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**INSURANCE FOR GROWERS OF  
WINE GRAPES**

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# INSURANCE FOR GROWERS OF WINE GRAPES

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The glass of wine that you are having with your dinner, whether in your own home, at a friend's or a restaurant, is subsidized by the federal taxpayer whenever the growers who produced the grapes that went into the wine protected themselves from a financial loss due to crop failure by purchasing crop insurance. The subsidy has the effect of lowering the price of that glass of wine by reducing the full cost of growing the grapes provided the resulting economic gain is passed along at least in part to the winery and in turn to the vintner, retailer, and finally the consumer.

It follows that crop insurance is a blend of private and social insurance because the cost to the grower of insuring against a crop failure, which is included in the cost of production, no longer is entirely privatized. It is shared with the public through a taxpayer-supported subsidy.

Our objective in the following is to describe the need for crop insurance and its origins, the specific details of the protection for U.S. growers, the private and social costs of producing grapes, and the role of the Agriculture Department. In the following, we do not address table grapes, raisins, damaged vines, or federal area-wide crop insurance. That type of insurance protects the individual producer, not on the basis of his own personal loss, but on the average losses across the area where his vineyard is located. (ProAg nd, np).<sup>1</sup> Much more research is needed for a more detailed account of insurance that focuses on wine grapes than is provided herein. To help facilitate that research we provide links to articles and books that examine in greater detail reinsurance, the history of wine grapes, licensing agents and brokers, the history of crop insurance prior to the New Deal, and written agreements between growers and insurers.

Our primary emphasis in the following is not on the grapes or the wine but on the human agents involved: the grower, the insurer, and the taxpayer.

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<sup>1</sup> Throughout this article **nd** means no date and **np** means not paginated.

## BRIEF HISTORY OF CROP INSURANCE<sup>2</sup>

**Hail Insurance.** Crop insurance in the United States originated in 1880 with a small mutual company that was organized by Connecticut tobacco growers who needed protection from the devastating effects of hail.<sup>3</sup> Their venture lasted seven years. (Harms nd, pg.1; Putney1936 p.3). Harms does not state why the company failed. Was it because there were not enough growers buying the insurance to accumulate the necessary monies in the insurance fund? Were the monies in insurance fund drained away by an unexpectedly large number of claims? Was grower experience with the insurance disappointing because other hazards besides hail were damaging their crops?

Three years later hail insurance was offered by a joint-stock fire insurance company in the Midwest. By 1910 there were 28 mutual companies and five stock companies offering hail insurance. In 1911 North Dakota began providing hail insurance. The North Dakota law was drastically revised in 1919, and subsequently amended in 1921, 1923, 1925, 1931, and 1932. Nebraska and Montana started offering hail insurance in 1917, followed by Oklahoma, Colorado, and South Dakota in 1923. (Putney 1936, pp.3-4).

**“All-Risk” Insurance.** In 1899 insurance covering a wide range of risks was offered by a fire insurance company located in Minneapolis. This venture lasted one season. Its failure likely was due to low premiums and depressed agricultural prices. In 1917 three fire insurance companies offered general crop insurance in North Dakota, South Dakota, and Montana. At the time a Pennsylvania joint-stock company wrote crop insurance in North Dakota, and a mutual company insured crops in South Dakota. All three ventures failed for a variety of reasons including poor management and undercapitalization. (Putney 1936, p. 2).

In what is regarded as “the most extensive attempt to underwrite crop hazards” the Hartford Fire Insurance Company from 1920 to 1922 offered insurance to cover the farmer’s cost of production. This venture failed as did another in 1931 involving a different company. (Putney, 1936, pp. 2-3).

In the 1920s “all-risk” insurance covered fruits and vegetables, including peaches, tomatoes, celery, peas, rice and sugar cane in southern states and citrus fruits in southern and western states, along with apples in western states. The following hazards were covered: drought, excess

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<sup>2</sup> For more on the history of wine grapes see Sumner 2001 and Farm Credit Services 2016.

