



European
Commission



Food redistribution in the EU: translation of
*Spanish Practical Guide
to reduce food waste in the catering sector*



Saving Food Together

DISCLAIMER

This document constitutes an English translation of the “Guía Práctica para reducir el desperdicio alimentario” of Spain, originally drafted, published and authenticated in Spanish. For legal purposes, only the authentic Spanish text of the “Practical guide to reducing food waste in the catering sector” shall be used. Whilst every effort was made to provide accurate information, the European Commission cannot take responsibility for any errors.

Practical Guide

to reducing food waste

in the catering sector



"Buen Aprovecho"



GOBIERNO
DE ESPAÑA

MINISTERIO DE AGRICULTURA
Y PESCA, ALIMENTACIÓN Y
MEDIO AMBIENTE



Practical Guide
to reducing food waste
in the catering sector





datos
abiertos

Legal notice: The contents of this publication may be reused provided the source and, where applicable, the date of the most recent update are acknowledged.



MINISTERIO DE AGRICULTURA Y PESCA, ALIMENTACIÓN Y MEDIO AMBIENTE

Published by:

© Ministerio de Agricultura y Pesca,
Alimentación y Medio Ambiente

Secretaría General Técnica (General Technical Office)
Publications Centre

Publications Catalogue of the
Spanish National Government:
<http://publicacionesoficiales.boe.es/>

NIPO: 280-16-239-9 (online)
NIPO: 280-16-238-3 (paper)
Legal Deposit: M-7631-2016

Technical Data: format: 15x21.5 cm. Composition: 1 column.
Typographies: title: Neucha, 23 pt.; text: Lato, 11 pt.

Distribution and sale:

Paseo de la Infanta Isabel, 1
28014 Madrid
Telephone: 91 347 55 41
Fax: 91 347 57 22

Online shop:

www.mapama.es
centropublicaciones@mapama.es

Foreword



Food loss and waste have become a subject of **concern** across the **world**. An estimated one third of all food produced globally is either lost or wasted each year. This amount could feed 2 billion people, i.e., the rise in the world's population by 2050.

Spain ranks **13th in food waste** per capita, with **176 kilograms per year**, the vast majority of which is generated in the distribution and consumption stages.

However, it is not just an ethical issue. Food waste has an environmental impact in terms of the amount of valuable and finite natural resources such as water, land and marine resources used to produce these unconsumed foods.

In this context, the Spanish Ministry of Agriculture and Fisheries, Food and Environment has defined the *"More Food, Less Waste"* Strategy to develop actions that contribute to a real change in the attitudes, work procedures and management systems of all food chain actors to reduce waste and environmental pressure.

It is estimated that the **catering sector in the EU** is **responsible for 14% of food waste** and that most of it is avoidable. Considering that the **costs of buying food and labour costs** involved in processing it account for **almost 90% of the total cost**, reducing food waste would not only contribute to lowering the environmental impact on our planet, but could drive significant savings and improvements in the business economic performance.

This guide is intended to help raise awareness of the importance of reducing food waste not only from the financial return perspective, but also for the contribution it makes to resource conservation. I hope this guide fulfils its purpose and drives a real change in attitude towards food and its management across catering businesses, and helps convey to end consumers the need for responsible consumption in order to engage in the construction of a society with consumer habits based on ethical, health and rational criteria.



Contents

“MORE FOOD, LESS WASTE” STRATEGY	6
DID YOU KNOW...?	8
1. What is food waste? How much do we waste? Food waste and its impact Food waste in the catering sector The 4R hierarchy	
2. INFORMATION AND TIPS FOR PROFESSIONALS.....	22
Designing the menu Planning your purchases Food handling: Receiving, storing and preparing Labelling and information supports Managing surpluses - Donate do not waste Using the “More Food, Less Waste” Strategy logo Control systems: Waste audit Inspiring no-waste recipes	
3. INFORMATION AND TIPS FOR CUSTOMERS.....	62
10-Point consumer guide Storing food at home Recipes to make the most of leftovers at home	
4. FOOD WASTE INITIATIVES	76
BIBLIOGRAPHIC REFERENCES.....	86



more food
less waste

“More food, less waste” strategy



This guide is published within the framework of the initiatives stipulated by Spain's Ministry of Agriculture and Fisheries, Food and Environment (hereinafter MAPAMA) as part of the “**More Food, Less Waste**” **Strategy**.

The core **objective** is to prevent food waste by bringing real change to work attitudes and procedures, reducing environmental pressures and contributing to a more sustainable production and consumption model.



This strategy faces the challenge of getting all sectors of society involved, including public authorities, companies and food business operators, consumers and society as a whole.

The actions carried out fall within the following areas:

- A. Performing **studies** to find out how, where and why food that is good to eat is lost.
- B. Disseminating and promoting **best practices and awareness-raising activities**.
- C. **Reviewing regulations** that could be generating more waste.
- D. **Partnering with other stakeholders** such as food banks and food, distribution and logistics companies.
- E. Fostering the design and development of **new technologies** that can help improve product shelf life, meet consumer needs and reduce loss.



For more information:
www.menosdesperdicio.es





Did you know...?

What is food waste?

How much do we waste?

Food waste and its impact

Food waste in the catering sector

The 4R hierarchy



Did you know...?

WHAT IS FOOD WASTE?

There are numerous approaches to defining **food waste**, but simply put, it can be understood as **food and drink fit for human consumption or which was edible** at one stage but that **ends up not being eaten**.



WHAT IS NOT CONSIDERED FOOD WASTE

Non-edible parts removed during food processing and meal preparation (fruit and vegetable peels, bones, eggshells, etc.).



WHAT IS CONSIDERED FOOD WASTE

Food fit to eat which is **discarded or not consumed** (fruit and vegetables whose outside appearance doesn't meet regular quality specifications, stored spoiled produce, prepared food never served, plate remains, etc.).



HOW MUCH DO WE WASTE?

ACCORDING TO THE FAO
(THE UNITED NATIONS FOOD AND AGRICULTURE ORGANISATION)



Source: FAO. *Mitigation of food wastage. Societal costs and benefits.* 2014.

THE EUROPEAN UNION ESTIMATES AN ANNUAL WASTE OF

MILLION TONNES OF FOOD IN EU COUNTRIES



Source: European Commission and BIO Intelligence Service. *Preparatory Study on Food Waste Across EU 27, 2010*

