Chapter 3: Economics for Agribusiness Managers

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Objectives

- Accounting and economic profit
- How supply and demand interact to determine market equilibrium
- Market equilibrium and what causes it to shift
- Elasticity and its relationship to supply and demand

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Definition of Economics

The study of how *scarce resources* are combined to satisfy the *unlimited wants* and best meet consumer *needs*

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Scarce Resources

Factors of production

- Land
- Labor
- Capital
- Management

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Why Profits Exist in Our Economy

1. Profits are the reward for taking a risk in business
2. Profits result from the control of scarce resources
3. Profits exist because not all information is widespread
4. Profits occur when a business is managed better than others

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Macroeconomics: The Big Picture

- Macroeconomics is concerned with how the different elements of the total economy interact
- Examples that impact agribusinesses:
  - Monetary policy
  - Fiscal policy
  - International development

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Microeconomics: Economics within the Firm

- Microeconomics is the application of basic economic principles to decisions within the firm
- Example of microeconomic decisions:
  - How to best use physical, human, and financial resources to meet customers' needs and generate a profit

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Opportunity Cost

- The income given up by not choosing the next best alternative for the use of the resources
- Opportunity costs are never actually incurred and cannot be measured precisely

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Economic Profit

- Economic profit equals accounting profit less opportunity cost
- Calculating economic profit requires examining alternative uses of resources

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Example: Determining Economic Profit

Situation:

- Susan Lambert owns/operates a landscaping firm
- She wants to determine her economic return for operating this firm

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Example: Determining Economic Profit

Details:

- Susan is 34 years old
- She has $400,000 invested
- She makes a salary of $50,000
- The business had a total revenue of $475,000 last year

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Example: Determining Economic Profit

Susan's accounting profit:

Total revenue	$475,000
Explicit costs	$365,000
Total accounting profit	$110,000

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Example: Determining Economic Profit

Alternative uses for Susan's economic resources:

- Sell business, work for someone else making $65,000 annually
- Reinvest $400,000 investment in: government bonds (3%), mutual fund (11%)
- Unpaid building rent of $30,000

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Example: Determining Economic Profit

Opportunity cost:

Foregone income	$15,000
Unrealized rent	$30,000
Best investment alternative	
$400,000 x 0.11	$44,000
Total opportunity cost	$89,000

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Example: Determining Economic Profit

Total accounting profit	$110,000
– Total opportunity cost	$89,000
= Economic profit	$21,000

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Supply: The Seller Side of the Market

Supply: the quantities that sellers are willing and able to place on the market at different prices

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Demand: The Buyer Side of the Market

Demand: the quantity that consumers are willing and able to buy in the market at various prices

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Supply: Algebraic Form

$P = c + dQs$

Where:

P = price

c, d = parameters indicating how variables are related

Q_S = quantity supplied

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Demand: Algebraic Form

$P = a - bQ_D$

Where:

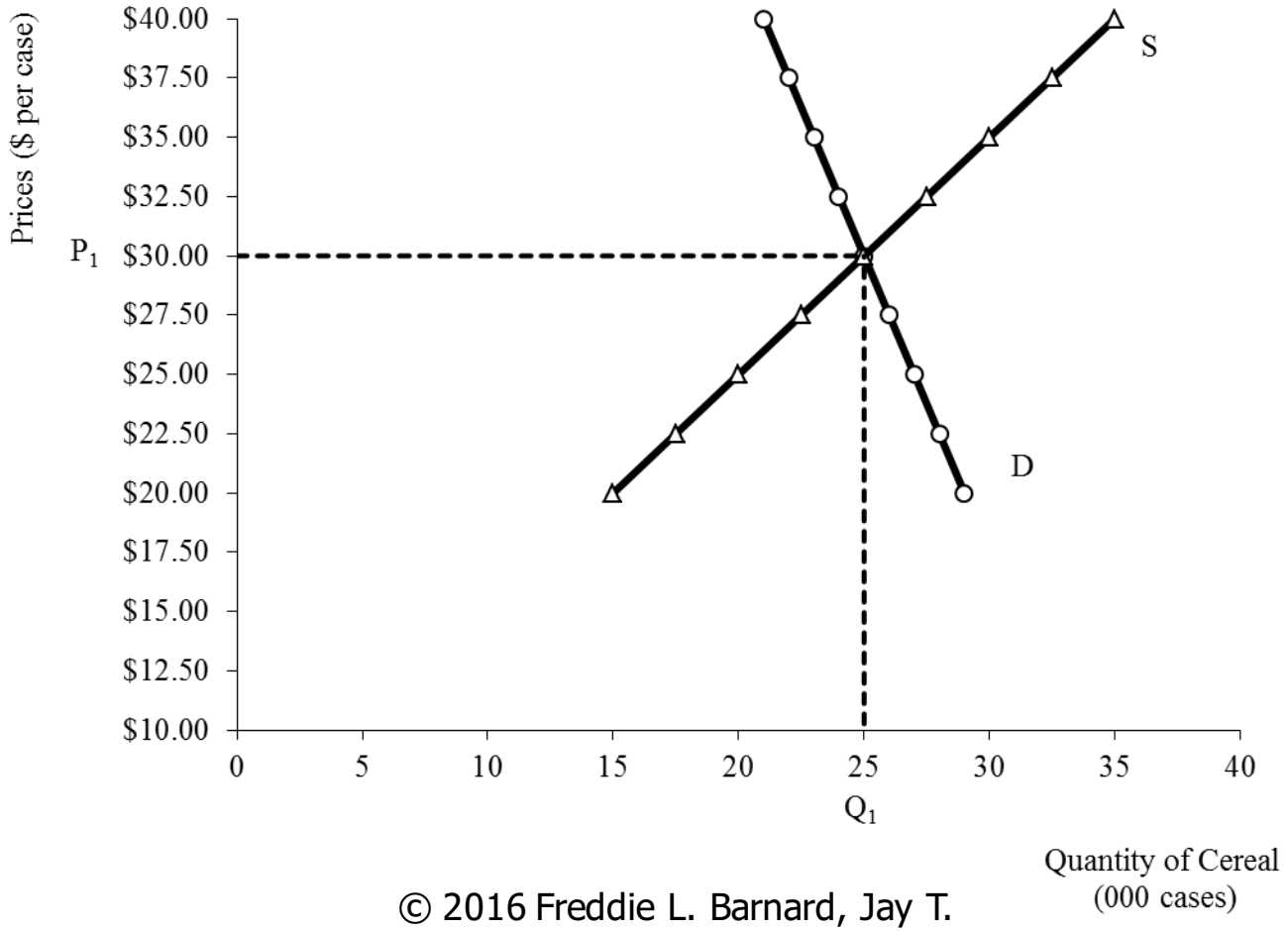
P = price

a, b variables are related

Q_D = quantity demanded

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Figure 3.1 Supply and Demand