<sup>3</sup> For an argument that crop insurance is not really insurance see Environmental Working Group 2016. However, theirs is a weak argument because crop insurance is not *private* insurance. It is *private-social* insurance. The private dimension is reflected in the premiums paid out-of-pocket by the growers and by the private insurers who handle direct contact with the growers. Its social dimension is represented by the federal regulatory power and federal subsidies that are intended to reduce the premiums paid by growers, and the subsidies paid to insurers to help assure that profits are sufficient to keep them in business.

moisture, frost, plant disease, insects and pests, windstorm, and fire. The Automobile Insurance Company of Hartford wrote insurance for the Georgia Peach Growers' Exchange that was described as "an outstanding example of successful insurance in this field." (Putney 1936, p. 3).<sup>4</sup>

## INSURANCE FOR WINE GRAPES

**Origins and Need.** Extensive research on publications that might help identify the origins of insurance for wine grapes,<sup>5</sup> along with the advice of a few recommended university-based specialists in the wine grape industry, failed to pinpoint the origins of this type of insurance with certainty.

Attempts to grow European varieties of wine grapes date from the original settlers in North America and for generations following. Their efforts failed miserably. However, along the east coast growers had some success with native grape varieties but it wasn't until the mid-nineteenth century that growers in California were able to successfully produce wine similar to European varieties. By the start of the twentieth century winemaking had spread to other states and became a significant economic activity. (Putney 1989, p. xv). Given that insurance is not financially feasible under circumstances of systemic crop failure, our best guess is that insurance for wine grapes first became available sometime after the initial success in California and coincided with or followed the late nineteenth-century development of insurance protection for other crops such as fruits and vegetables.

In addition, the need for wine grape insurance is virtually the same as for any other crop insurance: protection against financial loss due to crop failure.

... the thing needed by the producer of crops is the assurance that if these crops fail to produce a reasonable harvest, no matter what the cause of such failure may be, *assuming that he himself has fully performed his part*, he will be indemnified for the loss that he has sustained. (Valgren 1922, pp. 19-20, emphasis added).

**Cost.** As with other crops, the cost of growing wine grapes depends on three essential factors: the skill of the grower, the quality of the soil, and natural conditions over which the grower has little or no control. Generally speaking, cultivated grapes are self-pollinating, relieving growers of the tedious and expensive work of modifying their open-pollinated grapes so that they are self-pollinating. (Rombaugh 2002, np). It follows that the private cost to the grower varies from vineyard to vineyard, from one season to the next, and from natural disasters such as floods and fires. As with other farmers who diversify horizontally to reduce the risk of losses due to crop failure, grape growers can protect themselves by adding new varieties of grapes, penetrating new markets, and cooperating with other growers as with Allied Grape Growers that markets grapes

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<sup>4</sup> See Putney 1936 for more details on crop insurance during the years prior to the New Deal.

<sup>5</sup> Including Pinney's *A History of Wine in America: From the Beginnings to Prohibition*.

on behalf of approximately 600 member-growers in California.<sup>6</sup> (Allied nd, np). Additionally by building or acquiring a winery, a grower can diversify vertically and evolve into a more fully integrated business.

Among the natural threats faced by wine grape growers is drought for which protection is provided by irrigation. Without irrigation the grower depends on groundwater drawn through the root system. Netting that covers the vines protects the grapes from some of the damage due to blistering heat, hail, birds,<sup>7</sup> and other feeders. In general plant disease including mildew is best addressed by applying preventative fungicide and canopy management. (Grape Growers Guide 2009, np).

The financial cost of producing wine grapes does not rest entirely on the shoulders of the individual grower. There are two ways in which that cost is transferred to others. First, as with all insurance systems, the pool of funds built through private crop insurance premiums allows the grower who suffers a loss to shift some of the cost to other growers who purchase their coverage from the same insurer. Crop insurance, in other words, is feasible for the insurer only when the pooled funds are more than sufficient to cover claims because the insurer's investors must have some profit in order to rationalize providing that insurance and remain in business.

Second, public subsidies for growers and private insurers let them shift some of the cost to the taxpayer. Today these subsidies apply to both insurance premiums and claims payments. Whether subsidized or not crop insurance should cover at least the grower's input costs.

There is no futures market for grape growers unless they diversify vertically by adding a winery for processing their own grapes. Wineries may be able to protect themselves from falling prices by gambling on the futures market for wine but that market is not regulated. (Goldberg 2014, np).

