

USING THE APAS DECISION TOOL

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DEPARTMENT OF
AGRICULTURAL AND
RESOURCE ECONOMICS

Commodity Programs under 2014 Farm Bill: Brief Review.

- Three program options:
 - Price Loss Coverage (PLC)
 - Agricultural Risk Coverage – County option (ARC-CO)
 - Agricultural Risk Coverage – Individual option (ARC –IN)
- ARC-IN is a “whole farm” option – all crops must be entered into that program if it is chosen.
- ARC-CO and PLC are crop by crop choices for each crop with base acres.
- In addition to making a program choice decisions, farmers can choose to:
 - Update program yields (also known as “payment yields”)
 - Reallocate base acres (according to a formula) to reflect recent cropping patterns on the farm.



Go to fsa.usapas.com

Click on "APAS Custom Farm"



United States Department of Agriculture
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Agriculture Policy Analysis System (APAS)

APAS Sample Farm

Five Minute Review of Analytics for Your County

Quick program payment comparison using data for your state and county

APAS Custom Farm Build Your Own Farm

Enter your own farm's information for detailed program and risk management analysis

NAP Crops Coming Soon

Dairy



Start Here for Program & Tool Explanation

Payment Yield Update
Quick Calculator

Base Acre Reallocation
Quick Calculator

APAS FAQ

YouTube Channel



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Four steps.

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1 Farm Location **2** Add Crops **3** Scenario Selection **4** FARM Analytics

State County Farm Base Acres Payment Entities

Select Select Select Select

Next

Upload an existing farm

If you have previously saved a farm, please select 'Load Farm File' and pick the desired file from your computer.

Load Farm File

Notice the little “help” buttons

First time in you will need to enter a lot of information. But if you save by hitting the “export farm details” button in step 2, you can come back to the tool and “load farm file” that you saved earlier.



Page 2a.

You will need to enter information here for each crop:

- That you have base acres for;
- That is a program crop you grow but do not have base acres for.

So you would enter the information for (say) corn and hit the “add crop entry” button; then enter info for wheat and hit the “add crop entry” button; repeating until done.

Once all crops are entered, hit the “next” button.

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1 Farm Location 2 Add Crops 3 Scenario Selection

4 FARM Analytics

a Crop Info Add Crop Information b Program Inputs Base Acres and Payment Yields c Yield Series Enter Yield History d Price Series Select a Price Series

Add crops to build your farm

Crop Entry Name

Crop

Type

Practice

Expected Yield (Rate Yield where applicable)

Planted Acres (2014)

How many optional units would you be eligible to insure for this crop?

Add Crop Entry

Previous Next Finish

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1 Farm Location **2** Add Crops **3** Scenario Selection **4** FARM Analytics

a Crop Info Add Crop Information **b** Program Inputs Base Acres and Payment Yields **c** Yield Series Enter Yield History **d** Price Series Select a Price Series

Farm Base Acres: 640

Corn
Base Acres: Payment Yield:

Soybeans
Base Acres: Payment Yield:

Barley
Base Acres: Payment Yield:

Base Acre Reallocation Calculator

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Base acres and payment yield for each FSA farm were sent in a letter in late August.



Input the historical yields for your farm.

The decision tool will calculate what your program yields would be if you choose to update.

Update if the new yields are higher.

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1 Farm Location **2** Add Crops **3** Scenario Selection **4** FARM Analytics

a Crop Info Add Crop Information **b** Program Inputs Base Acres and Payment Yields **c** Yield Series Enter Yield History **d** Price Series Select a Price Series

Yield History (optional)

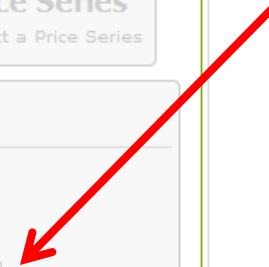
The yields entered from 2008-2012 are used to calculate the updated payment yield.
The yields entered from 2009-2013 are used to estimate the ARC-Individual payments.

Corn (Bushels/acre)						
2008	2009	2010	2011	2012	2013	
<input type="text" value="130"/>	<input type="text" value="170"/>	<input type="text" value="175"/>	<input type="text" value="140"/>	<input type="text" value="180"/>	<input type="text" value="185"/>	Current Payment Yield: 165
						Updated Payment Yield: 143.1

Soybeans (Bushels/acre)						
2008	2009	2010	2011	2012	2013	
<input type="text" value="70"/>	<input type="text" value="75"/>	<input type="text" value="49"/>	<input type="text" value="52"/>	<input type="text" value="64"/>	<input type="text" value="70"/>	Current Payment Yield: 60
						Updated Payment Yield: 55.8

