

Farm Management Series: Current Issues Webinar

Using Financial Statements and Ratios to Make Informed Financial Decisions

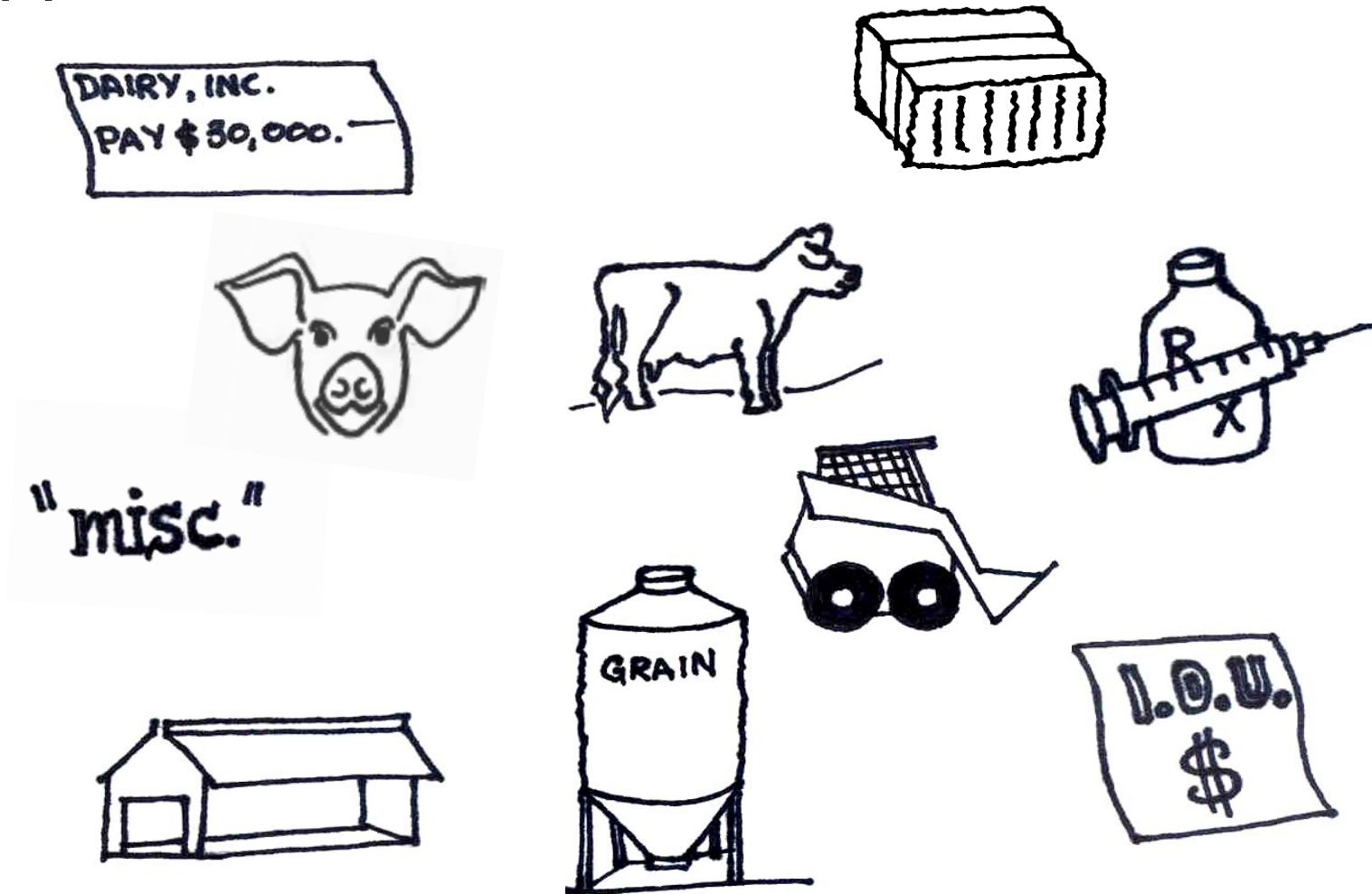
Dianne Shoemaker
Field Specialist, Dairy Production Economics
shoemaker.3@osu.edu

Shocking Fact # 1



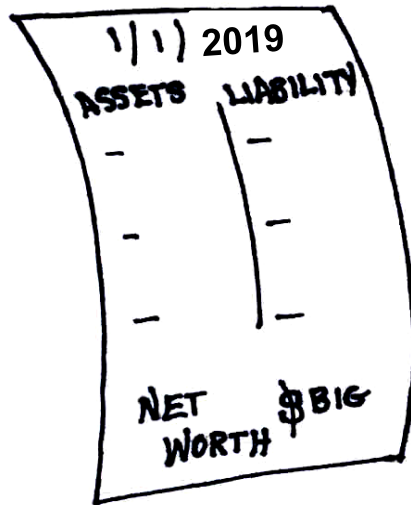
Most farmers do not choose to
farm because they love farm
business management!