For growers who make wine from their own grapes there is additional protection against weak demand and lower prices provided their wineries are able to set aside some of the bottled production for sale when demand strengthens and prices are higher. Wine that has been cellared is known as library wine. This is a viable strategy provided the higher prices at a latter date are sufficient to cover the added cost of storage, but it is risky because there is no assurance that prices in the future will be sufficient to cover the added storage cost.

***Federal Intervention.*** Ratified in 1918 and effective one year later, the 18<sup>th</sup> Amendment to the U.S. Constitution (the Volstead Act) had an enormous impact on wine production. While there

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<sup>6</sup> For another example of cooperation in crop insurance that is not specific to wine grapes see Farm Credit Services 2016.

<sup>7</sup> The per-hectare cost of bird damage to wine grapes ranged from a low of \$230 in New York and \$247 in California to a high of \$946 in Washington. (Anderson 2013, p. 107).

were exceptions for sacramental wine, wine for medical purposes, flavoring, and other uses, overall production dropped from 55 million gallons in 1919 to 3.6 million gallons in 1925. Most wineries simply went out of business. (Pinney 1989, p.436).

With the ratification of the 21<sup>st</sup> Amendment in 1933, prohibition was repealed but recovery for growers was made especially difficult by the “degenerate status of [their] vineyards.” For wineries the entire system had to be renewed in order to package the wine, distribute and market it, and offer the wine for sale. Even with the repeal on a national basis, states were allowed to continue prohibition within their borders which meant that intoxicating liquors could not be transported from a “wet” state to a “dry” state, imported, or delivered there for use. (Pinney 1989, p. 439).

With the establishment of the Federal Crop Insurance Corporation (FCIC) in 1938, the federal government began offering insurance for wheat only. Wine grapes were not included.<sup>8</sup> This program was expected to achieve three objectives: protect farmers from losses, protect consumers from shortages, and stabilize the buying power of farmers. It was intentionally experimental but largely a failure due to low participation and high losses. The program was administered entirely by the federal government. (Harms nd, np). It was replaced by the Federal Crop Insurance Act of 1980 and included coverage for grapes. (FCIC 1980, Sections 111 and 518 amended).

Due to insufficient participation along with major weather problems, the 1980 legislation was supplemented on an *ad hoc* basis that offered disaster relief for losses sustained in 1989 and again in 1992 and 1993. Dissatisfied with the *ad hoc* approach, Congress passed the 1994 Federal Crop Insurance Reform Act. This act required participation in order for farmers to qualify for deficiency payments under price support programs, certain loans, and other benefits. Mandated coverage meant that catastrophic (CAT) disasters were included for the first time. (USDAA, nd, np).

### CROP INSURANCE: PROGRAM BASICS

**Administration.** Between 1953 and 1980 FCIC employees were responsible for managing the crop insurance program. With the passage of new legislation in 1980 crop insurance, which included wine grapes, began operating in most states, county by county, with the involvement of private insurance companies that provide direct contact with grape growers from contract to loss claim and payment. This system in effect applies the principle of subsidiarity<sup>9</sup> to the needs of growers in that (a) *private* insurers are present to address the needs and performance of the individual grower face-to-face, and (b) the federal *government* subsidizes premiums and claims

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<sup>8</sup> See AAA 1938, sections 508ff.

<sup>9</sup> Abraham Lincoln stated this principle as follows: “the government should do for the people what the people are unable to do for themselves.” (McGinnis 1977, p. 41).

payments in order to reduce the financial burden on the grower. This type of crop insurance for wine grapes locates the decision-making process much closer to the growers than does a one-size fits-all federal government plan. It is grounded in the presumption that growers and their private insurers know growers' needs better than anyone else.

**Contract.** For all wine grape growers nationwide, the same insurance terms, premium rates, and conditions are set by the FCIC for its own products and for FCIC approved products developed by private insurers. Wine grape insurance is available only in states where there is sufficient production to incorporate them in the NASS online database including California, Oregon, Michigan, Pennsylvania, Washington, New York, Rhode Island, Arizona, Idaho, Ohio, Missouri, Texas, Kansas<sup>10</sup> and others.

