



Main challenges for the packaging of Table Grapes & Cherries



- Maintaining consistent temperature.
- Avoiding the browning of the stem.
- Maintaining high humidity level.
- Allowing air flow.
- Adequate cold chain infrastructure.
- Rapid pre-cooling.

Main roles of packaging for fresh fruits



- Protection and extend shelf-life.
- Facilitate cooling and air flow.
- Maintaining humidity.
- Active packaging.
- Transportation.
- Labelling information.



DOMESTIC PACKAGING FACTS FOR CHERRIES & GRAPES



- 80 % of the packaging of grapes and cherries is done in plastic crates.
- Only 15-20% of the traders are using corrugated cartons mainly for the export market to Europe and other highly regulated markets.
- The use of plastic punnets is increasing in the retail market and the export market.
- The rigid plastic crates are locally produced.
- Corrugated packaging boxes are locally produced.
- Plastic bags that are used as prepack primary packaging for grapes are imported mainly from Italy.
- Most of the plastic prepack punnets are locally produced with minor quantity imported from Italy.
- Lack of packaging standards and regulations for fresh crops in Lebanon.



FACTS ON LOCAL PACKAGING INDUSTRY

- Consolidated in all its sectors.
- Most common packaging materials are locally produced except for styrofoam.
- Most common shapes and styles can be produced available capacity.
- Limited R&D.
- Limited supply of raw materials.
- Expensive die (mold) cost for rigid plastic.

INTERNATIONAL PACKAGING BEST PRACTICES



- Mainly oriented toward corrugated boxes and RPC (returned plastic containers) for wholesale and secondary packaging.
- The use of single prepack units is common in terms of perforated plastic punnets and carry bags.
- Ideal supply chain conditions.
- Growing usage of premium packaging for niche market.



AGRI PRIVATE SECTOR DEVELOPMENT PROGRAMME

Inclusive • Elevating skills • Driving Competitiveness

LEAN MANAGEMENT IN POST-HARVEST UNITS OF FRUITS & VEGETABLES

LEAN MANAGEMENT IMPORTANCE IN POST-HARVEST UNITS OF FRUITS AND VEGETABLES



Post-harvest units use extensive labour in the high season and optimizing all the resources is a challenge for them. The design of the packing lines and the split of tasks have a big impact on their overall efficiency. LEAN offers several tools and principles to help them be more competitive at the level of the quality and cost.

OBSERVATIONS AT POST-HARVEST UNITS



Field visits showed the excessive use of labor and an over-doing of some steps in their manual work, which jeopardizes their efficiency in general. Applying "batching-and-queuing" instead of the "one-piece flow" turned out to be a common practice which is leading to a low productivity. On the other hand, the main types of "waste" reported inside their workplaces are:

- * Transportation
- * Excess motion
- * Over-processing
- * Inventory

At the same time, the lack of organization and standardization of the cycle times related to their operations leaves the real data measures not accurate and the real packing capacity not well identified.

DON'TS AT POST-HARVEST UNITS OF FRUITS AND VEGETABLES

- * Batching-and-queuing of the operations which leads the operators to work on their own pace and not according to a standard.
- * Generating "wastes" due to the non-standardized tasks, which leads to more usage of the resources.
- * Transporting the goods, materials and equipment from one place to another is a total waste.

Do's & Don'ts

DO'S AT POST-HARVEST UNITS OF FRUITS AND VEGETABLES

Increase productivity and quality through:

- * Eliminating the following 7 types of "wastes" defined by LEAN:
 1. Overproduction
 2. Transporting
 3. Unnecessary inventory
 4. Unnecessary/ Excess motion
 5. Waiting
 6. Extra processing steps
 7. Making defects/ Rework
- * Applying "one-piece flow" instead of the classical "batching-and-queuing".
- * Designing the workshops in an optimized setup to make all the steps streamlined and without stoppages.
- * Adopting the U-shape is a good alternative to enhance communication and quality in a packing unit.
- * Putting more order to the workplace by applying the 5S tool:
 1. Sorting out
 2. Systematic arrangement
 3. Spic and Span (neat and tidy)
 4. Standardizing
 5. Self-discipline
- * Calculating the exact number of labour needed by using the Takt time and the total cycle times.



GENERAL RECOMMENDATIONS

- Embracing a LEAN culture in the daily operations in order to increase the competitiveness on the export markets.
- Put in practice the explained lean concepts and tools on-site to better highlight the benefits.
- Following up with trained packers through the implementation process remains essential to sustain the lessons learned from the workshop.