Barley (Bushels/acre)						
2008	2009	2010	2011	2012	2013	
<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	Current Payment Yield: 35
						Updated Payment Yield: 50.4

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1 Farm Location

2 Add Crops

3 Scenario Selection

4 FARM Analytics

a Crop Info
Add Crop Information

b Program Inputs
Base Acres and Payment Yields

c Yield Series
Enter Yield History

d Price Series
Select a Price Series

Price Series

These prices are the expected 12-month market year average for each year. Your farm's simulations will be centered on these prices, but will also include price volatility to reflect the unpredictable nature of prices several years out. This tool is not a deterministic calculator for PLC and ARC, but rather a **stochastic** simulation that is more robust to the unpredictable nature of future prices and yields.

For example, if you input an expected price that is greater than the PLC reference price, you will often see a positive expected PLC payment. This occurs when there is a positive probability that prices will fall below the reference price due to price volatility.

Please select a published price series or create your own.

Corn (\$/bu.)

Price Series	2014	2015	2016	2017	2018
April 2014 CBO Projected Prices	3.90	4.00	4.19	4.35	4.45

Soybeans (\$/bu.)

Price Series	2014	2015	2016	2017	2018
April 2014 CBO Projected Prices	11.06	10.02	10.06	10.87	11.11

Barley (\$/bu.)

Price Series	2014	2015	2016	2017	2018
May 2014 USDA Projected Prices (WASD	5.10	4.02	3.63	3.71	3.75

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Next

Finish

Click on the drop down box to get price options, including “custom” – enter your own.

Then hit the “finish” button.



The further we go into the future, the more the prognosticators differ.



Queen Anne's ▾ CBO Prices ▾ 75 Percent Cover ▾

Actual Prices 2013 & Estimated Prices 2014

CBO Projected Prices 2015-2018

Crop	2013	2014	2015	2016	2017	2018
BARLEY	\$6.06	\$4.85	\$4.39	\$4.35	\$4.56	\$4.67
CORN	\$4.50	\$3.50	\$4.00	\$4.19	\$4.35	\$4.45
SOYBEANS	\$12.70	\$10.00	\$10.02	\$10.06	\$10.87	\$11.11
WHEAT	\$6.87	\$5.40	\$5.60	\$5.63	\$5.65	\$5.78

USDA Projected Prices 2015-2018

Crop	2013	2014	2015	2016	2017	2018
BARLEY	\$6.06	\$4.85	\$4.02	\$3.63	\$3.71	\$3.75
CORN	\$4.50	\$3.50	\$3.68	\$3.38	\$3.47	\$3.53
SOYBEANS	\$12.70	\$10.00	\$8.66	\$9.00	\$8.97	\$9.19
WHEAT	\$6.87	\$5.40	\$5.10	\$4.38	\$4.33	\$4.56

FAPRI Projected Prices 2015-2018

Crop	2013	2014	2015	2016	2017	2018
BARLEY	\$6.06	\$4.85	\$4.56	\$4.51	\$4.50	\$4.57
CORN	\$4.50	\$3.50	\$4.09	\$4.09	\$4.12	\$4.21
SOYBEANS	\$12.70	\$10.00	\$9.64	\$10.11	\$10.29	\$10.54
WHEAT	\$6.87	\$5.40	\$5.73	\$5.72	\$5.79	\$5.87

USDA
projected
prices lower
than other
estimates.



For each crop, choose:

- Program
- Type of crop insurance
- Level of Crop insurance

If you choose PLC, and have crop insurance, you have the option of choosing SCO. Here SCO is not chosen, “No additional plan.” (Oops! Scenario 2 designates SCO for wheat.)

Here:

- Scenario 1 shows different programs for different crops.
- Scenario 2 shows PLC for every crop.
- Scenario 3 shows ARC-CO for every crop.

For every crop 75% revenue insurance.

The screenshot displays a software interface for farm analytics, divided into four main sections: 1 Farm Location, 2 Add Crops, 3 Scenario Selection, and 4 FARM Analytics. The 'Add Crops' section is active, showing three scenarios for crop insurance selection. Each scenario is configured for three crops: Corn, Wheat, and Soybeans. Scenario 1 shows different programs for different crops: Corn (ARC County), Wheat (Price Loss Coverage), and Soybeans (ARC County). Scenario 2 shows PLC for every crop: Corn (Price Loss Coverage), Wheat (Price Loss Coverage), and Soybeans (SCO - Supplemental). Scenario 3 shows ARC-CO for every crop: Corn (ARC County), Wheat (ARC County), and Soybeans (ARC County). A red arrow points to the 'No Additional Plan' dropdown for Wheat in Scenario 2.