A grower in a state like New Jersey that does not offer FCIC wine grape insurance can request a written agreement with his crop insurance agent under conditions similar to a nearby state that has a grape insurance policy provided the written agreement is approved by the U.S. Department of Agriculture's Risk Management Agency. (Rutgers c.2012, np).<sup>11</sup>

Unlike other forms of insurance such as life and home insurance where pooled funds can be invested in securities because claims are payable in general *years* after the policy holders have been paying their premiums, crop insurers have few opportunities to tap a revenue stream of profits by investing their pooled funds because claims are payable *months* after growers have paid their premiums. (Taxpayers 2017, np).

Insurance for wine grapes not only is subsidized but experience-rated as well. Within limits, experience rating affords a wine grape grower an opportunity to select between the lowest premium available that links him to the minimum recovery of any loss of revenue whenever he experiences damage to his grapes, and the highest premium for the maximum recovery of lost revenue.

Before crop insurance for wine grapes became available, growers in effect were self-insured. Self-insurance is a viable alternative only if the losses attributed to crop failure are less than the premiums that would have been paid to an insurer up to the time of the failure. Authentic self-insurance requires the grower to set aside funds earmarked for that purpose. Failure to meet this requirement means that the grower is gambling on producing a good crop. This strategy exposes the grower to the risk of total business failure.

**Coverage.** Wine grapes are just one of the 130 commodities, 62,000 county-crop programs and 290 million acres covered. (National Crop Insurance Services 2017, np). As stated above, wine

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<sup>10</sup> For more on FCIC approved underwriting standards, see FCIC 2016a.

<sup>11</sup> For more on the details for the preparation of a written agreement, see FCIC 2016b.



grapes were first covered by the FCIC in 1980. Coverage due to catastrophe events was mandated in 1994. In the following year USDA expanded coverage to individual grape varieties such as merlot and cabernet sauvignon. (GAO 1999, p. 8).

Current coverage ranges from 50 percent with 67 percent of the premium paid by federal subsidy to 85 percent coverage with a 38 percent federal subsidy. CAT indemnity today is set at 50 percent of yield and 55 percent of price. The premium is 100 percent subsidized with the grower required to pay a \$300 administrative fee. (Crop Growers 2017, p. 1).

A wave of claims resulting from a poor harvest can overwhelm insurers and force them out of business thereby threatening their grower-clients. Insurers can protect themselves from such dire consequences by purchasing reinsurance.<sup>12</sup>

**Production.** U.S. production in 2016 for all types of grapes, including table grapes and raisins, totaled 7.7 million tons on 1.0 million grape-bearing acres. Production varies considerably from year to year. In 2013, for instance, production was estimated at 8.6 million tons. (USDA 2016a, np).

Production for all wine grapes in California, by far the biggest producer in the United States, reached 6.7 million tons in 2016. In the same year California grape-bearing acreage reached 560,000. (USDA 2017c, np).

Total U.S. wine production in 2016 reached 326 million cases with California accounting for 87 percent of the total. The average price per bottle ranged from \$11 to \$29.99. (Wines and Vines 2017, np).

**Claims.** Licensed agents and brokers<sup>13</sup> working for private crop insurance companies process growers' claims for losses to determine whether those claims are insurable or not. For example, whatever the cause phylloxera is not insurable. (USDA 2016c, p. 10). Losses that are insurable are estimated in a three stage process. (Crop Growers 2017, p.4).

Stage one. Per acre ton guarantee estimated as follows:

- (grower's actual production history<sup>14</sup>) x (coverage level)

Stage two. Tons below guarantee estimated in this manner:

- (tons of actual harvested and appraised production) – (per acre ton guarantee).

Stage three. Actual indemnity estimated by using this formula:

- (tons below guarantee) x (price per ton).

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<sup>12</sup> For more on how reinsurance works see Aon Hewitt 2015, pp. 1-14.

<sup>13</sup> For more on licensing agents and brokers see California Department of Food and Agriculture nd.

<sup>14</sup> Commonly referred to as APH.

Price per ton, known as “price election,” is the price to be paid for tons lost below the guarantee as specified in the contract. Prices vary by variety and crush district.<sup>15</sup> It is the grower who selects that price, not the insurer or FCIC. (Agro nd, np).