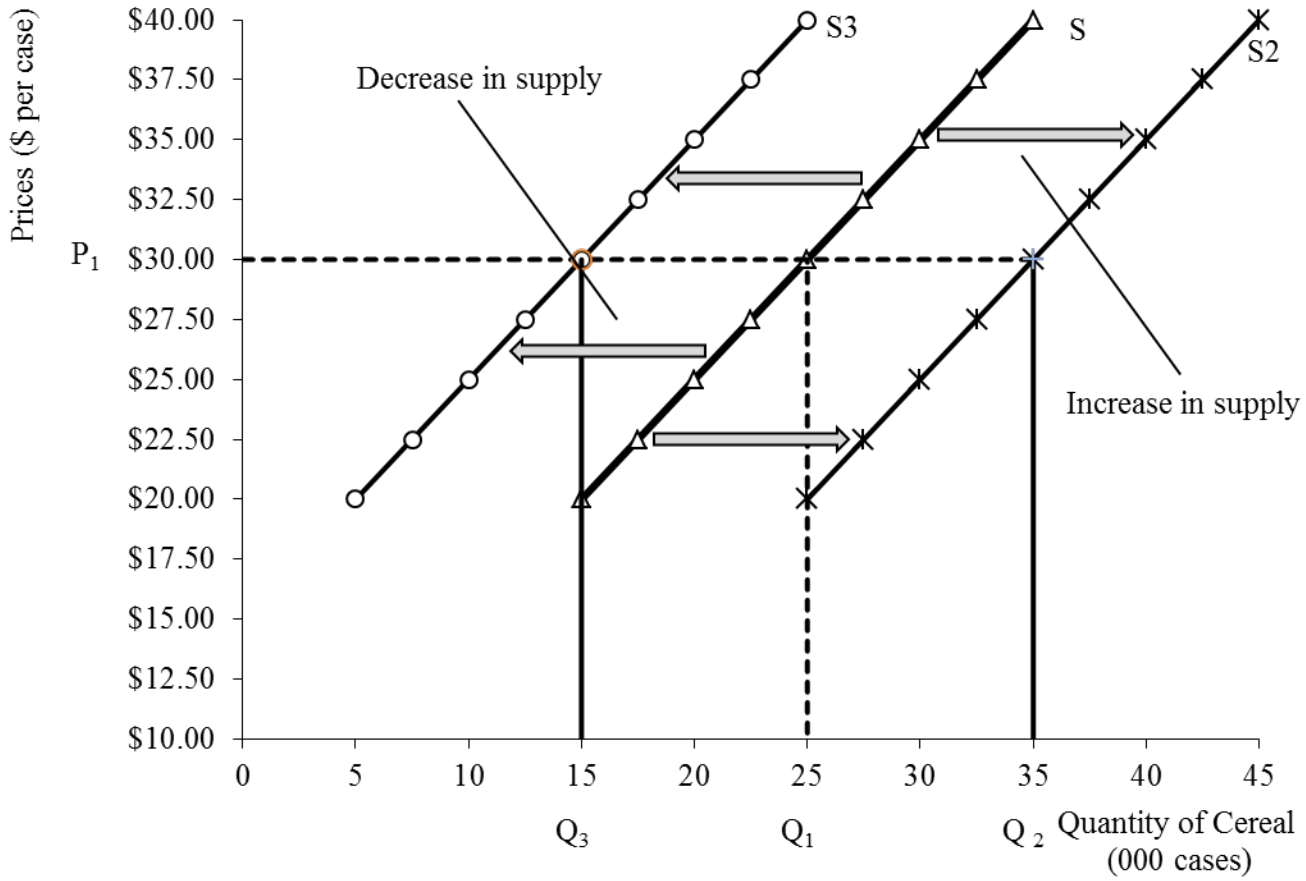
© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Factors Causing Supply Curve to Shift

1. Change in technology
2. Change in price of inputs
3. Weather
4. Change in price of other products that can be produced

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Figure 3.3 Shift in Supply



© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Changes in Supply

- Change in supply = movement of the entire supply curve

- Change in quantity supplied = movement up or down a given supply curve (no shift in curve)

