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2024–2025 Florida Citrus Production Guide: Crop Insurance Policies Available to Citrus Growers[1]

Ariel Singerman[2]

Production risk is one of the main risks that growers are subject to. A grower can combine the same inputs every year and yet obtain different yields each time. The main source of risk and therefore the extent to which yields may differ from year to year in crop production stems from the unpredictable nature of weather, pests, and diseases.

Another source of risk for growers is market or price risk. Because growers are typically price takers, they are exposed to the supply-and-demand market forces for inputs and outputs. Thus, commodity prices can vary each year and even within a given season. In addition, growers seldom know for certain the prices of farm inputs and outputs at the time they must make decisions about how much inputs to use or what and how much of various outputs to produce. Therefore, market risk includes risks derived from cyclical and seasonal price fluctuations of agricultural products, trade restrictions (i.e., market access), subsidies, and currency exchange rates. Contracts with buyers and suppliers can mitigate market risk, but when selling a commodity, contracts can also limit a price increase that would benefit the grower.

In this chapter, I describe the main crop insurance policies available to citrus growers and provide examples that illustrate the calculations involved. The commonality among all policies is that by purchasing crop insurance, the grower transfers part of the risk in exchange for a premium (which is the cost of purchasing insurance).

Crop Insurance as a Tool for Managing Risk

Federal crop insurance is provided through a partnership between public institutions and private companies. The Risk Management Agency (RMA) acts on behalf of the Federal Crop Insurance Corporation (FCIC) to administer all federal crop insurance programs. The RMA designates private insurance companies to market, underwrite, and adjust claims for crop insurance policies. It is important to realize that premium rates and insurance terms and conditions are established by the FCIC. Therefore, the premium for a specific policy and coverage level is the same across companies; insurance companies compete only with their knowledge, customer service, and related insurance products. In addition, to increase participation in the program, the federal government subsidizes crop insurance premiums.

The Basics

At the time of enrollment, the grower chooses a certain coverage level, which determines two components of the policy. First, it determines the guarantee or liability (the amount at which the grower is insuring for). Second, the coverage level chosen also determines the deductible (the amount of loss for which the grower will not receive an indemnity). In the event of a loss, any level below the guarantee will trigger an indemnity. Figure 1 illustrates the

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2. Ariel Singerman, associate professor, Food and Resource Economics Department, UF/IFAS Citrus REC; UF/IFAS Extension, Gainesville, FL 32611.

basics of how crop insurance works with a 1-acre example. Assume a grower expects revenue to be $2,325 and chooses a 60% coverage level. His choice of coverage level sets the guarantee at $1,395 and establishes the premium the grower will pay for insuring at such level. If, for example, the grower experiences a 50% loss, the actual farm revenue will be $1,163. The indemnity will then be equal to $232, which is the difference between the guarantee and the actual farm revenue.

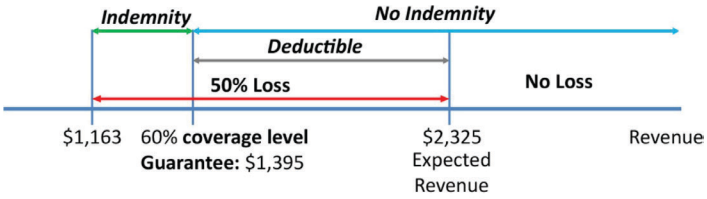

Figure 1. Illustration of the basic concepts involved in crop insurance for a 1-acre farm.
Credits: UF/IFAS

Crop Insurance Policies for Citrus

There are two insurance policies specifically available for Florida citrus growers based on maximum reference dollar amounts set by the RMA: tree insurance and fruit/crop insurance. In addition, Catastrophic Risk Protection (CAT) is available for both policies and is set at 50% coverage and 55% of the reference dollar amount. Thus, the coverage is very limited because payments are only triggered for losses that are greater than 72.5% (=1 - 50% × 55%) of the maximum reference dollar amount. The advantage of CAT, however, is that it has a low cost; it costs $300 per crop per county regardless of acreage. The majority of citrus growers in Florida chooses CAT coverage for their trees and fruit. This is likely due to its low cost together with either the need to fulfill a lender's requirement or to make themselves eligible for ad-hoc hurricane relief.