AGRICULTURAL PRODUCTION

+60% TO MEET FOOD DEMAND

+9 MILLION PEOPLE IN 2050

Source: FAO. *FAO And Post 2015.* 2015

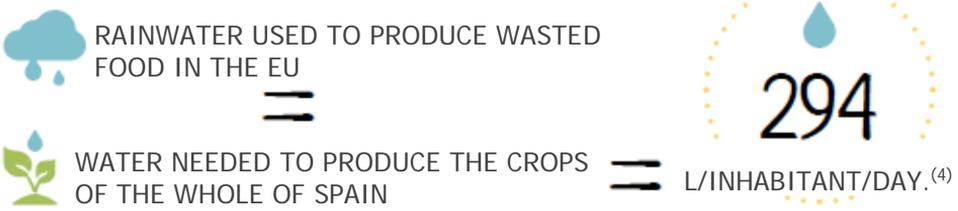
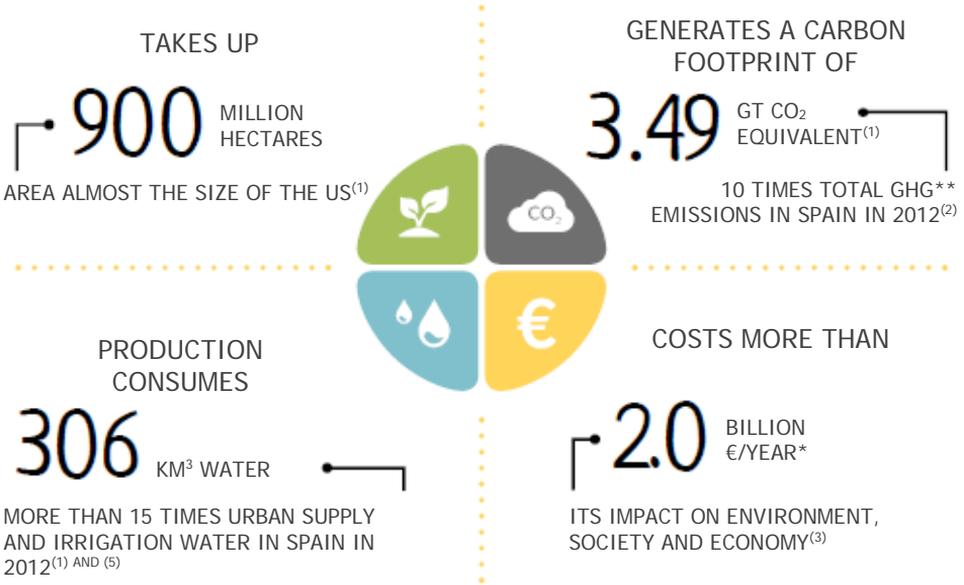
80% OF FOOD WASTE BY EU CONSUMERS CAN BE AVOIDED

CCI. *Last water and nitrogen resources due to EU consumer food waste.* 2015.



FOOD WASTE AND ITS IMPACT

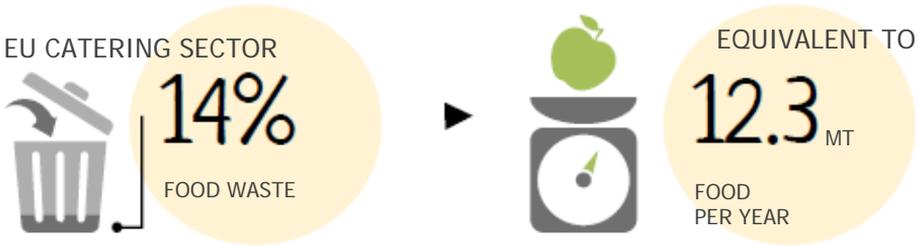
Wasting food entails **wasting** the resources invested in its production, processing, distribution and waste management, such as water, soil, fertilisers, energy, work, etc.



*USD2.625 trillion/year according to 2012 exchange rate. Source: Bank of Spain. *Statistical bulletin 01/2015*. 2015.
 ** GHG: Greenhouse Gases.
 (1) FAO. *Mitigation of food wastage. Societal costs and benefits*. 2014.
 (2) MAPAMA. *Inventarios nacionales de emisiones a la atmósfera 1990-2012*. 2014.
 (3) FAO. *Food wastage footprint. Full-cost accounting. Final report*. 2014.
 (4) CCI. *Lost water and nitrogen resources due to EU consumer food waste*. 2015.
 (5) National Statistics Institute (INE). *Press release: Water supply and sewerage survey. Year 2012*. 2014.

FOOD WASTE IN THE CATERING SECTOR

The **EU catering sector** is estimated to be **responsible for 14% of food waste**, equivalent to **12.3 million tonnes of food per year**, representing a major economic loss in the sector.



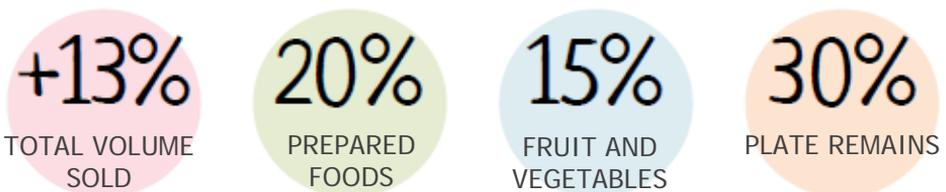
Source: European Commission and BIO Intelligence Service. *Preparatory Study on Food Waste Across EU 27*, 2010.

In Spain, according to a Unilever Food Solutions study based on **restaurants with a set menu serving an average of 100 meals a day**, the average restaurant is calculated to throw out **€3,000 each year**



Source: Unilever Food Solutions. *Abra los ojos ante los desperdicios. Trabaje de manera inteligente*. 2011.

In the commercial and collective catering sector, waste **accounts for more than 13% of total volume sold**. The **largest amounts** are found in **prepared food (20%) and fruit and vegetables (15%)**. Plate remains, which is partly the responsibility of the diner, account for 30%.





Waste in the catering sector (commercial and collective catering)

	Million kg served	% of waste in the category	Total waste volume (million kg)	Waste as percentage of total
Plate remains	--	--	321	30%
Bread and pastries	500	15%	75	10%
Meat	513	9%	46	5%
Fruit and vegetables	1,160	25%	301	15%
Dairy products	770	6%	46	5%
Prepared foods	--	--	229	20%
Other	5,394	2%	108	15%
Total	8,337	13.5%	1,126	100%



Prepared dishes of the day: paellas, soups, tapas...

Source: KA Brain Asociados, S.L. Las pérdidas y el desperdicio alimentario en la distribución alimentaria, la restauración colectiva y organizada. 2014.

Research conducted **in the United Kingdom** by WRAP* found that **75% of catering sector waste can be avoided**. Considering that the **costs of buying food and labour costs** involved in processing it account for **almost 90% of the total cost**, reducing food waste could drive significant savings and improvements in the business economic performance.

* Waste and Resource Action Programme (Programa de Acción de Residuos y Recursos).

Source: WRAP. www.wrap.org.uk/content/overview-waste-hospitality-and-food-service-sector. Fecha de consulta: 24 de agosto 2015.

Where does food waste occur in the catering sector and why? Several stages can be established:

Purchase and storage

- Difficulty in **planning** supply and demand.
- **Transport** conditions (especially in businesses with a central kitchen), **storage and preservation** not suitable to product type.
- **Excess storage time** meaning that the food is no longer fit for consumption, especially products with a short shelf life.



Preparation and service

- **Discarding** edible parts **during preparation**.
- **Inadequate preparation** making dishes unsuitable to present to customers.
- **Excess food prepared** for actual demand.
- Errors in **order-taking** by waiting staff.



In the dining area

- **Display products**.
- **Plate remains** due to excessive portions or dishes, or side dishes not to the diner's taste.

