Case 3: Maine Apples

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Case Question

- Our client is a Korean conglomerate named Danut that has acquired a small Boston-based biotechnology firm
- The biotech firm acquired has developed a chemical that helps control the ripening of produce. After testing, this chemical appears to work especially well with apples: it allows apple orchards to harvest earlier and it improves the overall quality of the harvest.
- Danut would like to know if they should attempt to commercialize this chemical.

8
Quants.

6
Structure

Mkt. Size
Price Stgy
Invest.

Case tracker

- **Industry:** Consumer Goods
- **Level of Difficulty:** Medium
- **Case format:** Developing a new product
- **Concepts being tested:**
  - Market sizing
  - Investment
  - Pricing Strategy

Fit Questions

Spend first 15 min on fit

- Tell me about a recent positive team experience
- How would you describe your learning ability? In what kinds of situations are you fast or slow to learn?
- Describe the last time you "put your foot in your mouth."

Guide to interviewer

- State the information above, the interviewee should be able to develop a variant of the following question:
  Is the market size large enough and the estimated profitability high enough for Danut to attempt to commercialize this chemical?
- Ideally, the interviewee should be able to break down the question into two parts:
  1. The minimum required market size
  2. The need for profitability
- Key case steps:
  1. Confirm market attractiveness by sizing opp.
  2. Evaluate orchard revenue and cost structures
  3. Project Danut's profitability
  4. Identify qualitative issues to consider

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Clarifying answers and case guide

Clarifying answers to provide

Client Characteristics
- Only concerned about a "test-market" in the state of Maine

Competitive Dynamics
- No other competitive products on the market currently

Local industry Characteristics/Economics
- Growing at the rate of GDP

Product benefits:
- Reduced costs through earlier harvesting
- Improved apple yields
- Sweeter apples yield more juice per apple (less apples required to make juice)

Guide to case / Guide to handouts

Confirming market attractiveness – Share with interviewee after probing questions are received (do not share product benefit 1 yet)
- Is the market large enough to continue?

Evaluate orchard cost structures – Do not share "Product benefit 1" until the above section is determined
- How much incremental profit does our product create for an apple orchard owner?
- After this, the conversation should turn to whether Danut should commercialize given its costs of production

Commercialization considerations – Guide the interviewee to then consider Danut's production costs and determine how much can profit Danut could capture in its pricing

NOTE TO INTERVIEWER: Orchard revenue structures (next page) may be shared first if the interviewee asks for them prior to the cost structure

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Key elements to analyze

Market sizing

- How big is the apple market in Maine?
- Does this seem potentially large enough to continue investigating this product?

Cost savings

- What are the cost savings from using the chemical?
- The chemical allows the farmer to harvest 10 days sooner

Revenue increase

- How much additional revenue will farmers be able to generate?
- What is the total profitability increase (including cost savings?

Note to interviewer

- When asked, provide the following:
  - Maine has 200 orchards
  - Avg. annual orchard revenue is $30K/acre
  - Avg. orchard has 100 acres of land
  - Only one apple harvest per year
- Interviewee should calculate the market size based on info provided: ($30K/acre x 200 orchards x 100 acres/orchard = **$600M**)
- This is a significant market and warrants further investigation.

Notes to interviewer

- When asked to quantify the improvements, provide the following:
  - It costs $1.5K/night to maintain crops for 100 acre orchard
  - With the chemical, farmers are able to harvest crop 10 days sooner
- Interviewee should calculate cost savings per year using this information:
  - ($1.5K/day x 10 days / 100 acres = **$150/acre/year**)

Qualitative Assessment

- When asked to quantify additional revenue, provide the following:
  - Our client's product improves the consistency of red apples and improves the yield by 10%
  - The sweetness factor is estimated to improve the juice yield by 5%
  - 25% of revenue comes from whole apple sales, 75% from juice sales
- Improved yield: ($30K/acre x 25% x 10% = **$750/acre/ year**)
- Improved sweetness: ($30K/acre x 75% x 5% = **$1,125/acre/year**)
- Total improvement (with cost reduction) = **$2,025/acre/year**

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Key elements to analyze (cont.)

Product Profitability

- If our product costs $100K per 200 acre farm, what will the farmer's profit margin be if they buy it at cost?
- What should our client sell the product for? Is a 50% margin realistic?

Note to interviewer

- Farmer's incremental revenue/cost savings = $2,025/acre
- Product costs = $100K/200 acres = $500/acre
- Profit margin = ($2025-$500)/$2025= 75%
- The interviewee should note that this is an extremely high profit margin for the farmer and realize that there is a significant opportunity for profits with this product.
  - How much of this benefit can we capture in our pricing?
  - Interviewee should provide a percentage between 25% and 50%. Anything higher than 50% should be questioned due to the novelty of the product and resulting lack of social proof.
- A 50% profit margin for our client would also realize a 50% profit margin for farmers. This is absolutely a realistic price to set, if not a little low.
  - Given the costs provided, will we make a profit? **Yes**
  - Interviewee should calculate profit: ($100,000 / 200 acres = $500/acre). Assuming $1,000 price per acre, gross margin will be **50%.** [($1,000 - $500) / $1,000]

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Solution and recommendations

Solution & Recommendations

- Overall, our client should commercialize this chemical and price it at approximately $1,000 per acre to make a 50% margin.
- Ask the interviewee if there are other non-financial risks/benefits that our client should consider.
- A potential answer would note that the client should consider several qualitative issues:
  - Differentiation: What is our positioning?
  - Environmental issues: Is there a risk of backlash and/or boycott from the general public? Could the U.S. government attempt to regulate our product?
  - Operational reality check: Does the company have the resources to do this?
  - Patenting: Is the product already patented? If yes, then when does it expire? If no, then is it possible to patent? If not, then can we patent the manufacturing process?
  - Representativeness of test market: Does it cost less to cover apples in other states?
  - Strategic fit: Is this opportunity too small relative to the size of the client?

Bonus/Guide to an Excellent Case

- Excellent interviewees need to address value-based pricing: the need to quantify added profits that our client's product will make for *its* clients and how much of that money our client can capture.
- Additionally, a strong interviewee will share several qualitative issues listed above to supplement the recommendation to enter the market.

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