What happens...



...in a year in the life of a farm

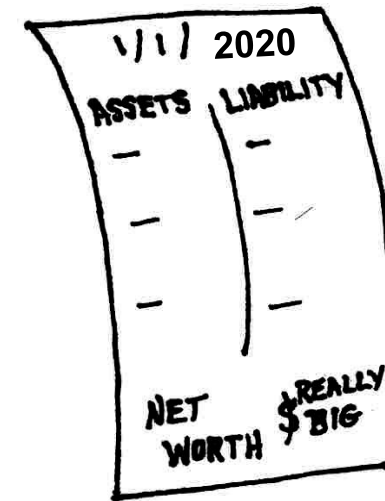
The farm financial manager's view



A hand-drawn financial statement for 1/1/2019. It is divided into two columns: ASSETS and LIABILITY. Each column has three horizontal lines for entries. At the bottom, it says 'NET WORTH \$BIG'.

1/1/ 2019	
ASSETS	LIABILITY
-	-
-	-
-	-

NET WORTH \$BIG



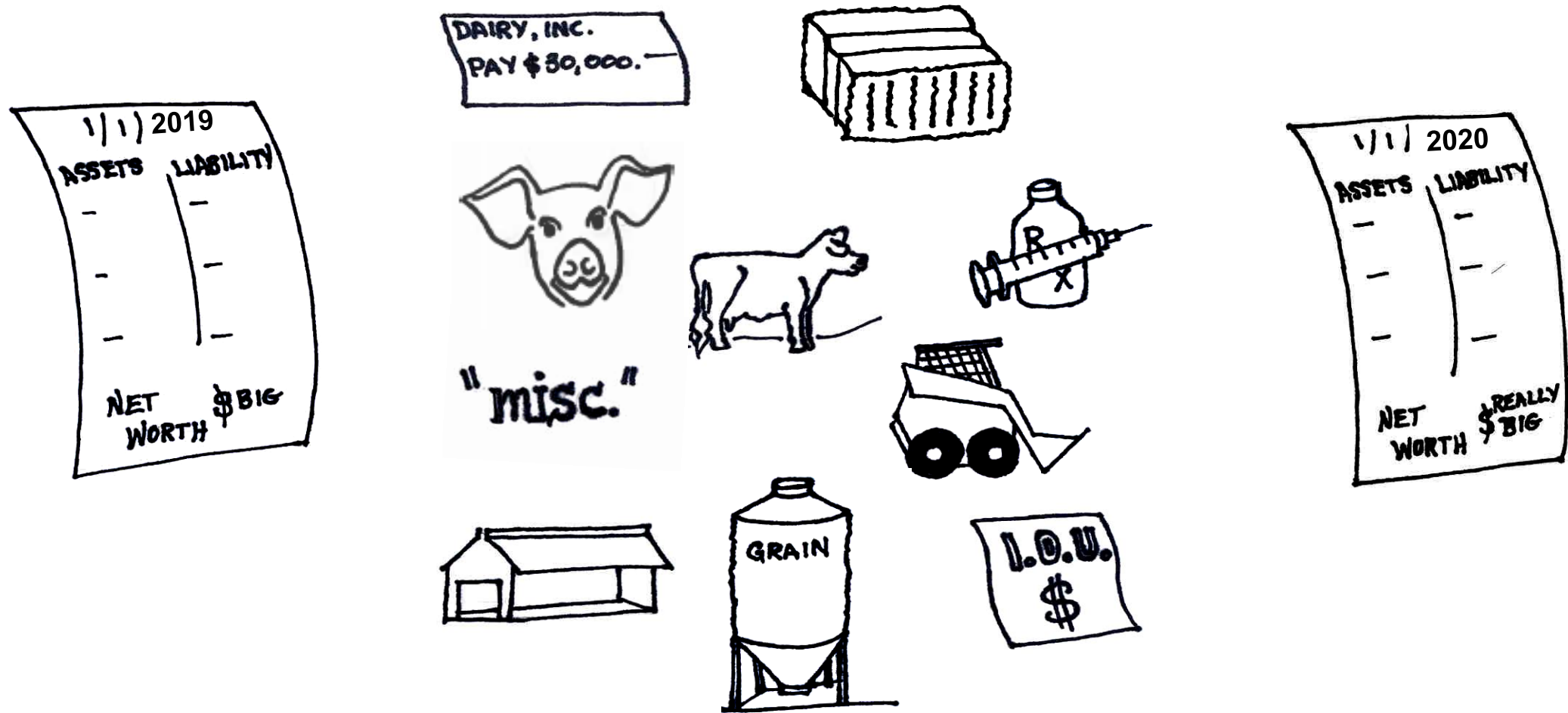
A hand-drawn financial statement for 1/1/2020. It is divided into two columns: ASSETS and LIABILITY. Each column has three horizontal lines for entries. At the bottom, it says 'NET WORTH \$REALLY BIG'.