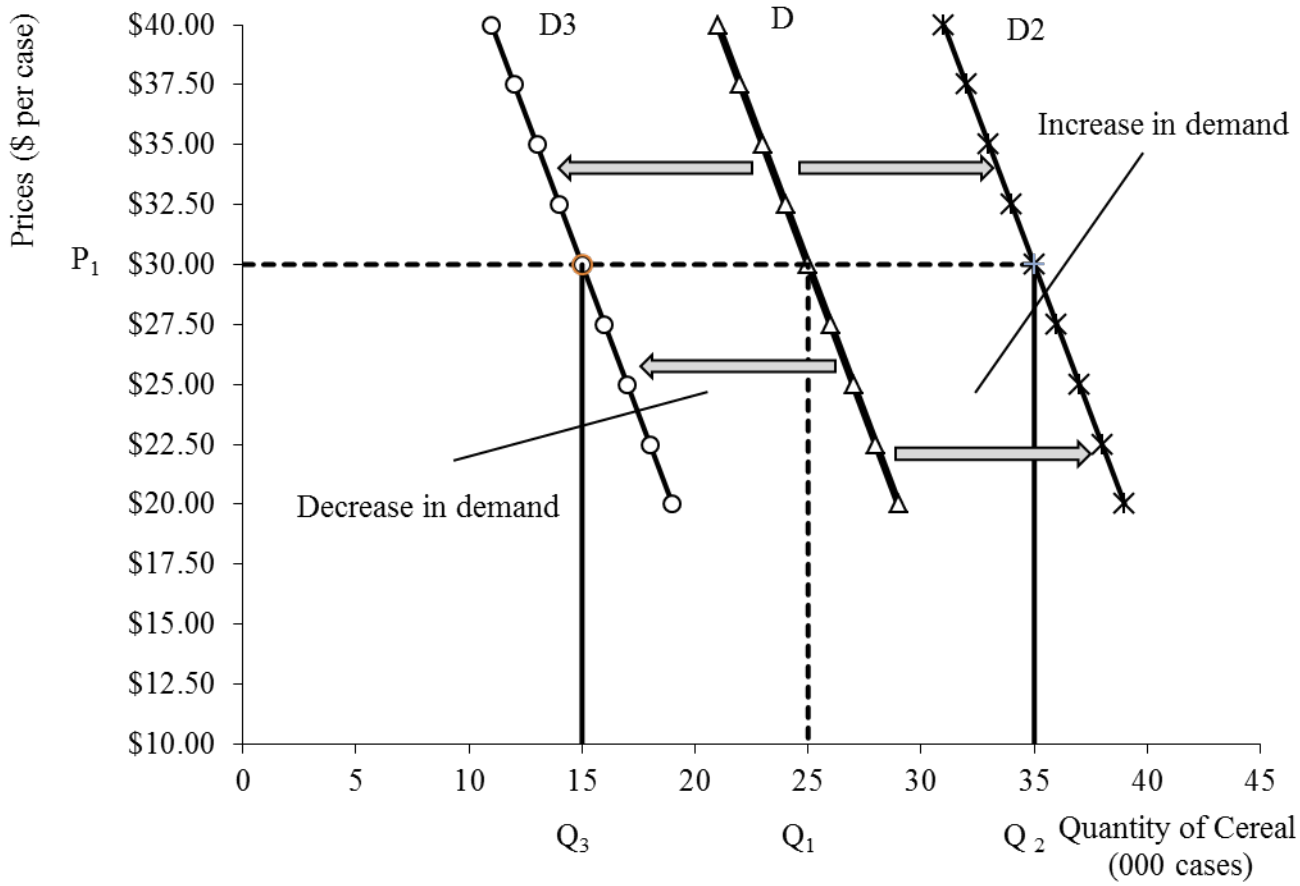
© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Factors Causing Demand Curve to Shift

1. Income
2. Tastes and preferences
3. Expectations
4. Population
5. Price of substitutes or complements

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Figure 3.4 Shift in Demand



© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Derived Demand

Derived demand: based on the need for a product that is indirectly related to consumer demand

Examples:

- fertilizer → corn → beef
- lumber → houses
- tires → cars

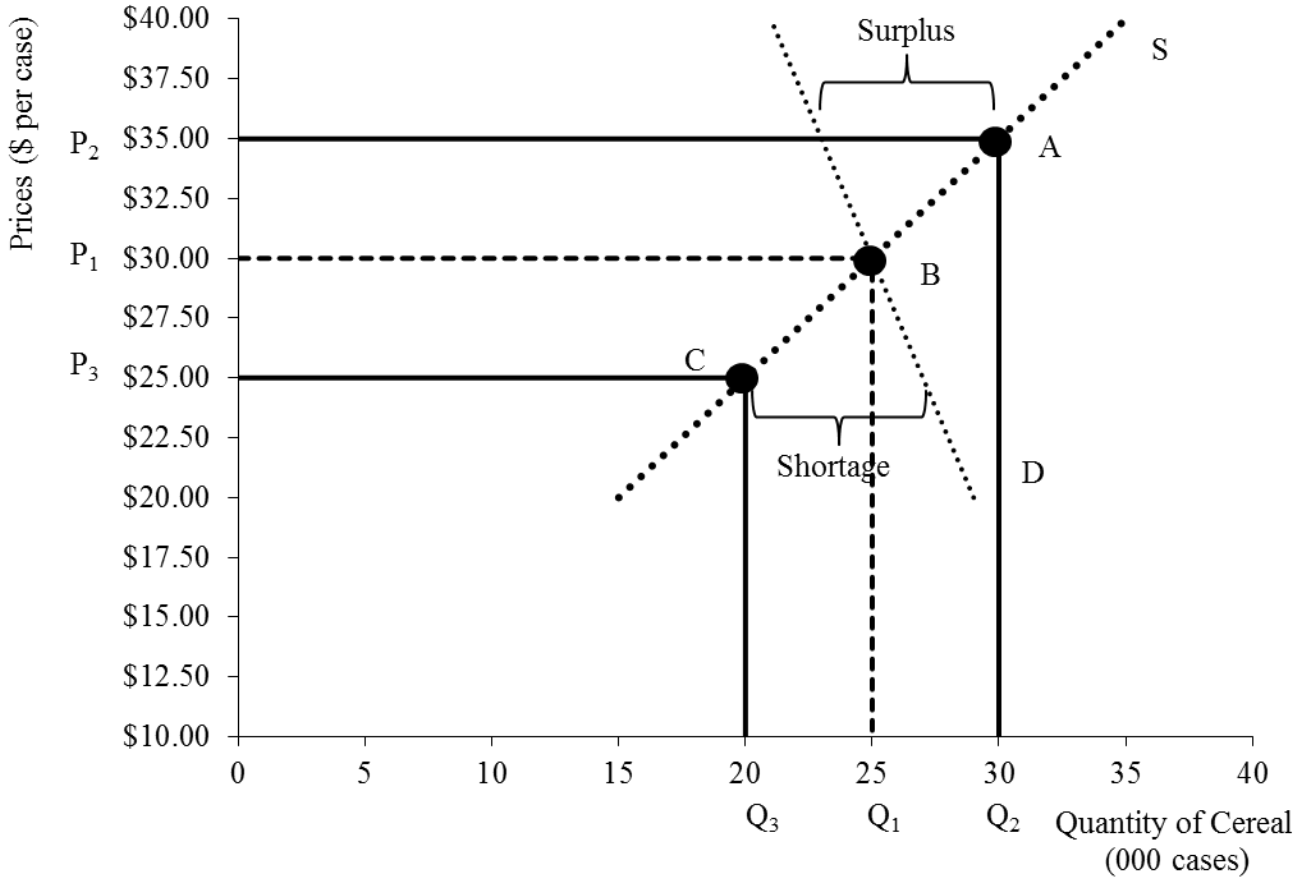
© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Price Discovery

- Price discovery: the process of determining the point of market equilibrium (quantity and price) where one price and quantity clear the market at a given point in time

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Figure 3.2
Shortages and Surpluses



© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Shortages and Surpluses

Surpluses occur as a result of charging a price that is too high so inventory starts to accumulate

Shortages occur from setting a price below equilibrium and demand exceeds supply

© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Elasticity

Elasticity of demand: reflects the percentage change in the quantity demanded when the price changes by 1%

$$\text{Elasticity} = \frac{\%\text{ change in quantity demanded}}{\%\text{ change in price}}$$

