

Locational Considerations in the Valuation of Permanent Plantings

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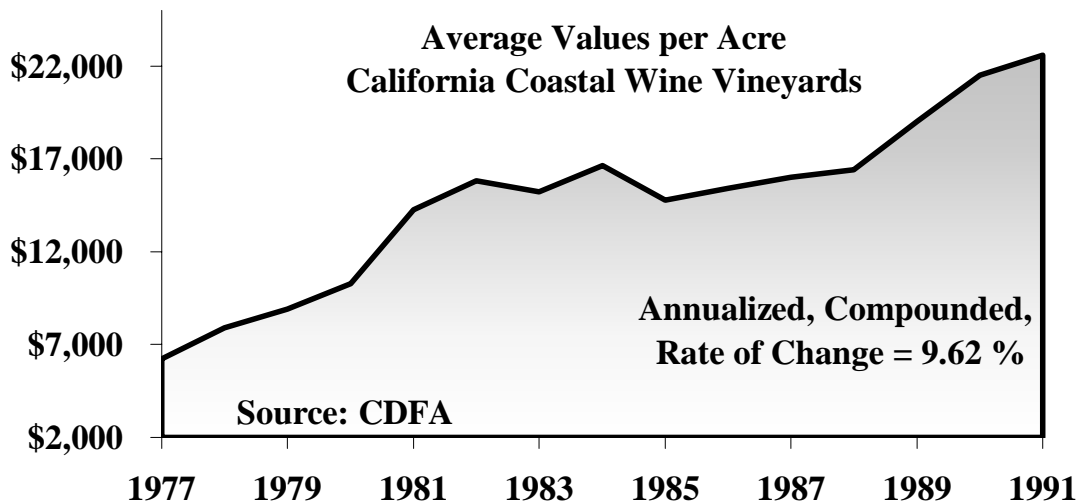
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The valuation of permanent plantings can be a complex, and challenging, appraisal problem. In this article, we will consider the valuation of such plantings from an investment perspective, i.e., as traditional, passive, real estate investments. Investment objectives are usually quite simple: The highest return possible. The measure of performance for investment vehicles is typically the rate of return earned by the investment. However, rates of return, like most barometers of wealth, are complex, multi-faceted, jewels. Viewed from different perspectives, or under different light, they display shifting kaleidoscopes of brightly shining facets, some the rare jewels of true wealth, but others only transitory, temporary, illusions, ethereal fantasies which disappear with the next twist of the tube. Our objective, here, is to sort the wheat from the chaff, seeking the true jewels amongst the chimera.

Rates of return are typically related to the degree of assumed risk, so higher rates of return are accompanied by commensurate higher levels of risk. The hierarchy of risk may be illustrated by observation of total rates of return earned by differing investment vehicles over time. The highest rates, of course, are “earned” from high-risk, highly speculative vehicles, such as “junk” bonds, and/or venture capital. Excluding such speculative vehicles, we can look towards traditional equity investments in the stock market, with long-term returns on smaller capitalization stocks earning approximately 18%, almost a 5% premium over the large cap stocks, which tend to be more stable over time. The lowest levels of returns, and of risk, are seen in treasury bonds, at roughly 4 – 6%. These returns come almost entirely from income, and can be used as a benchmark for “safe” rates, with increasing risks accumulating from this point.

Investments in agricultural land, and, more specifically, in permanent plantings (vineyards and orchards) fall in the mid-range, somewhere between corporate bonds and large-cap stocks, reflecting the general perception of asset stability typically associated with land. This phenomenon is more evident in some areas, such as premium winegrape vineyards on the coast of California. California’s premium coastal vineyards have proven to be excellent investments for those who have held such assets in recent history. A review of average vineyard values over the years prior to the airing of the “French Paradox”¹ reveals an annualized rate of increase in value of 9.6%.

¹ The “French Paradox” refers to the low rate of heart disease amongst the French population, who consume a fatty diet. An article on CBS’s Sixty Minutes on November 11, 1991, presented the theory this was due to their consumption of red wine, which tends to alleviate circulatory problems.



