

# *Flora* PARK

## **A Competitive and Collaborative Supply Chain Simulation**



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Instructors are free to use and modify these slides. I would appreciate if you can acknowledge the contribution of the original author.

# The Challenge

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- Multiple supply chains are competing in the same market → the trading partners in each supply chain must **collaborate** to win the competition against other supply chains.
- The trading partners have a conflict of interest due to wholesale prices and quantities bargaining → they must **defend** their interest against their partners.
- They must **collaborate** with (**hand-shaking**) and **fight** against (**back-stabbing**) their partners in the same time!



# The Learning Objective

How to **collaborate** with your trading partner to win the competition against other supply chains while **defending** yourself against your “worst” enemy: Your trading partner?

# Key Lessons

- If you fight your trading partner, your supply chain cannot win.

**Live as one or die as two**

- Even if your supply chain wins, you may not.

**Your may sacrifice yourself for your partner's success!**



# A Supply Chain **Strategy** Game

- **Supply chain contracts:** Students experiment on various price & quantity supply contracts.
- **Total business game:** Students play c-suite team perspective, make strategic decisions on supply chain strategy, marketing, competitive strategy, product strategy, and negotiation.
- **Integrate multiple business disciplines:** Supply chain, marketing, management strategy, negotiation, teamwork.

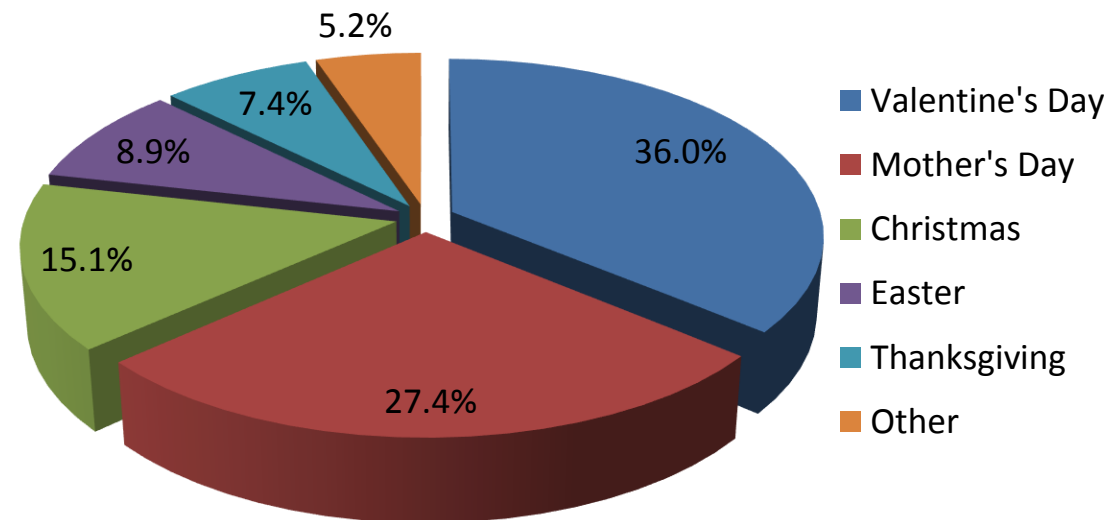


# Game Features

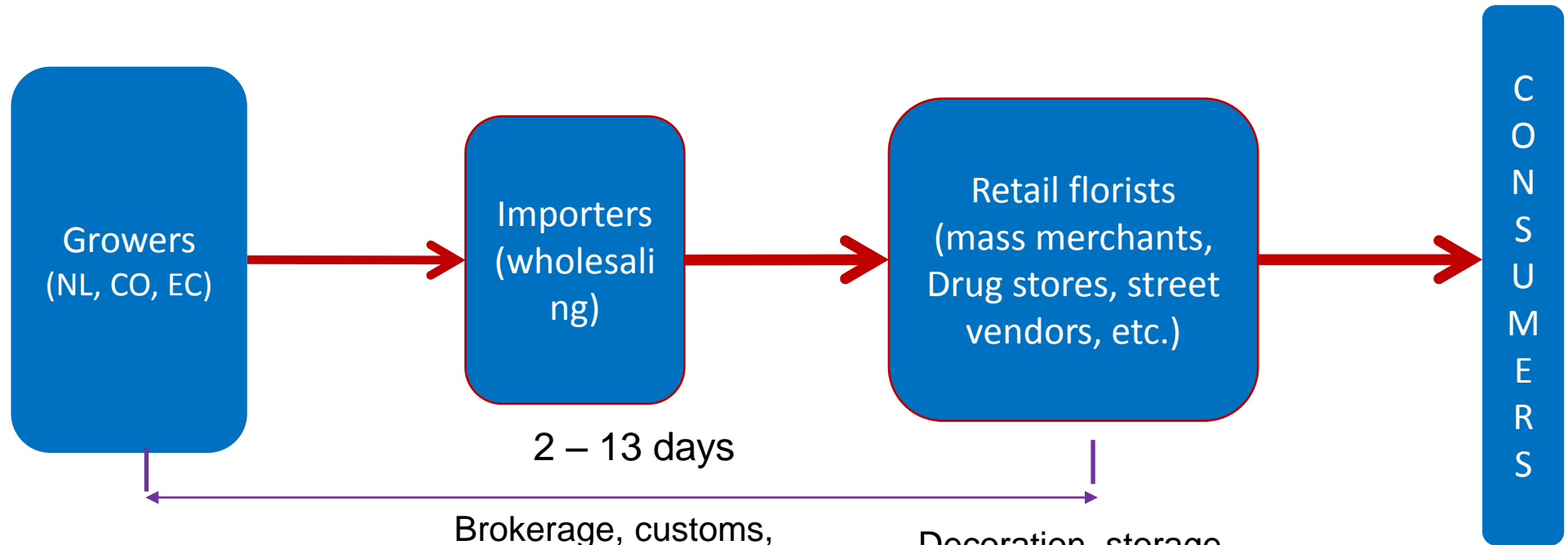
- **Fresh-cut flower supply chain:** one of the most challenging and competitive industries, from a supply chain mgmt. perspective.
- **Supply chain / marketing interfaces:** must balance supply chain and marketing decisions.
- **Realistic complexity:** Three product lines / market segments with different responses to price and marketing mix.
- **Dynamic gaming:** start out identical, teams play six periods (years) to win in the end.

# Fresh-Cut Flower Market

- Sales peak in holidays, 95% of the holiday sales occurs in 5 days
  - Valentine's Day accounts for ~ 36%
- Significant variety: >100 species of roses alone!
- Perishable items: roses have a shelf-life of 14 days



# Fresh-Cut Flower Supply Chain



Brokerage, customs, storage, shipping, ...

Decoration, storage, selling, ...





