



Strengthening Risk Management Tools for Growers in South Florida: Crop Insurance Training

Nursery Commodity Crop Insurance Handbook



**United States Department of Agriculture
National Institute of Food and Agriculture**

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Introduction

This manual, developed by the Agricultural Economics Unit of the University of Florida, Tropical Research and Education Center, is intended to provide general guidelines about crop insurance for ornamental plants growers in South Florida. Specifically, the manual is aimed at simplifying the process, and increasing the understanding of growers, of how production risk might be mitigated by taking advantage of available federal crop insurance programs.

The manual is divided into three sections. Section 1 provides basic information about insurance eligibility and basic crop insurance concepts. Section 2 covers aspects related to how to obtain a crop insurance estimate using the United States Department of Agriculture, Risk Management Agency (USDA/RMA) online estimator. Section 3 provides some exercises on how to calculate an indemnity using an Excel tool to simplify the indemnity calculation process. Additionally, the Excel tool will allow the grower to compare the financial results with and without crop insurance, based on simulated losses and coverage levels selected by the grower. By using this tool, the grower may be in a better position to make an informed decision on how to minimize production risk.

We cannot guarantee the legal effect nor the appropriate use of the contents as individual results depend upon specific crop insurance policy details. Most of the information presented here was obtained from USDA/RMA and other industry sources.

Note: Growers should consult with their crop insurance agents for a detailed crop insurance quote, and for more specific information about dates, specific conditions, and exclusions.

I. The Basics of Crop Insurance

Background

Federal crop insurance was established in the 1930s, with multiple-peril crop insurance (MPCI) being the first crop insurance plan designed to cover yield losses from most natural causes. MPCI is better known as yield insurance or APH (Actual Production History) insurance. As is the case in other types of insurance, producers are able to select the coverage amount and structure of their crop insurance policy according to their needs. Loss payments (indemnities) are received when actual production (revenue) is below the yield (revenue) guaranteed as stated in the insurance policy. The federal government is directly involved with determining crop insurance policy provisions and rates.

What Types of Losses Are Covered under Crop Insurance?

- Adverse weather;
- Earthquake;
- Volcanic eruption;
- Fire (due to natural causes);
- Wildlife;
- Insects, but not damage due to insufficient or improper application of pest control measures;
- Plant disease, but not damage due to insufficient or improper application of disease control measures; or
- Failure of the irrigation water supply if due to unavoidable causes.

Why Purchase Crop Insurance?

Uncertainties about weather, yields, prices, government policies, global markets, and other factors make agriculture a risky business. Crop insurance is a risk management tool designed to mitigate the financial impact of adverse events; it may be the difference between financially surviving a bad year and leaving the industry.

Nursery Commodity Insurance Eligibility

Insurance Coverage

Nursery crop insurance is available in all U.S. states to all persons operating nurseries that meet certain criteria. Insurance coverage applies, by practice (field-grown or container), to all nursery plants in a county that

- Are on the Eligible Plant List;
- Are grown in a nursery that receives at least 50 percent of its gross income from the wholesale marketing of nursery plants;
- Meet all the requirements for insurability; and
- Are grown in an appropriate medium.

Nursery plants may not be insured if they

- Are grown in containers with two or more different genera, species, subspecies, varieties, or cultivars;
- Are grown for sale as Christmas trees;
- Are grown as stock plants; or
- Are grown solely for harvest of buds, flowers, or greenery.

Plants producing edible fruits and nuts can be insured if the plants are available for sale. Harvesting the edible fruit or nuts does not affect insurability.

Coverage Protection Based on Type of Loss

You are protected against the following types of loss:

- Adverse weather conditions, including wind, hurricane, and freeze. If cold protection is required by the Eligible Plant List, adequate and operational cold protection measures must be in place;
- Failure of irrigation water supply if due to an insurable cause of loss, such as drought;
- Fire, provided weeds and undergrowth are controlled; or
- Wildlife.

Plant damage or losses in value as a result of the following situations are not covered:

- Collapse or failure of buildings/structures, unless caused by an insurable cause of loss;
- Inadequate power supply, unless such inadequacy is a result of an insurable cause of loss ;
- Inability to market nursery products due to a stop sales order, quarantine, boycott, phytosanitary restriction on sales, or buyer refusal;
- Disease or insect infestation, unless effective control measures for the infestation do not exist; or
- Failure of plants to grow to an expected size.

Basic Crop Insurance Concepts

Crop Insurance Coverage

Catastrophic Coverage (CAT) is the basic level of coverage available (better known as 50/55), is a fixed insurance product that covers 50 percent of the insurable plant inventory, and uses a 55 percent price election of either the lesser of the wholesale price or the price listed on the Plant Price Schedule. CAT is 100% subsidized with no premium paid by the grower; however, there is an administrative fee of \$300 regardless of the acreage.

Additional coverage (Buy-up coverage) is available by paying a premium; buy up coverage levels vary from 50 to 75 percent, in 5 percent increments, of the plant inventory at 100 percent of the lesser of (1) the wholesale price or (2) the price listed on the Plant Price Schedule.