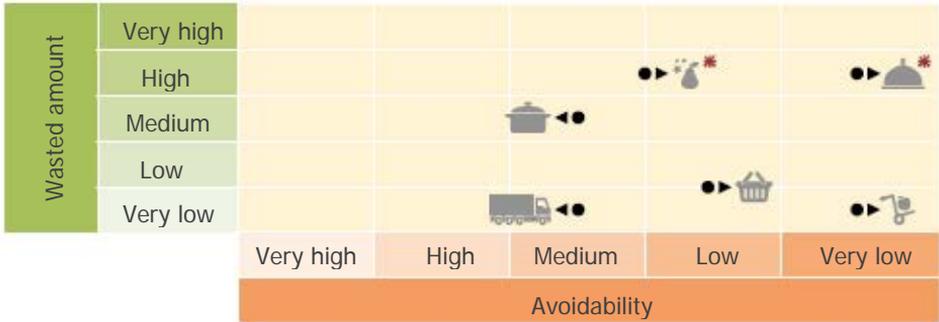
To learn more about its causes and how to avoid them, see the *Resource Pack for Hospitality and Food Service Sector. Engaging with Consumers to Help Reduce Plate Waste*, published by Love Food Hate Waste.

According to the study "Food loss and waste in food distribution, and in collective and organised catering" (*Las pérdidas y el desperdicio alimentario en la distribución alimentaria, la restauración colectiva y organizada*), **commercial catering establishments** must **prioritise reduction and measuring over service and displays**, based on the amount of waste generated and its avoidability in these phases.



Tables 1 and 2: Process: ratio of wasted amount/avoidability (commercial catering)

Commercial catering (PROCESS)



*Priority

	Amount of waste	Avoidability	Actions
	Medium-low	High	Format Menu planning
	Low	Very high	Date marking review
	Low	Medium	Temperature Handling
	High	Medium	Menu
	Very high	Medium-high	Planning
	Very high	Very high	Side dish serving size

PROCUREMENT

WAREHOUSE
 DISPLAY

TRANSPORT

PREPARATION

SERVICE

Source: KA Brain Asociados, S.L. *Las pérdidas y el desperdicio alimentario en la distribución alimentaria, la restauración colectiva y organizada.* 2014.

MORE EFFICIENCY = HIGHER PROFITS

THE 4R HIERARCHY

Running a restaurant is **not easy** because it is a very competitive industry. You must commit to **sustainable, effective and responsible management**, which will undoubtedly yield **higher financial returns** for your business, among many other benefits.

Apply the 4R Rule

More information is available throughout this guide.

The best waste is no waste.

Food can have many lives.



Make the most of leftovers.

Engage and be supportive.

MOTIVATE AND RAISE AWARENESS

among all your staff and customers.



Reduce

★★★★ The best waste is no waste



Improve the management system for leftover foods and meals.

Get up to date!

Harness **new technologies** to prepare menus and better manage your restaurant.
Some examples:



- Cooking Manager 5.0.
- Chef Control & Cost.
- ZeroMermas App.

Use **social media** to promote your restaurant, organise bookings and publicise your sustainability policy, among other possibilities.



Avoid single-use packaging and materials (napkins, flatware, etc.).

Introduce **initiatives** like a



doggy bag.
A doggy bag is a box or container diners can use to take home the parts of the meal they did not finish at the restaurant.

The custom was established in the United States and the financial crisis helped make it a common practice in English-speaking and Asian countries. It is currently gaining ground in Spain and the rest of Europe.

Reuse

★★★ Make the most of leftovers. Creative cooking is on-trend!

Remember



Make **creative dishes from leftovers** that have been **properly conserved**.



Ask your suppliers whether you can **return packaging**.

Opt for **reusable packaging**.

Redistribute

★ ★ Engage and be supportive

Remember:

You can actively **cooperate with local charities or help people individually** by donating products you think you will not use.



The products you donate must comply with **food safety and hygiene standards**.

Small gestures can go a long way. Join in!

Recycle

★ Food can have many lives

Remember:

If you run a suitable place in your restaurant, you can make **compost with the organic waste** of fruit and vegetables, leftovers from prepared foods, etc.



This waste can also **produce energy** (used oil can be converted into biofuel, for example). There are companies that collect it for subsequent processing in recycling plants.

Care about your waste destination

Also:

Only bin things you definitely cannot use. Do it **sustainably**, using appropriate containers.



You can use a **compactor** to reduce the physical volume of recyclable materials.





ReFood

ReFood selectively collects and leverages the most innovative technology to create valuable new products from foods that are not consumed, cannot be sold or are simply left over.



For more information:

www.refood.es

Composta en Red



Composta en Red is an association of local entities throughout Spain that develop initiatives in household and community composting.

For more information:

www.compostaenred.org

Commit to sustainability



Sustainable Restaurant Association

The **Sustainable Restaurant Association** (SRA) was created in the UK and has been so successful that it is spreading worldwide.



For more information:

www.thesra.org

Professional Forum on Sustainable Catering

In Spain, the **Professional Forum on Sustainable Catering** (Foro profesional de la Restauración Sostenible) conducts various sustainability-related activities in this sector.

For more information:

www.restaurantessostenibles.com



The first sustainable restaurant on the Iberian Peninsula was Azurmendi, by chef Eneko Atxa, recognised as the World's Most Sustainable Restaurant by the World's 50 Best Restaurants Academy.

Committing to the environment can be leveraged as a **marketing element**. You can use the **internet, advertising** or **signage** to **run outreach campaigns to promote your corporate policy** (use of seasonal produce, sourcing ingredients locally, and donating food to charities...).







Information and advice for professionals

Designing the Menu

Planning your Purchases

Food Handling: Receiving, storing and
preparing

Labelling and information media

Managing surpluses - Donate do not
waste

Use the “More Food, Less Waste”
Strategy logo

Control systems: Waste audit

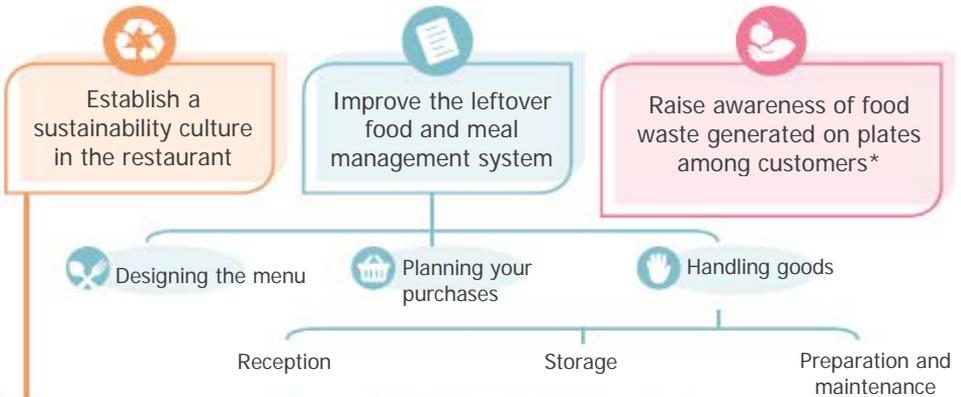
Inspiring no-waste recipes



INFORMATION AND TIPS FOR PROFESSIONALS

While individual restaurateurs manage their business efficiently, recent research shows there is still considerable **scope to reduce food waste** generated in the sector.

Steps to prevent waste



- Develop a sustainability policy** by defining goals and objectives.
- Engage your entire team:** kitchen and waiting staff, cleaners...
Provide the information needed to make them aware of the **problem** and the **benefits** of good management, encourage them to come up with **ideas** to minimise waste and, if possible, reward their effort in some way.
- Choose suppliers** based on the origin of the products they operate with and their own sustainability policy.

