THE COST OF PRODUCING GRAPES IN THE CHAUTAUQUA AND LAKE ERIE FRUIT BELT

SUMMARIZED BY
J. D. LUCKETT
FROM BULLETIN BY
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THE COST OF PRODUCING GRAPES IN THE CHAUTAUQUA AND LAKE ERIE FRUIT BELT

J. D. LUCKETT

The grape grower and the large users of grapes have long differed as to what constitutes a fair price for the crop. Unquestionably the selling price should depend primarily upon the cost of production, but an uncertain demand from year to year and a lack of definite information as to what the crop actually cost the grower have tended to render the market very unstable. Accurate data as to the cost of various operations entering into the growing and harvesting of the grape crop are very difficult to obtain due to the fact that no two vineyards are handled in exactly the same way. However, a careful study of the costs incurred in operating plantings worked in a similar manner should show, in a general way, what constitutes a fair charge for the various items involved in vineyard management and should aid in arriving at an equitable price.

Numerous factors must be taken into consideration in estimating the cost of producing grapes. For convenience these may be divided into three general groups as follows: (1) Maintenance including interest on investment, taxes and insurance, fertilizers, posts and wire, green manure seed, spray materials, and vine replacements. (2) Labor including pruning, spraying, trellis repair, tying, and cultivating. (3) Harvesting including picking, hauling, and containers.

Methods of vineyard management vary to such an extent that certain of these items would not enter into the calculation in some

*This is a brief review of Bulletin No. 479 of this Station entitled Studies on the Cost of Producing Grapes, by F. E. Gladwin. A copy of the Complete Bulletin will be furnished to anyone specially interested in the detailed account of the investigation. The names of those who so request will be placed on the Station mailing list to receive future bulletins as issued, either popular or complete edition as desired.
vineyards; while, in other cases, items not mentioned here would require consideration. For example, an interview made in 1909 with some 500 growers in the Chautauqua and Lake Erie fruit belt showed that there was considerable difference in the fertilizer practice and tillage methods followed in that section. The investment in posts, wire, tools, etc. varied from year to year in the same vineyard and to a much greater degree in different vineyards in the same locality. The posts deteriorate more rapidly in some soils than in others. Many growers spray regularly, but the great majority have never done so. Pruning varies materially due to the method followed.

The age of the vineyard is an important factor due to its effect upon production. Extended observations in this region indicate that the vineyard should be in its prime at from 6 to 25 years of age, altho most vineyards fail rapidly after the twentieth year. Unfavorable soil conditions, depleted fertility, over-cropping, and infestation of the grape-root worm all contribute to this deterioration.

Data have been obtained on the costs incurred over a period of five years, 1915 to 1919, for three vineyards designated as E, R, and S, respectively, and situated in widely separated parts of the Chautauqua and Lake Erie fruit belt. Vineyard E, comprising 20 acres, was located on Dunkirk clay to clay loam soil; vineyard S, of 6 acres, on Dunkirk clay loam and gravelly loam; and vineyard R, of about 8 acres, on Dunkirk clay to clay loam soil.

The results of this study are regarded only as an indication of the outgo and income from vineyards worked in a similar manner and have, therefore, a limited application. The amounts expended in two of the vineyards probably exceed those spent in the majority of vineyards in this section or in any section of the State.

Unfavorable climatic conditions during two of the five years influenced the amount of labor employed in the vineyards and also the crop produced. However, the five-year period under consideration differed no more in this respect than did the five years immediately preceding. It is believed that climatic hazards should be taken into account in determining the selling price of grapes.

Since vineyards, similar to the ones under observation, were selling for $300 per acre at the time this work was begun, it was decided that this valuation would be a fair one upon which to base the investment in land. It was also agreed to charge interest on the investment at the rate of 6 per cent.

In 1915 team and man hire was charged at the rate of $5.00 per day, single horse and man at 35 cents per hour, and day labor at $2.00 per day. These rates, of course, increased materially during the period of study, and while Vineyards E and R met the increases
from year to year, the rates paid in Vineyard S did not rise until 1918 due to a long-time contract which had been made at stipulated prices.

In 1919 the rate for team and man in Vineyard E had advanced to 70 cents per hour, for single horse and man to 50 cents per hour, and for day labor to 40 cents per hour. In 1918 and 1919, the owner of this vineyard used a tractor for part of the work and this was charged for at the rate of $1.20 per hour in 1918 and $1.40 per hour in 1919. These charges include the services of the operator.

In Vineyard R the rate paid for team and man advanced to $8.00 per day, for single horse and man to 60 cents per hour, and for day labor to $4.00 per day.

Team and man hire advanced to $6.00 per day in Vineyard S, single horse and man hire to $4.50 per day, and day labor to $2.75 per day.

Pruning was regarded as a more specialized work than ordinary labor and was paid for at the rate of from 5 to 10 cents per hour more than day labor.

Women were usually employed for spring tying and for picking and were paid at the rate of from 15 cents per hour in 1915 to 30 cents per hour in 1919. Proximity to large towns tended to keep these rates lower than those paid for similar work in more remote districts.

*Comparison of the vineyards*

Altho the vineyards studied were located in widely separated parts of the grape belt of western New York, probably two-thirds of the vineyards of the section are on soils similar to those of Vineyards E and R, while a portion of Vineyard S is on much the same sort of soil. Consideration of the data secured from these vineyards should throw some light, then, on the principal factors affecting the cost of producing grapes in this region.

In Table 1 is given the average amount expended both per acre and per ton in each vineyard for the several items entering into the growing and harvesting of grapes for the five years, 1915 to 1919, inclusive. From these figures it is possible to determine the average cost of production; and, together with the average yield per acre and the average selling price per ton, to estimate the average net profit.