Insurance Premium

The insurance premium is the cost paid by the grower for crop insurance protection; premiums are set by the USDA. Premium amount depends on the desired coverage level (usually from 50 to 75 percent), and price election percentages (fixed in some policies). To encourage crop insurance adoption, a percentage of the premium is subsidized by the federal government.

Table 1 shows premium subsidy and producer's share based on specific coverage levels. Producer's premium share increases when a higher coverage level is selected, while premium subsidies decrease with a higher coverage level. For example, if you select the 75-percent coverage level, your premium share will be 45 percent of the base premium.

Table 1. Crop insurance premium subsidies and producer premiums based on coverage level

Item	Coverage Level					
	50	55	60	65	70	75
Premium Subsidy	67	64	64	59	59	55
Your Premium Share	33	36	36	41	41	45

Insurance Deductible

It is the loss limit that you as a crop insurance policy holder must absorb before benefits from the insurance policy are paid; in other words, the insurer generally pays all the losses beyond the deductible. Crop insurance deductibles range from 25 to 50 percent, in 5 percent increments (15 and 20 percent deductibles are available in some insurance products).

Insurance Unit

The type of unit to be insured also determines crop insurance premiums. There are four unit types available for crop insurance policies: basic, optional, enterprise, and whole-farm.

- *Basic unit:* this type of unit is determined by ownership of the commodity, cash rents, and owned land, is considered one basic unit.
- *Optional unit:* this type of unit is subdivided basic units (irrigated/non irrigated, by section), it allows insurance to be customized according to risk management needs. Insurance premiums for optional units carry a surcharge, and are available only for coverage levels above CAT.

- *Enterprise unit*: this type of unit includes all shares of the crop in the county which aggregates sharecropped land with owned and rented land.
- *Whole-farm unit*: this type of unit is available only on certain revenue insurance policies; it allows aggregation of all eligible insured crops grown in the county.

Amount of Insurance

It is the result of multiplying the full value of all insurable plants in each basic unit by the selected coverage level percentage, multiplied by your share. Below is an example of how to calculate the amount of insurance:

- \$100,000 Plant inventory value
- Multiplied by 0.75 Chosen coverage level percentage
- Multiplied by 1.00 Producer share
- Equals \$75,000 Unit amount of insurance
- (i.e., $\$100,000 * 0.75 * 1.00 = \$75,000$)

Plant Inventory Value Report (PIVR)

The PIVR is used to declare the value of your insurable plants. A PIVR for each insured practice is required. Two copies of your most recent wholesale catalog or price list must accompany your PIVR unless the catalogs or price lists are submitted electronically. If catalogs are submitted electronically, they must be in PDF format and suitable for printing. Your PIVR must also be accompanied by a crop inventory valuation report or physical plant inventory and price documentation.

Field Market Value A

The value of undamaged insurable plants, based on the lesser of (1) the prices contained in the Plant Price Schedule or (2) the prices contained on your catalog or price list in the basic unit immediately prior to the occurrence of any loss.

Field Market Value B

The value of insurable plants, based on the lesser of (1) the prices contained in the Plant Price Schedule or (2) the prices contained in your catalog or price list in the basic unit following the occurrence of a loss.

Under-Report Factor

This is the factor that adjusts your indemnity for under-reporting plant inventory values. The factor is always used in determining indemnities.

Over-Report Factor

This is the factor that adjusts your indemnity for over-reporting inventory values in excess of 110 percent of the plant inventory value. The factor is always used in determining indemnities.

Plant Price Schedule

A schedule of insurable plant prices that establishes the maximum insurable value of undamaged insurable plants, published by the Federal Crop Insurance Corporation (FCIC) as an actuarial document that is available online, or from your crop insurance agent.

Occurrence Deductible

The occurrence deductible allows a smaller deductible than the crop year deductible to be used when the inventory value is more or less than the reported basic unit value.

Policy Endorsements

➤ *Peak Inventory Endorsement*

For increased coverage during certain peak periods when your inventory value may be significantly higher than your annual plant inventory value, you may consider the additional insurance coverage provided by a Peak Inventory Endorsement (not available with CAT). ***The peak amount of insurance is limited to 200 percent of the amount of insurance.***

➤ *Rehabilitation Endorsement*

This endorsement is an addition to the basic policy and provides reimbursement for your expenditures on labor and material for pruning and setup (righting, propping, and staking) of field-grown plants that are damaged by an insured cause of loss and have a reasonable expectation of recovery. The Rehabilitation Endorsement is not available with CAT.

➤ *Pilot Nursery Grower's Price Endorsement*

The Pilot Nursery Grower's Price Endorsement, available in 19 U.S. states, is an addition to the basic policy that insures specific plants at prices higher than those shown on the Eligible Plant List. You must buy this at the time you apply for coverage, or on or before the sales closing date.

For up to date information about these endorsements, please contact your crop insurance agent for more details.

Where to Buy Crop Insurance

All multi-peril crop insurance, including CAT policies, are available from private crop insurance agents. A list of crop insurance agents is available at all USDA service centers and on the RMA website at www.rma.usda.gov/tools/agent.html.

