Managing your risk with crop insurance

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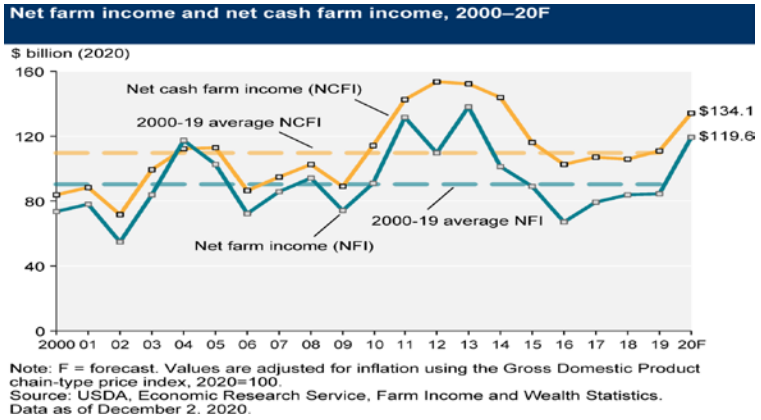
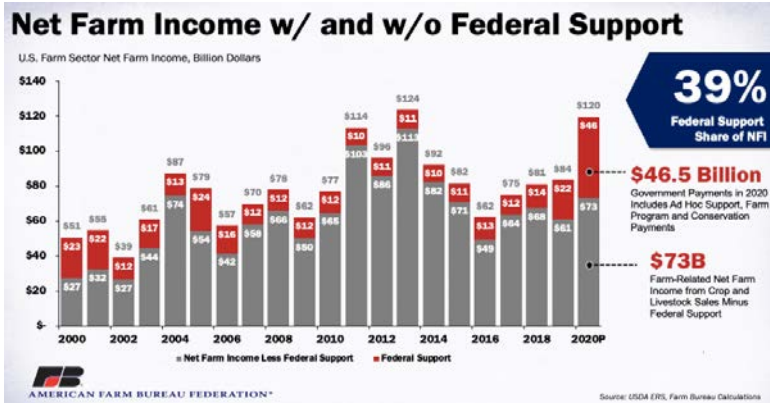
Goals for Today

- Crop insurance in 2021
  - Revisiting how crop insurance works
  - Thinking about: product choices, coverage levels (importance of production expense estimates & accurate yield records), unit structure choice
  - Shallow loss programs: SCO, STAX, and new ECO
- Thoughts on ARC & PLC decision in 2021
  - Cotton and peanuts in Bertie county
  - PLC is a good choice

Introduction

- 2020 US net farm income trending up
  - Rally in prices last half of 2020
  - Role of gov't payments
- But still lots of uncertainty going into 2021
  - COVID, trade issues, ad hoc disaster payments, weather
- Highlights importance of risk mgt. & crop insurance





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Crop Insurance Refresher

- Profit = (Output price x Output level) – (Input price x Input application)

Revenues

Costs

- Main sources of risk (on revenue side):
  - Price Risk – downturn in market prices
  - Production Risk – yield losses due to weather, pests
- Crop insurance is a tool that can help manage both risks
  - Goal: purchase a policy that provides adequate coverage and is cost effective and integrates well with operation

Crop Insurance Refresher

- Pros:
  - Protection against losses (i.e., safety-net) and helps in stability of income
  - Peace of mind
  - Credit access
- Cons:
  - Not costless – must pay premiums commensurate to coverage and risk (although subsidized)
  - Program complexity

