

Masarat · Feasibility studies

# Feasibility Study: Four Greenhouses for Tomato and Cucumber, Egypt

Masarat sample work — fictional project, illustrative figures

*Disclaimer: this is a sample study that shows our method. Names are fictional and figures are estimates based on stated assumptions — not a guarantee of profit or investment advice.*

## 1. Executive summary

The project builds four standard greenhouses (540 m<sup>2</sup> each, about 2,160 m<sup>2</sup> in total) on half a feddan of leased land in the Nile Delta, growing tomatoes in the winter cycle and cucumbers in the summer cycle for wholesalers and restaurants. Initial investment is EGP 900,000, self-funded.

|                                          |                                      |                                |
|------------------------------------------|--------------------------------------|--------------------------------|
| Initial investment<br><b>900,000 EGP</b> | Year-1 revenue<br><b>839,865 EGP</b> | NPV @ 22%<br><b>70,460 EGP</b> |
| IRR<br><b>25.3%</b>                      | Payback<br><b>2.9 yrs</b>            | Annual output<br><b>56 t</b>   |

In the base case (56 tonnes a year at an average EGP 15/kg) the project pays back in under three years with an IRR above the 22% discount rate. It is sensitive to selling prices, which swing sharply by season: in the conservative case NPV turns negative. Recommendation: feasible if part of the output is pre-contracted with buyers and crops are diversified.

## 2. Project description

- Four standard galvanised-steel greenhouses with UV-resistant plastic cover and drip irrigation.
- Two cycles a year: tomato (about 8 t per greenhouse) and cucumber (about 6 t per greenhouse) — yield assumptions to confirm with an agronomist.
- Labour: two permanent workers plus seasonal pickers within direct costs.
- Sales: wholesale market traders, plus restaurants and hotels on weekly contracts.

## 3. Market study

Tomatoes and cucumbers are among the most consumed vegetables in Egypt, with steady year-round demand. Greenhouses allow production when open-field supply is low, fetching better prices and higher quality for restaurants and hotels. The main challenge is volatile wholesale prices.

| Factor  | Observation                                        | Implication                              |
|---------|----------------------------------------------------|------------------------------------------|
| Buyers  | Wholesalers, restaurants, large greengrocers       | Spread risk across channels              |
| Price   | Swings seasonally (assumed average EGP 15/kg)      | Fixed-price contracts for part of output |
| Quality | Greenhouse produce is cleaner and more uniform     | Premium over open-field                  |
| Inputs  | Fertiliser and seed prices track the exchange rate | Buy early; simple hedging                |

## 4. Technical and operational study

| Investment item                          | Amount (EGP)   |
|------------------------------------------|----------------|
| Four greenhouses (structure and cover)   | 640,000        |
| Drip irrigation, pump and tank           | 140,000        |
| Land preparation and fencing             | 60,000         |
| Licences, first inputs and pre-operation | 60,000         |
| <b>Total</b>                             | <b>900,000</b> |

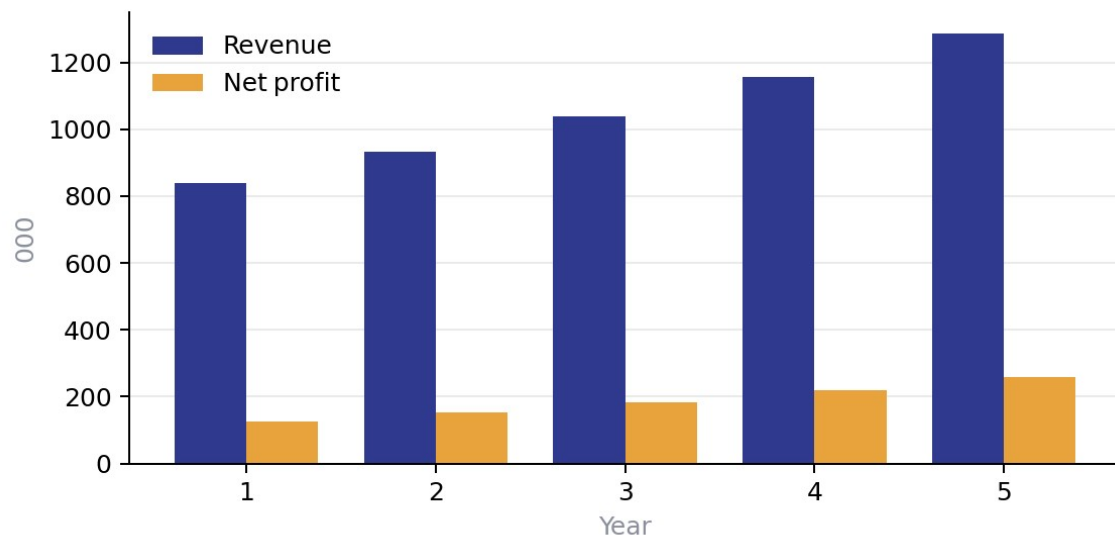
| Fixed monthly costs                  | Amount (EGP)  |
|--------------------------------------|---------------|
| Land lease                           | 2,500         |
| Permanent labour (two workers)       | 12,000        |
| Power and water                      | 2,000         |
| Transport and marketing              | 1,000         |
| Other (maintenance, agronomy visits) | 1,000         |
| <b>Total</b>                         | <b>18,500</b> |

Direct costs are estimated at 33% of sales (seedlings, fertiliser, crop protection, packaging and seasonal labour). We assumed selling prices rise 8% a year and fixed costs 12% a year due to inflation.