To access the latest information on dates, and plant prices you may want to view the actuarial information browser at <http://webapp.rma.usda.gov/apps/actuarialinformationbrowser/>

II. Crop Insurance Premium Estimator

Any grower interested in obtaining a crop insurance quote for his operation may use the USDA/RMA website's online insurance premium estimator for that purpose. ***Please keep on mind that your actual premium may depend upon your specific conditions and exclusions; refer to your crop insurance agent for more details.***

Below are two exercises showing how to obtain an online crop insurance quote for crop year 2018 at the USDA/RMA website. In the first scenario, it is assumed that the nursery is located in Miami-Dade County, specializes in foliage grown in containers, has a base practice valued at \$100,000; and the producer has a 100 percent interest in the nursery.

Step 1: Open the cost estimator at

<https://ewebapp.rma.usda.gov/apps/costestimator/Estimates/QuickEstimate.aspx>

After loading web page, please disable your pop-up blocker (see website message example below)

You are: Home > Information Browser > Cost Estimator > Main Menu Log In
CE0101

Popular Topics

- Appendix III/M-13
- Bulletins and Handbooks
- Crop Policies and Pilots

Main Menu

Pop-Up Blockers

Please disable your pop-up blocker before using this application or add this application to your list of safe sites.

After the pop-up blocker has been disabled, click on the *Quick Estimate* link. Then choose the *Quick Criteria* box, and select the following options using the drop-down menu:

Commodity: Nursery (FG&C) 0073

- Commodity Year: 2018
- State: Florida 12
- County: Miami-Dade 086
- Type: Foliage 068
- Practice: Container 008

Step 2: Farther down the screen, choose the *Individual Coverage* box and select:

- Base Practice Value: 100,000
- Policy Commencement Month: June
- Insured Share Percent: 1.000

The screen with the selected parameters would look like this:

You are: Home > Information Browser > Cost Estimator > Quick Estimate Log In
CE0401

Quick Estimate

Quick Criteria

- * Commodity : Nursery (FG&C) 0073
- * Commodity Year : 2018
- * State : Florida 12
- * County : Miami - Dade 086
- * Type : Foliage 068
- * Practice : Container 008

Individual Coverage

Dollar Amount Of Insurance 50

- * Unit of Measure : DOL
- Sub County Code : --Select A Map Area--
- * Base Practice Value : 100000
- * Policy Commencement Month : June
- 1st Policy Revision : Practice Value : , Commencement Month :
- 2nd Policy Revision : Practice Value : , Commencement Month :
- * Insured Share Percent : 1.000

Data valid as of: 3/27/2017

The Cost Estimator only provides a general premium estimate. Refer to your crop insurance agent and policy for specific information regarding insurance coverage, actuarial information, conditions and exclusions.

Step 3: Click on *Get Estimates* link (at bottom of screen above)

On the next screen, at the *Individual Coverage* box, click on *Producer Premium Amount*

Show in Grid

Liability Amount
 Total Premium Amount
 Producer Premium Amount
 Subsidy Amount
 Loss Trigger Point

Producer Premium Amount

Individual Coverage	PE %	75 %	70 %	65 %	60 %	55 %	50 %	CAT 50 %	View
Dollar Amount Of Insurance 50	100 %	\$4,652.00	\$2,959.00	\$2,079.00	\$1,289.00	\$922.00	\$609.00	\$0.00	Worksheets Detailed Estimate CEPP SPOI AIB

Recalculate

The Cost Estimator only provides a general premium estimate. Refer to your crop insurance agent and policy for specific information regarding insurance coverage, actuarial information, conditions and exclusions.

One of the features of this insurance product (*Dollar Amount of Insurance 50*) is that the price election is fixed at 100 percent. If the producer in this exercise selects a 75 percent coverage level (\$75,000 insured value), the estimated premium is \$4,652. Producer premiums decrease with a reduced coverage level. If the grower in this scenario selects a 50 percent coverage level (\$50,000 insured value), the estimated premium is \$609. If the producer in this exercise selects CAT insurance (50/55), the insured value is \$27,500 ($\$100,000 \times 0.50 \times 0.55$). In this case, there is no producer premium, so the producer will pay an administrative fee of \$300 independent of the insured plant inventory value.

Table 2 illustrates the amount of insurance, total premium, producer premium, premium subsidy, and producer premium share based on the available coverage levels for the grower in our exercise. A higher coverage level results in higher protection (amount of insurance) and a higher total premium. However, the insurance cost reduction from subsidies would be considerable if the producer paid the full cost.

Table 2. Crop insurance cost, and subsidies to insure a \$100,000 plant inventory with different coverage levels

Crop Year 2018	Coverage level						
	75%	70%	65%	60%	55%	50%	CAT 50%
Insurance Guarantee	\$75,000	\$70,000	\$65,000	\$60,000	\$55,000	\$50,000	\$27,500
Total Premium	\$ 10,337	\$7,218	\$5,070	\$3,580	\$2,561	\$1,845	\$508
Producer Premium	\$4,652	\$2,959	\$2,679	\$1,289	\$922	\$609	0
Subsidy	\$5,685	\$4,259	\$2,991	\$2,291	\$1,634	\$1,236	\$508
Producer's Premium Share	45%	41%	41%	36%	36%	36%	—

What if my PIVR changes?