*See Information and Tips for Customers section.

In all these steps, the **law obliges food business operators to guarantee** that the **food** they make available to their customers **is safe**. To this end, businesses must develop and apply **self-control systems** based on the Hazard Analysis and Critical Control Points (**HACCP**) system, which makes it possible to identify, assess and control microbiological, physical and chemical hazards significant to food safety**.

For more information:

www.aecosan.msssi.gob.es

**This definition is taken from international standard Codex CAC/RCP 1969) Rev. 3.

DESIGNING THE MENU



The **menu** can be a good **food waste monitoring tool**. It must be **designed** in advance to avoid mainly unnecessary costs, both economic and environmental. Creating a menu is a **complex task**. Choose **dishes your customers like** (some side dishes are rarely eaten, for example), which are **cost-effective and good quality**.

Keys to designing a menu



Check stock levels first. It will be easier if you have previously drafted **an inventory** of the food available in the storage room.

Consider the **season of the year**, as this **can affect consumption**. In summer, the heat drives people to order more fruit, leafy vegetables and fresh juice. Cold, rainy days, on the other hand, encourage people to ask for hot dishes (soups, purees, stews).



Buying **versatile ingredients** to make different recipes and designing a **shorter menu** will help you shop, store and cook more efficiently.

Remember that **seasonal foods** have **better conservation qualities** and work out to be **more affordable** (check seasonal fruit, vegetable and fish charts).



Study consumption habits. It is important to know the geographical area where the point of sale is located, the purchasing power of your customers, consumption habits according to nationality, changes in tastes and innovation in new products.

Analyse customer behaviour and set up monitoring systems. Bear upcoming bank holidays in mind, when foot traffic may vary.



Checking published information on prices, quality, new products and basic recommendations can be quite useful.

For more information:

www.mapama.gob.es



Offer different alternatives



Set menu, half menu, children's menu; serving and half serving
Competitive prices can incentivise demand.



Adapt tableware size to the amounts served to make the dishes more appealing!

If you offer ready-made portions



of a dish (pasties, pizzas...), assess whether to **make them individually** as they are often more popular with customers.

Specify the types of side dishes available on the menu.



Offer bread

as optional

The size of some dishes



Show this information on the menu: number of units, weight of meat, pizza diameter...

Try to be creative



Make the most of ingredients and take advantage of surplus goods to **make new tasting recipes**, tapas or "dishes of the day".



It is very important to establish monitoring systems so you can identify dishes that customers do not order or like, along with plate remains (due to excess garnishing or sauce, poor preparation, etc.).

There are a number of links that can help you design your menu, with information on **food safety, healthy eating and Spanish foods**:



- www.aecosan.msssi.gob.es
- www.aecosan.msssi.gob.es/AECOSAN/web/nutricion/seccion/educaNAOS.shtml
- www.dietamediterranea.com
- www.alimentacion.es

Seasonal Fruit Chart

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
AVOCADO												
APRICOT												
PERSIMMON												
CHERRY												
CHERIMOYA												
PLUM												
RASPBERRY												
STRAWBERRY												
POMEGRANATE												
FIG												
KIWI												
CITRUS FRUIT*												
MANGO												
APPLE												
PEACH AND NECTARINE												
MELON AND WATERMELON												
MEDLAR												
SATURN PEACH												
PEAR												
BANANA												
GRAPE												

*CITRUS FRUIT: lemon, mandarin, orange and grapefruit.

Source: author's own, drawing on alimentacion.es



Seasonal vegetable chart

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
CHARD													
ARTICHOKE													
CELERY													
AUBERGINE													
SPROUTS*	 	 	 	 	 	 			 	 	 	 	
COURGETTE													
PUMPKIN													
GLOBE ARTICHOKE													
ENDIVE AND ESCAROLE	 	 	 	 					 	 	 	 	
SPINACH													
ASPARAGUS													
PEA													
BEAN													
RUNNER BEAN													
LETTUCE													
TURNIP RADISH BEETROOT	 												
CUCUMBER													
PEPPER													
LEEK													
TOMATO													
CARROT													

*SPROUTS: cauliflower, broccoli, red cabbage, cabbage.

Source: author's own, drawing on alimentación.es

Seasonal Fish Chart

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MACKEREL												
POMFRET												
TROUT												
SARDINE												
HADDOCK												
HORSE MACKEREL												
PANDORA												
SEA BASS												
BREAM												
BASS												
HAKE												
TURBOT												
BLACK SEABREAM												
CLAMS												
SQUID												
MUSSELS												
OCTOPUS												
CUTTLEFISH												
SCALLOP												
BROWN CRAB												

Blue
 White

White/Semi-oily
 Mollusc

Crustacean



PLANNING YOUR PURCHASES

A **good purchasing plan** can prevent against buying too much of things that are ultimately not eaten and thrown away.

Keys to good purchasing

- 1** Put one single person **in charge of organising orders** to facilitate stock control.
- 2** **Note down products** needed depending on menu design **and their quantities**.
- 3** Placing **orders more frequently** allows products to be purchased in smaller amounts, making it easier to avoid damage during storage.
- 4** **Prioritise conservation methods** that **extend product life** without compromising quality. In the case of perishables, the quantities to buy must be adjusted as precisely as possible.
- 5** **Buy locally** or through **short channels** to reduce the time from production to preparation, enabling a longer shelf life in the restaurant.
- 6** **Avoid buying large volumes of goods** to get a **discount, which** may result in surpluses. Supplier discounts do not always mean financial savings.
- 7** Maintain **good communications with suppliers** to better match demand with supply.





Extra fresh stock due to high demand (transferred to daily stock the next day if not consumed).



Daily average fresh stock (120% if the extra 20% from the previous day was not sold).



Frozen stock for high-demand emergencies

Source: Unilever Food Solutions.

FOOD HANDLING: RECEIVING, STORING AND PREPARING

Correct reception, storage and preparation is needed to make produce **last longer** and maintain food **quality and safety**.

Health and hygiene measures must be ensured at all times, along with **cold chain maintenance** of refrigerated and frozen goods.

Receiving goods

KEYS FOR RECEIVING



Check product **condition and quality** according to the **specifications requested in the order** (weight, size, freshness, use by date and more).



Handle products with care to prevent damaging them by knocking or crushing.



Unload **refrigerated and frozen products** first to get them into storage quickly.

If you provide the transportation yourself, prevent **fresh unpackaged foods** from coming into **contact with floor and walls** to avoid possible contamination.





Storing

Once the goods have been received and distributed in the different storage or kitchen areas, run a **temperature, humidity and cleaning check** to maintain product quality and extend its life.

..... PANTRY OR CELLAR



These areas store foods that **do not require any special temperatures** and must be kept in a **cool, dry place**. They include canned goods, preserves, dehydrated products and sugars.



KEYS TO STORING IN THE PANTRY OR CELLAR



Choose **clean, dry, ventilated places that are protected from sunlight**.

Food must be kept **away from walls** and **floor** to prevent contact with insects and rodents.



If you have **shelving, heavier and larger products** must go at the **bottom** for easy access and handling.



Store the **most frequently used** and **smaller-sized products** in the **most accessible areas** and those with a longer shelf life, which are not used as often or that take up more space in less accessible parts.