Tree insurance is based on reference prices established by the RMA that differ according to tree age. For example, orange trees older than 6 years have a reference price of $87 per tree. Causes of insurable loss under this policy are excess moisture, flooding, freeze, and wind. Coverage levels range from 50% to 75% in 5% increments. For example, the premium subsidy for 60% coverage is 64%, so the grower has to pay the remaining 36%.

Citrus fruit/crop insurance is based on a reference maximum dollar amount per acre. This policy offers coverage for fruit from trees that are at least 5 years old. Insurable causes of loss under this policy are excess wind, fire, freeze, hurricane, hail, and tornado. Growers can choose coverage levels ranging from 50% to 85% in 5% increments. Table 1 illustrates how the fruit dollar-amount policy works using 1 acre of late-season oranges from 9-year-old trees located in Polk County. The reference maximum dollar amount established by the RMA for 2019 is $2,325 per acre. Assuming the grower chooses a 60% coverage level, the guarantee is set at $1,395 and the deductible at $930. The calculations in Table 1 also show the total premium is $52, but the grower only needs to pay $19 per acre. In case of a 50% loss, the amount lost would equal $1,163, triggering an indemnity of $232 so as to provide the guarantee of $1,395.

Whole Farm Revenue Protection (WFRP) is a newer policy, available nationwide, that provides coverage against losses in farm revenue for the entire farm. In other words, all farm revenue is insured together under one policy. Thus, individual commodity losses are not considered. The approved revenue amount under this policy is the lower of (1) historic farm revenue (5-year average based on tax records) or (2) expected revenue. Coverage level ranges from 50% to 85% in 5% increments. Eligibility criteria include having no more than $1 million expected revenue from animals and animal products; having no more than $1 million from greenhouse and nursery products; and having no more than $8.5 million in insured (i.e., approved) revenue.

The federal premium subsidy for WFRP depends on how many commodities are grown on the farm. As illustrated in Table 2, if only one commodity is grown on the farm, the basic premium subsidy applies. But if two or more commodities are grown, the premium subsidy increases to 80%. However, each commodity needs to make a minimum contribution to revenue (in percentage terms) for the additional premium subsidy to apply. When two commodities are grown on the farm, each needs to contribute at least 16.67% to the farm's revenue. When three, four, or five commodities are grown on the farm, that percentage is at least 11.11%, 8.33%, and 6.67%, respectively. Farm diversification affects not only the premium subsidy but also the premium rate; growing more commodities (up to 7) lowers the premium rate.

Table 3 illustrates how WFRP works for a 1-acre farm located in Polk County. For comparison purposes, the values chosen are similar to those in the previous example. Assuming the farm generated $2,500 in revenue each of the past 5 years and is expected to generate $2,325 next year, the approved revenue is $2,325. Assuming the grower chooses a 60% coverage level, the guarantee is set at $1,395 and the deductible at $930. However, the premium calculations in Table 3 show how the number of commodities grown on the farm influences the premium the grower has to pay. Importantly, early and late juice oranges are not considered to be different commodities for insurance

purposes. Thus, for example, if each contributes 50% toward farm revenue, the diversity factor is still equal to 1, and the premium subsidy is 64%. Hence, in this example, the grower premium is $37 per acre.

If the 1-acre farm was devoted to growing early oranges and mandarins that contributed 50% each toward farm revenue, then the RMA considers those two to be different commodities, and the grower premium decreases to $9 per acre. In an example in which a farm grows grapefruit, mandarins, and early oranges for juice (which the RMA considers as three different commodities) with each contributing 33% toward farm revenue, the grower premium also turns out to be $9 per acre. In case of a 50% loss (as in the example for the fruit dollar-amount policy above), the amount lost would equal $1,163, triggering an indemnity of $232.