While every investment arena has its tales of woe, and stories of small fortunes made (usually, from large ones), for the most part, these assets have performed well, both in terms of income and growth. In more recent years, income has continued, at excellent rates, while the monstrous 1997 crop returns can only be described as spectacular. Vineyard values have also grown at stellar rates, with the true premium areas, and some emerging areas, experiencing Silicon-Valley type growth rates.

As risk is associated with unpredicted change, risk is related to the passage of time. Thus, higher risk rates (and rates of return) may be simply interpreted as accelerated recapture of the investment. A highly risky investment will demand an accelerated rate of return, as the investor will demand a quicker payback, due to the perceived level of risk. Conversely, the investor may be willing to accept a much lower rate of return on a more stable investment, over a much longer period of time, because of the perceived stability of the basic investment vehicle. A basic assumption in the total return inherent in these scenarios, however, is the implied stability of the investment principle, i.e., the investor assumes he will receive his initial investment back at the end of the period. The observed rates of return, then, imply only return “on” the investment, as we are assuming the total return “of” the investment at the end of the holding period. If we believe the investment may actually lose value during the holding period, we will want to recapture that lost value within the period. So if we feel our investment will lose half (50%) of its value within a 10 year holding period, we will want to recapture that 50% within that 10 year period, so we will require 5% per year as return “OF” our investment. Thus, in the Cost Approach, this asset will be depreciated based on remaining economic life. Similarly, in the Income Approach, both Capitalization and Discount rates will include some increment of recapture.

We may also analyze rates of return in terms of their basic components, i.e., income and capital appreciation, as observed in similar investments in the marketplace. Historical actual rates of return on investment grade farmland properties across the US have been reported at approximately 8% over the past several years. These rates have been generated primarily from annual income, with only 30%± earned from capital appreciation of the assets. Similarly, rates on West Coast permanent planting properties have averaged just under 11%,

with capital appreciation contributing only 15% to 30%± of total return. Conversely, however, in “the bad years” of the late 1980’s the huge losses experienced in these types of properties were driven by capital depreciation. Compared to current stock market returns, these returns are seen to be almost perfect mirrors, or inverted reflections, of stock market investment returns. Long-term total returns in large-cap stocks have generated rates of approximately 13%, with over 60% of total return generated from capital appreciation.

The stock returns’ dependence upon capital appreciation hints at the inherent speculative nature of such investments, whereas the agricultural properties’ reliance upon income underscores the market’s perception of the underlying stability of asset values. So, our perception of the stability, or conversely, the volatility, of the value of our investment will drive the rate of return we will require. Thus in areas of the highest perceived stability, e.g., Napa Valley, rates of return may be observed at much lower levels than in areas of higher volatility, which equate to higher risks. Market stability may be the result of various factors. In the Napa Valley, it appears to come from a combination of influences; 1) the limited supply of land within this geographic feature, the sharply contained valley, proper, and 2) the global ultra-premium wine demand, and the recognition of the valley as a true premium production area, 3) the international market for extreme high-end estate residences (or “houses on steroids”) in this area, as a result both of the premium wine influence, and the proximity to the almost limitless “dot com” wealth pouring out of the San Francisco Bay Area, and the Silicon and TeleCom Valleys.

Water

An extremely important consideration in the appraisal of permanent plantings is the availability, and cost, of water for irrigation, and perhaps, also, for frost protection. The cost of water becomes a component in a mini-max equation, as land costs tend to be inversely proportional to water cost. I.e., land with reliable, low-cost sources of water tend to command relatively high unit prices, while land with less reliable, and/or more expensive sources of water, tend to be less expensive. E.g., the western slopes of California’s San Joaquin Valley tend to be exceptionally well suited for the development of many types of permanent plantings, most especially almonds, pistachios, and grapes. The alluvial soils in this area, deposited over millenia from erosion of the central coast mountain range, are fertile, and fine textured, with profiles exhibiting 100’, or more, of highly fertile, homogenous, topsoil. Trees and vines planted in these soils, in the hot, dry climate of the west side, produce large crops of good quality products. However, water is not readily available in most of this area, and growers are dependent, to various extents, upon imported supplies of surface water. Land values, then, tend to run inversely to the cost of water, with excellent soils in some areas available at relatively inexpensive prices, due to the increased cost of water, and the tentative reliability of imported water sources. A developer of a permanent planting, then, must evaluate the initial cost of land versus the recurring cost of water. E.g., highly fertile land in a high cost water district may sell for only \$1,000 an acre, while similar land in a lower-cost district may command a price of \$3,000, or \$4,000, per acre. A sophisticated developer, then, would model the proposed development, seeking the highest net return. Does the lower initial land cost override the higher annual operating costs driven by the higher cost of water? Or, is the higher land cost justified by the lower operating

