
Projected Price (USDA-RMA)	Per Bushel	$12.60
Expected Revenue (324 Acres)		$204,120.00
Expected Revenue (500 Acres)		$315,000.00
PRE-HARVEST EXPENSES		
Seed	Per Acre	$57.00
Fertilizer	Per Acre	$81.55
Herbicide, Pesticide, & Fungicide	Per Acre	$155.14
Fuel (Irrigation & Equipment)	Per Acre	$29.24
Expected Pre-Harvest Expenses (324 Acres)		$104,629.32
Expected Pre-Harvest Expenses (500 Acres)		$161,465.00

*Note: 324-acre farm size was derived from the 2023 Arkansas Agriculture Profile. Pre-harvest expenses are based on the University of Arkansas' 2023 furrow-irrigated conventional soybean enterprise budget.

Production History (APH) soybean yield to be the state-average yield of 50 bushels per acre, and the Projected Price[2] for the 2024 growing season to be $12.60 per bushel.

Consider a producer who finances an operating loan to cover their pre-harvest expenses (e.g., $105,000 based on a 324-acre farm). Additionally, they elect to use RP crop insurance to guarantee a level of revenue. For example, at a coverage level of 50% the producer would be guaranteed $102,060 based on an expected revenue of $204,120 ($204,120 * 0.50 = $102,060). A producer may look to cover their operating debt obligations to manage the risk of a catastrophic loss. Will the RP guarantee cover the entire operating loan obligation? Additionally, we consider the option of a producer taking Catastrophic Risk Protection Endorsement (CAT) coverage that triggers in the event of a yield loss of 50% or more. CAT coverage provides producers with low-cost coverage on 50% of APH yield and 55% of the RMA projected price (Biram and Coble, 2023). For this fact sheet, we assume total yield loss (e.g., 0 bushels per acre). Tables 2 and 3 below highlight realized returns to a producer net of their operating loan obligation based on a 324-acre and 500-acre farm. Returns are compared over an interest rate range of 5% to 10% (.5% increments) and RP elected coverage levels from 50% to 85% (5% increments).

If the dollar value within Table 2 is positive, then operating loan debt is covered with additional funds to pay other debt obligations. If the amount is negative, a producer would be unable to finance their entire operating loan only using RP or CAT payments. It's important to note that pre-harvest expenses are only an estimate and RP insurance premiums and CAT administrative fees are not included in this analysis.

Furthermore, we assume an annual interest rate with the producer paying the operating loan in one lump-sum at the end of harvest; that is, if the annual interest rate is 5% and payment is made at the end of harvest (assuming 9 months) with an operating loan of $105,000, the monthly payment would be $11,993.13 with a total pay off amount of $107,938.21 ($11,993.13 * 9 months). We find farm size may play an important part in this decision since RP indemnities increase with the number of acres despite increased production costs with increased farm size. Also, under no circumstance does CAT coverage ensure a producer that they can

[2] See Biram and Rainey (2023a, 2023b) for more information on APH yield and the USDA-RMA Projected Price.

Table 2. Returns Above $105,000 Operating Loan (324 Acres)

	CAT COVERAGE	REVENUE PROTECTION (RP) CROP INSURANCE COVERAGE LEVEL							
OPERATING LOAN INTEREST RATE	50% Yield, 55% Price	50%	55%	60%	65%	70%	75%	80%	85%
5.00%	-$51,805.21	-$5,878.21	$4,327.79	$14,533.79	$24,739.79	$34,945.79	$45,151.79	$55,357.79	$65,563.79
5.50%	-$52,101.39	-$6,174.39	$4,031.61	$14,237.61	$24,443.61	$34,649.61	$44,855.61	$55,061.61	$65,267.61
6.00%	-$52,398.01	-$6,471.01	$3,734.99	$13,940.99	$24,146.99	$34,352.99	$44,558.99	$54,764.99	$64,970.99
6.50%	-$52,695.05	-$6,768.05	$3,437.95	$13,643.95	$23,849.95	$34,055.95	$44,261.95	$54,467.95	$64,673.95
7.00%	-$52,992.51	-$7,065.51	$3,140.49	$13,346.49	$23,552.49	$33,758.49	$43,964.49	$54,170.49	$64,376.49
7.50%	-$53,290.41	-$7,363.41	$2,842.59	$13,048.59	$23,254.59	$33,460.59	$43,666.59	$53,872.59	$64,078.59
8.00%	-$53,588.73	-$7,661.73	$2,544.27	$12,750.27	$22,956.27	$33,162.27	$43,368.27	$53,574.27	$63,780.27
8.50%	-$53,887.47	-$7,960.47	$2,245.53	$12,451.53	$22,657.53	$32,863.53	$43,069.53	$53,275.53	$63,481.53
9.00%	-$54,186.64	-$8,259.64	$1,946.36	$12,152.36	$22,358.36	$32,564.36	$42,770.36	$52,976.36	$63,182.36
9.50%	-$54,486.24	-$8,559.24	$1,646.76	$11,852.76	$22,058.76	$32,264.76	$42,470.76	$52,676.76	$62,882.76
10.00%	-$54,786.26	-$8,859.26	$1,346.74	$11,552.74	$21,758.74	$31,964.74	$42,170.74	$52,376.74	$62,582.74

*Note: Average interest rate on operating loans in Q2 2023 is 8.25% with an average loan size of $65,000 (KC-FED, 2023). CAT coverage levels based on data in Table 1 for yield and projected price are 25 bushels and $6.93, respectively.