*Application of the results*

It cannot be too strongly emphasized that results secured in studies of this sort are of rather limited value so far as they may be applied to conditions other than those under which they were obtained. The unsettled state of prices for labor and materials of all kinds which existed during the greater part of the period covered by these studies should be taken into consideration by the grape grower in any attempt to apply the results to his own
conditions, and due allowance should be made for circumstances peculiar to his own locality and to the present time in drawing any deductions from these results.

Table 1.—Average Cost of Production and Average Net Return in the Three Vineyards, 1915–1919.

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>ACRE BASIS</th>
<th>TON BASIS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vineyard E</td>
<td>Vineyard S</td>
</tr>
<tr>
<td>Interest on investment</td>
<td>$18.00</td>
<td>$18.00</td>
</tr>
<tr>
<td>Taxes and insurance</td>
<td>1.01</td>
<td>3.65</td>
</tr>
<tr>
<td>Fertilizer, manure, lime</td>
<td>6.31</td>
<td>15.56</td>
</tr>
<tr>
<td>Posts, wire, wire-ties, tools, etc</td>
<td>1.39</td>
<td>2.86</td>
</tr>
<tr>
<td>Green manure seed</td>
<td>1.94</td>
<td>2.48</td>
</tr>
<tr>
<td>Spray materials</td>
<td>0.85</td>
<td>1.24</td>
</tr>
<tr>
<td>Vines for replacement</td>
<td>0.06</td>
<td>0.93</td>
</tr>
<tr>
<td>Total maintenance</td>
<td>$29.56</td>
<td>$43.79</td>
</tr>
<tr>
<td>Pruning</td>
<td>$3.44</td>
<td>$4.252</td>
</tr>
<tr>
<td>Brush disposal</td>
<td>1.42</td>
<td>1.742</td>
</tr>
<tr>
<td>Trellis repair</td>
<td>1.49</td>
<td>2.194</td>
</tr>
<tr>
<td>Tying, spring</td>
<td>1.64</td>
<td>1.424</td>
</tr>
<tr>
<td>Plowing, single-horse</td>
<td>0.25</td>
<td>1.820</td>
</tr>
<tr>
<td>Plowing, team</td>
<td>1.99a</td>
<td>1.082</td>
</tr>
<tr>
<td>Horse hoeing</td>
<td>0.82</td>
<td>1.488</td>
</tr>
<tr>
<td>Hand hoeing</td>
<td>0.70</td>
<td>1.224</td>
</tr>
<tr>
<td>Harrowing</td>
<td>3.27</td>
<td>4.270</td>
</tr>
<tr>
<td>Clipping tops</td>
<td></td>
<td>0.231</td>
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<tr>
<td>Summer tying</td>
<td></td>
<td>0.396</td>
</tr>
<tr>
<td>Spraying, labor</td>
<td>0.90</td>
<td>0.806</td>
</tr>
<tr>
<td>Applying fertilizer</td>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td>Green manure seeding</td>
<td>0.56</td>
<td>0.562</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>0.61</td>
<td>0.282</td>
</tr>
<tr>
<td>Total labor</td>
<td>$17.72</td>
<td>$21.774</td>
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<tr>
<td>Total upkeep</td>
<td>$47.28</td>
<td>$65.56</td>
</tr>
<tr>
<td>Harvesting</td>
<td>$13.16</td>
<td>$17.66</td>
</tr>
<tr>
<td>Total cost of production</td>
<td>$60.44</td>
<td>$83.22</td>
</tr>
<tr>
<td>Yield, tons per acre</td>
<td>1.81</td>
<td>2.62</td>
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<tr>
<td>Selling price per ton</td>
<td>$66.48</td>
<td>$66.58</td>
</tr>
<tr>
<td>Net profit</td>
<td>39.30</td>
<td>73.88</td>
</tr>
</tbody>
</table>

a Includes charge for tractor.
With due regard for the above limitations, it may be stated that the average cost of production for the three vineyards during the five years was $74.13 per acre, and the average cost per ton of grapes $40.58. The average net profit per acre was found to be $66.64 and the average profit per ton $26.31. These figures vary considerably from year to year and in Vineyard E an actual loss was sustained in two of the five years. However, the averages for the five years tend to smooth out differences due to seasonal factors and are, therefore, a more accurate index to the general trend of costs and profits.

An examination of the table shows that Vineyards R and S have given a considerably higher return both per acre and per ton of grapes than Vineyard E altho the latter was operated at a lower cost per acre than the other two. However, the higher yields secured in Vineyards R and S, due largely to improved tillage and fertility practices, have overcome the increased cost of production in these vineyards. Also, Vineyards R and S are relatively small acreages as compared with Vineyard E and probably represent more uniform soil conditions. Without doubt soil irregularities frequently render vineyards unprofitable.

Many vineyards in this region are operated at costs equal to those of Vineyards R and S and return as large or even larger profits, but most of the acreage in this section is maintained at less expense and gives a return corresponding more nearly to that realized from Vineyard E. The question naturally follows as to whether these plantings can be made as profitable as Vineyards R and S; but in view of the fact that many of them are situated on soils unsuited to grape growing, while others include areas that never can be made profitable, it is doubtful if they will ever attain that level.

The three vineyards under observation have been improving, or at least holding their own, but the great majority of vineyards in this region have been slowly but surely declining, altho vineyards on the better soil types can probably be made to produce larger and more uniform crops.

It is concluded from these studies that under intensive management grape growing in the Chautauqua and Lake Erie fruit belt can be made profitable even with the present high cost of labor and supplies if the selling price of the crop can be maintained at or near the level of the 1918 and 1919 seasons.