

GUIDE TO HYGIENE AND FOOD SAFETY IN THE HANDLING AND PRESERVATION OF VEGETABLES

COVID -19



| INDEX |

1

FOOD HYGIENE AND FOOD SAFETY

2

FOOD SAFETY AND COVID-19

3

HYGIENE MEASURES WHEN
FRESH PRODUCE ARE RECEIVED

4

WASHING AND DISINFECTING
VEGETABLES

5

HYGIENE MEASURES IN THE STORAGE
AND PRESERVATION OF VEGETABLES

6

HYGIENE MEASURES WHEN
HANDLING VEGETABLES

7

WHERE TO PLACE VEGETABLES
IN STORAGE SPACES

| PROLOGUE |

To support hotel and restaurant professionals with their hygiene and safety practices in the COVID-19 situation, Araven has prepared five guides that focus on the importance of hygiene and food safety in this sector.

- Cleaning and disinfection of food containers and utensils.
- Hygiene and food safety in the handling and preservation of vegetables.
- Hygiene and food safety in the handling and preservation of meat and fish (animal proteins).
- Hygiene and food safety in the handling and preservation of dry foods.
- Hygiene and food safety in the preservation of prepared foods.

Professionals from BCC Innovation, the technology center of the Basque Culinary Center have taken part in preparing the contents of these guides. Additionally ARAVEN has also sponsored the “Food hygiene and safety guidelines” published by the Basque Culinary Center and Euro-Toques.

This initiative clearly highlights the commitment of both institutions to help catering businesses improve their health and safety measures, by proposing general and specific hygiene and food safety measures applicable in restaurants that will help them regain the confidence and trust of their customers.



1

FOOD HYGIENE AND FOOD SAFETY

The foodservice industry, just like the rest of the food industry, must apply food safety management systems that adhere to the principles of Hazard Analysis and Critical Control Points (HACCP) to manage the hazards that can affect food safety and to avoid food contamination. For this purpose following the General Food Hygiene Principles established by the Codex Alimentarius⁽¹⁾ for this purpose, it is recommended to follow the general food, which includes implementing good hygiene programmes, cleanliness and sanitizing practices, defining food preparation areas, control of suppliers, storage, distribution and transport.

Food hygiene and safety is one of the top priorities in restaurants.

Food safety does not only depend on the state of the food and type of process it undergoes. The materials that come into contact with food also play an important role.

The products made by Araven are designed according to the recommendations laid down in the International Code of Good Food Hygiene and Health Practices (Codex Alimentarius).

2

FOOD SAFETY AND COVID-19

To prevent infections and intoxications in the current situation of maximum hygiene requirements due to COVID-19, it is necessary to reassess the risks in order to identify and incorporate preventive measures and additional control points to increase food safety.

Throughout the food chain foodstuffs undergo different preparation processes and situations where there is a risk of contamination. To avoid food contamination, it is absolutely essential to control the risks affecting food safety and to manage food correctly to minimize the majority of these risks.

Hygiene measures must be stepped up in all food handling phases.

Food safety must be guaranteed throughout the entire food chain. In the HORECA sector the following phases in managing and treating foods in the kitchen are identified:



Reception of goods



Food storage and preservation



Food handling and preparation



Food presentation or serving

Prior to these four phases, food service establishments must apply the necessary measures to prevent workers becoming infected with COVID-19, to avoid exposure and the spread of the virus, by reinforcing, in particular, food handling hygiene practices. ⁽¹⁾

The following guide focuses on hygiene and food safety measures relating to the handling and preservation of vegetables.

Hygiene measures are the best barrier against the spread of coronavirus.

ARAVEN's products enable foods to be preserved with the maximum hygiene and food safety guarantees, preventing their from spoilage, and protecting them from cross-contamination.

3 HYGIENE MEASURES WHEN FRESH PRODUCE ARE RECEIVED

WHAT ARE THE RISKS WHEN YOU RECEIVE VEGETABLES?