Where possible, leave product **labels visible** to make it easier to see their description and use by date.



Apply the **FIFO (First In First Out)** principle and **check stock** to prevent products being forgotten about or spoiling due to excess storage time.

Fruit and vegetables release ethylene when they ripen:

This is a natural gas, which in turn acts as a ripening agent. To prevent overripening and deterioration due to this gas, **ethylene-intensive fruit and vegetables should not be mixed with ethylene-sensitive products**.

Table 1: Fruit and vegetables in relation to ethylene emission and sensitivity

		ETHYLENE EMISSION			
		Very low	Low	Medium	High
ETHYLENE SENSITIVITY	Low	Grape	Pineapple		
	Moderate	Grapefruit Lemon Mandarin Orange Strawberry Asparagus Onion	Lychee	Fig Mango Peach Tomato Banana	Apricot Kiwi Apple Avocado Melon Pear Nectarine Custard apple
	High	Garlic Broccoli Cauliflower Lettuce Spinach	Watermelon Carrot Cucumber Aubergine	Plum	Banana

● Climacteric fruits ● Non-climacteric fruits

Sources:

- FAO. *Manual for the preparation and sale of fruit and vegetables. From field to market*, 2004.
- Official Chamber of Commerce and Industry of Madrid, Directorate-General for Trade, Ministry of Economy and Technological Innovation at the Madrid Autonomous Region and CEIM (Madrid Business Confederation – CEOE). *Business Training Programme for Specialist Retailers, Region of Madrid*. Greengrocers.



***** COOLING EQUIPMENT *****

These areas are intended for **food that must be kept cold and stored between 0°C and 5°C**, such as fresh and cooked meats and fish, vegetables, packaged, ready-to-eat fresh and prepared foods, and dairy products.



KEYS TO GOOD STORAGE IN COOLING EQUIPMENT



Check the temperature inside the cold chamber **every day**. The measurement sensor must be located in the least cold area.



To avoid raising the internal temperature, **do not open doors** more than necessary and **do not introduce hot foods** (they can be cooled in advance using a blast chiller).

Use **airtight containers** (leaving as little air inside as possible), foil or cling film to protect food. **Vacuum packing** can help reduce odours, increase product life and reduce the risk of spoilage.



Label or write the **storage date** on products that have been removed from their packaging and prepared dishes.

Store raw food on **bottom shelves**, always **below cooked** or ready-made foods, to avoid contamination.



Keep **meat and fish separate** from previously **chopped pieces** due to the latter's potential for microorganisms to proliferate.

Defrosting products must be stored in **closed packaging** and **with racks beneath them** so they do not come into contact with the fluids they release.



Apply the **FIFO (First In First Out)** principle and check **stocks** to prevent products being forgotten about or spoiling due to excess storage time.

Some of the bacteria behind **food poisoning** can multiply at room temperature in a very short time, and one of the best ways to avoid this is to **refrigerate food** at the right temperature.

The storage, conservation, transportation, sale and, where applicable, serving temperatures of prepared meals kept at a regulated temperature must be as follows:

$\leq -18^{\circ}\text{C}$
FROZEN FOOD

$\leq 8^{\circ}\text{C}$
REFRIGERATED FOOD
Shelf life less than 24 hours

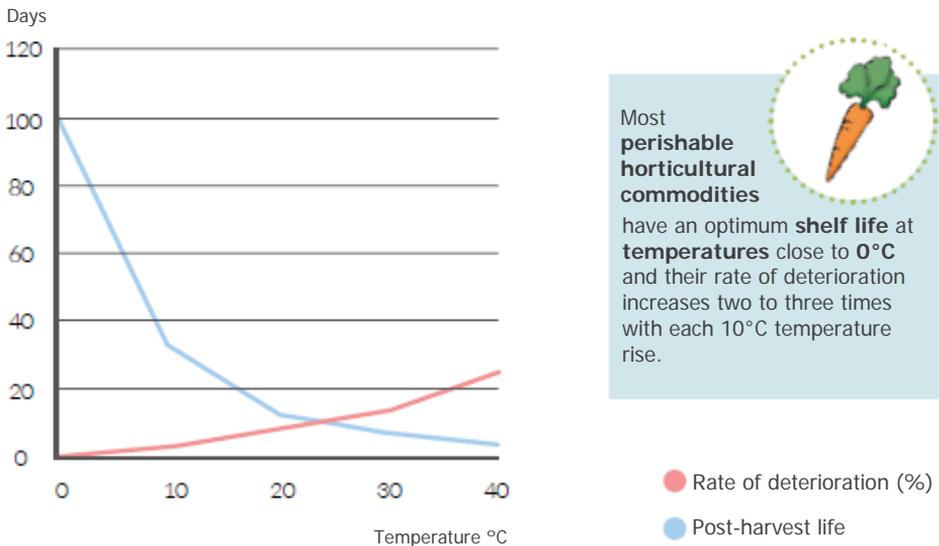
$\leq 4^{\circ}\text{C}$
REFRIGERATED FOOD
Shelf life more than 24 hours

$\geq 65^{\circ}\text{C}$
HOT FOOD

★★ **Recommendations for keeping food in the fridge:** ★★

www.aecosan.msssi.gob.es/AECOSAN/docs/documentos/para_consumidor/nevera.pdf

Graph 1: Effect of temperature on the deterioration rate of a non-chilling-sensitive horticultural commodity



Source: A. Kader, Adel y S. Rolle, Rosa. *The role of post-harvest management in assuring the quality and safety of horticultural produce*. FAO, 2004.

..... **FREEZING EQUIPMENT**

Freezing equipment must run at a **temperature below -18°C** (or lower if the food requires another temperature).



KEYS TO GOOD STORAGE IN FREEZING EQUIPMENT



Check the temperature inside the cold chamber **every day**.



Use **containers or packaging** as **airtight** as possible to improve conservation and close them with as little air inside as you can. It is important to protect food to **avoid freezer burn and oxidation** of fat and vitamins.

To avoid raising the internal temperature, **do not open doors** more than necessary and **do not introduce hot foods** (they can be cooled in advance using a blast chiller).



Food that has **thawed** or is past its **best before date** must **not be frozen**. However, frozen raw foods can be re-frozen once cooked.

Label prepared food **packaging** with the date of freezing, contents and number of servings.



Meat and poultry must be removed from their initial container and frozen **boned and free** of visible **fat**.

Store **fish dry, scaled and without the head or guts**.



Boil vegetables for a few minutes before freezing to stop the deterioration process and eliminate potential bacteria.

Apply the **FIFO (First In First Out)** principle and **check stocks** to prevent products being forgotten about or spoiling due to excess storage time. Placing items from previous orders near the back door can make it easier to rotate stock.



Learning to **keep food better and making the most** of its different **packaging and storage systems** will help it **stay fresh longer and reduce** the risk of food **poisoning**. Pay heed to the information on the original food packaging to get the most out of it!



Keep your refrigeration and freezing equipment



Leave some space between foods to allow



Estimate time needed to defrost
+6h. PER 1/2 KG OF FOOD

Prepared food preparation and maintenance

This phase is the real soul of a restaurant. It is where **creativity takes shape, quality recipes** are designed and the **best flavours and presentations** are sought.

KEYS TO PREPARATION



Ensure that staff are **trained in food handling**.