Grape varieties used to produce wine are insurable under two conditions (Crop Growers 2017, p.1):

- for hybrid and native varieties after the vines have been in place four years; for vinefera varieties after the vines have been in place for five years.
- whenever production averages two tons per acre in one of the last three most recent years.

**Fraud.** The Department of Justice reports that between 2000 and 2017 a total of 70 fraud cases were prosecuted successfully. (USDA 2017a, np). There are three types of fraud: cheating on insurance claims, stealing grapes,<sup>16</sup> and attaching labels on bottles of cheap wine suggesting that the wine is more expensive and charging accordingly.

Cheating is not unique to the wine grape business. All insurance programs are vulnerable principally because the person/business insured or the insurance adjuster who approves the claim is deceitful. There are two kinds of cheating: detected and undetected. Hands-on independent inspectors who audit the books of private insurance companies on site are necessary to estimate the extent of this kind of fraud in the system. Detecting fraud rests upon the skill, experience, and integrity of the auditor. Growers who are clever and bold could continue to file fraudulent claims that are undetected.

Fraud involves either an active wine grape grower or inactive one who is deceitful. The active violator truly is engaged in growing wine grapes, misrepresents the extent of damage, and slips through the fingers of the crop adjuster or conspires with the adjuster to defraud the system.

The inactive violator makes little or no effort to engage in growing but represents himself as having made a good-faith effort to grow wine grapes, and files for damages in which he hopes to convince or conspire with his adjuster to file his claim as if it were valid. Wine grape growers

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<sup>15</sup> A crush district is the area in which the grapes were grown as indicated in the administrative code of any given state. (USDA 2017b, np).

<sup>16</sup> See, for instance, Goel 2015.

who engage in this practice are known as insurance growers. Fraud at the hands of insurance professionals is called “insider fraud.” (Seymour 2016, np).

*Effectiveness.* To evaluate the effectiveness of the wine grape insurance program it is necessary to set down the norm(s) by which effectiveness is judged and the critical values (criterion/criteria) that express the norms(s) in measurable form. For example, a professional baseball pitcher is regarded as effective (the norm) when his earned run average is 3.0 or less (the criterion). We arrived at that criterion by observing pitchers over many years of playing baseball.

It is tempting to use participation as the norm of effectiveness and the participation rate as the criterion. But this norm and criterion are superficial because they do not take into account the program’s effectiveness in terms of its primary objective. In the absence of the need of growers insurance would not be necessary. The need of private insurers for a satisfactory rate of return is entirely secondary in the sense that insurers are the channel (means) by which the need (end) of the growers is addressed. The need of the nation for a stable supply of wine grapes is less important than the need of insurers because wine is not an essential commodity like corn, wheat, or rice.

Our position is reinforced by Valgren’s argument in 1922 that what is “... needed by the producer of crops is the assurance that if these crops fail to produce a reasonable harvest ... he will be indemnified for the loss that he has sustained.” (Valgren1922, pp.19-20).

Two limits apply to wine grape insurance in terms of the need of growers. First, fraud on the part of active violators must be kept in check by program oversight notably in the form of periodic audits of the claims filed, taken as a whole, such that payments made are directed to the truly needy. Fraud on the part of inactive filers must be handled essentially in the same manner.

Second, valid payments made to growers who are protecting their wealth but are not truly needy must not replace the need of the growers who are not wealthy as the primary force driving the administration, and amending of wine grape insurance in order to assure that the program does not become a means for using taxpayer money to enhance the wealth of a privileged class. For insurers, their need for satisfactory profit margins must be subordinate to the need of growers.

Taking into account the **private dimension** of wine grape insurance, the norm primarily is the need of the wine grape grower and secondarily the need of the insurer to operate successfully over the long term without financial support from the government. The program in other words functions like a commercial insurance system. This means that there must be sufficient numbers of insured growers or insured acreage to assure that premiums paid are affordable and greater than claims paid over the long term.

Experience has taught us, however, that wine grape insurance that operates like a commercial insurance system too often collapses when a flood of claims simply exhausts the pool of funds to pay those claims in full. To prevent that outcome the federal government since 1980 has intervened to make premiums more affordable and to bolster profits through subsidies to the growers and insurers, reflecting this time the **social dimension** of wine grape insurance.