Because of operating conditions in the nursery industry, plant inventory value may peak during certain months. If the grower wants to buy additional insurance coverage, then he may buy the Peak Inventory Endorsement (not available with CAT), this additional coverage may be purchased only once during the crop year, and it is restricted to 200 percent of the PIVR.

Suppose the grower in our exercise had an increase in inventory value of \$40,000, and is interested in obtaining the peak inventory endorsement from March to May. To explore this option, we return to the last screen in the exercise (Step 3), and click on *Detailed Estimate*.

Step 4: Click on *Detailed Estimate*

Show In Grid

Liability Amount
 Total Premium Amount
 Producer Premium Amount
 Subsidy Amount
 Loss Trigger Point

Liability Amount

Individual Coverage

	PF %	75 %	70 %	65 %	60 %	55 %	50 %	CAT 50 %	View				
Dollar Amount Of Insurance 50	100 %	\$75,000.00	\$70,000.00	\$65,000.00	\$60,000.00	\$55,000.00	\$50,000.00	\$27,500.00	Worksheets	Detailed Estimate	CEPP	SPOI	AIB

[Recalculate](#)

The Cost Estimator only provides a general premium estimate. Refer to your crop insurance agent and policy for specific information regarding insurance coverage, actuarial information, conditions and exclusions.

You will see the following screen:

USDA United States Department of Agriculture
Risk Management Agency

Cost Estimator
Welcome Guest!

Detailed Estimate 464316

[Back](#) [Save](#)

Selected Initial Criteria

* Commodity Year : 2018 * Insurance Plan : Dollar Amount Of Insurance 50 * State : Florida 12 * County : Miami - Dade 006

Grapefruit 0201 [Add Item](#) [Refresh](#)

	Item 1	Delete			
* Commodity :	Nursery (FG&C) 0073				
* Type :	Foliage 068				
* Practice :	Container 008				
* Unit of Measure :	DOL				
Sub County Code :	--Select A Map Area--				
* Base Practice Value :	100000				
* Policy Commencement Month :	June				
Quality for Beginning Farmer Rancher?	<input checked="" type="radio"/> No <input type="radio"/> Yes				
* Does Conservation Compliance (CC) apply?	<input checked="" type="radio"/> No <input type="radio"/> Yes				
1st Policy Revision	Practice Value : <input type="text"/> Commencement Month : <input type="text"/>				
2nd Policy Revision	Practice Value : <input type="text"/> Commencement Month : <input type="text"/>				
* Insured Share Percent :	1.000				
* Unit Structure :	<input checked="" type="radio"/> Basic				
Options By Unit :	None Available				
Options By Practice :	<input checked="" type="radio"/> PE Peak Endorsement 1.000 <input type="radio"/> PO Price Endorsement Option 1				

[Get Estimates](#)

The Cost Estimator only provides a general premium estimate. Refer to your crop insurance agent and policy for specific information regarding insurance coverage, actuarial information, conditions and exclusions.

Step 5: At the bottom of the screen shown above, choose *Options by Practice*, and click on *PE Peak Endorsement 1.000*. A new section (*Peak Endorsement*) will appear at the bottom of the screen.

Options By Practice	HF Hail & Fire Exclusion 0.990 PC Peak Endorsement 1.000 PO Price Endorsement Option 1			
Peak Endorsement	Practice Value : 40000 Starting Month : March Ending Month : May			

Get Estimates

The Cost Estimator only provides a general premium estimate. Refer to your crop insurance agent and policy for specific information regarding insurance coverage, actual information, conditions and exclusions.

Step 6: In the *Peak Endorsement* section, select the following:

- Practice Value: 40,000
- Starting Month: March
- Ending Month: May

Click on *Get Estimates* link (at bottom of screen above)

On the next screen, click on *Producer Premium Amount*

USDA United States Department of Agriculture Risk Management Agency Cost Estimator
Welcome Guest!

Detailed Estimate 464316

Back Save Print/Export

Selected Initial Criteria

* Commodity Year : 2018 * Insurance Plan : Dollar Amount Of Insurance 50 * State : Florida 12
 * County : Miami - Dade 086

Show Inputs In Grid
 << Show Available Inputs >>

Show Results In Grid

Liability Amount
 Total Premium Amount
 Producer Premium Amount
 Subsidy Amount
 Loss Trigger Point

Producer Premium Amount

Nursery (FG&C) 0073	Policy	PE %	75 %	70 %	65 %	60 %	55 %	50 %	View
Item 1	Base Policy	100 %	\$4,652.00	\$2,959.00	\$2,079.00	\$1,289.00	\$922.00	\$609.00	Worksheets
	Peak Endorsement	100 %	\$242.00	\$154.00	\$108.00	\$67.00	\$48.00	\$32.00	CEPP SPOI AIB

The Cost Estimator only provides a general premium estimate. Refer to your crop insurance agent and policy for specific information regarding insurance coverage, actual information, conditions and exclusions.