costs offered by the lower cost water? In today's market, many sophisticated market participants appear to prefer the lower land cost, and are willing to accept the higher water costs.

Climate

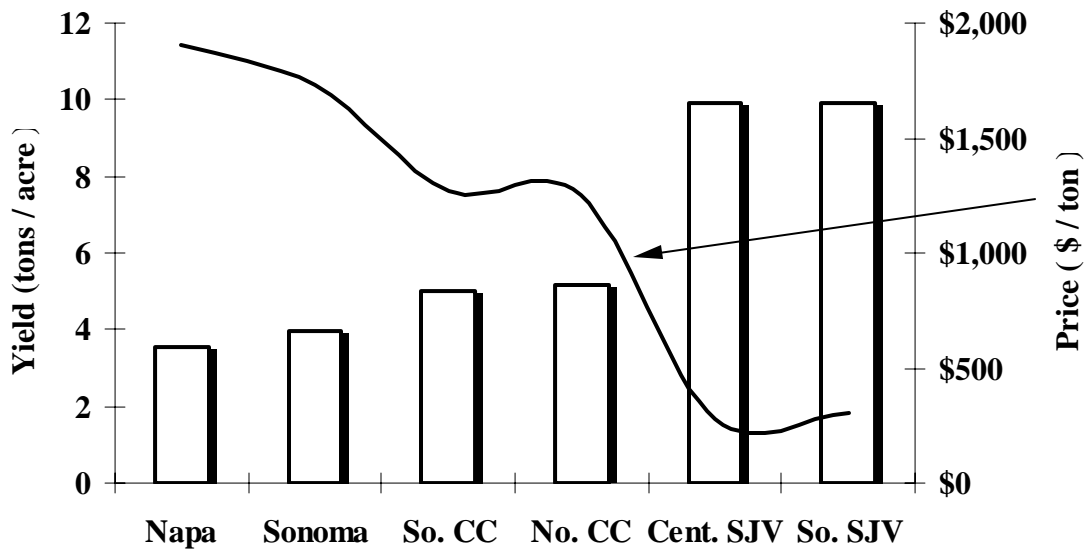
Climate may be a driving force for many types of plantings. Many commodities, especially sub-tropicals, may be susceptible to cold temperatures. Citrus are a prime example, as both the crop, and the trees, are sensitive to low temperatures. Hence, siting considerations focus first on climate, and then on soils, and water availability. Similarly, ultra-premium wine grape growers, in search of world class fruit, will pursue those specific micro-climates, and meso-climates, capable of producing a "Burgundian" Pinot Noir, or a "Bordeaux" style Cabernet.

Other physical aspects of properties may be critical for specific plantings. Cold-sensitive citrus growers will seek land with good air drainage, and southwestern aspects, or exposures. Some types of tree fruit, and some nut crops, like walnuts, may perform best on the deep fertile soils of river-bottom valleys, and developers of these plantings will gravitate towards certain areas which differentiate themselves as the premium production areas. These micro-markets will often experience fierce competition for land, with resultant high values. The appraiser must apprise him/her self of the parameters of such micromarkets, and properly assess the physical, and locational, characteristics which impact these markets.

Locational considerations may be reflected in commodity prices. E.g., the state of California has segregated the state into 17 specific wine reporting districts, and sales of wine grapes are reported to the state, according to the district in which they were grown. Prices, tonnage, and quality measures (° Brix) for each variety of grape, by district, are reported annually. The most obvious measure of distinction between the premium districts is the average price per ton, as reported in the California Grape Crush Report.