“ There is no evidence that the consumption of contaminated food causes infection. ”

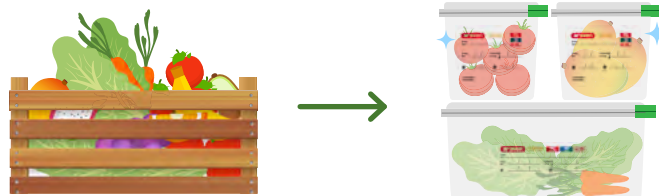


However, handlers who are coronavirus carriers may deposit droplets of saliva (Flügge droplets) on the surface of food or food containers which, in contact with other handlers may cause the spread of COVID-19.

HYGIENE MEASURES WHEN FOOD IS RECEIVED

When receiving a delivery of raw materials at restaurant facilities, the following is recommended ⁽²⁾:

- » **Designate a specific zone for exchanging goods.** There should be an area set aside for receiving/returning goods (specific zone, table, marked floor area...) located near to the goods entrance door, separated physically or provisionally from the rest of the areas.
- » **Remove the packaging** of the raw materials received (cardboard box, plastic bag) whether or not the food is packed inside. This packaging is the outermost wrapping, used during distribution and transport.
- » **Packaging that cannot be removed** and that has been in contact with the exterior during the delivery process **should be disinfected.**
- » In the case of fresh produce, such as vegetables, **swap the supplier's container for a clean, disinfected container in the reception zone.**



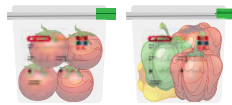
- » Delivery notes should be left on the table to avoid contact with the supplier and should always remain in this reception zone. All devices that are used (thermometers, pens, etc.) should always be used preferably by the same person. If they are shared, they should be disinfected after each use.
- » After receiving and/or handling packages/orders **the zone should be cleaned and disinfected and staff must wash their hands with a disinfectant soap and water.**

OTHER CONSIDERATIONS:

- » The establishment must have a **supplier control plan** to guarantee product quality.
- » All foods received must be checked to ensure that the containers and packaging are intact, the food temperature is correct, food labeling and shelf-life is correct, it has been transported in adequate hygiene conditions and that the delivery notes are correct.
- » Before the products received are changed to the establishment's own **containers**, check that they are **clean and have been disinfected**.
- » Choose a container with sufficient capacity to store vegetables correctly. Bear in mind the type of vegetable to estimate the volume that a certain amount of that product will occupy (See Table).

VEGETABLES

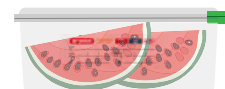
* Guideline weight-volume conversion table for various vegetables.



Medium size

- ▶ Apples, carrots, tomatoes, avocados, oranges, etc.

1  → 2,3 litres 



Large size

- ▶ Watermelon, papaya, melon, pineapple, etc.

1  → 2,2 litres 



Whole leafy vegetables

- ▶ Lettuce, escarole, chard, cabbage, etc.

1  → 4,5 litres 

- » **Mark** the containers used for preserving and storing foods with the necessary information to enable all the products to be **traceable**.



ARAVEN containers have a permanent traceability label integrated in the container to identify the contents and keep track of information relating to their origin.

You can record the origin of the food, type of product, preparation, preservation conditions, best-before date, etc.



4

WASHING AND DISINFECTING VEGETABLES

Fruit and vegetables must be washed and disinfected to reduce or eliminate the microorganisms and any other possible pollutants on them.

"Dirty" (non-decontaminated) foods and "clean" (decontaminated) foods must be handled in different zones to prevent cross contaminations. After receiving a delivery of fresh vegetables, they must be washed and then disinfected.

The purpose of washing vegetables is to get rid of any soil, stones, insects, pesticides, etc. that may remain on the vegetables.



Disinfect vegetables to be eaten raw and fruit that is not peeled before eating.