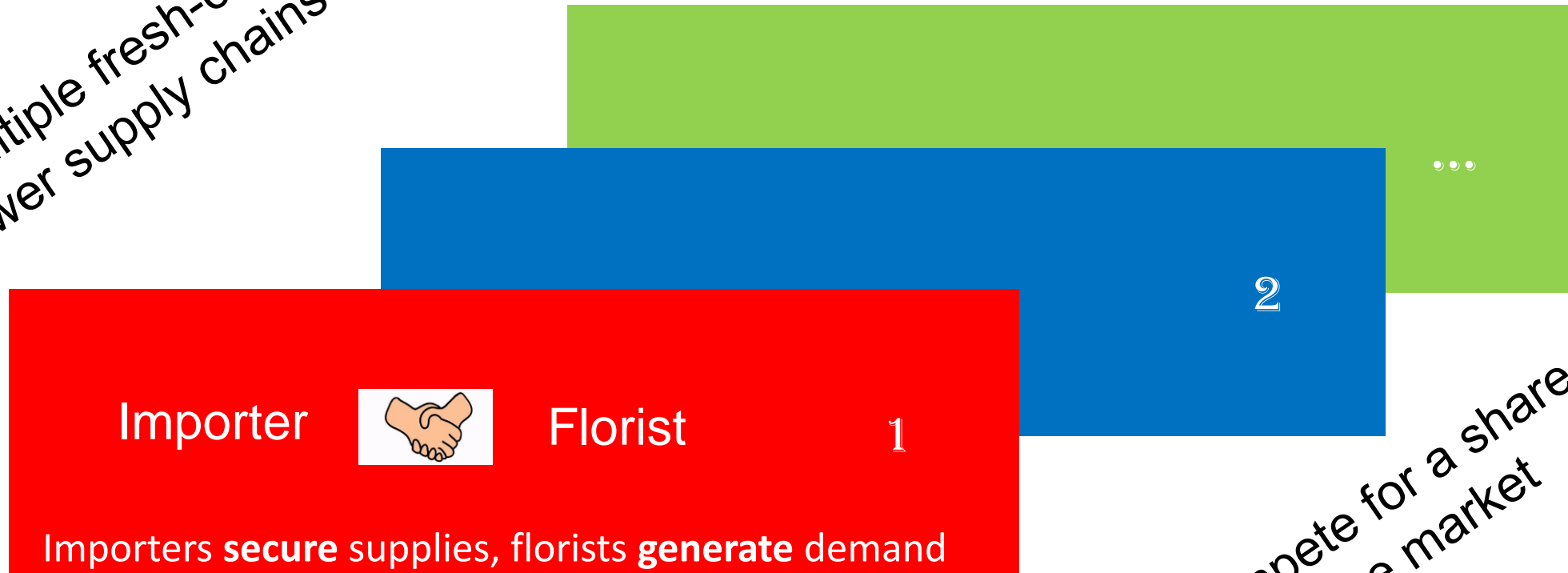
# Fresh-Cut Flower Industry

- Representative of supply chain challenges
  - Perishable items
  - Long lead times and huge yield losses
  - Highly seasonable and unpredictable demand
  - Significant risk in matching demand with supply
- Multiple players with conflicting interests
- Intensive market competition
- Relates to everyone