1/1/ 2020	
ASSETS	LIABILITY
-	-
-	-
-	-

NET WORTH \$REALLY BIG

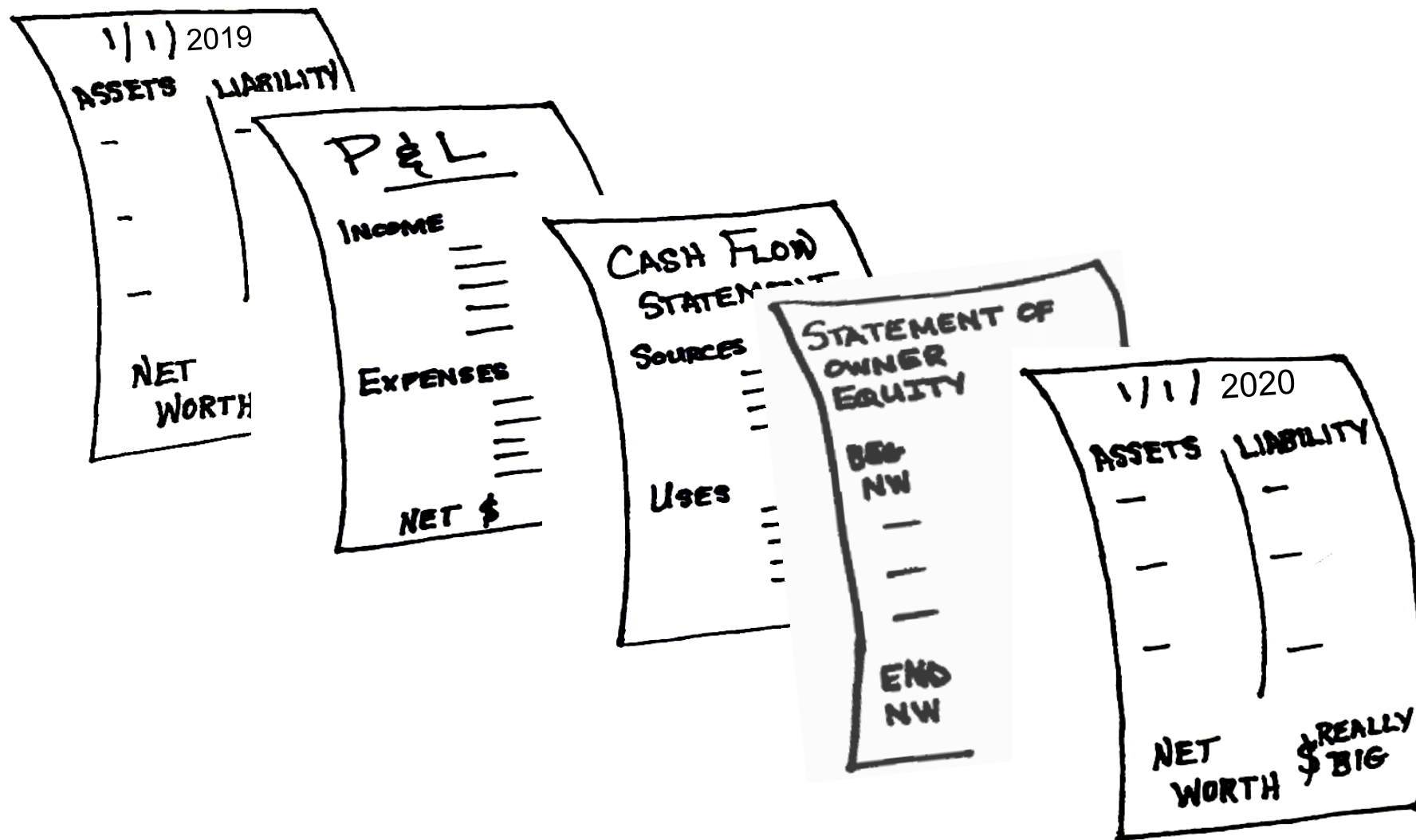
...of a year in the life of a farm

The farm financial manager's view...