## 5. Financial study

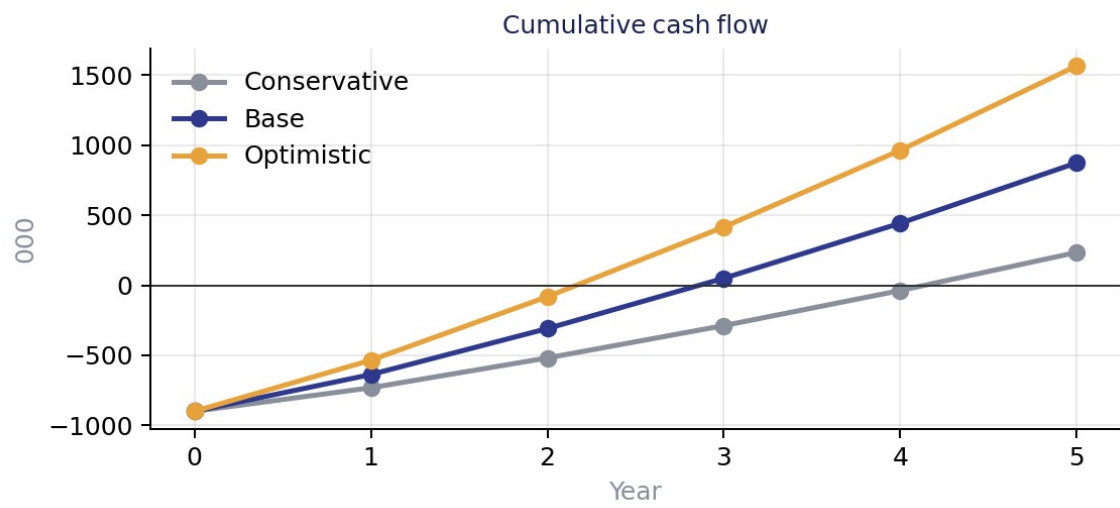
Projected income statement, base case (EGP):

| Item           | 1              | 2              | 3              | 4              | 5              |
|----------------|----------------|----------------|----------------|----------------|----------------|
| Revenue        | 839,865        | 934,266        | 1,039,277      | 1,156,092      | 1,286,037      |
| Direct costs   | (277,155)      | (308,308)      | (342,962)      | (381,510)      | (424,392)      |
| Fixed costs    | (222,000)      | (248,640)      | (278,477)      | (311,894)      | (349,321)      |
| EBITDA         | 340,710        | 377,318        | 417,839        | 462,688        | 512,323        |
| Depreciation   | (180,000)      | (180,000)      | (180,000)      | (180,000)      | (180,000)      |
| Income tax     | (36,160)       | (44,397)       | (53,514)       | (63,605)       | (74,773)       |
| Net profit     | <b>124,550</b> | <b>152,922</b> | <b>184,325</b> | <b>219,083</b> | <b>257,551</b> |
| Free cash flow | 262,557        | 328,201        | 359,075        | 393,242        | 431,053        |



Scenario comparison:

| Indicator         | Conservative | Base    | Optimistic |
|-------------------|--------------|---------|------------|
| Year-1 revenue    | 638,297      | 839,865 | 1,058,230  |
| Year-1 net profit | 19,886       | 124,550 | 237,936    |
| Year-5 net profit | 97,285       | 257,551 | 431,172    |
| NPV               | (278,285)    | 70,460  | 448,267    |
| IRR               | 7.6%         | 25.3%   | 41.7%      |
| Payback           | 4.1 yrs      | 2.9 yrs | 2.2 yrs    |



## 6. Risks and mitigation

| Risk                   | Likelihood | Mitigation                                            |
|------------------------|------------|-------------------------------------------------------|
| Low selling prices     | High       | Pre-contract 40% of output; diversify crops           |
| Pests and disease      | Medium     | Integrated pest management and agronomist visits      |
| Input cost inflation   | High       | Buy ahead for the season; review prices               |
| Cover damage from wind | Low        | Proper anchoring, insurance and a maintenance reserve |

## 7. Recommendation

The project is feasible in the base case, but the safety margin against low prices is limited. We recommend starting with the four greenhouses under pre-agreed sales contracts, measuring actual yields in year one before expanding, and keeping a cash reserve for one full season.

## Appendix: key assumptions

| Assumption                | Value                                               |
|---------------------------|-----------------------------------------------------|
| Annual output (base)      | 56 t (4 × 14 t)                                     |
| Average selling price     | 15 EGP/kg                                           |
| Annual price increase     | 8%                                                  |
| Annual output growth      | 3%                                                  |
| Direct cost               | 33%                                                 |
| Fixed-cost inflation      | 12%                                                 |
| Income tax                | 22.5%                                               |
| Discount rate             | 22%                                                 |
| Greenhouse depreciation   | 5 years                                             |
| Conservative / optimistic | Volume ×0.8, price ×0.95 / volume ×1.2, price ×1.05 |

*The full Excel financial model is attached; change any assumption and every result updates instantly.*