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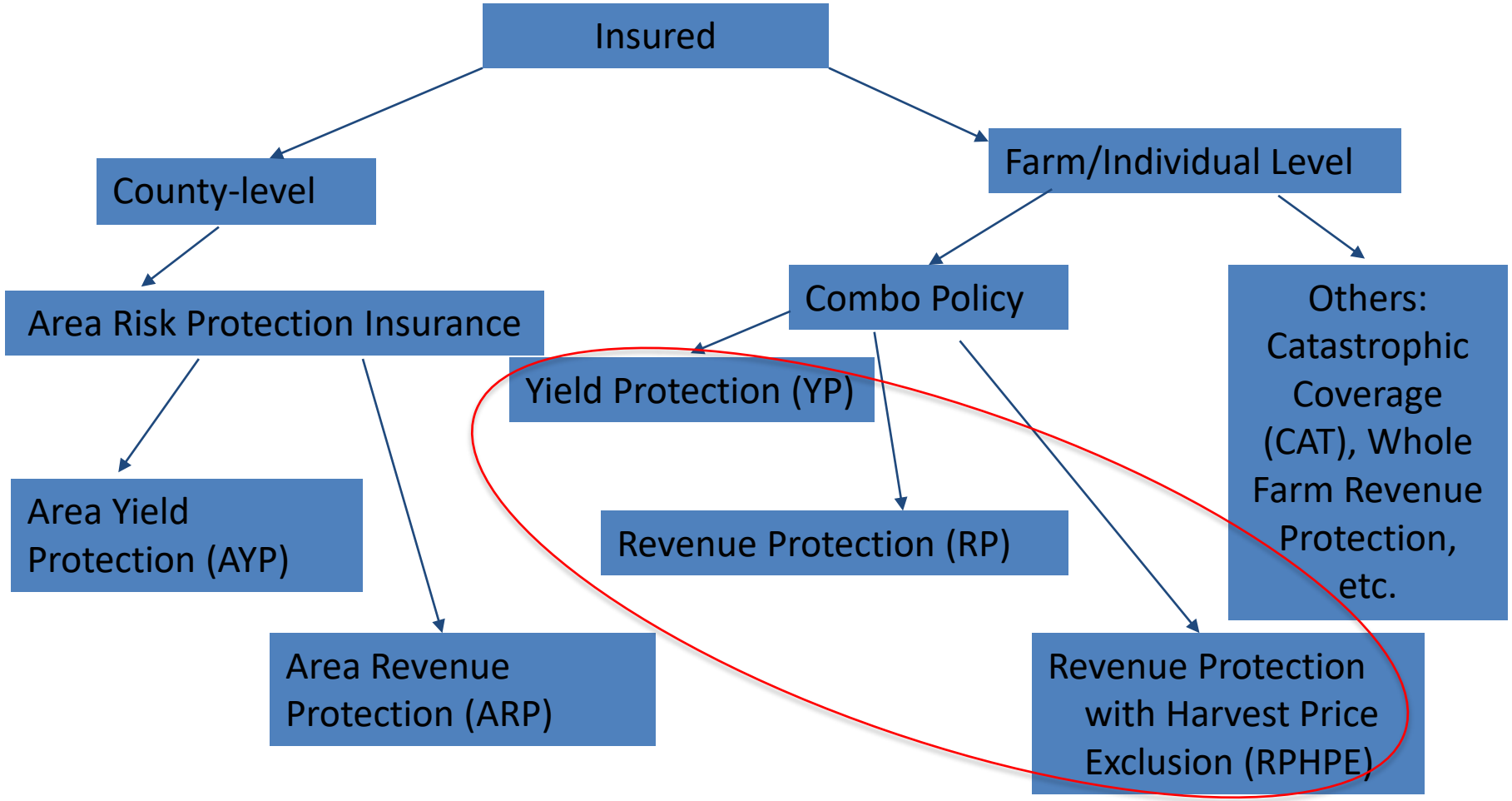
Overview of Crop Insurance Products



What product should I choose?

- Some questions/issues to ponder:
  - Do I even need crop insurance?
    - Consider risk attitude & financial position of farm business
  - Should I get county- or individual-level product?
    - County products are less expensive
    - Are my yields/revenues correlated with the county?
  - Would yield protection be sufficient or should I need revenue protection?
    - Revenue products are more expensive (not by a lot, at lower coverage)
    - Do I have price protection from gov't programs (PLC) or marketing programs?

Coverage level choices

- For YP and RP, 50% to 85% in 5% increments
  - Tradeoff between level of protection and premiums
  - CAT coverage: 50% coverage at 55% of price; $655 flat fee per crop-county
- Lower premium subsidies at higher coverage levels
  - Higher premiums at higher coverage, but higher likelihood of triggering payments

Table 2. Subsidy levels for alternative unit structures and products.