Even though the numbers used for the examples in the fruit dollar-amount policy and WFRP were purposely made to be the same, it is important to realize the significant differences between the policies and the type of coverage they offer. One of the main differences is that WFRP is based on the insured farm's records, not on an amount the RMA establishes. In addition, the dollar-amount policy covers production risk (decrease in yield), whereas WFRP covers production and market risk (decrease in both yield and price). In terms of premium, WFRP is more expensive for a single commodity but becomes significantly cheaper once two or more commodities are grown on the farm.

In crop year 2022, the Risk Management Agency (RMA) started offering a new option to Florida citrus growers for insuring their crop. The policy is called Actual Production History (APH) and provides coverage for yield losses based on a farm's historical records. APH coverage levels range from 50% to 85% in 5% increments. Causes of insurable loss under this policy include excess wind, drought, freeze, hail, hurricane, tornado, fire, diseases (if specified in the special provisions), and postbloom fruit drop provided recommended disease control measures are applied. Coverage is offered for fresh and processed oranges and grapefruit, fresh mandarins/tangerines, tangelos and tangors grown in central and southwest Florida counties. Coverage for fresh and processed lemons is available in some counties. The price used to establish the premium and liability amount for each combination of crop, type, and grove practice is set by the Federal Crop Insurance Corporation (FCIC). Growers can elect to insure at a lower price than established or, alternatively, can provide a contract price, if available.

The basis to establish the guarantee and premium in APH is called the APH approved yield, which consists of the average of the grower's yield records for the last 10 seasons, called APH database. Growers need to provide at least four years of yield records to obtain APH coverage. If such records are not available, the grower will be assigned transitional yields (T-yields)—an estimated yield figure based on historical average county yields—for each missing year. The number of years for which the grower has records available will determine what percentage of transitional yield is used to complete the missing years. To determine whether any adjustments to the APH database are warranted either due to alternate bearing or downward trend patterns, the insurance company will perform high variability tests. However, given the catastrophic weather events during the 2022–2023 crop year, the RMA instructed insurance companies to exclude that crop year from high variability tests calculations.

Table 4 shows the amounts of APH premium and indemnity at the 65%, 75%, and 85% coverage levels. Table 4 panel A shows the values needed for computing the premium and indemnity. For example, the FCIC established the price for early and mid-season oranges at $10.83 per box. Therefore, the value of production per acre was set at $2,632 (=$10.83 per box 243 boxes per acre). The realization of yield in 2021/22 at 131 boxes per acre implies that there would have been a loss of 46% relative to the APH yield. Thus, the value of the production to count would have been $1,419 per acre and the loss value $1,213 per acre. Table 4 panel B shows the guarantee, liability, deductible amounts, and the amounts for the farmer premium and indemnity for the three different coverage levels. Panel B also shows that a grower who would have chosen 65% (75%) [85%] coverage would have had to pay $22 ($53) [$137] per acre as the premium. Had the grove's yield in 2021/22 been 131 boxes per acre, the grower would have received $292 ($552) [$823] per acre as indemnity.

Conclusion

Dollar-amount policies for insuring citrus trees and fruit are based on reference prices established by the RMA, not on farm's records as with WFRP or APH. In addition, the coverage dollar-amount policies provide are for specific perils. WFRP allows eligible growers to insure their entire farm revenue under one policy. Dollar-amount policy covers production risk (decrease in yield), whereas WFRP covers production and market risk (decrease in both yield and price). WFRP can be expensive for a single commodity but becomes significantly cheaper once two or more commodities are grown on the farm; the subsidy and premium rate depend on the number of commodities grown on the farm. For a diversified farm that meets the eligibility

criteria, WFRP can provide better coverage relative to a dollar-amount policy. The Actual Production History (APH) policy offers coverage against yield losses based on historical farm records.

Table 1. Fruit dollar-amount policy example for 1 acre in Polk County.