Scenario	Crop	Program
Scenario 1	Corn	ARC County
	Wheat	Price Loss Coverage
	Soybeans	ARC County
Scenario 2	Corn	Price Loss Coverage
	Wheat	Price Loss Coverage
	Soybeans	SCO - Supplemental
Scenario 3	Corn	ARC County
	Wheat	ARC County
	Soybeans	ARC County



ARC County ▼

Crop: Soybeans
Type: No Type Specified
Practice: Irrigated

Revenue Protection ▼

0.75 ▼

Barley

Select Farm Program ▼

Crop: Barley
Type: Winter
Practice: Irrigated

No MPCICI ▼

MPCICI Coverage Not. ▼

Soybeans

Price Loss Coverage ▼

Crop: Soybeans
Type: No Type Specified
Practice: Irrigated

Revenue Protection ▼

0.75 ▼

No Additional Plan ▼

Barley

Price Loss Coverage ▼

Crop: Barley
Type: Winter
Practice: Irrigated

No MPCICI ▼

MPCICI Coverage Not. ▼

Crop: Soybeans
Type: No Type Specified
Practice: Irrigated

Revenue Protection ▼

0.75 ▼

Barley

ARC County ▼

Crop: Barley
Type: Winter
Practice: Irrigated

No MPCICI ▼

MPCICI Coverage Not. ▼

This farm has barley base acres, but does not produce barley. Therefore, no crop insurance for barley.

For crops with crop insurance you must enter APH and unit structure from crop insurance records.

IMPORTANT!!

To save the farm data to your computer, hit “export farm details” and then Save.

Required Inputs for Revenue Protection Insurance:

Crop: Corn	Type: Grain	Practice: Irrigated	APH <input type="text"/>	RP Unit Structure Select ▼
Crop: Wheat	Type: Winter	Practice: Irrigated	APH <input type="text"/>	RP Unit Structure Select ▼
Crop: Soybeans	Type: No Type Specified	Practice: Irrigated	APH <input type="text"/>	RP Unit Structure Select ▼

Next

Export Farm Details



Page 4: click on Run Scenarios

1 Farm Location

2 Add Crops

3 Scenario Selection

4 FARM Analytics

Scenario 1

- ▶ Corn: ARC County
- ▶ Wheat: Price Loss Coverage
- ▶ Soybeans: ARC County
- ▶ Barley: Price Loss Coverage

Scenario 2

- ▶ Corn: Price Loss Coverage
- ▶ Wheat: Price Loss Coverage
- ▶ Soybeans: Price Loss Coverage
- ▶ Barley: Price Loss Coverage

Scenario 3

- ▶ Corn: ARC County
- ▶ Wheat: ARC County
- ▶ Soybeans: ARC County
- ▶ Barley: ARC County

Please review your scenario selections. If you are satisfied, please click 'Run Scenarios' to see your results.

Run Scenarios

Expected Program Payments

Safety Net

Please click the 'Run Scenarios' button to see your Expected Program Payments for each scenario.

This material is based on work supported by the U. S. Department of Agriculture, Farm Service Agency, under Agreement No. 58-0510-4-

Once you have hit “run scenarios” if you back-screen, you need to start over.



Please review your scenario selections. If you are satisfied, please click 'Run Scenarios' to see your results.