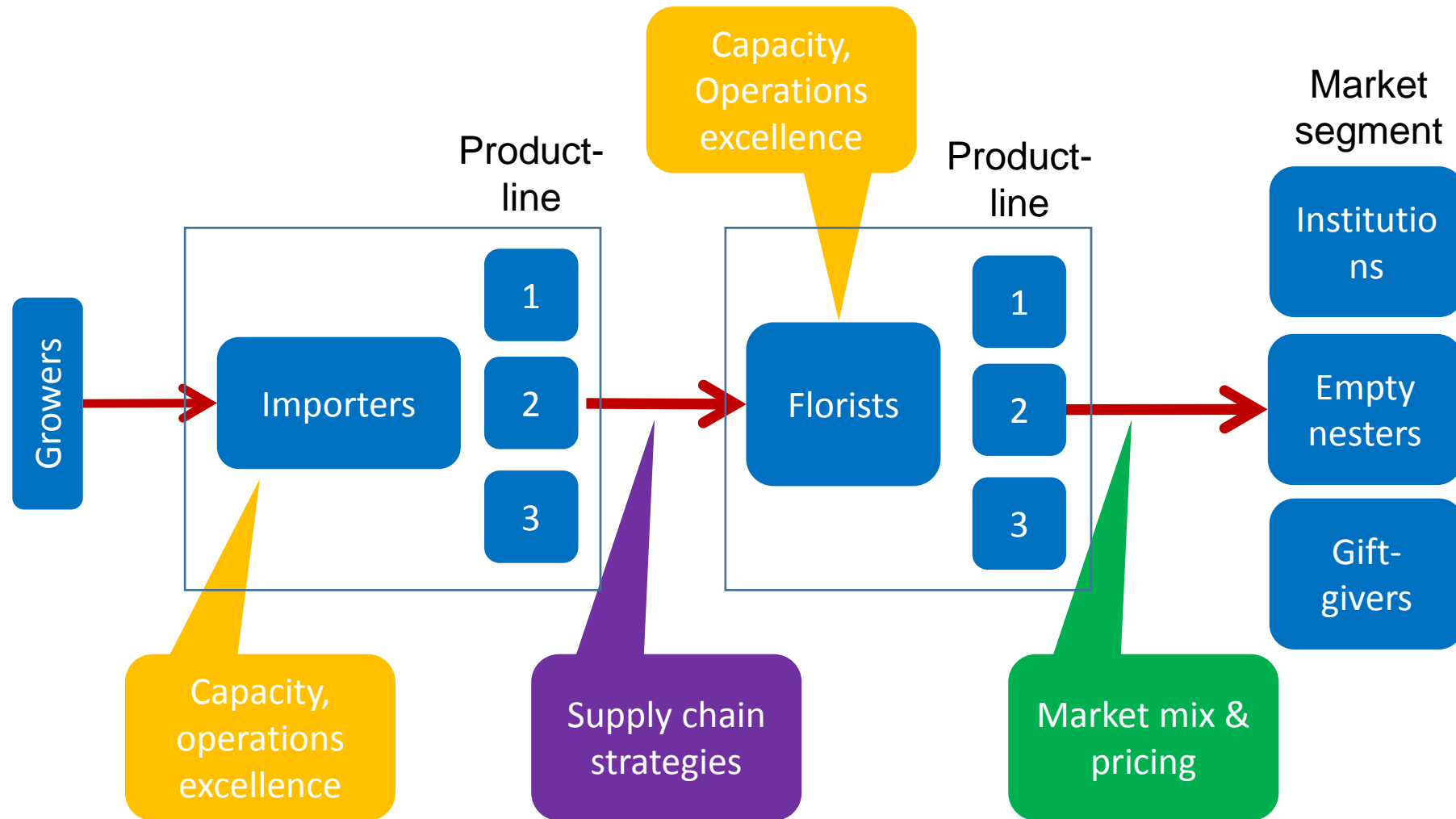
# Game Setup: A Competitive Environment

Multiple fresh-cut  
flower supply chains



Compete for a share  
of the market

# Players and Actions



# SC Coordination: Push, Pull & Advanced-Purchasing Discount Contracts\*

Florist places the 1<sup>st</sup> order in advance at a **discounted** wholesale price. Importer then secures the supply from growers