Data valid as of: 3/27/2017

The screen above indicates that it will cost \$242 to buy the peak endorsement option from March to May to insure an increase in inventory of \$40,000 with a 75 percent coverage level (\$30,000 insured value). Please note that under CAT insurance, policy endorsements are not allowed.

Now let us look at the second exercise. In this scenario, it is assumed the nursery is located in Broward County, specializes in annuals grown in containers, with a base practice valued at \$150,000, and the producer wants to buy crop insurance at the 75 percent coverage level. Assume that the grower selects to purchase peak inventory endorsement for \$75,000 from February to May. What would be the producer premium value? What would be the value of the peak endorsement option?

The input for the *Quick Estimate* box will look like this

After the peak inventory information has been entered online, you will see the following screen:

		PE %	75 %	70 %	65 %	60 %	55 %	50 %	View
Nursery (FG&C) 0073 Item 1	Reve Policy	100 %	\$7,067.00	\$4,496.00	\$3,158.00	\$1,958.00	\$1,401.00	\$975.00	Worksheets
	Peak Endorsement	100 %	\$671.00	\$427.00	\$300.00	\$106.00	\$133.00	\$00.00	CFPP SPCB AIR

The Cost Estimator only provides a general premium estimate. Refer to your crop insurance agent and policy for specific information regarding insurance coverage, actuarial information, conditions and exclusions.

The producer premium to insure the nursery operation described above with a 75 percent coverage level is \$7,067. To purchase the peak endorsement protection, the grower may need to pay an additional \$671.

III. Estimating Indemnity Payments

For the purpose of illustrating how an indemnity payment is estimated, let us assume a nursery grower does not anticipate an active hurricane season and purchases crop insurance to insure a plant inventory valued at \$100,000 (PIVR) at the 65 percent coverage level. Later, due to bad weather during the crop year, the grower experiences losses. Before the catastrophic event, the field market value was \$100,000.

After the loss, the field market is \$50,000. What is the indemnity payment from the insurer based on a 65 percent coverage level?

Step (1): Determine the unit amount of insurance

$$\$100,000 \text{ PIVR} * 0.65 \text{ Coverage level percentage} = \$65,000 \text{ Unit amount of insurance}$$

Step (2): Determine the unit deductible

$$\begin{aligned} \text{The deductible is equal to } & (1 - \text{coverage level}) * \text{PIVR} \\ (1 - 0.65) * \$100,000 & = \$35,000 \end{aligned}$$

Step (3): Determine the loss

$$\begin{aligned} \$100,000 \text{ Field market value before loss} - \$50,000 \text{ Field market value after loss} \\ \$100,000 - \$50,000 & = \$50,000 \text{ Value of loss} \end{aligned}$$

Step (4): Determine the indemnity

$$50,000 \text{ Value of loss} - \$35,000 \text{ Deductible} = \$15,000 \text{ Indemnity}$$

As calculated, the grower is eligible to receive a \$15,000 indemnity payment from the insurer. This exercise highlights the fact that as long as losses are greater than the deductible, the grower is eligible for an indemnity payment. However, in some instances because of the business cycle of the nursery industry, an initial PIVR may fluctuate in value during the crop year due to sales or increase in inventory. Estimating losses accounting for the change in inventory values is a bit more complex because it requires the estimation of under-report factors (increase in inventory value) or over-report factors (decrease in inventory value), respectively, to adjust for the losses and calculate the indemnity.

Indemnity Payments: Under-Report and Over-Report Situations

After experiencing a loss, a grower may want to establish whether he is in an under-report or over-report situation to calculate the indemnity.

If at the time of a loss

- Field market value A > Plant Inventory Value: under-report situation
- Field market value A < Plant Inventory Value: over-report situation

In both cases, an occurrence deductible replaces the crop year deductible. Below are exercises for indemnity payments in under-report and over-report situations.

Under-Report Situation Exercises

Under-Report Exercise for a Single Unit

Continuing with our previous exercise, a grower purchases crop insurance with a PIVR of \$100,000 and elects a coverage level of 75 percent. At the time of loss, field market value A (FMVA) is \$125,000, and field market value B (FMVB) is \$80,000. What is the indemnity payment?