Price, however, is only one component of the total equation, only one piece of the puzzle. The appraiser of permanent plantings will, typically, focus on the total return per acre, as a basic unit of measure. Returns per acre are heavily impacted by yields, the average unit of product produced per acre. Here again, we will normally see a broad spectrum, with areas receiving the highest unit prices also producing the lowest yields. Looking to our example of wine grapes, again, we see the highest prices, and the lowest yields, in the Napa and Sonoma Valleys of the North Coast, and the lowest prices, and the highest yields, in the central San Joaquin Valley. The Central Coast, with yields 27%± higher than the North Coast, commands grape prices 27%± lower.²

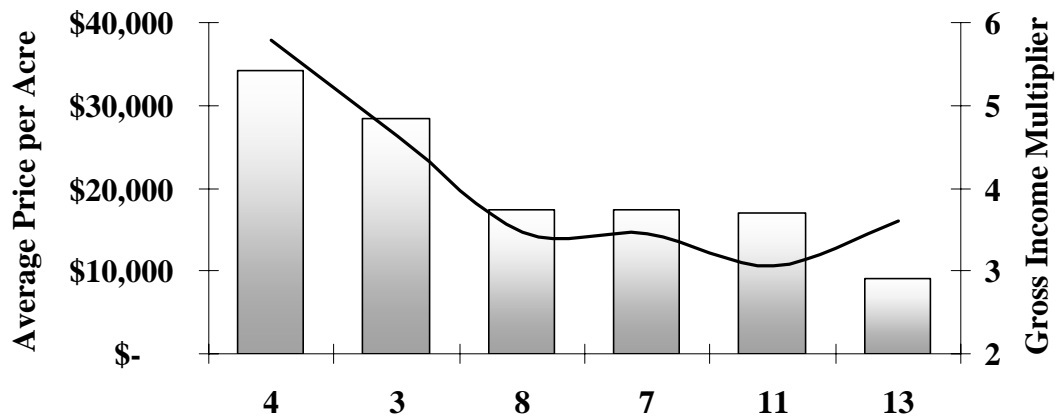
² 1998 average prices and yields; CDFA Grape Crush Report



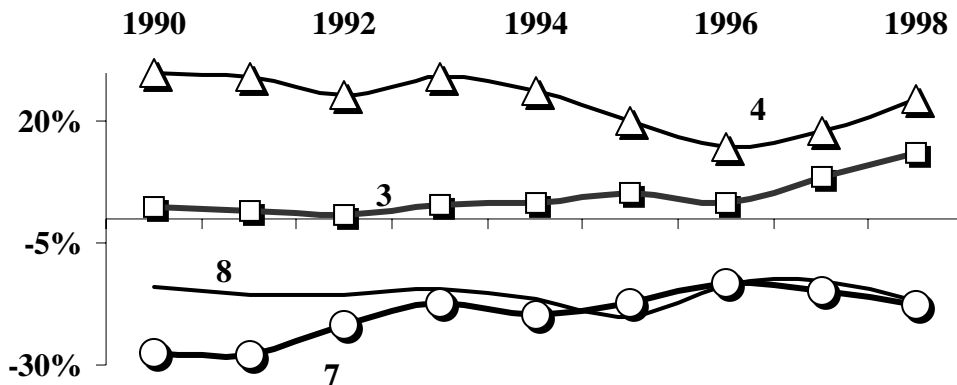
When reviewing such data, however, we must always keep in mind the three types of lies, lies, “damn lies”, and statistics. These numbers reflect overall district averages, both old and new vineyards, and mirror the results of the massive replantings on resistant rootstock in many areas, and do not necessarily capture the true impact of new, modern style, higher density plantings, which may yield much higher tonnage than the reported district averages. In those areas which have experienced large-scale new plantings, e.g., Districts 7, and 8, we may safely anticipate these new vineyards will significantly impact average yields as they achieve their full productive potential.

We now have two pieces to the puzzle, grape prices and yields. Calculating average gross revenue for each respective district, then, we see, again, a broad spectrum of numbers, an almost mirror image of the above analysis, i.e., the areas of lowest yields, Districts 3 and 4, generate the highest revenues, due to their much higher grape prices.