...of a year in the life of a farm

Describing the year financially...





Shocking Fact #2

Not everyone
finds farm business
analysis exciting!



Photo credit : johndeere.com



Quote Summary

Prepared For:

Prepared By:

Mike Knam
Cope Farm Equipment, Inc.
24915 State Route 62
Alliance, OH 44601
Phone: 330-821-5867
mike@copefarm.com

Quote Id: 20175565
Created On: 03 August 2019
Last Modified On: 13 September 2019
Expiration Date: 16 September 2019

Equipment Summary	Selling Price	Qty	Extended
JOHN DEERE S760 Combine	\$ 517,441.00 X	1 =	\$ 517,441.00
Equipment Total			\$ 517,441.00

Quote Summary	
Equipment Total	\$ 517,441.00'
SubTotal	\$ 517,441.00
Est. Service Agreement Tax	\$ 0.00
Total	\$ 517,441.00
Down Payment	(0.00)
Rental Applied	(0.00)
Balance Due	\$ 517,441.00
Dealer Discount	(82,441.00)
	\$ 435,000.00

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Dealer Discount	<u>(82,441.00)</u>
	\$ 435,000.00

Options:

- Pay Cash
- Finance
 - full cost
 - partial amount
- Lease

Other:

- Custom Hire

Finance Combine Purchase:

5 years, 3.99% fixed, annual payments

Payment	Year	Annual Payment	Principal Portion	Interest Portion	Principal Balance
1	2020	97,838	80,240	17,598	354,760
2	2021	97,838	83,486	14,352	271,274
3	2022	97,838	86,863	10,974	184,411
4	2023	97,838	90,377	7,460	94,033
5	2024	97,837	94,033	3,804	0
Total Paid		\$489,190	\$435,000	\$54,190	

Finance Combine Purchase:

7 years, 4.24% fixed, annual payments

Payment	Year	Annual Payment	Principal Portion	Interest Portion	Principal Balance
1	2020	73,278	54,578	18,700	380,422
2	2021	73,278	56,924	16,354	323,499
3	2022	73,278	59,371	13,907	264,128
4	2023	73,278	61,923	11,355	202,204
5	2024	73,278	64,585	8,693	137,619
6	2025	73,278	67,362	5,916	70,257
7	2026	73,278	70,257	3,020	0
Total Paid		\$512,946	\$435,000	\$77,946	

What can financial analysis tell us?

How can we use this information to
make informed decisions?



Is there enough cash?



How much of my
business do I own?

Are we making
(enough) money?



Can I repay my debt on time?



Is this a good investment
of my time and money?

-Or-

How efficient am I?

How do we answer these
questions?

