Growing Perfectly Competitive Roses

Figure 9.11 shows wholesale prices and quantities of long-stem red roses in the United States in 1991, 1992, and 1993 in four distinct one-month periods: May, August, November, and the last two weeks of January and first two weeks of February.[13] These are the prices that Nakao Growers and its counterparts faced as they contemplated supply decisions during the early 1990s.

Monthly demand in the U.S. rose market varies in a predictable way. It is lowest from July through December, because gifts of roses are not customary for any holidays during this period. It is highest during the last two weeks of January and the first two weeks of February, because of Valentine's Day. Finally, it is in-between from April through June, because of Mother's

Day (mid-May) and because May and June are the busiest months for weddings. In Figure 9.11, D_{AN} is the demand curve for August and November, in the period when demand is lowest; D_{JF} is the demand curve for the end-of-January–beginning-of-February period, when demand is highest; and D_M is the demand curve for May, in the period when demand is in-between.

Supply conditions were stable during 1991–1993, so we can use back-of-the-envelope techniques to identify the short-run market supply curve for fresh-cut roses— that is, we can use the shifts in demand over the year to trace out the supply curve. As shown in Figure 9.11, the supply curve was perfectly elastic at a price of about $0.22 per rose for quantities up to about 4.5 million roses per month. In other words, at that price, rose growers were willing to supply any quantity up to that
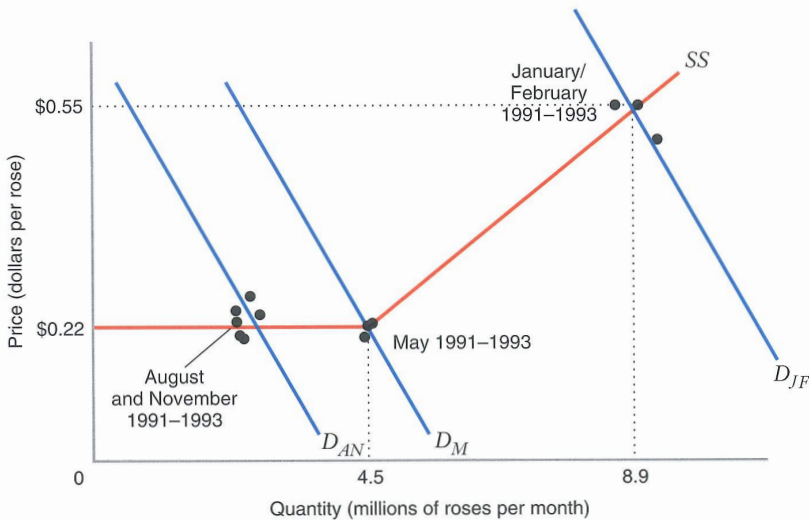

FIGURE 9.11   The Short-Run Supply Curve for Roses
D_{AN} is the demand curve for August and November; D_M is the demand curve for May; and D_{JF} is the demand curve for the January–February period just before Valentine's Day. The short-run supply curve SS is flat (perfectly elastic) for quantities up to about 4.5 million roses per month and increases (slopes up) thereafter.

amount. But an increase in price was needed to induce growers to supply the additional quantity demanded during the month before Valentine's Day.

In particular, the price and quantity during the month before Valentine's Day were (on average) $0.55 and 8.9 million roses per month, respectively. We estimate the slope of the supply curve over the range between 4.5 and 8.9 million roses per month as

$$\frac{\Delta Q^s}{\Delta P} = \frac{(8.9 - 4.5)}{(55 - 22)} = 0.1333$$

That is, supply increases at a rate of 0.1333 million roses for every 1 cent increase in price. We can use this calculation to determine the price elasticity of supply for fresh-cut roses in the month before Valentine's Day: $\epsilon_{Q^s,P} = 0.1333 \times (55/8.9) = 0.82$. That is, the supply of roses around Valentine's Day increases at a rate of 0.82 percent for every 1 percent increase in price. The short-run market supply of roses is thus relatively inelastic.