The data is, again, somewhat deceptive as District Four’s averages reflect the massive replantings which have occurred there in the recent six years, with attendant loss in production as those older vineyards were removed, replanted, and gradually regained production. The newer, modern style, replanted vineyards are attaining much higher levels of production while still maintaining the high grape quality demanded by area wineries. However, these average numbers may be used effectively for comparisons between the various districts. If we then look towards the prices commanded for vineyards in each of these respective areas, we can gain some insight into the multiple of revenue we can anticipate as a measure of the relative value of investments in these discrete areas. Utilizing the values indicated by the annual Ag Land Values Survey published by the California Chapter of the ASFMRA, for non-resistant vines, we can then calculate revenue multipliers. Once again, the market’s obvious preference for Napa (District Four) is illustrated as we see the highest revenue multiplier here, at almost 6.0 (Gross Revenue of \$5,892, at a vineyard price of \$34,136 per acre, equates to a multiplier of 5.79 [$\$34,136 \div \$5,892 = 5.79$]).



Volatility of price structure may also be a major concern, as we have all learned, painfully, over the years. Thus, the appraiser may want to review historical pricing, with an eye towards the stability of the market over time, and the area's history relative to the overall industry. We may, thus, view historical prices in relative terms, i.e., how they move in relation to each other, or to an index composed of weighted average prices. Looking again to our example of wine grapes, we can develop such an index for the major coastal premium areas of Districts, 3, 4, 7 and 8. Although prices are rising in all these areas, if we view each district's prices relative to this index, we see Districts Three (Sonoma) and Four (Napa) actually gaining in relative terms, while the Central Coastal Districts of Seven and Eight are actually declining in relative terms, with respect to the index (0%). Thus, although Central Coast prices are increasing, they are not keeping pace with the northern coast. Reviewing this data, it is clear to see the recent demand in District Three (Sonoma), which has grown steadily, over the past six years, both in general, and relative terms.



However, the true measure of asset performance is net operating income, with the typical measure of value the overall, direct, capitalization rate, or the ratio of income to value. Various regions may demand differing costs of production, resulting in broadly different respective net incomes. As previously discussed, water cost may be a significant factor, however, other locational factors may come from inherent physical characteristics. A warmer

location may not only provide a decreased risk of loss to frost, but also offer higher income, due to decreased costs of frost protection. Similarly, some areas may be more, or less, susceptible to certain pests, or plant diseases, with corresponding costs of control.

External forces may also impose significant influences on markets. The northern coastal areas have experienced monstrous pressures from the “dot com” wealth pouring out of the high tech valleys of the San Francisco Bay area, competing with vineyardists for land. However, the North Central Coast, District Seven, Monterey and San Benito Counties, has not shared in the general growth of demand for coastal homesites, or other alternative non-agricultural uses. In the dominant grape growing area, the Salinas valley, vineyards compete for land with the opposing dominant ag use, vegetables, but this competition is based on an inverse relationship; e.g., while demand for, and values of, vegetable land increase as one moves north within the Salinas valley, the demand for, and value of, land for vineyards moves in an inverse trend, gaining demand and price levels as one moves farther south in the valley. This trend, and market opposition, is a result of the unique climatography of the Salinas valley, a classic illustration of a thermal siphon, drawing the cool marine air up into the sun-drenched interior of the valley, creating multitudinous micro-, and meso-, climates, within the interior reaches of the valley.

While this area has already experienced its own brushes with the economic reality of wine grape production, local vigneronns have learned much about which varieties may be grown where, and wineries have responded positively to the production of new vineyards, founded in the experience of the past few decades.

The South Central Coast, District Eight, also represents the results of a long, painful, learning curve, as area growers have slowly defined the proper varieties in their respective locations, and have slowly fine-tuned the production of premium varieties. District Eight, however, is distinguished from Seven in light of the significant demand for alternative uses, with homesite and other non-ag uses impacting local land markets significantly.

In summary, we have gained a greater understanding of the concept of “rate of return” and the commensurate levels of risk associated with those rates. As we explore the appraisal of permanent plantings, we may use this knowledge to better understand, and quantify, the risks, and returns, and consequent value, driven by the three primary components of value, location, location, and location.