Run Scenarios

Expected Program Payments

Safety Net

All Crops

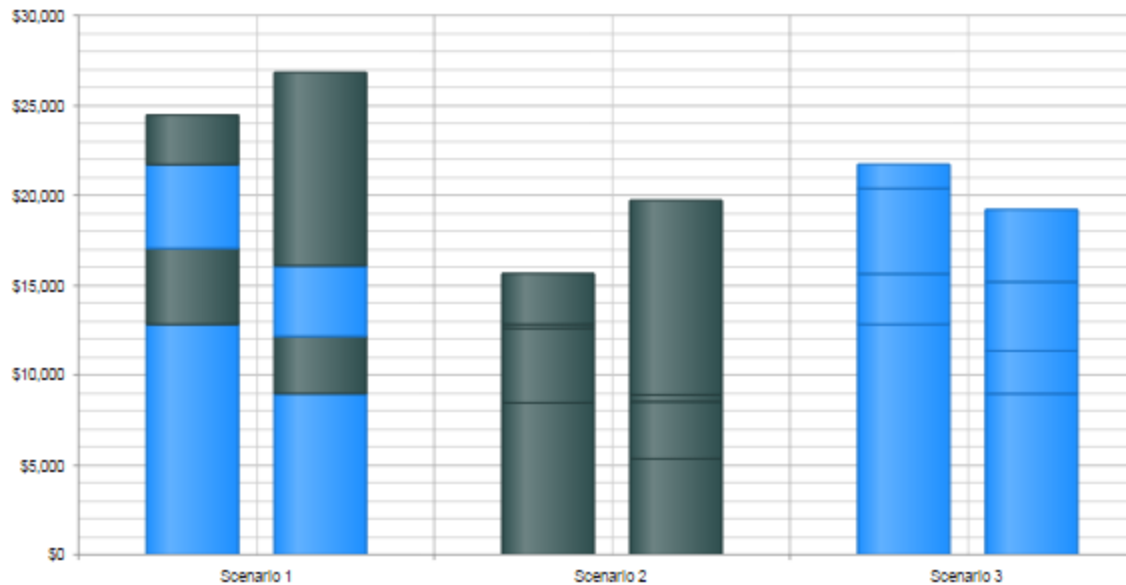
Farm Program

Additional Insurance

Crop Revenue + MPC

Redraw Chart

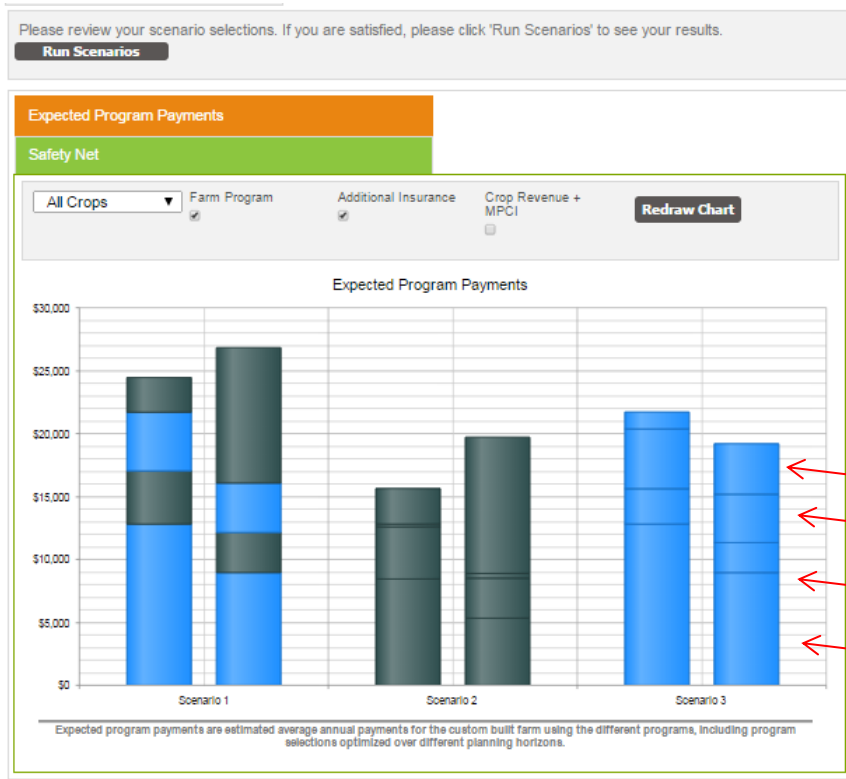
Expected Program Payments



Expected program payments are estimated average annual payments for the custom built farm using the different programs, including program selections optimized over different planning horizons.

- Expected annual government payments under each scenario, for
- One year time horizon (left column)
 - 5 year time horizon (right column)





Each column shows payments by crop.

Barley (on top)
Soybeans
Wheat
Corn

In this example, choosing different programs for different crops does better than all PLC or all ARC-CO.

The difference is \$7,000 - \$8,000 per year over the 5 year time horizon.

For this farm (county) and this choice of price estimates, PLC is a lot better for Barley, ARC-CO is a lot better for corn and soybeans.



