











Table 1. Variables used: Survey questions and descriptive statistics

Original Survey Question	Variable name	N	Mean	Minimum	Maximum
<b>Dependent variable</b>					
Number of sustainability practices at the winery (out of 18 possible: see below)	Practices	30	5.73	2	9
<b>Agritourism variables</b>					
Do you serve food?	Food	30	0.77	0	1
What percentage of your bottles are sold at the winery?	Onsite_sales*	27	0.77	0	1
<b>Operation size variables</b>					
Approximately how many bottles do you produce annually?	Annual_bottles*	29	35686.55	2000	121110
How many acres planted?	Land_area_planted	30	16.90	3.25	70
<b>Additional control variables</b>					
Average price of a bottle (approx.)	Average_price	30	17.33	12	36
When was the vineyard established? (coded age = 2016 - answer)	Age_in_2016	30	16.53	7	39

Table 1 (continued).

Original Survey Question	Variable name	N	Mean	Minimum	Maximum
<b>Individual sustainability activities (18)</b>					
Do you compost any of your waste?	Composting*	28	0.79	0	1
Does your winery utilize any type of Integrated Pest Management (IPM)?	IPM*	28	0.46	0	1
Do you use pheromone traps?	Pheromone	27	0.19	0	1
Do you use bug traps?	Bugtraps*	27	0.30	0	1
Do you use cover crops?	Covercrops	29	0.72	0	1
Have you placed any owl boxes or raptor perches?	Owlboxes	30	0.20	0	1
Does your winery use any “healthy” practices that may help to rebuild healthy soil for each harvesting season?	Soil*	27	0.67	0	1
Do you use herbicides or fungicides?	Herbicide	25	0.80	0	1
Do you use pesticides?	Pesticide*	26	0.73	0	1
Do you rely on rainfall rather than irrigate your grapes?	Dry farm*	25	0.52	0	1
Do you collect rainwater?	Rainwater*	27	0.15	0	1
Do you burn your prunings?	Burn_prunings	29	0.38	0	1
Do you use bottles that are environmentally friendly?	EFB	26	0.12	0	1
Has your winery conducted a carbon footprint analysis? (no variation in sample)	CO2	27	0.00	0	0
Do you use sulfites? (no variation in sample)	Sulfites	27	1.00	1	1
Are you wines aged underground?	Underground	29	0.24	0	1
Do you use daylighting?	Daylight*	29	0.59	0	1
Do you use energy efficient light bulbs?	Lightbulbs*	28	0.75	0	1

\* Included in the imputation model

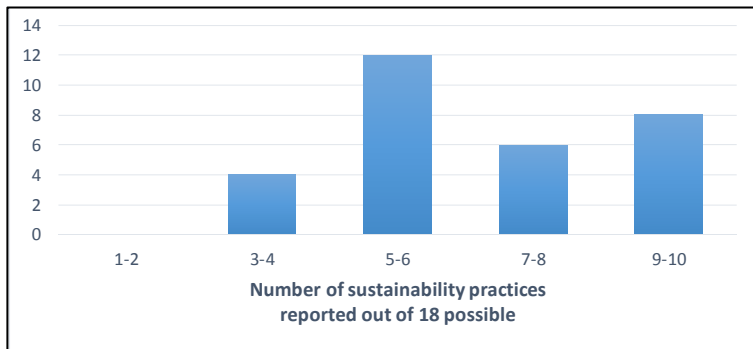


Figure 1 – Distribution of 30 wineries by count of sustainability practices

Figure 1 shows a histogram of our 30 wineries by total count of sustainability practices (this is the variable labelled “Practices” in Table 1). This figure helps to answer a basic question: Can our sample of 30 wineries be divided into two distinct groups – those that engage in sustainable practices almost all the time, and those that do the opposite? If that were the case, then the histogram in Figure 1 would be bimodal: one set of wineries would cluster at the far right, while another would cluster at the far left. Figure 1 suggests that this “all-or-nothing” hypothesis for winery sustainability practices is not correct. Instead, we have a large cluster of operations in the middle category and a smaller cluster in the top category (which still implies fewer than 10 of the 18 possible practices). There is a strong tendency to engage in multiple practices.

Two-thirds of the operations implement six or more. Overall, sustainability performance is respectable, but not stellar. It should be noted that many of the questions in our survey represent environmental practices that are specific to this industry; the rate of adoption is *not* low because a practice simply does not apply.

















geographic branding of California winegrapes”. *Journal of Rural Studies* 23: 142-55. doi: 10.1016/j.jrurstud.2006.09.009.