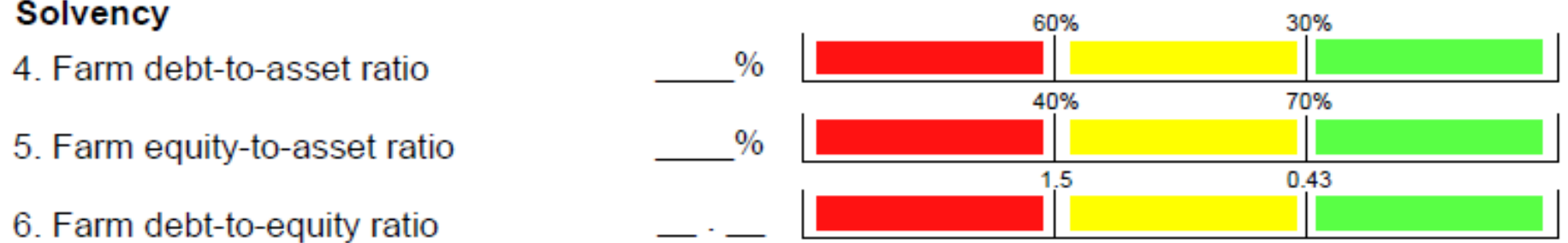
Farm Finance Scorecard

Year _____

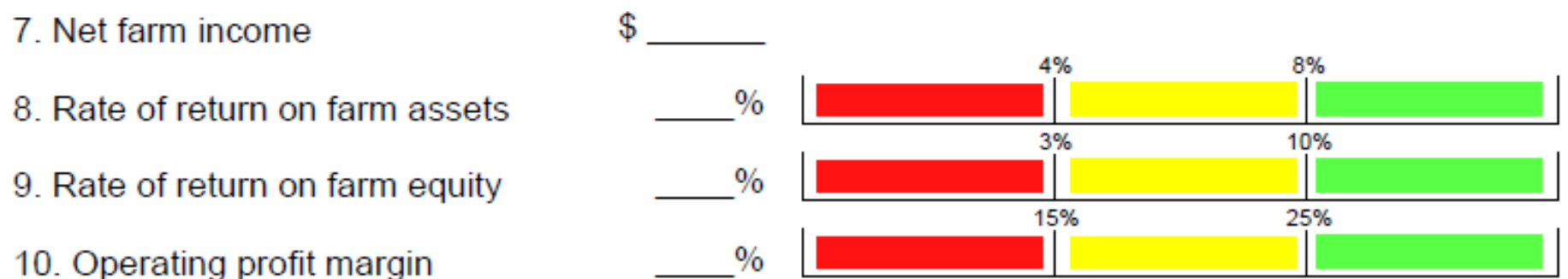
Liquidity



Solvency



Profitability



Farm Financial Ratios and Guidelines

From the balance sheet

Liquidity

- is the ability of your farm business to meet financial obligations as they come due – to generate enough cash to pay your family living expenses and taxes, and make debt payments on time.

1. Current ratio

- measures the extent to which current farm assets, if sold tomorrow, would pay off current farm liabilities.

2. Working capital

- tells us the operating capital available in the short term from within the business.

3. Working capital to gross revenues

- measures operating capital available against the size of the business.

Solvency

- is the ability of your business to pay all its debts if it were sold tomorrow. Solvency is important in evaluating the financial risk and borrowing capacity of the business.

4. Farm debt-to-asset ratio

- is the bank's share of the business. It compares total farm debt to total farm assets. A higher ratio is an indicator of greater financial risk and lower borrowing capacity.

5. Farm equity-to-asset ratio

- is your share of the business. It compares farm equity to total farm assets. If you add the debt-to-asset ratio and the equity-to-asset ratio you must get 100%.

6. Farm debt-to-equity ratio

- compares the bank's ownership to your ownership. It also indicates how much the owners have leveraged (i.e., multiplied) their equity in the business.

Financial criteria breakdown:

1. Liquidity
2. Solvency
3. Profitability
4. Repayment capacity
5. Financial efficiency



Collect the information

–Balance Sheets

- What you own (assets)
- What you owe (liabilities)
year



Beginning & End
of the

–Income Statement

–Statement of Cash Flows



Is there enough
cash?



Liquidity

- Ability of the business to meet current obligations as they normally occur
- A short term measure

1. Current Ratio

2. Working Capital

ABC Farms Balance Sheet

1/1/2020

	Assets	Liabilities
Current	565,943	223,000
Intermediate	900,500	394,500
Long Term	<u>1,500,000</u>	<u>500,000</u>
Total	\$ 2,966,400	\$1,117,500
Net Worth (Equity)		\$1,848,900

ABC Farms Balance Sheet

1/1/2020

Current Assets

\$ 965,943

Current Liabilities

\$ 223,464

Current Assets:

Cash and savings

Accounts receivable

Prepaid expenses

Crop and feed inventories

Market livestock

Supplies

Growing crops

Current Liabilities:

Accounts payable

Lines of Credit

Current Notes

Accrued Interest

Principal due in 12 months

Liquidity

Current Ratio

Current Assets ÷ Current Liabilities

Working Capital

Current Assets – Current Liabilities

ABC Farms Balance Sheet

1/1/2020

	Assets	Liabilities
Current	565,943	223,000
Intermediate	900,500	394,500
Long Term	<u>1,500,000</u>	<u>500,000</u>
Total	\$ 2,966,400	\$1,117,500
Net Worth (Equity)		\$1,848,900

Current Ratio = CA/CL

\$565,943 / \$223,000

= 2.54

Working Capital = CA-CL

\$565,943 - \$223,000




= \$342,900

Liquidity

Current Ratio

The extent to which current farm assets, if liquidated, would cover current farm liabilities.

Total current farm assets divided by total current farm liabilities.

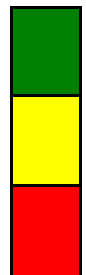
	Strong	Greater than 2
	Caution	2 to 1.3
	Vulnerable	Less than 1.3

Working Capital to Gross Revenues

Working Capital to Gross Revenues

Measures operating capital available against the size of the business.