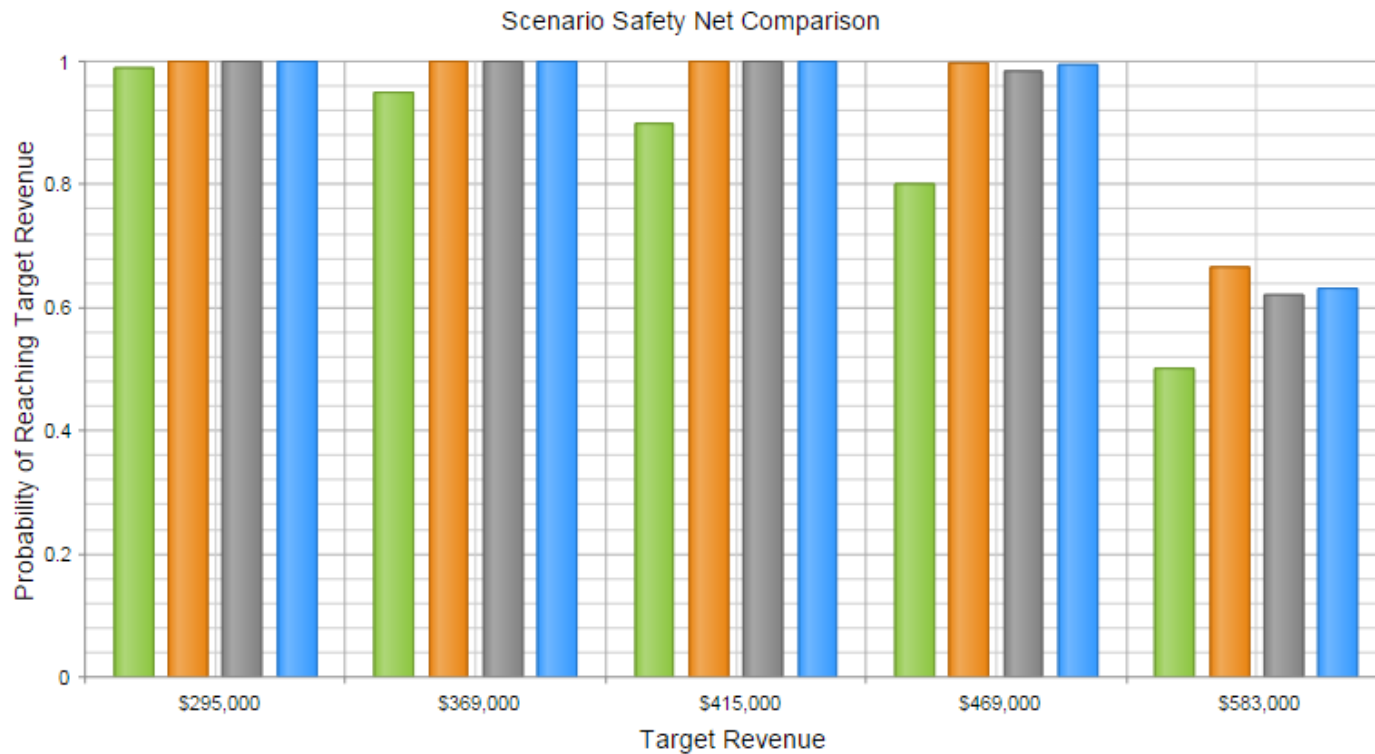
Click on the “safety net” tab and you can see how effective each policy scenario is as a safety net.

Please review your scenario selections. If you are satisfied, please click 'Run Scenarios' to see your results.

Run Scenarios

Expected Program Payments

Safety Net



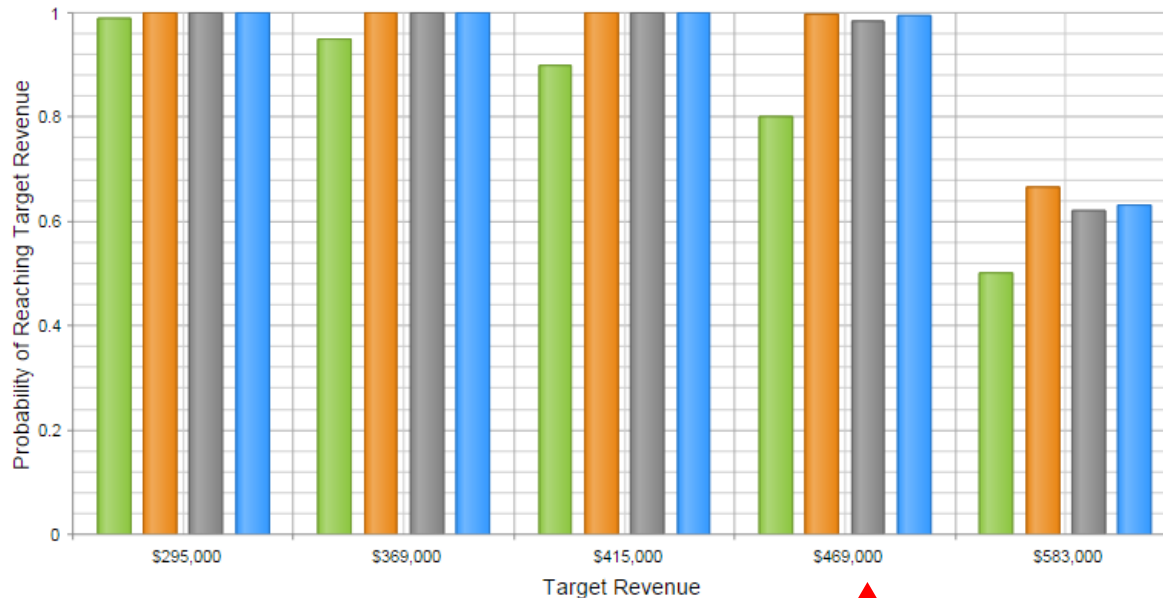
Please review your scenario selections. If you are satisfied, please click 'Run Scenarios' to see your results.