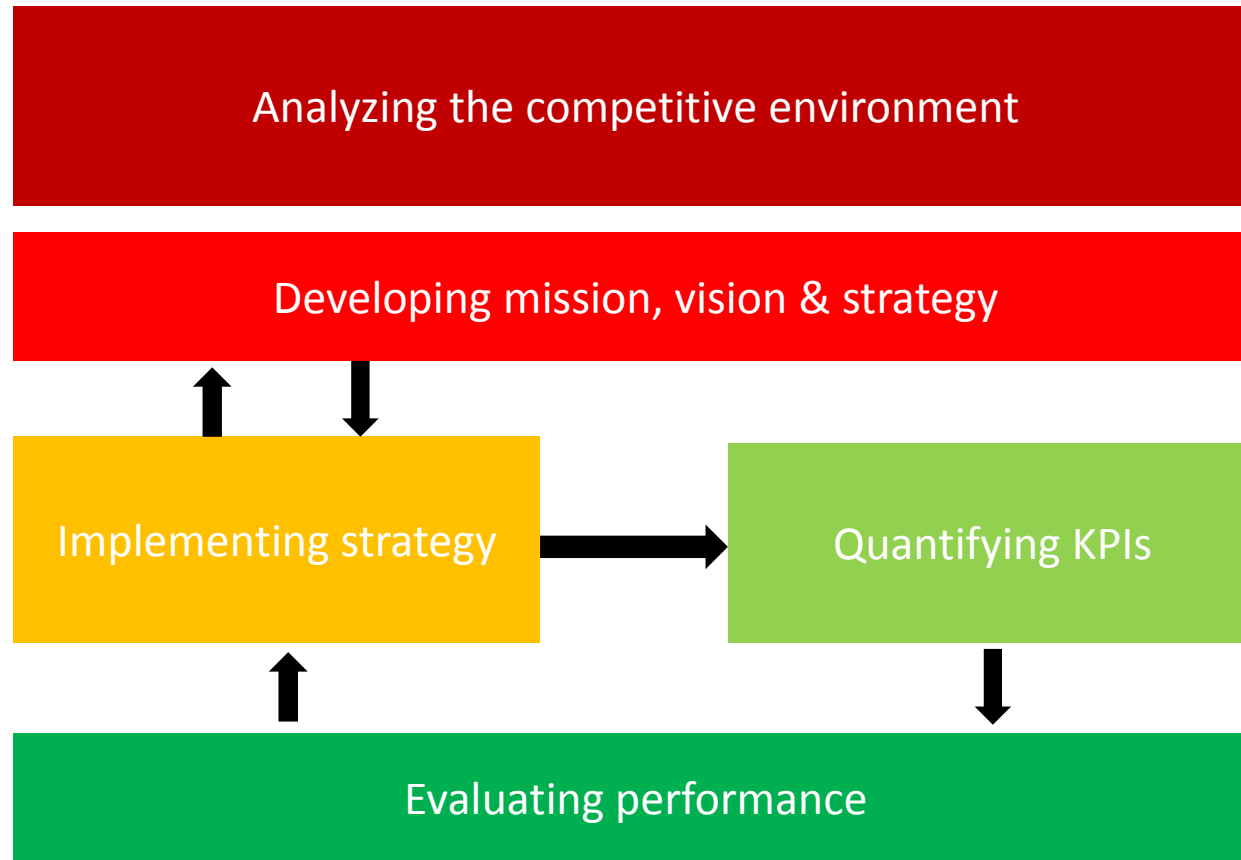
If needed, florist may place the 2<sup>nd</sup> order at the **regular** wholesale price. Importer fulfills as much as inventory is available



# Topics Covered

- Strategic thinking
- Product strategies
- Supply chain competition
- Negotiation and teamwork
- International supply chains
- Supply chain and marketing interfaces
- Supply chain collaboration and contracts

# Strategic Thinking



# Implementing The Strategy - Metrics

Market share

Supply

Profits

Capacity utilization

Cost efficiency

Service levels

Excessive inventory

Yield

# Implementing The Strategy - Levers





# By Making Decisions (Florist)

The screenshot shows a web browser window with the URL `https://flower.gamespots.net/floristGamePage/yaozhao@andromeda.rutgers.edu`. The page is titled "Input" and contains two tables for entering game parameters.

**Table 1: Processing Capacity and Wholesale Prices**

Period	Item	Baseline	Feature	Exotic	Sum	Total Capacity
0	Processing Capacity	400000	280000	120000	800,000	= 800,000
	Retail Price \$	0.25	2	8		
	x1 (Advanced Order)	200000	140000	60000		
	w1 \$ (Discounted Wholesale Price)	0.05	0.3	0.9		
	w2 \$ (Regular Wholesale Price)	0.0575	0.345	1.035		

**Table 2: Marketing Spend**

Period	OE Spend	Mkt-Relationship Spend	Mkt-Pro/Ads Spend	Total Spend	Budget
0	10000	1000	1000	\$118,000.00	$\leq$ \$150,000.00

Below the tables are buttons for "Check Budget", "Submit Input", and "Cancel Submission". A "Show Game Output Information" button is located below the second table. At the bottom, there is a "Previous Games" section with a "Show Game List" button.

A green callout box points to the "w1" and "w2" rows of the first table, containing the text: "To be negotiated & agreed by importer".

The Windows taskbar at the bottom shows the time as 9:54 PM on 10/12/2022.