Working capital divided by gross revenues.



Strong Greater than 30

Caution 30 to 10

Vulnerable Less than 10

Working Capital to Gross Revenues

$$\frac{(\text{Current Assets} - \text{Current Liabilities})}{\text{Gross Revenues}}$$

Example:

$$\begin{array}{r} \$ 565,900 \text{ current assets} \\ - \underline{223,000 \text{ current liabilities}} \\ \$342,900 / \$831,000 \\ .4126 \text{ or } 41\% \end{array}$$

Farm Credit Purchase Options and terms 2/4/2020*

Financing Option	Term (Years)	Interest Rate	Annual Payment	Principal Due in 12 months
Loan	5	3.99% fixed	\$97,838	\$80,240
Loan	7	4.24% fixed	\$73,278	\$54,578

* Farm Credit Mid-America, AgDirect, Farm Credit Leasing

Farm Credit Purchase Options and terms 2/4/2020

Financing Option	Term (Years)	Interest Rate	Annual Payment	Principal Due in 12 months
Loan	5	3.99% fixed	\$97,838	\$80,240
Loan	7	4.24% fixed	\$73,278	\$54,578

Current Assets - Stay the same - \$565,900

Current Liabilities – Increase by principal due in 12 months
 - Accrued interest may also increase depending on when payment is due

Option	Current Liabilities	Current Ratio	Working Capital	Working Capital to Gross Revenues
Before purchase	\$223,000	2.54	\$342,900	41%
5 years, 3.99%	\$303,240	1.80	\$262,660	32%
7 years, 4.24%	\$277,578	2.04	\$288,322	35%

How much of my
business do I own?

Solvency

1. If you sold all assets, would you be able to pay all of your financial obligations?
2. Useful for evaluating the ability of the business to deal with financial risk.
3. A measure of the ability of the business to take on additional debt.

Solvency

1. Debt/Asset Ratio
2. Equity/Asset Ratio
3. Debt/Equity Ratio

Debt to Asset Ratio

Total Farm Liabilities ÷ Total Farm Assets

Example:

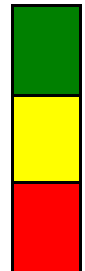
$$\begin{array}{r} \div \quad \$ 1,117,500 \text{ total farm debts} \\ \hline \quad \quad 2,966,400 \text{ total farm assets} \\ \hline 0.3767 \text{ or } 37.7\% \end{array}$$

Debt to Asset Ratio

Debt to Asset Ratio (mkt)

The proportion of total farm assets owed to creditors.

Total farm debt divided by total farm assets.



Strong

Less than 30%

Caution

30% to 60%

Vulnerable

Greater than 60%

Farm Credit Purchase Options and terms 2/4/2020

Financing Option	Term (Years)	Interest Rate	Annual Payment	Principal Due in 12 months
Loan	5	3.99% fixed	\$97,838	\$80,240
Loan	7	4.24% fixed	\$73,278	\$54,578

Total Assets - Increase by value of the purchase - \$435,000

Total Liabilities – Increase by total dollars borrowed - \$435,000
 - Accrued interest may also increase depending on when payment is due

Option	Total Assets	Total Liabilities	Net Worth	Debt to Asset Ratio
Before purchase	\$2,966,400	\$1,117,500	\$1,848,900	37.7%
5 years, 3.99%	\$3,401,400	\$1,552,500	\$1,848,900	45.6%
7 years, 4.24%	\$3,401,400	\$1,552,500	\$1,848,900	45.6%

Are we making (enough) money?



Net Farm Income

Net Farm Income (cost)

The net income from the farm that is available for owner withdrawals, income taxes and equity growth.

Cash income - cash expense + inventory change - depreciation.

Net Farm Income

Gross cash income	1,002,982		Total cash expense	732,836	
			Net cash income	270,146	
	Beginning	Purchases/	Sales/	Ending	Inventory
Inventory Changes	Inventory	Deposits	Withdrawals	Inventory	Change
Prepays and supplies	112,225			133,632	21,407
Hedging gains or losses	2,733	6,510	10,000	2,733	3,490
Crops and feed	958,592			783,999	-174,593
Breeding livestock	27,732	-	-	27,732	-
Accrued interest	9,630			17,160	-7,529
Total inventory change					-157,225
Net operating profit					112,921
	Beginning			Ending	
Depreciation	Inventory	Purchases	Sales	Inventory	Depreciation
Machinery and equipment	380,229	375,500	-	680,156	-75,573
Titled vehicles	17,841	-	-	15,165	-2,676
Buildings and improvement	44,797	-	-	42,557	-2,240
Total depreciation					-80,489
Net farm income					32,432



Can I repay my debts on time?