THE RECOMMENDATIONS FOR WASHING VEGETABLES ARE ⁽³⁾



- » Wash fruit and vegetables under cold running water, especially those that are going to be eaten raw and unpeeled.
- » Remove any parts in poor condition.
- » Do not handle washed fruits and vegetables on the same surface as those that are unwashed.
- » Use specific brushes to clean foods with tough skins or certain vegetables such as cucumber, courgettes...
- » Wash brushes (preferably in the dishwasher at a minimum temperature of 80°C).
- » The aim of disinfecting vegetables in restaurants is to eliminate pathogenic microorganisms such as *Salmonella* spp. *Listeria monocytogenes*, *Escherichia coli*, parasites' eggs or the presence of viruses on the surface.

THE RECOMMENDATIONS FOR DISINFECTING VEGETABLES ARE

- » Use products specifically for disinfecting vegetables or sodium hypochlorite (bleach) "food grade" or fit for disinfecting drinking water (this should be indicated on the label).
- » Prepare a solution of the disinfectant according to the specifications given on the product's technical instructions sheet (dose and application time).
- » After the application time of the disinfectant solution has passed, rinse the product thoroughly under cold running water.
- » Drain the vegetables to get rid of most of the water.
- » After disinfecting vegetables, consume immediately or store them in clean, disinfected containers. Refrigeration is essential to maintain the microbiological quality of clean fruits and vegetables. ⁽³⁾

PRECAUTIONS when preparing the disinfectant solution with sodium hypochlorite (bleach): ⁽³⁾

- » Use food grade bleach suitable for disinfecting drinking water.
- » Prepare the disinfectant solution with cold water. Hot water reduces the disinfecting effect. Chlorine acts effectively when the water temperature is between 8°C and 12°C; it must not be above 15°C.
- » Prepare a hypochlorite solution with a concentration of 70mg/l, it must never be more than 80 mg/l. The recommendation is to add 1.8 ml of bleach (40 g/l concentration) to prepare a litre of solution. (See Annex)
- » Submerge vegetables for 5 minutes. Do not exceed this time.
- » Move the fruit and vegetables around in the solution to improve the disinfecting effect of the sodium hypochlorite.
- » If using automatic bleach dispensers, check every day that the device is working properly by testing the chlorine concentration using test strips or equivalent measuring kits.
- » If you use solid chlorine tablets they should be totally dissolved in water before putting the product into the solution.

5

HYGIENE MEASURES IN THE STORAGE AND PRESERVATION OF VEGETABLES

After vegetables have been harvested, they continue to breathe and hence tend to deteriorate relatively quickly. Preservation of vegetables requires special attention as they are a food group that tends to be eaten raw making it very important to maintain the maximum level of quality and food safety possible.

Fresh fruits and vegetables have a high water content. This characteristic is crucial in preserving them correctly since over time they release this water in the form of moisture which can condensate on the walls and bottom of food containers causing mould to appear which in turn could give rise to a process of rotting.

To prevent this spoilage, containers intended for storing this kind of foodstuff should not have airtight seals and should have ventilation zones that allow water to evaporate without forming condensation.

Inadequate storage leads to spoilage and reduces the shelf life of vegetables.



Placing ARAVEN drain trays at the bottom of the container also allows air to flow around the food and prevents condensation and water accumulation from forming in this bottom area.





Vegetables, whether refrigerated/frozen or at room temperature, should be managed on a FIFO (First in, First out) basis, and kept separate in the right containers made of materials suitable for food contact.

ARAVEN has containers with systems that help to ensure the orderly rotation of foods (FIFO).



Containers for storing food:

- ✓ Must be made of materials suitable for food contact.
- ✓ Must be easy to clean and disinfect at high temperatures (>80°C)
- ✓ Must make any dirt that may appear visible
- ✓ Must not have any gaps or recesses where dirt could become lodged
- ✓ Must allow food to be protected with lids
- ✓ Must enable the products inside to be identified with sufficient information to allow their traceability.