Run Scenarios

Expected Program Payments

Safety Net

Scenario Safety Net Comparison



Farmer A has:

- Crop expenses of \$300,000 per year
- Mortgage (loan) payments of \$150,000 per year
- Other (non-crop) income of \$30,000 per year.
- Living expenses of \$45,000 per year.

Farmer A needs crop revenue of \$465,000 to avoid problems.

Without the programs, Farmer A has a 20% probability of “disaster” – revenue too low to meet expenses. Any of the three policy scenarios reduce this probability to near zero.



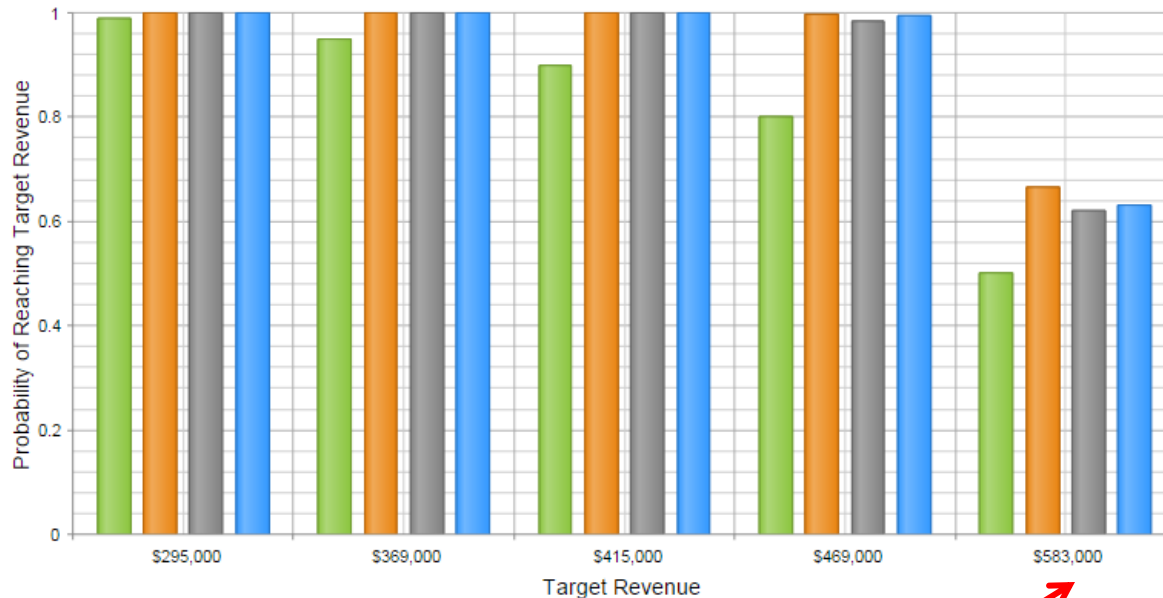
Please review your scenario selections. If you are satisfied, please click 'Run Scenarios' to see your results.

Run Scenarios

Expected Program Payments

Safety Net

Scenario Safety Net Comparison



Farmer B has:

- Crop expenses of \$300,000 per year
- Mortgage (loan) payments of \$280,000 per year
- Other (non-crop) income of \$40,000 per year.
- Living expenses of \$45,000 per year.

Farmer A needs crop revenue of \$585,000 to avoid problems.

Without the programs, Farmer A has a 50% probability of “disaster” – revenue too low to meet expenses. Policy choice A reduces this probability to 33%; policy choice B reduces this probability to 38%; policy choice C reduces this probability to 37%.



Adding Supplemental Coverage Option (SCO) to PLC

- When you are creating your scenarios, if you choose PLC, you are given the option of adding SCO to your crop insurance – raising insurance coverage from whatever you choose as crop insurance to 86% coverage.
- It appears that the decision tool does not include the premium costs of SCO. (In years when there is no SCO indemnity, the outcomes of scenario “PLC” and scenario “PLC plus SCO” are the same, so PLC/SCO does not reflect the premium costs of SCO.
- Therefore PLC payments are always lower than (or equal to) PLC + SCO payments.