Based on the information above, we may calculate the amount of insurance and crop year deductible:

$$\text{Amount of insurance: } \$100,000 * 75\% = \$75,000$$

$$\text{Crop year deductible: } (1 - 0.75) * \$100,000 = \$25,000$$

Step (1): Determine the under-report factor (URF) which is the lesser of [(1) or (2)]

$$(1) 1.000$$

$$(2) (\text{Plant IVR} + \text{Peak IVR} - \text{Previous adj. losses}) / \text{FMVA}$$

$$\text{URF} = \$100,000 / \$125,000$$

$$\text{URF} = 0.8$$

Step (2): Determine the difference between field market value A and field market value B

$$\text{FMVA} - \text{FMVB}$$

$$\$125,000 - \$80,000 = \$45,000$$

Step (3): Multiply the difference in field market value by the URF

$$\$45,000 * 0.80 = \$36,000$$

Step (4): Determine the occurrence deductible which is the lesser of [(1) or (2)]

$$(1) \text{Field market value A} * \text{crop year deductible (\%)} * \text{URF}$$

$$\$125,000 * 0.8 * 0.25 = \$25,000$$

$$(2) \text{Crop year deductible}$$

$$(1 - 0.75) * \$100,000 = \$25,000$$

Step (5): Result of Step (4) minus the occurrence deductible

$$\$36,000 - \$25,000 = \$11,000$$

Step (6): Result of Step (6) multiplied by grower's share of the nursery

$$\$11,000 * 1.00 = \$11,000 \text{ indemnity payment}$$

If you decide to purchase crop insurance, you do not have to go through the calculations shown above each time you want to examine potential losses covered by crop insurance. Rather, you can use the Excel file [nursery.xlsx](http://agecon.centers.ufl.edu/cropins.html) (available online at <http://agecon.centers.ufl.edu/cropins.html>) to calculate indemnity payments.

Using Excel Exercise in Under-Report Situation

In this exercise, assume the value of the plant inventory (foliage 068) reported by you is \$200,000, your coverage level is 75 percent, your premium is \$9,303, and you have a 100 percent interest on the nursery. At the time of loss, field market value A is \$250,000, and field market value B is \$160,000. To calculate your indemnity, open the [nursery.xlsx](#) file, and go to the URF spreadsheet.

Using the URF spreadsheet, enter data or select values in the green cells only; the spreadsheet will calculate all the needed values for you (yellow cells). This is a three-step process.

Step (1): Determine the amount of insurance and crop year deductible

Enter the PIVR = \$200,000

Using the drop-down menu, select coverage level 75%.

Step (2): Determine the values for field market values A and B

Field market value A: \$250,000

Field market value B: \$160,000

Step (3): Enter the producer's premium, and determine your share in the nursery operation (%)

Producer's premium: \$9,303

Share of the operation: 100 percent

Below is an example of how the URF spreadsheet should look:

Under-report situation: Indemnity Estimator Nursery Insurance			
PIVR	\$ 200,000	URF	0.80
Coverage level	0.75	FMV A - FMV B	\$ 90,000
Field market value A	\$ 250,000	FMV DIFF*URF	\$ 72,000
Field market value B	\$ 160,000		
Producer Premium	\$ 9,303	Ocurrence deductible is	
Your share %	100%	the lesser of	
		FMV A * deductible % * URF	\$ 50,000
Deductible	0.25	Crop year deductible	\$ 50,000
Amount of Insurance	\$ 150,000	Ocurrence deductible=	\$ 50,000
Crop year deductible	\$ 50,000		
		Adj. loss -Occ. deductible	\$ 22,000
Under-report situation	YES		
		Indemnity	\$ 22,000
Under report factor is	0.80	Loss with insurance	\$ 68,000
the lesser of:	1.000	Loss without insurance	\$ 90,000
		Net Indemnity	\$ 12,697
Projected Revenue		With Insurance	\$ 172,697
		Without Insurance	\$ 160,000

The producer in this example receives an indemnity payment of \$22,000; while the payment helps to cover part of the loss, a more appropriate question is what would be the financial situation for the producer in the example if the producer elects to get crop insurance, and if he does not elect it? Assuming the producer got crop insurance, after receiving the indemnity payment losses would be \$68,000, while for the case of no crop insurance losses would be \$90,000. After considering losses, it would be a good idea to look at the projected revenue under both scenarios. After factoring the producer's premium cost, the projected revenue (at that specific time) would be \$172,697 (\$160,000 FMVB + \$12,697 Net Indemnity) if the producer elects crop insurance, while in the case of no crop insurance the projected revenue would be \$160,000 (FMVB).

Over-Report Situation Exercises

Over-Report Exercise for a Single Unit

In this exercise, assume the value of the plant inventory reported by you is \$125,000, and your coverage level is 75 percent. At the time of loss, field market value A is \$100,000 and field market value B is \$50,000. Your verified sales records contain an insured value of plants equaling \$10,000.