Coverage Level (%)	Basic & Optional (%)	Enterprise Unit (%)	SCO Subsidy (%)	STAX Subsidy (%)
50	67	80	65	n/a
55	64	80	65	n/a
60	64	80	65	n/a
65	59	80	65	n/a
70	59	80	65	80
75	55	77	65	80
80	48	68	65	80
85	38	53	65	80
86	n/a	n/a	65	80
90	n/a	n/a	n/a	80

Coverage level choices

- What are my risk preferences?
  - Am I comfortable with lower levels of risk protection?
- Does the operation have sufficient cash reserves to withstand shallower losses?
  - Farms with large cash reserves can “self-insure” and choose lower coverage levels at lower premiums
  - Operations with low current ratios (i.e., high debt load) may opt for higher coverage levels to avoid loss and exit industry
- How does coverage choice affect my ability to borrow?
  - Need input from lenders on their crop insurance requirements

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Coverage level choices

Cotton, Conventional-2021

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ESTIMATED COSTS AND RETURNS PER ACRE, 2021
900 POUND YIELD

	UNIT	QUANTITY	PRICE OR COST/UNIT	TOTAL PER ACRE	YOUR FARM
1. GROSS RECEIPTS					
COTTON LINT	LBS	900.00	$0.69	$621.00	
COTTON SEED	LBS	1503.00	$0.08	$120.24	
TOTAL RECEIPTS:				**$741.24**	
2. VARIABLE COSTS					
SEED	THOU.	42.00	$2.11	$88.62	
FERTILIZER*					
NITROGEN (30% solution)	LBS	150.00	$0.14	$21.00	
DAP (18-46-0)	LBS	100.00	$0.25	$25.00	
POTASH (0-0-60)	LBS	50.00	$0.21	$10.50	
BORON	LBS	3.00	$1.35	$4.05	
SULFUR	LBS	10.00	$0.28	$2.80	
LIME (PRORATED)	TON	0.33	$54.50	$17.99	
HERBICIDES*	ACRE	1.00	$63.07	$63.07	
INSECTICIDES	ACRE	1.00	$36.54	$36.54	
GROWTH REG. & DEFOLIANTS	ACRE	1.00	$21.30	$21.30	
SURFACTANT	ACRE	1.00	$6.06	$6.06	
SCOUTING	ACRE	1.00	$16.00	$16.00	
GINNING	LBS	900.00	$0.13	$117.00	
CROP INSURANCE	ACRE	1.00	$30.00	$30.00	
TRACTOR/MACHINERY*	ACRE	1.00	$49.98	$49.98	
LABOR	HRS	2.79	$12.67	$35.35	
INTEREST ON OP. CAP.	DOL.	$191.13	2.7%	$5.20	
TOTAL VARIABLE COSTS:				**$550.46**	
3. INCOME ABOVE VARIABLE COSTS:				**$190.78**	

- Will my coverage level choices able to cover my operating expenses?
  - If APH = 900 lbs/acre & base price = $0.78 per lb, then:
    - At 80%, Amt of Protection = $561.6 (900 x 0.8 x 0.78)
    - At 75%, Amt of Protection = $526.5 (900 x 0.75 x 0.78)
    - 80% can cover op. expenses in case of total loss
  - Note: 75% is most commonly chosen

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Coverage level choices

- Est. 2021 cotton premium/ac (Bertie County, NC)

Coverage level	RP	RPHPE	YP
50%	$5	$4	$4
55%	$7	$6	$6
60%	$9	$8	$8
65%	$13	$11	$11
70%	$17	$15	$14
75%	$24	$21	$20
80%	$35	$31	$29
85%	$53	$46	$44

Optional Unit Producer-paid premiums, APH Yield = 900 lbs/ac, non-irrigated, $0.78/lb proj. price, 0.13 Volatility

Coverage level choices

- Importance of providing accurate and updated yield records to your crop insurance agent
  - Affects your APH and eventually the Amount of Protection at each coverage level
  - If APH = 800 lbs/ac (instead of 900 lbs/ac, since yield record not updated) then:
    - At 80%, Amt of protection = $499.2 (800 x 0.8 x 0.78)
    - At 75%, Amt of protection = $468.0 (800 x 0.75 x 0.78)
- Other ways of increasing coverage:
  - Yield Exclusion, Trend Adjustment, Yield Adjustment, Hurricane/Wind endorsements