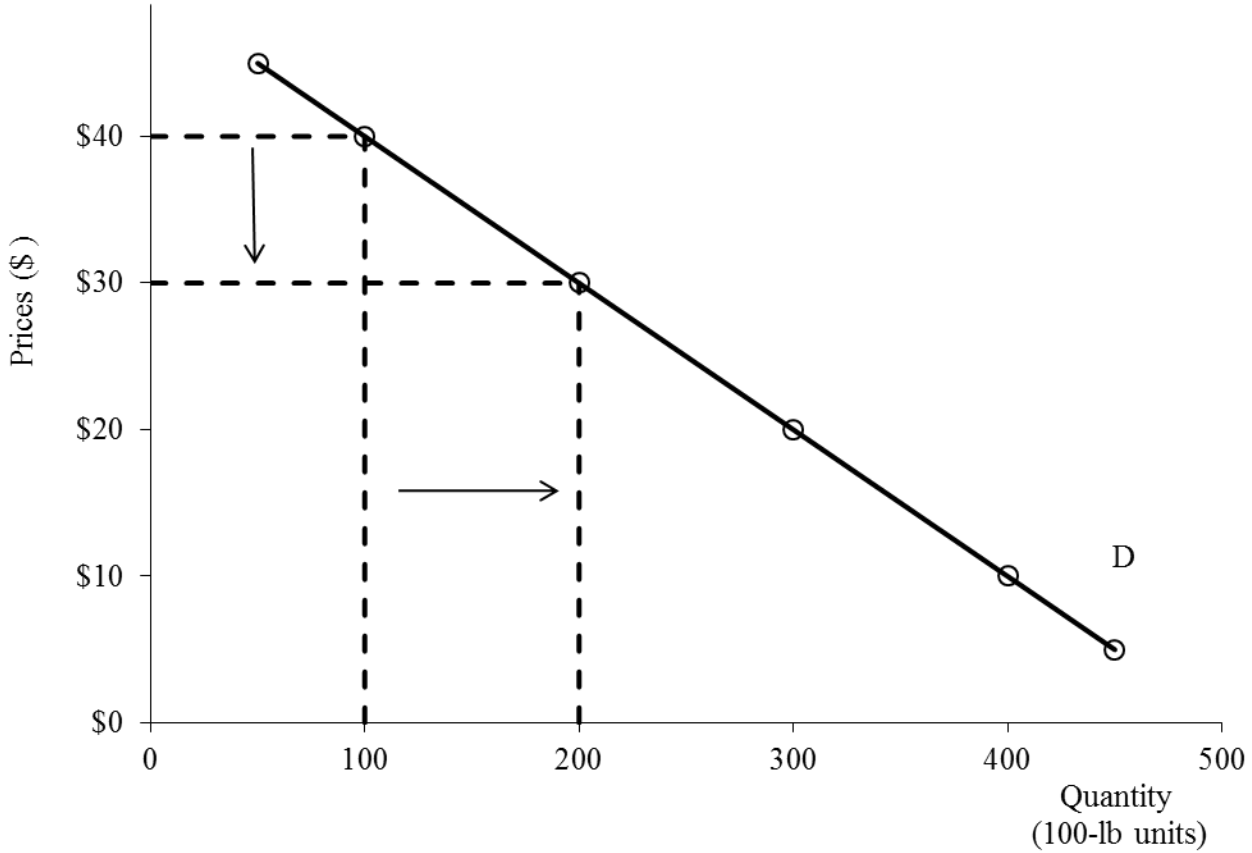
© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Levels of Demand Elasticity

$\lvert e \rvert > 1.0$	Elastic: small change in price = large change in quantity demanded
$\lvert e \rvert = 1.0$	Unitary
$\lvert e \rvert < 1.0$	Inelastic: small change in price = smaller change in quantity demanded

