



PROBLEM 8-26 Simple Rate of Return; Payback; Internal Rate of Return [LO 8-2, LO 8-5, LO 8-6]

Chateau Beaune is a family-owned winery located in the Burgundy region of France, which is headed by Gerard Despinoy. The harvesting season in early fall is the busiest part of the year for the winery, and many part-time workers are hired to help pick and process grapes. Mr. Despinoy is investigating the purchase of a harvesting machine that would significantly reduce the amount of labor required in the picking process. The harvesting machine is built to straddle grapevines, which are laid out in low-lying rows. Two workers are carried on the machine just above ground level, one on each side of the vine. As the machine slowly crawls through the vineyard, the workers

cut bunches of grapes from the vines, which then fall into a hopper. The machine separates the grapes from the stems and other woody debris. The debris are then pulverized and spread behind the machine as a rich ground mulch. Mr. Despinoy has gathered the following information relating to the decision of whether to purchase the machine:

- a. The winery would save €190,000 per year in labor costs with the new harvesting machine. In addition, the company would no longer have to purchase and spread ground mulch—at an annual savings of €10,000. (The French currency is the euro, which is denoted by the symbol €.)
- b. The harvesting machine would cost €480,000. It would have an estimated 12-year useful life and zero salvage value. The winery uses straight-line depreciation.
- c. Annual out-of-pocket costs associated with the harvesting machine would be insurance, €1,000; fuel, €9,000; and a maintenance contract, €12,000. In addition, two operators would be hired and trained for the machine, and they would be paid a total of €70,000 per year, including all benefits.
- d. Mr. Despinoy feels that the investment in the harvesting machine should earn at least a 16% rate of return.

Required:

(Ignore income taxes.)

1. Determine the annual net savings in cash operating costs that would be realized if the harvesting machine were purchased.
2. Compute the simple rate of return expected from the harvesting machine.
3. Compute the payback period on the harvesting machine. Mr. Despinoy will not purchase equipment unless it has a payback period of five years or less. Under this criterion, should the harvesting machine be purchased?
4. Compute (to the nearest whole percent) the internal rate of return promised by the harvesting machine. Based on this computation, does it appear that the simple rate of return is an accurate guide in investment decisions?