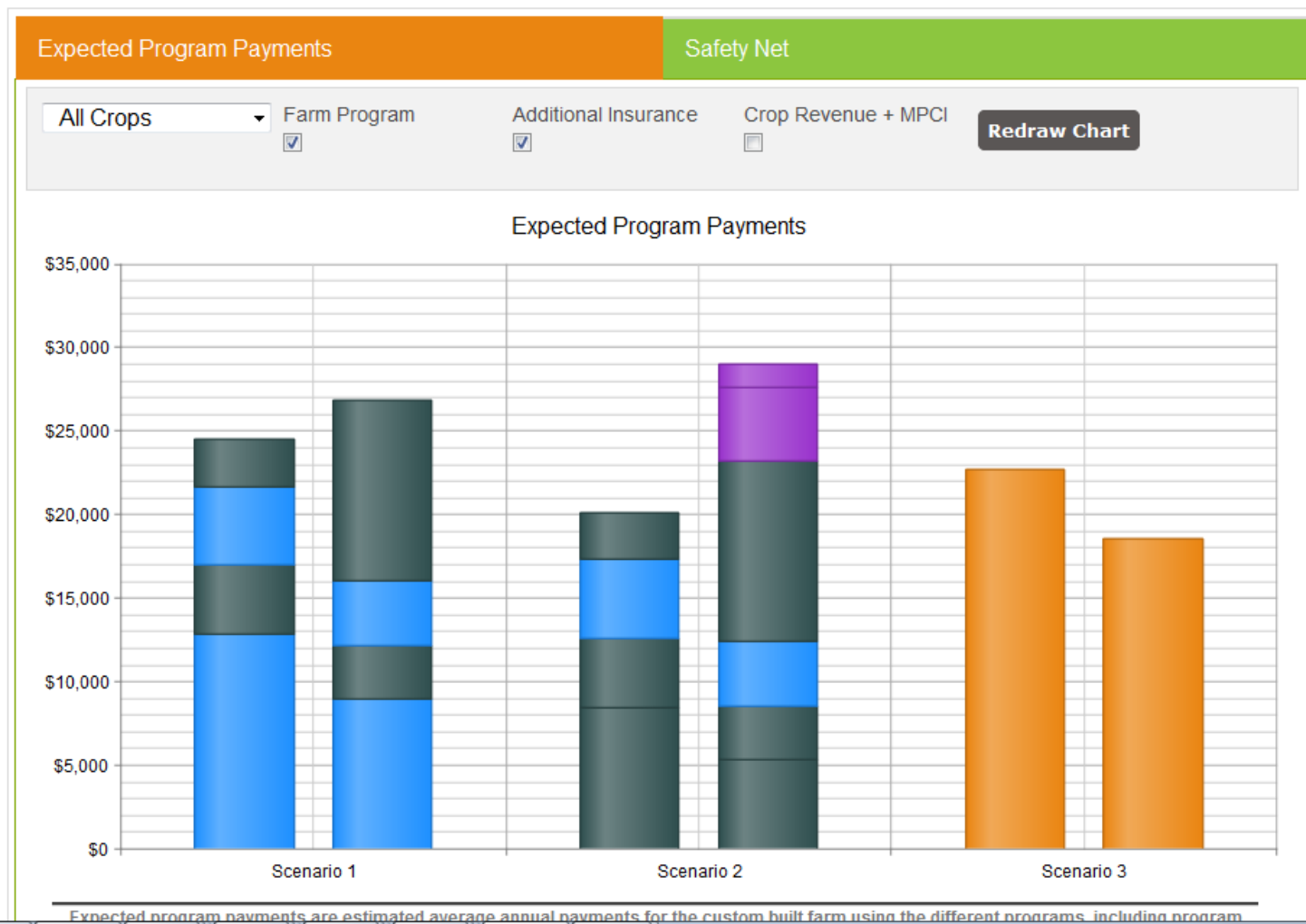
Adding Supplemental Coverage Option (SCO) to PLC

- You can get premium estimates from RMA's decision tool: <http://prodwebnlb.rma.usda.gov/apps/CIDT/>.
- For Queen Anne's county and my sample farm APH and price outlook, the quoted farmer-paid premiums were:
 - Corn: \$0.83 per acre
 - Wheat: \$3.72 per acre
 - Soybeans: \$0.64 per acre.

Bringing Individual ARC into the picture

- The following two slides show the results for three scenarios:
- Scenario 1 has the program choices that maximize payments for year 1 (2014)
 - ARC-CO for corn and soybeans
 - PLC (without SCO) for wheat and barley
- Scenario 2 has the program choices that maximize payments for years 1-5 (2014-2018)
 - ARC-CO for soybeans
 - PLC (with SCO) for corn and wheat.
 - PLC (without SCO) barley (the farm does not grow barley)
- Scenario 3 has Individual ARC (ARC-IN) for all crops.