Unit Structure Choices

- Each parcel of land that is insured independently of other parcels is called a unit
- Optional vs. Basic vs. Enterprise vs. Whole farm
  - Optional – when basic units occurs in different township sections or grown under different practices
  - Basic – all tracts of land owned or cash rented; another basic unit for share rented land with different owner for a particular crop
  - Enterprise – combine all acres of the same crop in the same county (regardless if owned or rented, or number of landlords)
  - Whole farm – combines all acres for all crops

Unit Structure Choices

- What are the premium subsidies for the different units?
- Are yields and risks for individual parcels correlated?
  - Are yields very different across parcels? If so, then perhaps basic or optional units make more sense (though more expensive)

Table 2. Subsidy levels for alternative unit structures and products.

Coverage Level (%)	Basic & Optional (%)	Enterprise Unit (%)	SCO Subsidy (%)	STAX Subsidy (%)
50	67	80	65	n/a
55	64	80	65	n/a
60	64	80	65	n/a
65	59	80	65	n/a
70	59	80	65	80
75	55	77	65	80
80	48	68	65	80
85	38	53	65	80
86	n/a	n/a	65	80
90	n/a	n/a	n/a	80

Unit Structure Choices

- Est. 2021 cotton premium/ac (Bertie County, NC)

Coverage level	RP	RPHPE	YP
50%	$2	$2	$2
55%	$3	$2	$2
60%	$4	$3	$3
65%	$5	$4	$4
70%	$7	$6	$5
75%	$10	$9	$8
80%	$17	$15	$14
85%	$32	$28	$26

Enterprise unit Producer-paid premium, APH Yield = 132 bu/ac, non-irrigated, $3.91/bu proj. price, 0.14 Volatility

SCO & STAX

- Supplemental Coverage Option (SCO) & Stacked Income Protection Plan (STAX) are "shallow-loss" programs
  - Designed to cover part of the deductible of the producer's underlying individual policy
  - STAX – only for cotton; SCO – cotton + other crops
- STAX developed for cotton in 2014 Farm Bill since cotton not part of Title I at that time
  - Cotton seed now covered under Bipartisan Budget Act

SCO & Stax

USDA United States Department of Agriculture
Risk Management Agency

Home About RMA Find a

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MANAGERS BULLETIN: MGR–18-016

DATE November 30, 2018

TO: All Approved Insurance Providers
All Risk Management Agency Field Offices
All Other Interested Parties

FROM: Martin R. Barbre, Administrator */s/ Martin R. Barbre 11/30/2018*

SUBJECT: Stacked Income Protection Plan (STAX) Policy Changes – 2019 and Succeeding Crop Years

Background

The STAX policy was developed at a time when producers could not enroll seed cotton in the Agriculture Risk Protection (ARC) and Price Loss Coverage (PLC) programs administered by the Farm Service Agency (FSA). In February of 2018, the Bipartisan Budget Act of 2018 was signed into law, which included provisions to allow producers of seed cotton to participate in ARC and PLC. In addition, the provisions included modifications to the Federal Crop Insurance Act (Act) stating that acreage enrolled in these programs would be ineligible for coverage under STAX. To comply with the modification to the Act, RMA is updating the STAX policy.

Action

Beginning with the 2019 crop year, seed cotton acreage enrolled in the ARC or PLC programs administered by FSA will be ineligible for STAX coverage. Producers must report acres enrolled in ARC or PLC on their acreage report. If acres are enrolled in ARC or PLC after the acreage reporting date, the producer is required to revise their acreage report with the correct information by the premium billing date.