Prevent cross-contamination. Preparation involves handling raw foods (meat, fish, dirty vegetables) that can transmit pathogenic microorganisms to work surfaces, equipment, utensils, clothing and the hands of staff who handle them.



Adjust quantities to be cooked according to the set plan.

Make the most of products bought and used in preparing dishes. If you still have small amounts of leftovers, you can use them in other dishes, tapas, snacks or as complimentary desserts.



Prevent errors due to overcooking dishes, using too much salt, etc.

Use maintenance and conservation systems for dishes that must be kept warm or cold.





LABELLING AND INFORMATION SUPPORTS

Labelling is essential and **facilitates decision-making** in relation to the conservation and handling of foods **to ensure food safety**. It also makes it easier to **implement FIFO** in storage and helps **answer customer questions** about the ingredients used in preparing a meal.

All food, whether sold packaged or in bulk, must feature certain **basic information** so the consumer knows what they are buying and what is being offered with a certain degree of accuracy.



***Ingredients:** listed from most weight to least, except mixed fruits and vegetables. If the manufacturer highlights a particular ingredient in the product name (e.g. tomato soup, strawberry yoghurt), its quantity must be indicated as a percentage of the total weight.*

***Net amount:** quantity of food, by volume (l, cl, ml) or weight (kg, g) that the product contains free of packaging.*

In the case of **packaged foods**, the required information must be on the **pack** or on a **label attached to it**.



***Allergen information:** there are 14 food ingredients such as milk, eggs, wheat and fish that must be indicated in the list of ingredients because of their allergenic capacity.*

***Use by date and best before date:** see next pages.*



For **unpackaged foods**, the **operator may provide food information** to the recipient or display a **notice** in a visible position indicating information that will vary depending on product type: meat, fish, fruit, vegetable, eggs, etc.

***Alcoholic strength:** alcohol content expressed in volume. Mandatory for beverages containing more than 1.2% ABV.*



Product Name: must be accompanied by the physical state (powdered) or treatment to which the product was subjected (e.g. frozen, smoked).

Storage and/or use conditions: after opening the packaging, follow the conservation and consumption instructions, e.g. "consume within three days of opening". If the food has a use by date, remember to consume it before then.



Designations of origin and food quality: see next pages.

Origin: compulsory for certain product categories such as meat, fruit and vegetables. Also compulsory when the brand name or other labelling elements (such as an image, flag or a place reference) may mislead consumers regarding the true origin of the product.

Distributed by / manufactured by: name or company name and address of the manufacturer, packer or seller established in the European Union.

Genetically modified organisms (GMOs): mandatory labelling for products with GMO content exceeding 0.9%. All substances originating from a GMO must be specified on the list of ingredients with the words "genetically modified".

Batch No. / Manufacturing Batch: makes it possible to trace the product from origin to sales premises.

Nutrition and health claims: suggest or imply that a food has particular beneficial nutritional properties due to the energy it provides and nutrients or other substances it contains.

Nutritional value: indicates the energy value and nutrients of a food product (protein, fat, fibre, sodium, vitamins and minerals, etc.).

In some cases the energy value and compulsory nutrients expressed as a percentage of reference intake* (GDAs) may appear on the nutrition table, in addition to or instead of expression per 100 g/100 ml; and the vitamins and minerals indicated should be expressed as a percentage of reference intake (NRV**) per 100 g or 100 ml.

*Reference Intakes (% GDAs): Typical nutrient intake levels for most of the population that make up a healthy diet.

**Nutrient Reference Values (NRVs): recommendations for the average daily amount of a nutrient that population groups should consume over a period of time.



What are best before and use by dates?



The best before date indicates up to what time the food maintains the intended quality.



The food **remains safe** for consumers after the best before date, **provided that the conservation instructions are respected and the packaging is not damaged**. However, it can start losing taste and texture.



The 'best before' date appears on a **wide variety of foods**: refrigerated, frozen, dried (pasta, rice, etc.), canned and others (vegetable oil, chocolate, etc.).

The date will consist of a clear indication in this order: day, month and, where applicable, year.

However, for food with a:

Duration less than 3 months

only indicate **day and month**: **25/04**

Duration longer than 3 months
(not exceeding 18 months)

only indicate **month and year**: **07/2018**

Duration longer than 18 months

only indicate **year**: **2025**



The use by date indicates when food can be safely eaten.



No food should be prepared **after the use by date**.



The use by date appears on **highly perishable foods** like fresh fish, fresh chopped meat, etc.



The date will consist of a clear indication in this order: **day, month and, where applicable, year**; and will be indicated on each individual portion packaged.



Follow conservation instructions like "keep refrigerated" or "keep at 2-4°C", otherwise the food will spoil earlier and there is a risk of food poisoning.



If you **freeze** food soon after buying it, you can **extend its conservation** beyond the use by date, provided you freeze it correctly.

Allergens

Most people have no problems eating a wide variety of foods, but today we know that an increasing number of people may be sensitive to certain foods and have a food allergy or intolerance. That is why it is necessary to **know**, with a great deal of **accuracy**, which **allergens are present in the products** used to prepare dishes so you can **provide customers with enough information** on the contents if so requested.



The European Union approved **Regulation (EU) No 1169/2011** of the European Parliament and of the Council of 25 October 2011, **obliging bars and restaurants to specify which allergens are present in packaged and non-packaged foods**. The way that information is provided is regulated through a Spanish **national regulation, Royal Decree 126/2015**, whereby, in the case of commercial food operators like bars and restaurants, it must be indicated (e.g. on a notice) that **consumers can contact staff for allergen information**, which may be provided orally as long as there is a written or electronic record where food is sold available to the consumer and supervisory authorities (verifiable oral information).



The **14 food allergens** are: cereals with gluten, shellfish, egg, fish, peanuts, soy, milk, tree nuts, celery, mustard, sesame grains, sulphites, lupins and molluscs, as well as all their derivatives or traces.

Allergen information will be available on menus and any other written or electronic material. Drawings may also be used.



Differentiated quality

Agricultural origin and quality marks

Protected Designation of Origin (PDO)



The characteristics of the food owe themselves essentially to the fact that it was produced in a certain geographical area that makes it inimitable.

Protected Geographical Indication (PGI)

The reputation of the product owes itself to the fact that it was produced in accordance with quality assurance methods that only apply in that geographical area.



Organic Production



These foods are produced in compliance with European standards that ensure a waste-free production of chemical synthesis products that are environmentally and animal-welfare friendly and which give them unique sensory characteristics.



For more information:

- ★ The **alimentacion.es** website has further information on labelling in the "**I Read What I Eat**" campaign and more specific information on products such as **eggs** and **fish**.

★ www.alimentacion.es ★

- ★ The **Spanish Agency for Consumer Affairs, Food Safety and Nutrition (AECOSAN)** launched the "**Labelling Counts Lots**" campaign in 2015, where you can find more information on this topic, including laws, informative material, FAQs and labelling news.

★ www.eletiquetadocuentamucho.aecosan.es ★

MANAGING SURPLUSES: DONATE, DO NOT WASTE

Food donation is not currently regulated by a defined legal framework, but there are **general and specific food safety and hygiene standards** that can guide you in donating food.

Why donate?

