

2019–2020 Citrus Pest Management Guide: Crop Insurance Policies Available to Citrus Growers¹

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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, diseases, etc.

Another source of risk for growers is market or price risk. Since growers are typically price takers, they are exposed to the supply and demand market forces for inputs and outputs. Thus, commodity prices 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 of which 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 article, I describe the main crop insurance policies available to citrus growers and provide examples that illustrate the calculations involved. Some policies offer coverage for trees, others for production, and others for farm revenue. However, the commonality among all policies is that by purchasing crop insurance, the grower

transfers part of the risk in exchange for a premium (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, who are in charge of marketing, underwriting, and adjusting claims for crop insurance policies. It is important to realize that premium rates and insurance terms and conditions are established by 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

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indemnity for). In the event of a loss, any level below the guarantee will trigger an indemnity. Figure 1 illustrates the basics of how crop insurance works with a one-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 also 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.

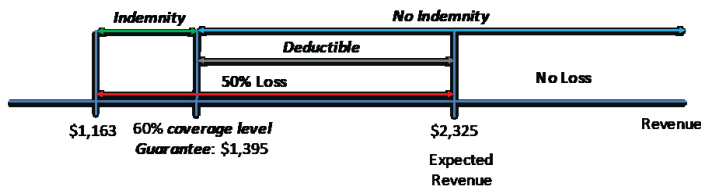


Figure 1. Illustration of the basic concepts involved in crop insurance for a one-acre farm.

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. 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 73% ($=50\% \times 55\%$) of the maximum reference dollar amount. The advantage, however, is that it is less expensive; 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 one 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 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 seven) lowers the premium rate.

Table 3 illustrates how WFRP works for a one-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 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, starting this year, early and late juice oranges are not considered to be different commodities for

insurance purposes. Thus, for example, if each contributes 50% towards 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 one-acre farm was devoted to growing early oranges and mandarins that contributed 50% each towards 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.

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. 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.

Table 1. Fruit Dollar-Amount Policy Example for One 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)x(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)x(10)]	0.037
(12)	Total premium [(7)x(11)]	\$52
(13)	Subsidy percent	64%
(14)	Subsidized amount [(12)x(13)]	\$33
(15)	Grower premium [(12)-(14)]	\$19
Indemnity calculation		
(16)	Assumed production damage	50%
(17)	Loss value [(5)x(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 One 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)x(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)x(10)]	0.073	0.031	0.031
(12)	Total premium [(6)x(11)]	\$102	\$43	\$43
(13)	Subsidy percent	64%	80%	80%
(14)	Subsidized amount [(12)x(13)]	\$65	\$35	\$35
(15)	Grower premium [(12)-(14)]	\$37	\$9	\$9
Indemnity calculation				
(16)	Assumed production damage	50%		
(17)	Loss value [(4)x(16)]	\$1,163		
(18)	Indemnity [(6)-(17)]	\$232		
* subject to Revenue Index factor: 0.8 cup and 1.2 cap				