Table 3. Returns Above $162,000 Operating Loan (500 Acres)

	CAT COVERAGE	REVENUE PROTECTION (RP) CROP INSURANCE COVERAGE LEVEL							
OPERATING LOAN INTEREST RATE	50% Yield, 55% Price	50%	55%	60%	65%	70%	75%	80%	85%
5.00%	-$79,908.24	-$9,033.24	$6,716.76	$22,466.76	$38,216.76	$53,966.76	$69,716.76	$85,466.76	$101,216.76
5.50%	-$80,365.21	-$9,490.21	$6,259.79	$22,009.79	$37,759.79	$53,509.79	$69,259.79	$85,009.79	$100,759.79
6.00%	-$80,822.84	-$9,947.84	$5,802.16	$21,552.16	$37,302.16	$53,052.16	$68,802.16	$84,552.16	$100,302.16
6.50%	-$81,281.13	-$10,406.13	$5,343.87	$21,093.87	$36,843.87	$52,593.87	$68,343.87	$84,093.87	$99,843.87
7.00%	-$81,740.08	-$10,865.08	$4,884.92	$20,634.92	$36,384.92	$52,134.92	$67,884.92	$83,634.92	$99,384.92
7.50%	-$82,199.68	-$11,324.68	$4,425.32	$20,175.32	$35,925.32	$51,675.32	$67,425.32	$83,175.32	$98,925.32
8.00%	-$82,659.95	-$11,784.95	$3,965.05	$19,715.05	$35,465.05	$51,215.05	$66,965.05	$82,715.05	$98,465.05
8.50%	-$83,120.87	-$12,245.87	$3,504.13	$19,254.13	$35,004.13	$50,754.13	$66,504.13	$82,254.13	$98,004.13
9.00%	-$83,582.45	-$12,707.45	$3,042.55	$18,792.55	$34,542.55	$50,292.55	$66,042.55	$81,792.55	$97,542.55
9.50%	-$84,044.68	-$13,169.68	$2,580.32	$18,330.32	$34,080.32	$49,830.32	$65,580.32	$81,330.32	$97,080.32
10.00%	-$84,507.58	-$13,632.58	$2,117.42	$17,867.42	$33,617.42	$49,367.42	$65,117.42	$80,867.42	$96,617.42

cover their operating loan debt at the representative loan and farm size. Tables 2 and 3 show that returns based on a 50% RP coverage level will be negative regardless of farm size. Increasing their coverage to 55% would mean a producer could guarantee covering their operating loan. In fact, at an interest rate of 7% and an RP coverage level of 55%, a producer could guarantee $10,206 and $15,750 more in revenue for a 324-acre and 500-acre farm size, respectively. Currently, a producer could expect to pay an interest rate ranging from 8 – 8.50% and would be advised to elect at least a 55% RP coverage level to ensure operating loan obligations are met.

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SCHEDULE F
(Form 1040)

Department of the Treasury
Internal Revenue Service

Profit or Loss From Farming

Attach to Form 1040, Form 1040-SR, Form 1040-NR, Form 1041, or Form 1065.
Go to *www.irs.gov/ScheduleF* for instructions and the latest information.

OMB No. 1545-0074

[redacted]

Name of proprietor			Social security number (SSN)
A Principal crop or activity	**B Enter code from Part IV**	**C** Accounting method: ☐ Cash ☐ Accrual	**D Employer ID number (EIN)** (see instr.)

E Did you "materially participate" in the operation of this business during 2022? If "No," see instructions for limit on passive losses ☐ Yes ☐ No

F Did you make any payments in 2022 that would require you to file Form(s) 1099? See instructions . . . . ☐ Yes ☐ No

G If "Yes," did you or will you file required Form(s) 1099? . . . . ☐ Yes ☐ No

Part I Farm Income—Cash Method. Complete Parts I and II. (Accrual method. Complete Parts II and III, and Part I, line 9.)

1a	Sales of purchased livestock and other resale items (see instructions)	1a					
b	Cost or other basis of purchased livestock or other items reported on line 1a . . .	1b					
c	Subtract line 1b from line 1a					1c	
2	Sales of livestock, produce, grains, and other products you raised					2	
3a	Cooperative distributions (Form(s) 1099-PATR) .	3a		3b	Taxable amount . . .	3b	
4a	Agricultural program payments (see instructions) .	4a		4b	Taxable amount . . .	4b	
5a	Commodity Credit Corporation (CCC) loans reported under election					5a	
b	CCC loans forfeited	5b		5c	Taxable amount . . .	5c	
6	Crop insurance proceeds and federal crop disaster payments (see instructions):						
a	Amount received in 2022	6a		6b	Taxable amount . . .	6b	
c	If election to defer to 2023 is attached, check here . . . . ☐			6d	Amount deferred from 2021	6d	
7	Custom hire (machine work) income					7	
8	Other income, including federal and state gasoline or fuel tax credit or refund (see instructions)					8	
9	**Gross income.** Add amounts in the right column (lines 1c, 2, 3b, 4b, 5a, 5c, 6b, 6d, 7, and 8). If you use the accrual method, enter the amount from Part III, line 50. See instructions					9	

Part II Farm Expenses—Cash and Accrual Method. Do not include personal or living expenses. See instructions.