The issue that necessarily arises and must be addressed is how much in the form of subsidies will achieve the purpose of meeting need. Therein lays the problem. Data are not available to measure the extent of failure on the part of growers and insurers, comparing either those who are insured to those who are not insured or those who were uninsured at one time and became insured later.

Collecting that data is an arduous undertaking that can be made easier by focusing on the limiting case, that is the county or counties where failure is least likely or most likely to occur. If the number of growers that fail in the county where failure is regarded as least likely to occur is unacceptable, we can reasonably infer that program effectiveness is unacceptable. If those outcomes do not occur in the county where failure is regarded as most likely to occur, we can infer that the effectiveness of the program is acceptable.

#### CLOSING COMMENTS

The flow diagram on following page summarizes and displays the essentials of wine grape insurance starting with the latest Risk Management Agency policy on wine crop insurance business and ending with payments owed the growers for any losses sustained during the most recent season.

In the following we address three questions about wine grape insurance: what do we know? What do we not know? What can we infer?

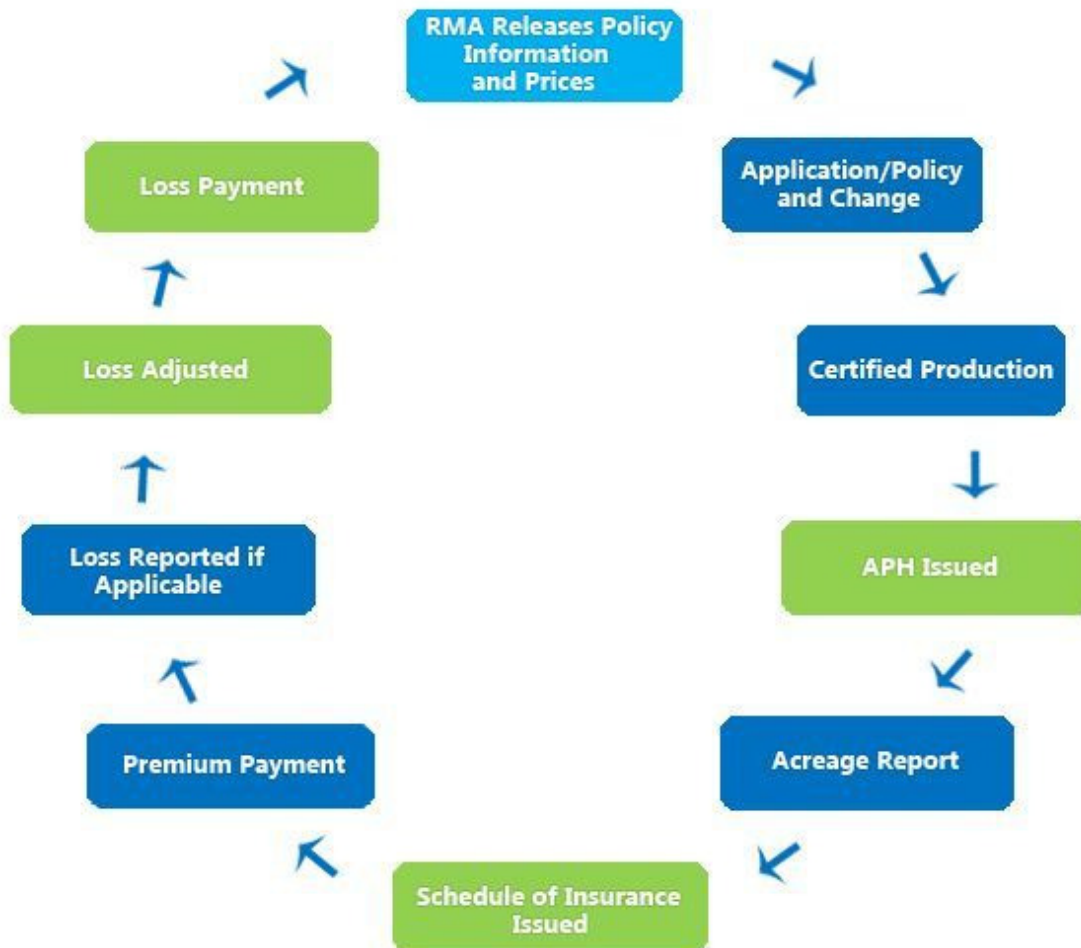
##### *What we know.*

- FCIC insurance for wine grapes first became available in 1980.
- Wine grape insurance is based on the principle of the unmet need of the grower who otherwise would be devastated by any losses sustained in the absence of coverage. Meeting that need through the pooling of premiums and federal subsidies confirms that wine grape insurance has a **social dimension**.
- At the same time, wine grape insurance is based on the principle that it is the grapes that are insured even when the grower is quite wealthy and any losses sustained result in no

great financial hardship. Making payment for claims under these personal circumstances confirms that wine grape insurance has a **private dimension**.

## INSURANCE CYCLE FOR WINE GRAPES

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Source: ProAg. "The Basics of Crop Insurance," @ <http://www.proag.com/basics-of-crop-insurance>

***What we know (continued).***

- Program administrators are charged with the delicate task of balancing the private dimension and the social dimension.
- Bad weather in the vineyards and low prices for wine grapes can collapse the insurance business putting political pressure on the federal partner to bail out the program. Federal *ad hoc* intervention in the form of disaster relief was undertaken in 1989, 1992, and 1993. Dissatisfied with this kind of disaster relief, Congress passed the 1994 Federal Crop Insurance that eliminated *ad hoc* intervention.
- Fraud will continue to be a problem because some of the parties involved can be persuaded that there is a payoff available when the delicate balance between honesty and deceitfulness tips to the deceitful side and they are willing to take the risk of being detected. A grower might be persuaded to take that risk when he finds himself in deep financial trouble.