There are a number of **very good reasons to donate** food that is still fit for consumption and would otherwise end up in the bin. These include:

-  **Helping people in need**, which helps showcase **corporate social responsibility**.
-  Improve **personal satisfaction** among **workers**.
-  **Optimise staff work** and the **resources** required for food management (storage space, energy, water, etc.).
-  **Reduce food waste** and the **environmental impact** of your business activity.
-  Improve **the image of your business** for customers.
-  **Economic savings** and **tax benefits**.



To get tax advantages for donations made

All you need is a **certificate issued by the charity** that received the donation, indicating the book value of the donated products.



Act 27/2014 on Corporation Tax **enshrined donations** with respect to **Act 49/2002** on the tax regime for non-profit entities and tax incentives to sponsorship.

TAX DEDUCTIONS		
Legal persons	2015 financial year	2016 and subsequent financial years
General donations	35%	
Multi-year donations (same entity for 3 years or more)	37,5%	40%
Deduction limit on net base	10%	

On the other hand, possible donation regulations in each Autonomous Community must be taken into account.



You can choose to support **environmental associations and entities** such as care homes, soup kitchens, food banks... You can also donate directly to **private persons** in need.



A large majority of food banks and other charities have **cold stores and deep-freeze stores** fitted out to receive different types of food such as fresh fruit, packaged, chilled produce, etc., thus maintaining an unbroken cold chain for products that need it.



Provided that food safety standards are met, a catering facility **can contribute by donating packaged foods approaching its use by date**. You can also donate **processed food** surpluses from kitchens or buffets, paying special attention to highly perishable or demanding products in terms of temperature requirements. See the “BCN Comparteix el Menjar” initiative for more information on managing donations through vacuum packaging or freezing.

Charities can provide the information you may need about the **procedure to follow** to make a donation.

Contact



and offer your surplus food

The **Federación de Bancos de Alimentos (Federation of Food Banks)** (FESBAL) website has a directory with all the food banks in Spain.

For more information:
www.bancodealimentos.es

BCN COMPARTEIX EL MENJAR

“ *A project to harness food resources and networking that helps reduce poverty in the city of Barcelona.* ”

An initiative of the NGO Nutrition Without Borders (NSF), it consists of collecting previously frozen or vacuum-packed surplus food from hotels and collaborating entities for distribution among charities. The operation includes a nutritional and hygiene assessment and verification in the receiving entities of the systems for storing frozen products.

For more information:
www.es-es.facebook.com/BcnComparteixElMenjar



USING THE “MORE FOOD, LESS WASTE” STRATEGY LOGO

If your business **objectives** include **promoting a positive attitude towards food waste and its environmental impact by reducing, recycling, reusing and/or donating**, you should **sign up** to the **More Food, Less Waste Strategy!**



If you agree with the commitments listed in the “**More Food, Less Waste’ Strategy Logo Usage Regulations**” and follow the steps below, you will soon be able to use the logo.

..... **ASK ABOUT AUTHORISATION!**

For more information:
www.menosdesperdicio.es

CONTROL SYSTEMS: WASTE AUDIT

An **in-restaurant food waste audit** lets you **quantify the** prepared and non-prepared **food** that, although it could be consumed, **is ultimately thrown into the bin.**

Find out how much food your business wastes



YOU MIGHT BE SURPRISED!

Why audit food waste?

You can follow a number of simple steps to **determine the amount of food that is not used**, the **reasons** for this, and **when** it occurs, as well as possible **measures you can implement** to step up efficiency in managing your business.

What are the benefits?

1. It lets you create a baseline to **measure progress over time.**
2. **Critical points** behind food waste can be identified so you can take steps to fix them.
3. **Food suitable for reuse, redistribution or recycling is identified.**
And this all leads to...
4. Increased **staff awareness and involvement** regarding the importance of reducing food waste.
5. **Improve management** of the business:
 - **Economic savings.**
 - Better **use of storage spaces** as they are freed up from storing foods that will ultimately not be consumed.
6. Contribute to **looking after the environment and food chain sustainability.**
7. In the case of donations, **help people in need.**



What do you need?

- **Involvement of all staff.**
- **Paper and pencil** or a **computer.**
- Waste **bin/s.**
- **Scale** (optional).

When should you do it?



It should be done during a **typical week** of regular activity or at least over several days.

What should you quantify and how should it be separated?



The **simplest way** is to **jointly account for food that was edible but did not end up being consumed**, so all you need is a bin that is different from the other waste bins. The ideal thing to do is weigh the food, although there is the alternative of considering volume or number of containers (e.g., volume can be calculated by pre-filling a container with water).

A **240 litre container of food waste** is costing your business around **€300!** (estimated by WRAP).



If you want to **better identify the causes and processes** related to food loss, you should have **several containers available or weigh the food before you dispose of it.** One possible **classification** that can be **customised** to each business model involves jointly accounting for several groups and detailing the most representative ones:

- **Products spoiled** during storage.
- **Leftovers** of prepared food (display products, dishes not consumed).
- **Plate remains.**
- **Other** (discards, poor preparation, order errors...).

We propose a **model audit table** to record the evolution of the amount of food that ends up in the bin.

How do you identify the importance of generated waste?



If you do a week-long audit, multiply the weekly result **by 4 to get the quantity** of food wasted **in a month**, and **by 52 for the amount wasted in a year**.

What should you do after the audit?



The results will indicate not only the volume wasted but the reasons behind it, making it easier to identify the **waste reduction measures** to implement.

How can you test your success in reducing waste?



After a preliminary audit and appropriate action, you can **conduct a second audit**, allowing a certain time interval to elapse between the two.

Use of technology



And if you prefer to use technology to implement an audit system, there are “smart meters” on the market that facilitate weighing and results analysis. Here are two examples:

★ LeanPath Methodology

Measurements can be made on a ValuWaste scale which records weight and makes it possible to determine where the waste comes from and who has generated it.

For more information:

www.leanpath.com

★ Winnows System

A touchscreen identifies discarded food and automatically measures it.

For more information:

www.winnowsolutions.com



Audit table

This table and an Excel sheet to facilitate calculation can be downloaded in www.menosdesperdicio.es.

WASTE MANAGEMENT AUDIT

Date Day 1: _____

CAUSES FOR THE WASTE					
	Day 1	Day 2	Day 3	Day 4	Day 5
Spoiled products					
Processed surplus (display products, dishes not consumed...)					
Plate remains					
Other (discards, poor presentation, order errors...)					
Total					
No. of diners					
kg waste/diner					



INSPIRING NO-WASTE RECIPES

There are **numerous recipes** that **make the most of ingredients** or which are made **from commonly wasted foods**. Here are some of them, inspired by chefs and professional foodies.



Potato Skin Wafers with Spicy Goat Cheese Mousse

10

Ingredients

- 200 g potato skins.
- 200 g mild goat cheese (or hummus).
- 1 egg white.
- 1 teaspoon turmeric powder.
- 1 pinch spicy chilli powder.
- Chives.
- 1 teaspoon sesame (or poppy) seeds.
- 3 tablespoons extra-virgin olive oil.
- Salt and pepper.



Press to thin and brush with beaten egg white. Sprinkle with seeds, salt and pepper. Arrange skins on oven tray and bake for 20 minutes at 150°C.

3. For the mousse, place cheese in a bowl and mix with the chives, turmeric powder and chilli. Slowly add the olive oil, beating constantly. Place the bowl in the centre of a plate and serve the mousse with the skins.