**The budget comes out of your pocket!**

# By Making Decisions (Importer)

**Input**

Period	Item	Baseline	Feature	Exotic	Sum	Total Capacity
0	Processing Capacity	500000	350000	150000	1,000,000	= 1,000,000
	y (Grower Supply)	250000	175000	75000		
	x1 (Advanced Order)	200000	140000	60000		
	w1 \$ (Discounted Wholesale Price)	0.05	0.3	0.9		
	w2 \$ (Regular Wholesale Price)	0.0575	0.345	1.035		

To be negotiated & agreed by florist

Period	OE Spend	Total Spend	Budget
0	5000	\$22,000.00	<= \$38,000.00

Check Budget Submit Input Cancel Submission

Show Game Output Information

**Previous Games**

Show Game List

**The budget comes out of your pocket!**

# Product-Lines



	Baseline (low end)	Feature (medium)	Exotic (high end)
Growers	\$0.01	\$0.04	\$0.1
Wholesale	\$0.05	\$0.3	\$0.9
Retail	0.25	\$2	\$8

- Price increases significantly along the supply chain!

# Market Segments

30%  
**Institutional buyers**  
(wedding, funeral, parties, hotels,  
conferences, etc.)  
Price sensitivity: medium  
Demand uncertainty: low

30%  
**Empty nesters**  
Price sensitivity: high  
Demand uncertainty: medium

40%  
**Gift givers**  
Sensitivity: low  
Uncertainty: high

# Market-Product Matrix

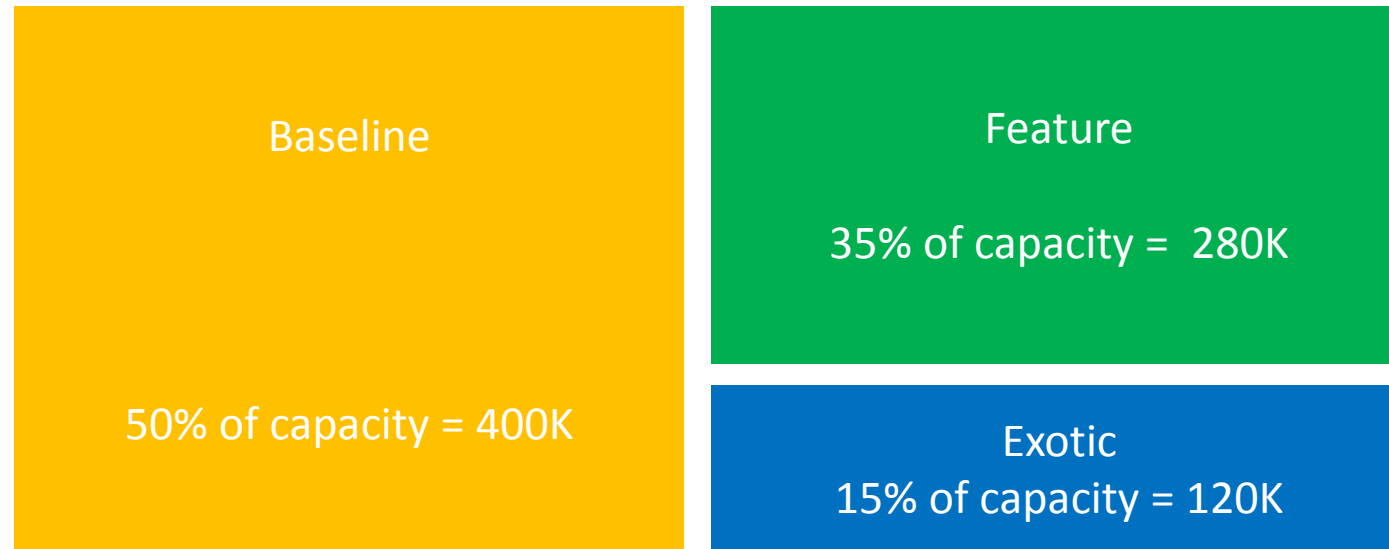
		Products			
		Baseline	Feature	Exotic	Relationship vs. Promotion/ads
Market segment	Institutions	65%	25%	10%	70% vs. 30%
	Empty nesters	35%	50%	15%	30% vs. 70%
	Gift-givers	25%	35%	40%	5% vs. 95%