- Periodic audits by independent and trustworthy investigators who are acquainted with the methodology of the limiting case vastly reduce the cost of estimating fraud on a nationwide basis. The limiting case refers to one or a few counties where fraud is least likely or most likely to take place.

***What we don't know.***

- When wine grape insurance first became available.
- For the federal partner, how much to subsidize the grower's insurance premium strictly on the basis of unmet need.
- The weather and future prices.
- The full extent of fraud.
- The rate of return that is sufficient to keep private insurers offering wine grape insurance.
- The extent to which the federal partner is responsible for supporting that rate through subsidies.

- Of late large insurers including Cargill, Monsanto, Deere, and Wells Fargo have withdrawn from the crop insurance market for three reasons: unpredictable weather, volatile crop prices, and pressure on Congress to reduce federal subsidies to growers and insurers. (Bjerg 2016, np). Will wine grape insurers follow suit and withdraw from the program making it more difficult to maintain the private-public partnership?

***What we can infer.***

- Prior to the availability of FCIC insurance in 1980, wine grape growers were self-insured which offered real protection only if funds had been set aside precisely to cover losses in bad years. For those growers who did not set aside funds to cover losses, we can infer that more of them compared to those who had funds set aside failed in bad years.
- If fraud is considered unacceptable in the county (counties) where it was thought to be least likely, we can infer that the full extent of the fraud nationwide is unacceptable. Similarly, if fraud in the county (counties) thought to be most likely to have fraudulent claims is found to be acceptable, we can infer that the full extent nationwide is acceptable.
- Since unacceptable and acceptable are normative concepts that depend very much on the values of those who are responsible for estimating fraud, investigators who do not state openly what they mean by these concepts and why, are not fully prepared to make estimates of fraud.
- The Bipartisan Budget Act of 2015 established a *target* rate of return of 8.9 percent for all insurance providers taken as a whole. (U.S. Congress 2015, Section 201). We can infer that rates of return for an individual provider above the target rate at times can be acceptable.
- Given the number of years that wine grape growers have been accustomed to insurance protection, and without any clear evidence that the system is ineffective, the FCIC program is likely to continue. In effect, longevity has become a proxy for system effectiveness.

From the very start we stated that our focus was intentionally on the human agents involved -- the grower, the insurer, and the taxpayer -- with special emphasis on the grower. Our project ends with the primary conclusion that no one *knows with reasonable certainty* whether or not the present wine grape insurance system is effective. Without firm data on the numbers and proportions of growers who fail, at best we can only *presume* that the system is effective.

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