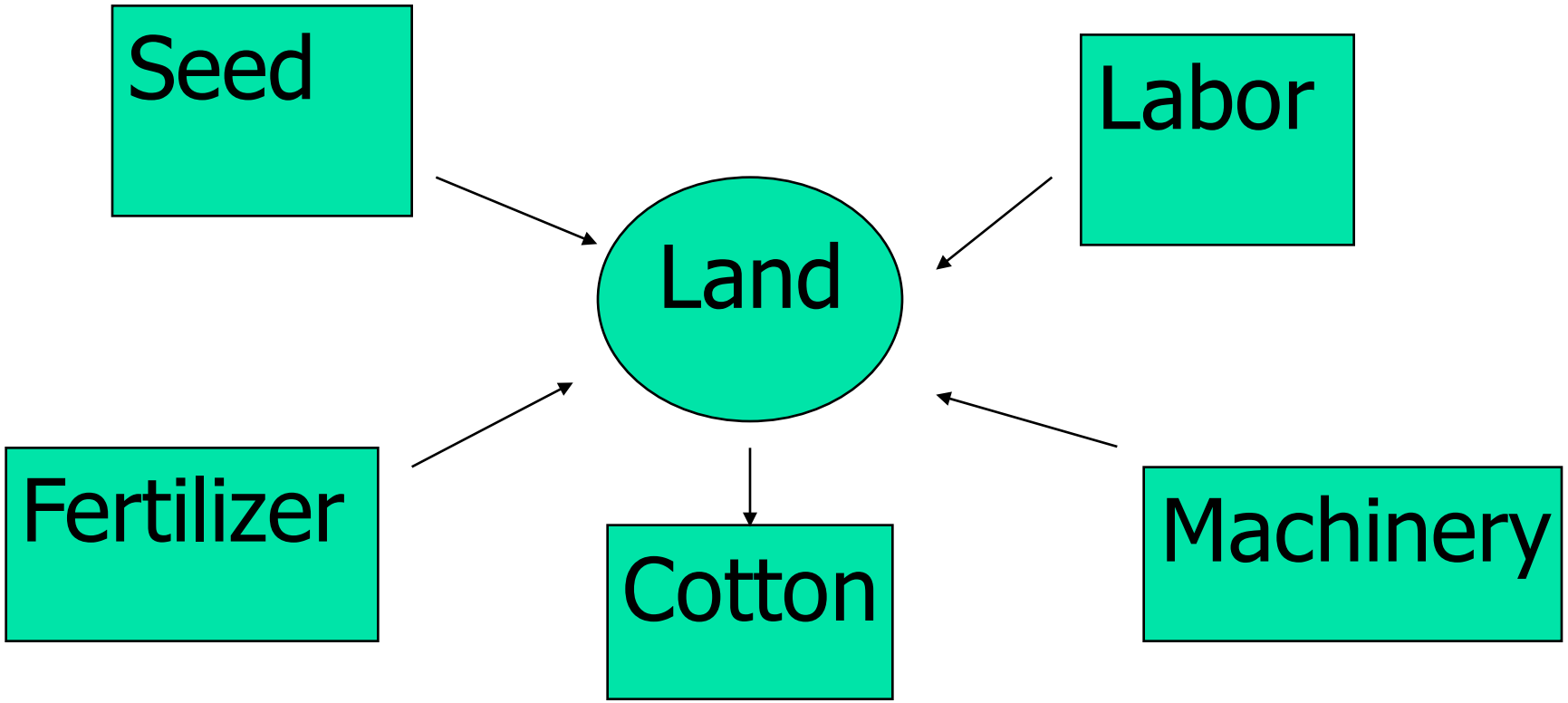
© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Example: Figure 3.5 Demand for Bluegrass Seed



© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Choosing Production Level



© 2016 Freddie L. Barnard, Jay T. Akridge, Frank J. Dooley, John C. Foltz, and Elizabeth Yeager

Production

Input level	Nitrogen applied	Yield (bushels)	TPP total physical product (bushels)	APP Average physical product (bushels)	MPP marginal physical product (bushels)
0	0	130	0	-	18
1	25	148	18	18	
2	50	162	32	16	14
3	75	170	40	13.33	8
					7
4	100	177	47	11.75	3
5	125	180	50	10.00	2
6	150	182	52	8.67	1
7	175	183	53	7.57	0
8	200	183	53	6.62	