Using the information above, the amount of insurance and crop year deductible is calculated as follows:

$$\text{Amount of insurance: } \$125,000 * 0.75 = \$93,750$$

$$\text{Crop year deductible: } \$125,000 * 0.25 = \$31,250$$

Step (1): Determine the over-report factor (ORF) [a slash represents the division sign]

$$\begin{aligned} & (\text{PIVR} + \text{peak IVR} - \text{Previous adj. losses} / \text{Field market value A} + \text{IVPSR}) - 1.10 \\ & (\$125,000 / \$100,000 + \$10,000) - 1.10 = 0.04 \end{aligned}$$

Step (2): Determine the difference between FMVA and FMVB

$$\$100,000 - \$50,000 = \$50,000$$

Step (3): Determine the occurrence deductible which is the lesser of [(1) or (2)]

$$\begin{aligned} & (1) \text{ Crop year deductible} * \text{FMVA} * 1.000 + \text{ORF} \\ & \{(0.25 * \$125,000) * (1.000 + 0.04)\} = \$26,000 \end{aligned}$$

$$\begin{aligned} & (2) \text{ Crop year deductible} \\ & \$125,000 * 0.25 = \$31,250 \end{aligned}$$

Step (4): Result of Step (2) multiplied by (1.000 – ORF)

$$\$50,000 * (1.000 - 0.04) = \$48,000$$

Step (5): Result of Step (4) minus the occurrence deductible

$$\$48,000 - \$26,000 = \$22,000$$

Step (6): Result of Step (5) multiplied by your share

$$\$22,000 * 1.000 = \$22,000 \text{ indemnity payment}$$

Using Excel Exercise in Over-Report Situation

In this exercise, assume the value of the basic unit reported by you is \$250,000, your coverage level is 75 percent, your crop insurance premium is \$11,629, and you have 100 percent interest in the nursery operation. At the time of loss, field market value A is \$200,000 and field market value B is \$100,000. Your verified sales records contain an insured value of plants equaling \$20,000. To calculate your indemnity, open the [nursery.xlsx](#) file, and go to the ORF spreadsheet.

Using the ORF spreadsheet, enter data or select values in the green cells only; the spreadsheet will calculate all the needed values for you (yellow cells). This is a three-step process.

Step (1): Determine amount of insurance and crop year deductible

Enter the PIVR = \$250,000

Using the drop-down menu select coverage level 75%

Step (2): Determine the values for field market values A & B and verified sales records

Field market value A: \$200,000

Field market value B: \$100,000

Verified sales records: \$20,000

Step (3): Enter the producer's premium, and determine the share on the nursery operation (%)

Producer's premium: \$11,629

Share of the operation: 100 percent

Below is an example of how the URF spreadsheet should look:

Over-report situation: Indemnity Estimator Nursery Insurance			
PIVR:	\$ 250,000	FMV A- FMVB:	\$ 100,000
Coverage level:	0.75		
Field market value A:	\$ 200,000	Ocurrence deductible is	
Field market value B:	\$ 100,000	the lesser of :	
Verified sales records:	\$ 20,000	FMVA * deductible % * (1+ORF)	\$ 52,000
Producer Premium	\$ 11,629	Crop year deductible	\$ 62,500
Your share of the crop %	100%	Ocurrence deductible:	\$ 52,000
Deductible:	0.25	Adj. loss by (1-ORF)	\$ 96,000
Amount of Insurance:	\$ 187,500	Adj. loss-OD	\$ 44,000
Crop year deductible:	\$ 62,500		
Over-report situation	YES	Indemnity	\$ 44,000
		Loss with Insurance	\$ 56,000
Over report factor:	0.04	Loss without Insurance	\$ 100,000
		Net Indemnity	\$ 32,371
Projected Revenue		With Insurance	\$ 132,371
		Without Insurance	\$ 100,000

Because of the losses experienced, the producer in this situation receives an indemnity payment of \$44,000; while receiving a payment helps to cover part of the loss, a more appropriate question is what would be the financial situation for the producer in the example if the producer elects to get crop insurance, and if he does not elect it? Assuming the producer got crop insurance, after receiving the indemnity payment losses would be \$56,000, while for the case of no crop insurance losses would be \$100,000. After considering losses, it would be a good idea to look at the projected revenue under both scenarios. After factoring the producer's premium cost, the projected revenue (at that specific time) would

be \$132,371 (\$100,000 FMVB + \$32,371 Net Indemnity) if the producer elects crop insurance, while in the case of no crop insurance projected revenue would be \$100,000 (FMVB).

So far, the indemnity calculations reflect the first loss on the basic unit insured before any increases in inventory value. Below is an example of a Peak Endorsement Option purchase if the grower experienced a loss before a peak on inventory value.

Peak Inventory Value Report with Previous Loss

In this scenario, we use the under-report situation where the grower, insured at \$100,000 PIVR (foliage) with a 75 percent coverage, paid a premium of \$4,652, experienced a loss and received an \$11,000 indemnity. The grower purchases Peak Inventory Endorsement from February to May, reports \$60,000 on inventory, and pays a peak endorsement premium of \$530 (75% coverage). The grower now suffers a second loss on the same basic unit, where at the time of the loss the field market value A is \$124,000, and field market value B is \$58,000. What is the indemnity payment on the second loss?