- Total demand grows at 1-3% annually

# Market Response

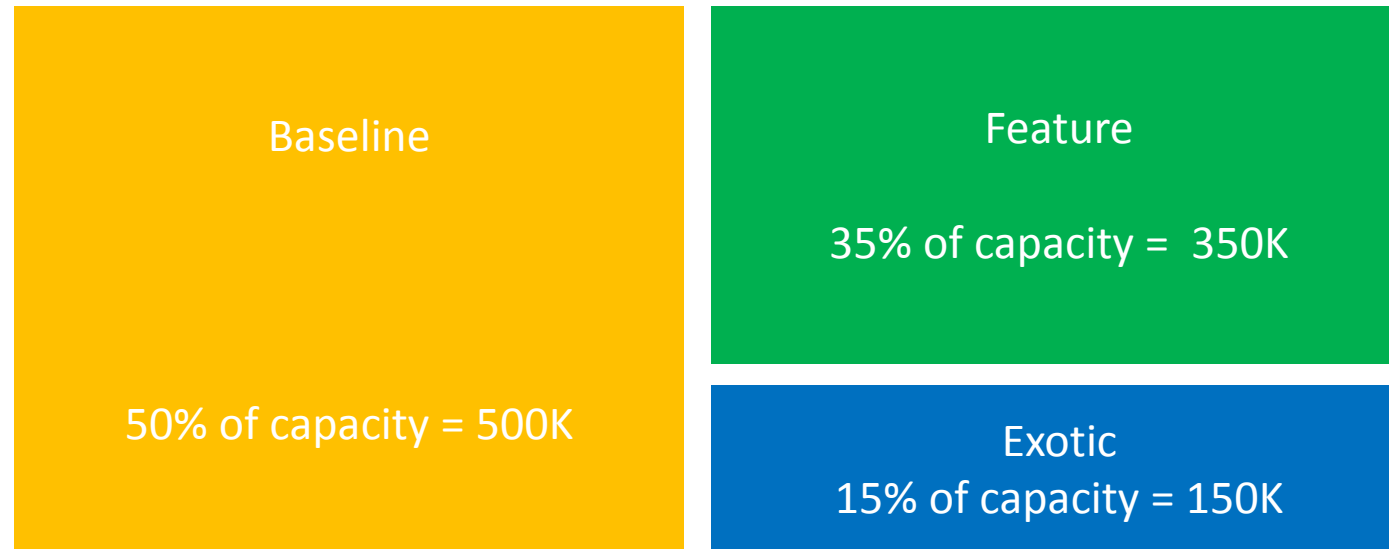
- Market share responds **positively** to
  - **Lower** retail price
  - **More** marketing \$: relationship and promotion/ads
  - **Higher** quality (operations excellence)
  - **Higher** service level (% of demand met)
  - **Larger** past share (inertia)

# Capacity Allocation (Florist)



- One cannot process more products than the capacity.
- Total capacity, 800K, remains constant.
- Relocating 1 unit capacity costs \$1, takes one period to be effective.

# Capacity Allocation (Importer)



- One cannot process more products than the capacity.
- Total capacity, 1000K, remains constant.
- Relocating cost is \$0.5/unit and the same effective delay.