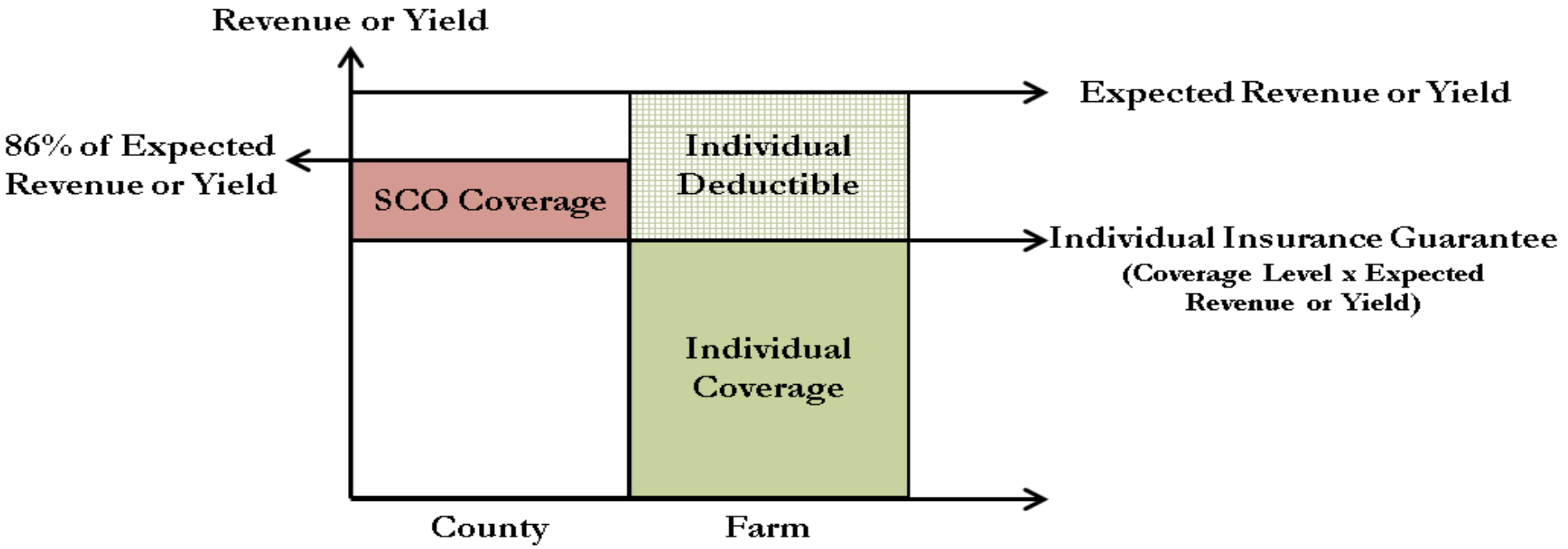
RMA will place, by close of business today, the STAX Crop Provisions for the 2019 crop year on the RMA website.

- Cotton under PLC or ARC not eligible for STAX (and vice-versa)
- Cotton under PLC still eligible for SCO

SCO

- SCO: allows you to insure part of your RP/YP deductible with a county coverage (like ARP/AYP)
  - Layer individual & county coverage
  - Can't exceed 86% total coverage
- Add SCO to an RP policy to increase coverage up to the 86% maximum
  - SCO will not pay until county loss exceeds 14%
  - 65% SCO premium subsidy (farmer pays 35%)
- SCO available only if chose PLC as commodity program
  - If chose ARC, cannot buy SCO

SCO



Possible outcomes with RP plus SCO:

1. SCO pays, but not RP
2. RP pays, but not SCO
3. Both SCO and RP pay
4. Neither SCO nor RP pays

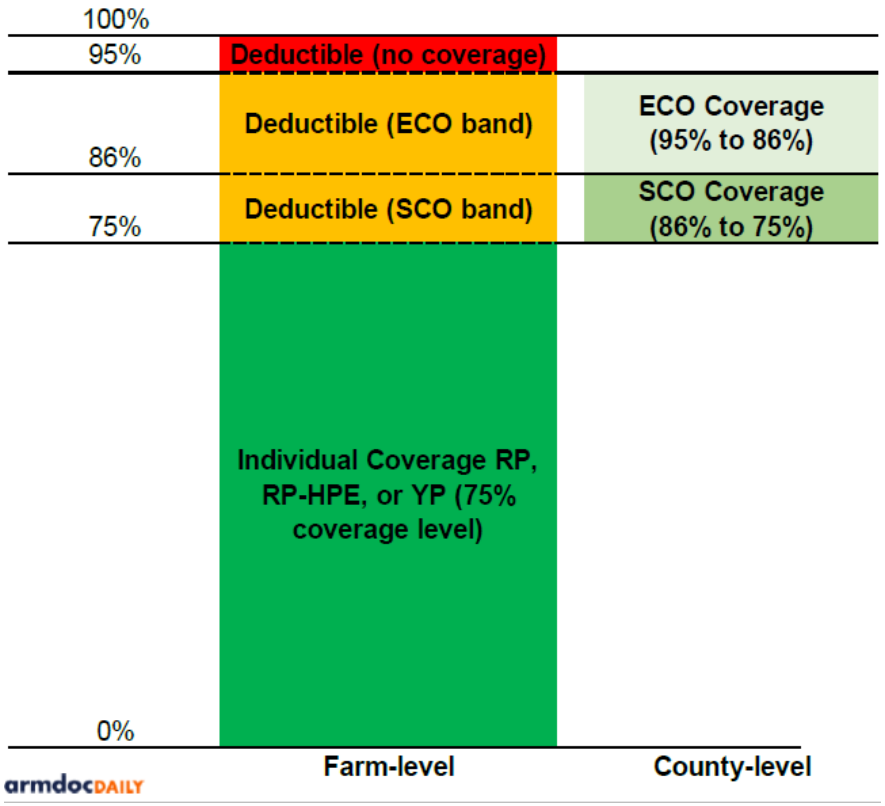
SCO

- Suppose have 75% RP on corn (25% deductible)
- Suppose added 86% SCO (max)
- If county revenue is 80% of average, and your individual actual revenue is 65% of guarantee
  - Results in Outcome 3: Both RP and SCO pays out
  - Receive SCO indemnity for a 6% loss
  - Receive RP indemnity for a 10% loss
- Note: Not a lot of farmers bought SCO when it became available in 2015

Enhanced Coverage Option (ECO)

- Another shallow loss program available in 2021
  - Operates similar to SCO
  - Can be purchased at 90% or 95% level
  - Subsidized 44% for RP and 51% for YP
  - Available regardless of ARC/PLC choice

Figure 1. Illustration of ECO, SCO, and 75% Individual Coverage



Other related issues: ARC/PLC

- Role of commodity programs in overall risk management strategy
  - Choice between: Agricultural Risk Coverage (ARC) and Price Loss Coverage (PLC)
  - ARC offers revenue protection
    - ARC-CO makes a payment on 85% of base acres when county revenue falls below the county revenue guarantee
    - ARC-I makes a payment on 65% of base acres when individual farm revenue falls below the individual revenue guarantee
  - PLC offers price protection
    - PLC makes a payment when effective price is below reference price

Other related issues: ARC/PLC

- Important enrollment information:
  - Need to enroll every year

Contract Year	Enrollment Dates
2019	September 3, 2019 through March 15, 2020
2020	October 7, 2019 through June 30, 2020
2021	October 2020 through March 15, 2021
2022	October 2021 through March 15, 2022
2023	October 2022 through March 15, 2023

  - One ARC vs PLC choice for 2019 & 2020, with chance to change in 2021, 2022, & 2023 – more flexibility!

Other related issues: ARC/PLC

FSN 1
State North Carolina
County Bertie
Crop Seed Cotton

⚠WARNING: Historical Yields for 2013-2017 and 2014 Farm Bill PLC Payment Yield units must be in lbs of *SEED COTTON* per acre. If using crop insurance records or other sources reflecting historical lint yields, you must convert these historical lint yields to historical seed cotton yields by multiplying the lint yield (lbs/Acre) by 2.4 to get your seed cotton yield (lbs/Acre). If you are obtaining your 2014 PLC Payment Yield from FSA forms, this figure should already reflect a seed cotton yield.

Base Acres 1 ac

	PLC Payment Yield
2021	2040 lbs/ac

Your Seed Cotton Expectations

	Your Expected Price	Projected Prices	Use These
2021	0.3457 $/lb	0.3457 $/lb	

☐ **Advanced Settings** (Not recommended for most users)

If you have experienced exceptional circumstances in your county or would like to customize your analysis, check here to enable additional settings.