10	Car and truck expenses (see instructions). Also attach **Form 4562**	10		23	Pension and profit-sharing plans . .	23	
				24	Rent or lease (see instructions):		
11	Chemicals	11		a	Vehicles, machinery, equipment . .	24a	
12	Conservation expenses (see instructions)	12		b	Other (land, animals, etc.)	24b	
13	Custom hire (machine work) . . .	13		25	Repairs and maintenance	25	
14	Depreciation and section 179 expense (see instructions)	14		26	Seeds and plants	26	
				27	Storage and warehousing . . .	27	
15	Employee benefit programs other than on line 23	15		28	Supplies	28	
				29	Taxes	29	
16	Feed	16		30	Utilities	30	
17	Fertilizers and lime	17		31	Veterinary, breeding, and medicine .	31	
18	Freight and trucking	18		32	Other expenses (specify):		
19	Gasoline, fuel, and oil	19		a		32a	
20	Insurance (other than health) . .	20		b		32b	
21	Interest (see instructions):			c		32c	
a	Mortgage (paid to banks, etc.) . .	21a		d		32d	
b	Other	21b		e		32e	
22	Labor hired (less employment credits)	22		f		32f	

33	**Total expenses.** Add lines 10 through 32f. If line 32f is negative, see instructions	33	
34	**Net farm profit or (loss).** Subtract line 33 from line 9	34	

If a profit, stop here and see instructions for where to report. If a loss, complete line 36.

35 Reserved for future use.

36 Check the box that describes your investment in this activity and see instructions for where to report your loss:

a ☐ All investment is at risk. **b** ☐ Some investment is not at risk.

Part III Farm Income—Accrual Method (see instructions)

37	Sales of livestock, produce, grains, and other products (see instructions)		37	
38a	Cooperative distributions (Form(s) 1099-PATR)	38a	38b Taxable amount	38b
39a	Agricultural program payments	39a	39b Taxable amount	39b
40	Commodity Credit Corporation (CCC) loans:			
a	CCC loans reported under election			40a
b	CCC loans forfeited	40b	40c Taxable amount	40c
41	Crop insurance proceeds			41
42	Custom hire (machine work) income			42
43	Other income (see instructions)			43
44	Add amounts in the right column for lines 37 through 43 (lines 37, 38b, 39b, 40a, 40c, 41, 42, and 43)			44
45	Inventory of livestock, produce, grains, and other products at beginning of the year. Do not include sales reported on Form 4797	45		
46	Cost of livestock, produce, grains, and other products purchased during the year	46		
47	Add lines 45 and 46	47		
48	Inventory of livestock, produce, grains, and other products at end of year	48		
49	Cost of livestock, produce, grains, and other products sold. Subtract line 48 from line 47*			49
50	**Gross income.** Subtract line 49 from line 44. Enter the result here and on Part I, line 9			50

*If you use the unit-livestock-price method or the farm-price method of valuing inventory and the amount on line 48 is larger than the amount on line 47, subtract line 47 from line 48. Enter the result on line 49. Add lines 44 and 49. Enter the total on line 50 and on Part I, line 9.

Part IV Principal Agricultural Activity Codes

CAUTION *Do not file Schedule F (Form 1040) to report the following.*

- *Income from providing agricultural services such as soil preparation, veterinary, farm labor, horticultural services if your principal source of income is from providing such services. Instead, see instructions for Schedule C (Form 1040).*
- *Income from breeding, raising, or caring for dogs, cats, or other pet animals. Instead, see instructions for Schedule C (Form 1040).*
- *Income from managing a farm for a fee or on a contract basis. Instead, see instructions for Schedule C (Form 1040).*
- *Sales of livestock held for draft, breeding, sport, or dairy purposes. Instead, see instructions for Form 4797.*

These codes for the Principal Agricultural Activity classify farms by their primary activity to facilitate the administration of the Internal Revenue Code. These six-digit codes are based on the North American Industry Classification System (NAICS).

Select the code that best identifies your primary farming activity and enter the six-digit number on line B.

Crop Production

111100 Oilseed and grain farming
111210 Vegetable and melon farming
111300 Fruit and tree nut farming
111400 Greenhouse, nursery, and floriculture production
111900 Other crop farming

Animal Production

112111 Beef cattle ranching and farming
112112 Cattle feedlots
112120 Dairy cattle and milk production
112210 Hog and pig farming
112300 Poultry and egg production
112400 Sheep and goat farming
112510 Aquaculture
112900 Other animal production

Forestry and Logging

113000 Forestry and logging (including forest nurseries and timber tracts)
113110 Timber tract operations
113210 Forest nurseries and gathering of forest products
113310 Logging