# Operations Excellence

- Investment in quality control, process improvement, and technologies
- **Higher** investment → **higher** quality, **higher** yield, **lower** maintenance and processing costs
- Spillover effect to trading partners
- “Roman is not built in one day”

# Service Level

- Only relevant to florists
- Demand more than supply is lost
- Supply more than demand is wasted, no salvage value
- Failure to meet demand in one period **negatively** impacts demand in the next period

# Cost Effectiveness

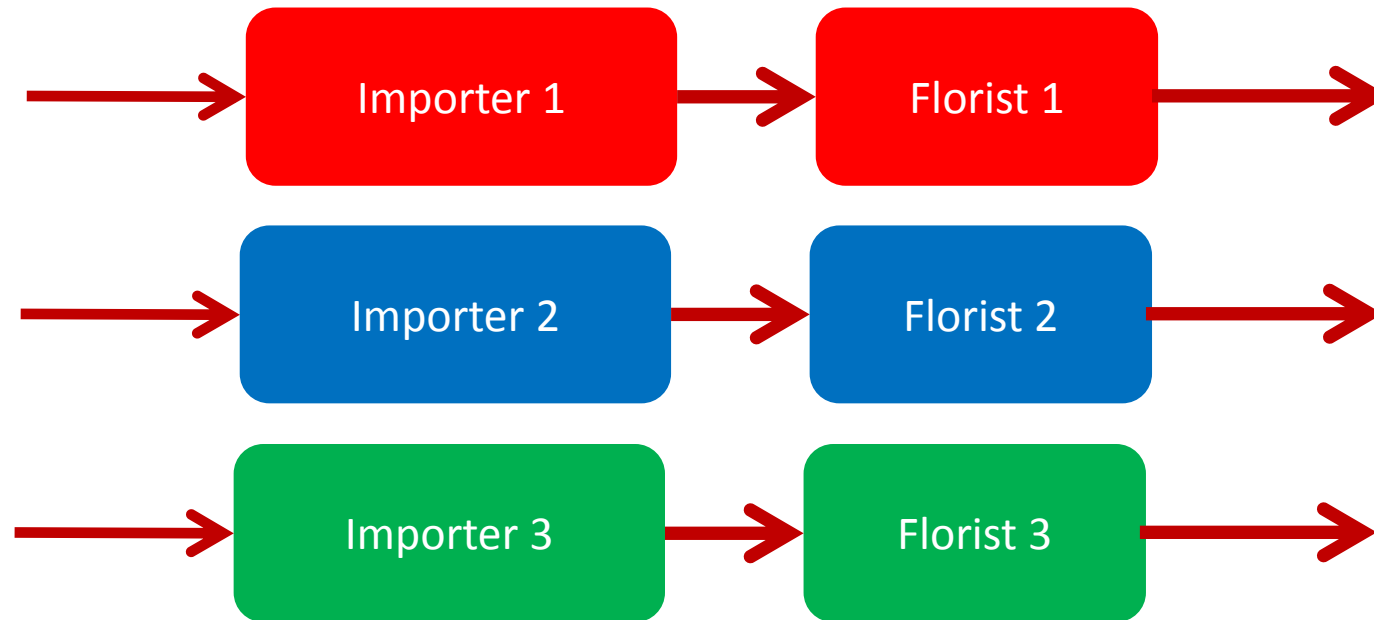
- Common costs
  - Acquisition cost (money paid to suppliers)
  - Maintenance cost  $\sim$  capacity but scaled economies
  - Processing cost  $\sim$  capacity but scaled economies
  - Capacity relocation cost
  - Operations excellence spending
- Florist
  - Marketing costs: relationship and pro/ads

# The Competing Supply Chains

- At the beginning, each supply chain has
  - Equivalent financial status
  - Same share of each market segment
  - Same chance to win



# Supply Chains



Competing  
in one  
market

Cannot switch suppliers and customers during the game

# Decisions and Financial Reports



Group decision



Publish performance

# Team Assignment

Analyze historical data

(period 0 data)

Make decision for period 1

# Reminders

- Please use Google Chrome or Mozilla Firefox (not Microsoft IE) as web browsers.
- If no response, just reload the page.
- Instructors:
  - The site is secured; after the instructor starts the game, students may wait for **a few mins** to receive their login information
  - Please **save** the game before logout to avoid the loss of game data.
  - Once the game is completed, please **end** and save the game.
  - If you end the game, you can always **reload** the game later.
  - You may back up the game data in Excel files (copy and paste) as the database may be maintained and cleaned every year.





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