Term Debt Coverage Ratio

- Tells whether the business generated enough income to cover all intermediate and long term debt payments...

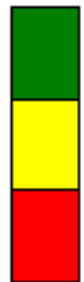
...including capital lease payments

Term Debt Coverage Ratio

Term Debt Coverage Ratio

The ability of the business to generate enough income to cover all scheduled intermediate and long term debt payments.

$$\frac{\text{Net farm oper income} + \text{net nonfarm income} + \text{interest on term debt} - \text{fam liv \& taxes}}{\text{term debt prin \& int.}}$$



Strong	Greater than 1.75
Caution	1.75 to 1.25
Vulnerable	Less than 1.25

Farm Credit Purchase Options and terms 2/4/2020

Financing Option	Term (Years)	Interest Rate	Annual Payment	Principal Due in 12 months
Loan	5	3.99% fixed	\$97,838	\$80,240
Loan	7	4.24% fixed	\$73,278	\$54,578

Net Farm Operating Income - Potential changes in repairs?

Non-farm income, Family living and taxes - No anticipated changes with combine purchase

Option	Net Operating Income	Term Debt Repayment Capacity	Term Debt P & I	Term Debt Coverage Ratio
Before purchase	\$132,000	\$84,115	\$70,000	1.2
5 years, 3.99%	\$132,000	\$84,115	\$167,838	0.50
7 years, 4.24%	\$132,000	\$84,115	\$143,278	0.59

Is this a good investment of
my time and money?



Rate of Return on Farm Assets

- Measures what the assets invested in the operation “earned”.
- The higher the ROA, the more profitable the farming operation.

Rate of Return on Assets

Example calculation:

\$	132,000	net farm income
+	39,000	interest expense
-	<u>75,000</u>	<u>value of operator's labor & mgt</u>
\$	96,000	return to assets
÷	<u>\$ 2,966,400</u>	<u>average total farm assets</u>
	0.032	
	x <u>100</u>	




3.2% ROA

Rate of Return on Farm Assets

Rate of Return on Assets-cost

The rate earned on the total business investment, equity and borrowed capital.

Net farm income + interest - value oper labor & mgmt divided by average farm assets.

	Strong	Greater than 8%
	Caution	8% to 4%
	Vulnerable	Less than 4%

Rate of Return on Assets

Assets increase by value of combine:

\$	132,000	net farm income
+	39,000	interest expense
-	<u>75,000</u>	<u>value of operator's labor & mgt</u>
\$	96,000	return to assets
÷	<u>\$ 3,401,400</u>	<u>average total farm assets</u>
	0.028	
	x <u>100</u>	

2.8% vs 3.2% ROA

Is there enough cash?

How much of my business do I own?

Are we making money?

Can I repay debt on time?

Is it a good investment of my time and
money?



JOHN DEERE

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Prepared By:

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Down Payment

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Rental Applied

(0.00)

Balance Due

\$ 517,441.00

Dealer Discount

(82,441.00)

\$ 435,000.00

Farm Credit Purchase Options and terms 2/4/2020*

Financing Option	Term (Years)	Interest Rate	Annual Payment	Residual/Rate
Loan	5	3.99% fixed	\$97,838	N/A
Loan	7	4.24% fixed	\$73,278	N/A
Lease ≤ 200 hours	5		\$67,114	\$152,250/35% – FPO**
Lease ≤ 400 hours	5		\$70,967	\$130,500/30% - FPO**
Lease ≤ 200 hours	7		\$54,121	\$130,500/30% - FPO/PRO***
Lease ≤ 400 hours	7		\$56,755	\$108,750/25% - FPO/PRO***

* Farm Credit Mid-America, AgDirect, Farm Credit Leasing

** Fixed Purchase Option – At end of lease, return for resale, renew for defined term, or purchase for residual value

***FPO or renew only – At end of lease, purchase at residual value or renew for 12 months then purchase at fair market value

Shocking Fact #3



Hardly anyone can calculate all 21
Farm Financial Standards Measures
after talking about 6 of them for 90
minutes!