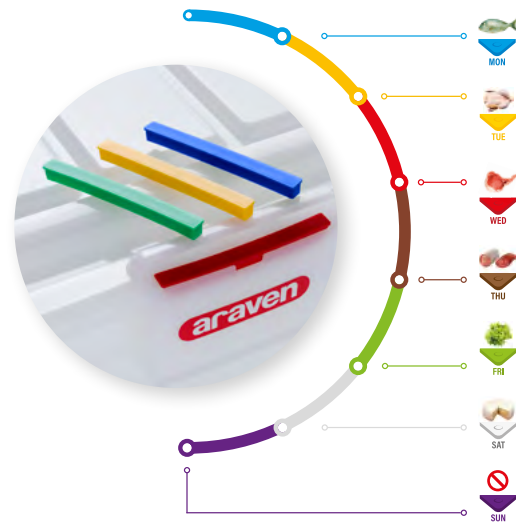
ARAVEN storage containers are essential items in the kitchen; the properties of good food can be spoiled if it is not stored in the right container.



Correct storage and preservation of food serves a dual purpose:

- ✓ Ensuring optimal hygiene and food safety quality
- ✓ Reducing the quantity of waste due to food spoilage.

ARAVEN containers, thanks to their colour identification system (ColorClip), **help prevent cross-contamination**, ensuring that the contents of a container are always of the same type. For vegetables they will be green.



6 HYGIENE MEASURES WHEN HANDLING VEGETABLES

If vegetables are going to be consumed raw, without any heat treatment, ensure correct health and hygiene practices are in place to control and reduce the risk of contamination.



Coronavirus is not a foodborne disease, but cross-contamination can occur.

Preventive measures during the handling process in kitchens: ⁽⁴⁾

- ✓ Food handling staff must use a face mask when handling food that is served raw and when plating up food. Also, when the activity he/she is carrying out does not allow physical distancing between other people, a face mask must be worn.
- ✓ Protect all utensils that are going to be in contact with raw foods, that are not going to undergo heat treatment, from environmental exposure.
- ✓ Protect all foods until they are processed.
- ✓ Once cooked, protect foods until plating up.
- ✓ Protect cold dishes using lids, plate covers, transparent film, aluminium foil, etc. and keep them refrigerated until they are served.



7

WHERE TO PLACE VEGETABLES IN STORAGE SPACES

Optimal **organisation of cold rooms**, placing foods on the correct shelves according to their type and the group they belong to, not only serves the purpose of **improving productivity in the kitchen**, but it also **reduces health and hygiene risks**.

It is **essential** always **to separate cooked foods or those ready for consumption from those that are still raw** and, whenever possible **to designate zones according to the type of food, in separate refrigeration rooms**.

We recommend different cold rooms for different food types, if this is not possible then raw vegetables and fruits intended for preparation using a **heat treatment** (roasting, boiling, ...) should be placed on the lower shelves of cold rooms.

Fruits and vegetables that are intended for raw consumption: lettuce, tomatoes, carrots, should be kept **in an area of the cold room that is separated from the rest**, and not placed on the same shelf as other types of foodstuffs. If this is not possible, they should be properly lidded and protected **on top shelves**.



TOP SHELVES:

Fruits and vegetables that are intended for **raw consumption**



LOWER SHELVES:

raw vegetables and fruits intended for preparation using a **heat treatment**



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2. Ministry of Industry, Trade and Tourism (2020). Measures to reduce infection by coronavirus SARS-CoV-2. Restaurant services. Guidelines and recommendations.
3. Generalitat de Catalunya (2018). Measures to be taken into account for washing fruits and vegetables consumed raw. Use of sodium hypochlorite. Catalonia Food Safety Agency.
4. Basque Culinary Center-Eurotoques (2020). Special COVID-19 protocol on prevention and safety in restaurant services.

- ANNEX -

Recommendation for disinfecting fruits and vegetables with a 0.007% (70 mg/l) concentration of sodium hypochlorite.

Table: Volume of sodium hypochlorite (ml) required to reach the target concentration of 0.007% using commercial bleaches of various concentrations.

Final concentration of 0.007%

Volume of water (litres)	Concentration of hypochlorite (g/l)				
	35	40	45	50	55
1	2	1,8	1,6	1,4	1,3
2	4	3	3,1	2,8	2,6
3	6	5,5	4,7	4,2	3,9
4	8	7	6,2	5,6	5,5
5	10	8,5	7,8	7	6,5
10	20	18	16	14	13
15	30	26	23	21	20
20	40	35	31	28	26



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