The amount of insurance is reduced by subtracting the previous indemnity payment of \$11,000 from the amount of insurance (\$75,000 – \$11,000 = \$64,000). The crop year deductible is reduced to zero by the previous adjusted loss (\$25,000 – \$36,000, but not less than zero). The peak amount of insurance is the reported inventory times the coverage level (\$60,000 * 0.75 = \$45,000). The combined amount of insurance for the coverage term of the peak endorsement is \$64,000 + \$45,000 = \$109,000. The crop year deductible is increased by \$15,000 (\$60,000 * 0.25). The indemnity is calculated as follows:

Step (1): Determine the under-report factor

$$\begin{aligned} & (\text{PIVR} + \text{Peak IVR} - \text{Previous adj. losses}) / \text{FMVA} \\ & (\$100,000 + 60,000 - \$36,000) / \$124,000 = 1.00 \end{aligned}$$

Step (2): Determine the difference between field market value A minus field market value B

$$\$124,000 - \$58,000 = \$66,000$$

Step (3): Multiply the difference in field market value by the URF

$$\$66,000 \times 1.0 = \$66,000$$

Step (4): Determine the occurrence deductible which is the lesser of [(1) or (2)]:

$$\begin{aligned} & (1) \text{ Field market value A} * \text{crop year deductible (\%)} * \text{URF} \\ & \$124,000 * 0.25 * 1.0 = \$31,000 \end{aligned}$$

$$\begin{aligned} & (2) \text{ The crop year deductible} \\ & \$60,000 * 0.25 = \$15,000 \end{aligned}$$

Step (5): Result of Step (3) minus the occurrence deductible

$$\$66,000 - \$15,000 = \$51,000;$$

Step (6): Result of Step (5) multiplied by producer's share

$$\$51,000 \times 1.000 = \$51,000 \text{ indemnity payment}$$

These results can be replicated using the [nursery.xlsx](#) file and the [URF with loss Peak EO](#) spreadsheet. Below is an example of how the spreadsheet for this scenario looks like:

Peak Inventory with Previous Loss: Indemnity Estimator Nursery Insurance			
PIVR	\$ 100,000	URF is the lesser of:	
Coverage level	0.75	One	1.000
Producer's premium	\$ 4,652	(PIVR+Peak IVR-PAL)/FMV A	1.00
Previous Indemnity	\$ 11,000	Under report factor=	1.00
Previous Adj. loss	\$ 36,000		
Previous loss	\$ 45,000		
Your share %	100%		
Peak Endorsement Inventory	\$ 60,000	FMV A- FMV B	\$ 66,000
Field market value A	\$ 124,000	FMV DIFF*URF	\$ 66,000
Field market value B	\$ 58,000		
Peak Endorsement Premium	\$ 530	Ocurrence deductible	
		the lesser of	
		FMV A* occ. deductible %*UR	\$ 31,000
Deductible	0.25	Crop year deductible	\$ 15,000
Amount of Insurance	\$ 64,000	Ocurrence deductible=	\$ 15,000
Peak EO value	\$ 60,000		
Peak EO insured	\$ 45,000	Adj. loss -OD	\$ 51,000
New amount of insurance	\$ 109,000		
New crop year deductible	\$ 15,000		
		Indemnity	\$ 51,000
Under report situation	YES	Loss with insurance	\$ 15,000
		Loss without insurance	\$ 66,000
(PIVR+Peak IVR-PAL)/FMV A	1.00	Net Indemnity	\$ 50,470
		With insurance	\$ 49,000
		Without insurance	\$ 111,000
		With Insurance	\$ 103,288
		Without Insurance	\$ 58,000

In order to replicate the above example, first go to the URF2 spreadsheet. You will notice that all the values related to the first loss are pre-populated, and that the indemnity is calculated. Next go to the URF Loss Peak EO spreadsheet. This spreadsheet will contain the values of the PIVR (first loss in bold), coverage level, producer's premium, previous adjusted loss, previous loss and share, all of which were imported directly from the URF2 spreadsheet. Within the green cells, enter the values for the Peak Endorsement Inventory, Field Market Value A, Field Market Value B, and Peak Endorsement Premium. Once these values have been entered, all the values needed to estimate the indemnity will appear on the yellow cells.

In this example, losses with insurance for the second event are \$15,000 while losses in the case of no insurance are shown to be \$66,000; clearly indicating the benefit of having crop insurance. If the grower did not have crop insurance, the accumulated losses for the crop year would be \$111,000. In contrast, the cumulative losses with crop insurance would only be \$49,000; less than half the losses suffered by the uninsured grower. Finally, notice that the projected revenue in the case of crop insurance is \$103,288, which is almost twice the revenue for an uninsured grower in this particular scenario.

Concluding Remarks

In summary, crop insurance should be viewed as a financial risk management tool to protect you from catastrophic events. It should not be viewed as supplemental income or as a potential source of income. Having crop insurance may be the difference between surviving a bad year and going out of business. While an indemnity payment helps minimize losses significantly, there will still be losses, although much smaller compared to the case of no crop insurance at all.

The decision to obtain crop insurance involves certain tradeoffs related to coverage level, insurance guarantee, and its associated costs. This issue is even more complex when considering the extra cost of additional protection for a specific commodity. In the end, it depends on risk tolerance, short-term expectations, and the availability of financial resources to stay afloat if a catastrophic event occurs.

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Resources

Please visit <http://agecon.centers.ufl.edu/cropins.html> to access all the workshop material and excel files.