Recalculate

Crop	Program	2021	Total
Seed Cotton	PLC	$65	$65
Seed Cotton	ARC	$16	$16

Other related issues: ARC/PLC

FSN 1
State North Carolina
County Bertie
Crop Peanuts

Base Acres 1 ac

PLC Payment Yield

2021 4064 lbs/ac

Your Peanuts Expectations

	Your Expected Price	Projected Prices	Use These
2021	0.2185 $/lb	0.2185 $/lb	

☐ **Advanced Settings** (Not recommended for most users)

If you have experienced exceptional circumstances in your county or would like to customize your analysis, check here to enable additional settings.

Recalculate

Crop	Program	2021	Total
Peanuts	PLC	$182	$182
Peanuts	ARC	$49	$49

Take Home Messages

- Discuss insurance product choice, coverage level choice, unit choice, and shallow loss options with your crop insurance agent
  - Adequate and cost-effective coverage that fits overall risk management strategy
  - Sales closing date in NC: Feb 28, 2021 (most crops)
- Sign-up for ARC or PLC with FSA office
  - PLC/ARC sign-up for 2021: March 15, 2021
  - For cotton & peanuts, PLC is a good choice

Thank you!

- **Questions?**
  - **Contact: *Rod M. Rejesus, NC State University***

    Tel No. (919)513-4605

    Email: rod_rejesus@ncsu.edu
- **Website:**
  - Crop Insurance Website at NC Dept. of Ag. & Resource Economics:
    - https://cals.ncsu.edu/are-extension/business-planning-and-operations/crop-insurance/

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How does it work? YP

- Yield Protection (YP)
  - Based on “proven” yield (Actual Production History (APH)) and price established by RMA
  - Individual yield insurance plan that protects against yield shortfalls if the actual yield falls below a guaranteed yield level
    - Yield Guarantee: chose Coverage Level as % of your APH
    - Coverage Level: % APH chosen as guarantee, from 50% to 85% in 5% intervals
    - Price Election: Choose price paid for each bushel below your yield guarantee, from 100% to 55% of established RMA price

How does it work? YP

- YP Example: (corn)
  - APH Yield = 140 bu/ac (average yield over 5 years)
  - Coverage level = 70%
  - Yield Guarantee = 98 bu/ac = 140 x 70%
  - Price election (100%) = $4.0/bu
- If actual yield at harvest = 88 bu/ac (<98)
  - Indemnity = (98-88) x $4 = $40/ac
  - If insured unit is 100ac, then Total Indemnity = $4000

How does it work? YP

- Premium subsidies decrease as coverage level increase
- Larger subsidies for enterprise units
- Special YP case: Catastrophic (CAT) coverage
  - 50% yield at 55% of market price
  - $300 admin. fee per crop in each county (fully subsidized premiums) (↑ $655 in new farm bill)

How does it work? RP

- Revenue Protection (RP)
  - Pays for revenue losses below a revenue guarantee, at the higher of the pre-season "base" price or the harvest price (established by RMA)
- RP Example:
  - APH Yield = 140 bu/ac
  - Coverage level = 70%
  - Base price = $4.0
  - Revenue Guarantee = $392/ac (140x0.7x4)

How does it work? RP

- RP Example (continued)
  - Actual Yield at Harvest = 88bu/ac
  - Case 1: Harvest Price = $3 (HP < Base)
    - Actual Revenue = $264/ac (88 x 3)
    - RP Indemnity = (392-264) = $128
  - Case 2: Harvest Price = $5 (HP > Base)
    - Actual Revenue = $440 (88 x 5)
    - New Revenue Guarantee = $490 (140x0.7x5)
    - Indemnity = 490-440 = $50/ac

How does it work? RPHPE

- Revenue Protection with Harvest Price Exclusion (RPHPE)
  - Pays for revenue losses below a revenue guarantee at the pre-season "base" price (regardless if harvest price is higher than base or not)
- Following previous RP Example:
  - Case 1: same as in RP
  - Case 2: No indemnity (Rev guarantee < Actual Rev)