Ohio Farm Business Analysis and Benchmarking Program

Helping Ohio's farm families achieve financial success in today's challenging marketplace



- Whole Farm Analysis
- Personalized Reports
- Cost of Production per Acre, Ton and Cwt.
- Enterprise Analysis
- Annual Summaries

This work is supported by the USDA National Institute of Food and Agriculture, "Growing profit and risk management potential for Ohio and NY crop and livestock farms by expanding access to farm business analysis and benchmarking programs and resources" project 1013849.

2018 Ohio Farm Business Analysis Program

50 Crop, Crop & Livestock Farms



20 Dairy Farms



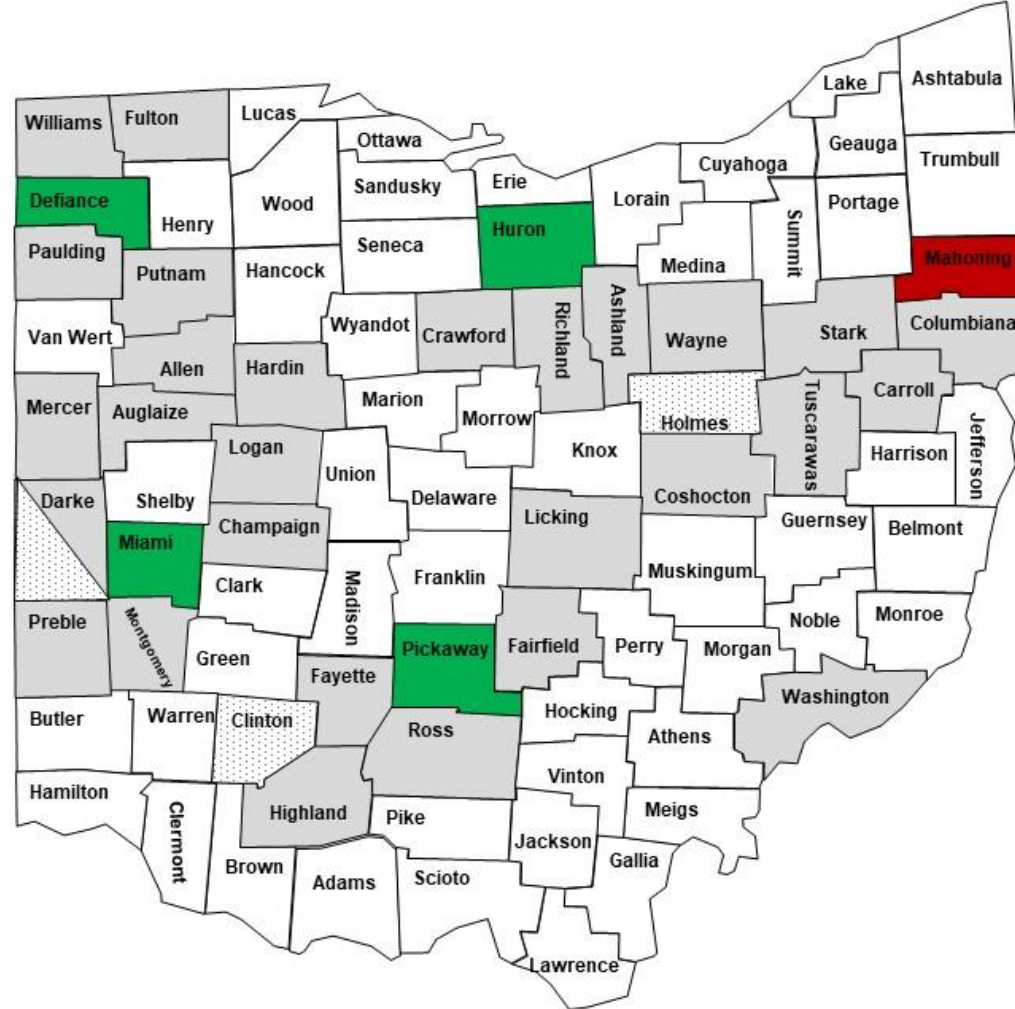
2020 Farm Business Analysis Staff



Pickaway Area
Trish Levering.43



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David Jenner.12




Huron Area – Marilyn Kamm
Defiance Area – Coming Soon!



North
Chris Benton.132



Program Manager
Haley Shoemaker.306



2018 Ohio Farm Business Summary

Crop Enterprise Analysis with Benchmark Reports

farmprofitability.osu.edu



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AND ENVIRONMENTAL SCIENCES

farmoffice.osu.edu

farmprofitability.osu.edu

For More Information About Farm Business Analysis :

Visit: <http://farmprofitability.osu.edu/>

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Agriculture