



Memorandum

To: David Gilbreth

From: Wenbiao Cai

Date: May 31, 2022

Re: Economic Viability of Growing Rye and Oats

This memo summarizes my findings regarding the economic viability of growing rye and oats on the real property located on 1611 Green Island Road, American Canyon, California ("Subject Property").

Sonoma County's 2019 Crop Report Indicates a Limited Practice of Growing Rye and Oats in the County.

According to the 2019 Sonoma County Crop Report, a total of 4,100 acres of rye and oats were harvested and sold commercially for hay in 2019, generating a sale of \$904,000.¹ In addition, 530 acres of oats were harvested and sold commercially for grain in that year, generating a sale of \$218,900.²

Growing rye and oats appears to be extremely limited in Sonoma County, which accounts for only 1.4 percent of the county's total field crop acreage and 0.12 percent of its total dollar value of agricultural output.³

Growing Rye and Oats on the Subject Property Is Not Economically Viable.

According to the 2019 Sonoma County Crop Report, growing rye and oats for hay would yield a return of \$220 per acre. Growing oats for grain would yield a return of \$413 per acre.⁴

Based on these returns, neither rye nor oats production is economically viable on the Subject Property. In my report dated November 12, 2021, I estimated that if the Subject Property is used for agricultural production, the annual cost of land is approximately \$603 per acre. In other words, the returns from growing rye or oats on the Subject Property, for hay or grains, are not

¹ "2019 Sonoma County Crop Report." *Sonoma County Department of Agriculture, Weights & Measures* (2019) at 14. <<https://sonomacounty.ca.gov/natural-resources/agricultural-weights-and-measures/crop-reports>> (accessed May 31, 2022).

² *Id.* Additional acreages of rye and oats were harvested for silage, which were not sold commercially. I did not include such production in my analysis.

³ *Id.*

⁴ For each production, per acre return is calculated as the total dollar value of production divided by the harvested acreage.

sufficient to cover the cost of land, even before considering other production costs such as seeds, irrigation, labor, and harvesting. Therefore, I conclude that growing rye and oats on the Subject Property is not economically viable.

Growing Oats for Grain on the Subject Property Yields an Expected Annual Loss of \$56,970.

I evaluated the economic returns to an investor who purchases the Subject Property in order to grow oats for grains. Among the field crops harvested and sold commercially in Sonoma County for the year 2019, grain oats have the highest per acre return of \$413.

I relied on the 2019 Costs and Returns report on oats production published by the United States Department of Agriculture (“USDA”).⁵ The costs of hired labor, unpaid labor, and land are the same as those presented in my report dated November 12, 2021.

As shown in **Table 1** below, growing oats for grain on the Subject Property would generate a total revenue of \$487.3 per acre at a cost of \$909.3 per acre, resulting in a loss of \$422 per acre. On a 135-acre production basis, the annual total loss would be \$56,970.

Table 1: Revenue and Cost Estimates of Hypothetical Grain Oats Production

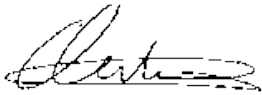
Gross value of production	
Primary product, grain	\$413.0
Secondary product, silage/straw/grazing	\$74.3
Total, gross value of production	\$487.3
Operating costs	
Seed	\$18.8
Fertilizer	\$40.0
Chemicals	\$7.3
Custom services	\$10.3
Fuel, lube, and electricity	\$21.2
Repairs	\$26.8
Other expenses	\$3.5
Hired labor	\$32.0
Total, operating costs	\$159.9
Allocated overhead	
Cost of Land	\$603.0
Opportunity cost of unpaid labor	\$32.0
Capital recovery of machinery and equipment	\$110.1
Taxes and insurance	\$6.6
Total, allocated overhead	\$751.7
Costs listed	
Total, costs listed	\$911.6
Net value	
Value of production less total costs listed	-\$424.3

⁵ “Commodity Costs and Returns.” *United States Department of Agriculture*. <<https://www.ers.usda.gov/data-products/commodity-costs-and-returns>> (accessed May 31, 2022). Numbers cited in Table 1 correspond to the “U.S. total” in the USDA report.

My estimate of the net revenue from the hypothetical oat production is conservative. First, the implied wage of \$16 per hour for hired labor is likely unattainable in the current market, given the severe labor shortage many sectors face at present. A higher labor cost would reduce net revenue. Second, the Subject Property currently relies on salty recycled water supplied by the City of American Canyon for irrigation. Growing oats with salty recycled water would reduce yield once soil salinity reaches a certain threshold, which would also reduce net revenue.

Conclusion

Based on my review of the 2019 Sonoma County Crop Report, my independent analysis of the economic viability of growing rye and oats on the Subject Property, and my report dated November 12, 2021, I conclude that agricultural production is not economically viable on the Subject Property.



Wenbiao Cai, Ph.D.