

# TechnoGreen Factory for Foodstuff

## Simulation of an Advanced Practical Technique to prolong shelf-life of fresh vegetable stockpile in the State of Kuwait

*“A feasible strategic plan to elevate the capacity holding and to minimize disruption”*

Please use the questions below as a guide in composing your success story:

### BRIEF DESCRIPTION OF THE COMPANY

TechnoGreen Factory was founded in 2015 in order to produce ready to eat leafy vegetables such as Iceberg Lettuce, which had not been produced in Kuwait before.

Today, TechnoGreen Factory, apart from the Iceberg lettuce, produces other types of lettuces as well as other exclusive vegetable sorts, and delivers the produce to a large number of reputable restaurants and supermarkets in Kuwait and GCC.

TechnoGreen products can be found in retail stores, both as fresh produce (whole lettuces) and processed as well.

Our world-class leadership team brings valuable experience in the consumer packaged goods and produce industries, helping to bring fresh innovation to a growing market.

### WHAT WAS THE PROBLEM YOU WERE TRYING TO SOLVE?

As the coronavirus crisis unfolds, disruptions in domestic food supply chains and other shocks affecting food production, and loss of incomes and remittances are creating strong tensions and food security risks in many countries.

A tangible hint of food insecurity wafted through Kuwait several weeks back, when a cheap and common food item onions disappeared from grocery stores in the country. Nevertheless, in Kuwait, the temporary shortage of a staple food item exposed the vulnerability of a region that imports more than 80% of its food.

The onion crisis is escalated in Kuwait after its price doubled controversially, which prompted many people to rush to buy it without observing the precautionary measures that must be followed to avoid infection with coronavirus (Covid-19).

Suppliers revealed that onions are imported from Egypt and India, but due to the current conditions and the rise in prices internationally, importation of the quantities needed by Kuwait was delayed.

These high prices will continue if the arrival of imported quantities from abroad is delayed. The Ministry of Commerce and Industry has since set up barriers to limit the large quantities purchased, as the societies have been restricted to 150 bags, while 50 bags have been set for restaurants.

With global supply chains disrupted by the coronavirus crisis, the Kuwaiti government sent trucks to buy and haul back 120,000 kilos of onions from nearby Yemen, a war-ravaged country that, even pre-Covid-19, has been grappling with an actual and “unprecedented” hunger crisis.

It is noteworthy the price of large size of 20 kilograms onion has reached 8 dinars, while the small bag is sold for 2.250 dinars. This is a cold fact. Part of the blame lie in our ancient onion storage systems and inability of all stakeholders in vegetable industry in Kuwait to establish modern onion storage systems.

#### HOW DID THE KNOWLEDGE PROVIDER INVOLVED IN THE PROJECT HELP SOLVE YOUR CHALLENGES?

The storage of potatoes and onions is a difficult task. These are root vegetables and obviously grown underground. The quality of potato and onion, and its storage life, is reduced by the loss of moisture, decay and physiological breakdown. These deteriorations are directly related to storage temperature, relative humidity, air circulation and gas composition. Potatoes and Onions being a living organism require an effective management for storage. Quality of the potatoes and onions cannot improve during storage. Bruise prevention is an important part of keeping quality of potatoes and onions with minimum weight loss and storage diseases.

The objective of this report to evaluate performance of machinery in maintaining Storage temperature, Atmospheric humidity, CO2 concentration: and O2 concentration to assigned parameters, which would help, extend the shelf life of potatoes tumor and onion bulbs.

Potatoes and onions parameters measured included weight loss, nutrition properties and storage diseases and the results were subjected to appropriate statistical analysis. The analysis performed on the results indicated that processed potatoes tumor and onions bulbs showed minimum weight losses, slight changes in its nutritional properties and no significant storage disease. It was noticed also that there was no significant Bruise growth. It then can be concluded that the modified container and installed machinery has performed well by reducing ambient temperature and relative humidity thereby prolonging the shelf life of the product.

#### HOW DID KFAS HELP ITH YOUR PROJECT?

KFAS helped us during this project to achieve desired goals through:

- leading by example
- facilitated discussions with the knowledge provider,
- continuous and efficient follow-up
- co-funded the project,
- brainstormed ideas
- Skills development and ongoing training

#### PROJECT IMPACT

- According to the achieved results, the company is able to transfer one of its cooled storeroom to a ventilation with pressure wall storeroom where we can store up to 25 tons of onion and or potatoes for a period of eighteen (18) months and so use it for execution of the successful follow up exercise,
- Accumulated 50% reduction in the cost of energy during the period of eighteen (18) months,
- Reduce or maintain .the cost of imported onion and or potatoes that will help in retaining customers.

## DID YOU SEE THE VALUE IN R&D? AND WHAT OTHER TOPICS WOULD YOU BE INTERESTED TO EXPLORE IN THE FUTURE?

This project proves to us that there are a positive, statistically significant relationship between R&D spending and market value. Our market share of tested items (Potatoes tubers & Onion bulbs) increased significantly after using the new modified storage techniques.

We will invest in more R&D projects related to improve and increase the shelf life of processed vegetables as we did with raw vegetables,.

## WHAT CAN YOU TELL OTHERS ABOUT THE BENEFITS OF OUR PROGRAMS TO ENCOURAGE THEM TO APPLY?

Industrial organization similar to ours can plan researches or critical investigation aimed for the acquisition of new knowledge and skills needed to develop new products, processes or services or for bringing about a significant improvement in existing products, processes or services. Industrial research can makes up the creation of components of complex systems, which is necessary for the industrial research, notably for generic technology validation, to the exclusion of prototypes.