Line #	RMA Terminology	
(1)	Age class	9-year-old
(2)	Commodity	Oranges
(3)	Commodity type	Late season
(4)	Intended use	Juice
(5)	Ref. maximum dollar amount	$2,325
(6)	Coverage Level	60%
(7)	Guarantee [(5)×(6)]	$1,395
(8)	Deductible [(5)-(7)]	$930
	Base Premium Calculation	
(9)	Basic rate	0.041
(10)	Rate differential factor	0.901
(11)	Base premium rate [(9)×(10)]	0.037
(12)	Total premium [(7)×(11)]	$52
(13)	Subsidy percent	64%
(14)	Subsidized amount [(12)×(13)]	$33
(15)	Grower premium [(12)-(14)]	$19
	Indemnity Calculation	
(16)	Assumed production damage	50%
(17)	Loss value [(5)×(16)]	$1,163
(18)	Indemnity [(7)-(17)]	$232

Table 2. Premium subsidy for each level of Whole Farm Revenue Protection (WFRP) coverage and number of commodities grown on the farm.

	Coverage Level							
	50%	**55%**	**60%**	**65%**	**70%**	**75%**	**80%**	**85%**
Minimum # Commodities Required	1	1	1	1	1	1	3	3
Basic Subsidy for 1 Commodity	67%	64%	64%	59%	59%	55%	N/A	N/A
Subsidy for 2 Commodities	80%	80%	80%	80%	80%	80%	N/A	N/A
Subsidy for 3+ Commodities	80%	80%	80%	80%	80%	80%	71%	56%

Table 3. Whole Farm Revenue Protection (WFRP) example for 1 acre in Polk County.

Line #	RMA Terminology			
(1)	Allowable Revenue*	Amount		
	Year 1	$2500		
	Year 2	$2500		
	Year 3	$2500		
	Year 4	$2500		
	Year 5	$2500		
(2)	Average	$2500		
(3)	Expected revenue	$2325		
(4)	Approved revenue [min((2),(3))]	$2325		
(5)	Coverage level	60%		
(6)	Guarantee [(4)×(5)]	$1,395		
(7)	Deductible	$930		
	Base Premium Calculation			
		Example I	**Example II**	**Example III**
		50% Early 50% Late	50% Early 50% Mandarins	33% Early 33% Mandarins 33% Grapefruit
(8)	Weighted commodity rate	0.073	0.046	0.059
(9)	Commodity factor	1.00	0.5	0.333
(10)	Diversity factor	1.00	0.668	0.523
(11)	Premium rate [(8)×(10)]	0.073	0.031	0.031
(12)	Total premium [(6)×(11)]	$102	$43	$43
(13)	Subsidy percent	64%	80%	80%
(14)	Subsidized amount [(12)×(13)]	$65	$35	$35
(15)	Grower premium [(12)-(14)]	$37	$9	$9
	Indemnity Calculation			
(16)	Assumed production damage	50%		
(17)	Loss value [(4)×(16)]	$1,163		
(18)	Indemnity [(6)-(17)]	$232		

* subject to Revenue Index factor: 0.8 cup and 1.2 cap

Table 4. Actual Production History (APH): example for the calculation of the premium and indemnity for the 2021/22 season for 65%, 75%, and 85% coverage for early and mid-season oranges in Polk County, Florida.

Price per box	$10.83
APH Yield 2021/22	243
Value of production	$2,632
Actual yield in 2021/22	131
Production damage	46%
Value of production to count	$1,419
Loss value	$1,213

B. APH Premium and indemnity for 65%, 75%, and 85% coverage.

	Coverage (%)		
	65%	**75%**	**85%**
Guarantee (in boxes)	158	182	207
Liability	$1,711.00	$1,971.00	$2,242.00
Deductible	$921	$661	$390
Basic rate	0.0316		
Rate differential factor	1	1.661	2.596
Unit residual factor	1	1.129	1.198
Total premium	$53	$117	$221
Government subsidy percent	59%	55%	38%
Government subsidized amount	$31	$64	$84
Farmer premium	$22	$53	$137
Indemnity	$292	$552	$823