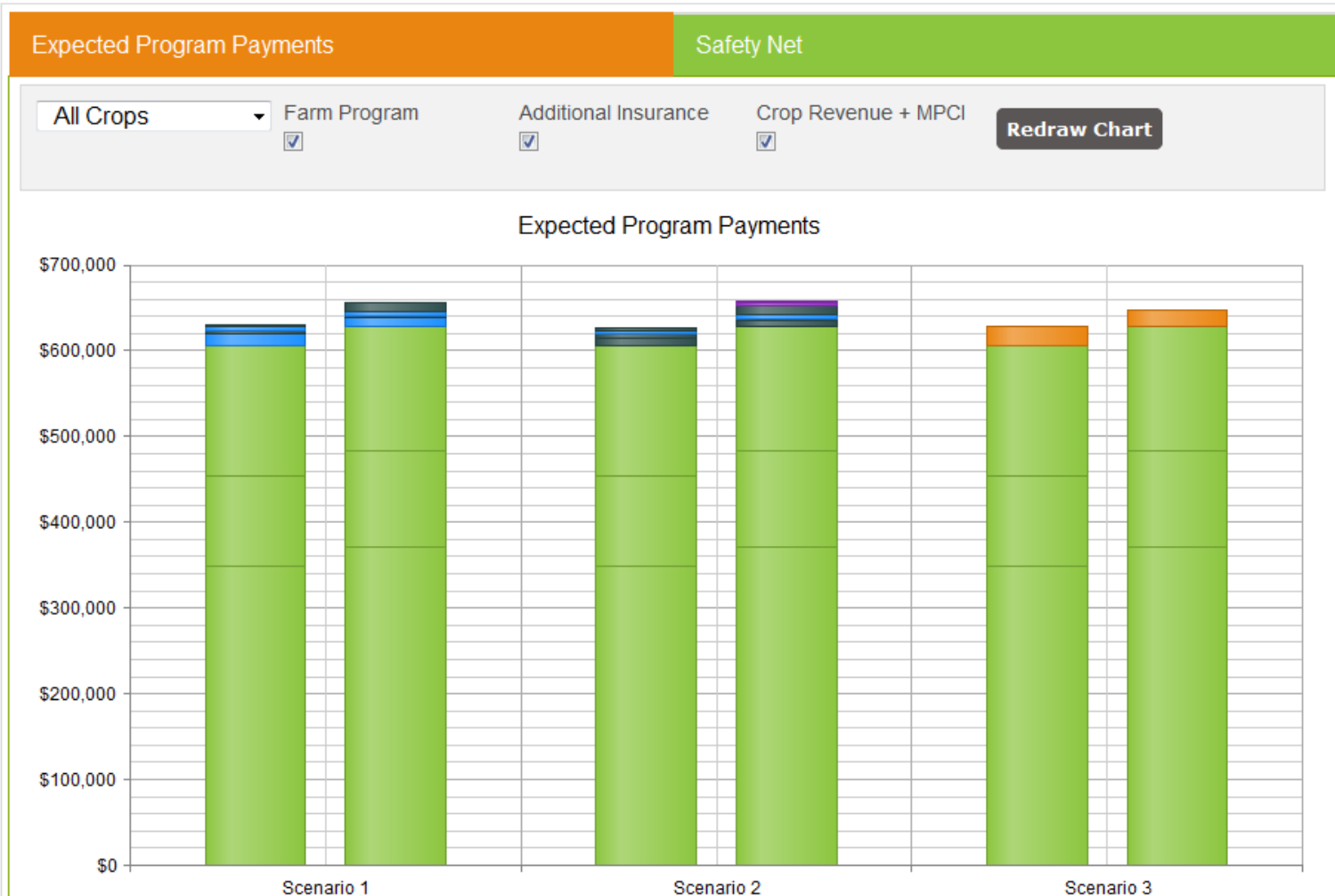
ARC-IN is inferior to optimal choices of ARC-CO and PLC in this example.



Expected program payments are estimated average annual payments for the custom built farm using the different programs, including program



But program payments are small compared to market income.



Comparing this Univ of Illinois tool to the Texas A&M tool

- Another tool is available to help farmers make their commodity program decisions:
- <https://usda.afpc.tamu.edu/home>
- Each has some advantages over the other.
- For the basic decision, the tools are quite close in their estimates.
 - The two tools make the same recommendation about policy choice for the 4 crops over both the 1 year horizon and the five year horizon.
 - The two tools are quite close in estimated benefits from “optimal” choices over the five year horizon. (about \$26,000 per year, or about \$25 per acre).
 - University of Illinois estimates higher benefits over the one year horizon (\$24,000 compared to \$18,000 estimated by Texas A&M).