10

Method:

1. Wash and peel the potatoes.
2. Cook skins 5 minutes (steam or boil). Drain and place on a sheet of baking paper spread slightly past the edges of the tray to give it shape.

Recipe adapted from **Lisa Casali** taken from her food-waste blog **Ecocucina**.

Soup from Artichoke Scraps



Ingredients (serves 4)

- 1 kg artichokes.
- 2 medium potatoes.
- 1 large or 2 small leeks.
- 3 medium onions.
- 1 clove garlic.
- Chopped serrano ham as a side (optional).
- 100 ml white wine.
- Extra-virgin olive oil.
- Salt.



Method:

1. Clean the artichokes by removing the outer leaves until the yellow inner ones appear. Chop the tips and chop or peel the stems. Use the hearts for other dishes.
2. Place leaves and other scraps in a saucepan or pressure cooker and cover with water. Add salt and cook 20 minutes (10 in pressure cooker). Allow to cool.
3. Peel and chop the onions and leeks. Put them in another pan with a glug of olive oil and pinch of salt and cook on a low heat for 20-30 minutes (the process can be accelerated with a dash of baking soda).



4. Blend the artichoke leaves with their cooking liquid. Press down on the leaves with a wooden spoon to release all the juice.
5. Peel and break the potatoes up into pieces with the help of a fork or knife. Add them to the onion and leek, salt and cook for 10 minutes. Add the wine and allow to evaporate (about 2 minutes).
6. Add the artichoke broth to the potatoes and boil for around 15 minutes, stirring occasionally, until the potato is soft and breaks up easily. If the broth is very runny, crush a couple of potato pieces and dissolve them into the liquid (or crush all the potatoes for a cream of artichoke soup). Season to taste and serve.

Recipe adapted from **Mikel López Iturriaga** in **El Comidista**.





Pan-roasted Grapes, Turnips and Grape Leaves

10

Ingredients (serves 4)

- 4 sprigs fresh tarragon.
- 190 g Flame seedless grapes.
- 190 g Thompson seedless grapes.
- 190 g Muscat grapes.
- 190 g Nebbiolo or Concord grapes.
- 12 young grape leaves.
- 6 small turnips.
- Extra-virgin olive oil.
- Kosher salt and freshly ground black pepper.



3. Place the grapes in a single layer on a baking tray and allow to cool completely. Discard tarragon stems.

4. Pour 6 ml olive oil into a deep frying pan and heat to 180°C. Add the grape leaves and fry until crisp, about 10 seconds. Remove to a baking tray topped with kitchen paper. Season with salt and pepper.
5. When the grapes are cold, transfer them to a bowl and add the tarragon leaves.
6. Slice the turnips thinly, leaving a little green on top. Add to grape mixture.
7. Remove mixture to a tray or individual containers. Crumble the grape leaves and sprinkle over the mixture. Sprinkle with pepper and serve.

10

Method:

1. Separate the leaves from the tarragon branches, reserving the stems.
2. Heat 2 tablespoons olive oil in a frying pan over a high heat. When hot, add the grapes and tarragon stems. Heat the grapes evenly for 3 minutes, until bubbles appear, without burning or melting.

Recipe adapted from **Chris Cosentino** taken from his **offalgood.com** website



Plankton Risotto with Squid and Aioli



Ingredients (serves 4)

- 800 g spring onions.
- 4 cloves garlic.
- 600 g dried squid.
- 3 whole dry squid.
- 600 g risotto-style rice.
- 200 g Palo Cortado sherry.
- Fish stock to taste.
- Plankton to taste.
- Salt to taste.

For the smoked aioli:

- 1 egg.
- 1 egg yolk.
- 1 clove garlic.
- Smoked oil to taste.
- Salt to taste.



Method:

1. Sauté the previously chopped spring onions and garlic briefly, without letting them change colour.
2. Add the squid chopped into 0.5×0.5 cm cubes and stir.



3. Place the rice over a maximum heat, sauté with the wine. When the wine has reduced, gradually add the stock in the manner of risotto.

4. Remove from heat when ready and blend with the plankton.
5. To prepare the smoked aioli, blend the smoked oil (made it by infusing 1 kg of fired olive pits in 1 L sunflower oil for 20 minutes), along with the remaining ingredients in a blender.
6. Serve in a deep dish and cover with dried squid slices. Decorate with a few drops of aioli.

Recipe adapted from **Ángel León** taken from the **Gastronomy & Cía** online blog.





Cauliflower Steaks with Cauliflower Purée



Ingredients (serves 4)

- 680 g cauliflower (1 head).
- 1½ cups water.
- 1 cup whole milk.
- 2 tablespoons vegetable oil plus more for brushing.
- Salt and freshly ground pepper.



4. Transfer florets to blender. Add half of the reserved 1 cup cooking liquid and purée until smooth. Pour the purée back into the saucepan.



Method:

1. Heat oven to 175°C.
2. Starting at top centre of cauliflower head, cut two 25 mm slices of cauliflower, cutting through stem end. Set cauliflower steaks aside.
3. Cut enough florets, at least 3 cups, from the rest of the cauliflower. Combine florets, water and milk in medium saucepan and sprinkle with salt and pepper. Bring to boil and cook until cauliflower florets are very tender, about 10 minutes. Strain, reserving 1 cup cooking liquid.
5. Heat 2 tablespoons vegetable oil in frying pan over medium-high heat. Brush cauliflower steaks with additional oil and sprinkle with salt and pepper. Add cauliflower steaks to pan and cook until golden brown, about 2 minutes per side.
6. Transfer pan to oven and bake cauliflower steaks until tender, about 10 minutes.
7. Rewarm cauliflower purée over medium heat. Divide purée between 2 plates; top each with cauliflower steak.

Recipe adapted from chef **Dan Barber** taken from the **Food52** website.



Broad Bean Pods



Ingredients (serves 4)

- The pods from 1 kg of broad bean.
- Bread (1 to 2 slices/person).
- 1 clove garlic.
- Deep fruity extra-virgin olive oil.
- Salt and pepper.



Method:

1. Wash empty pods.
2. Cook in a pressure cooker with a little salted water for about 5 minutes or 10 minutes in a regular saucepan. Strain.



3. Place pods on grill over medium heat, turning occasionally for 10 minutes.
4. Toast bread and rub with garlic.
5. De-string pods, discard core and slice into tubes
6. Season with olive oil, salt and pepper.
7. Place pods on toasted bread and serve.

Recipe adapted from **Lisa Casali** taken from her food-waste blog **Ecocucina**.

Smoked Salmon on Rye with Brined Herb Stems



Ingredients (serves 4)

- 20 dill or basil stems, cut into 25 mm pieces.
- 115 g smoked salmon.
- ½ cup goat cheese.
- 4 slices rye bread.
- ½ cup apple vinegar.



Method:

1. In a bowl, whisk the vinegar with the sugar until the sugar dissolves.
2. Add the herb stems and let stand at room temperature for 2 hours. Drain.



3. Spread the slices of rye bread with the goat cheese and top with the smoked salmon.
4. Sprinkle with the brined herb stems and serve.

Recipe adapted from **Gunnar Karl Gislason** via the **Food & Wine** website.



Tuna "Callos"



Ingredients (serves 4)

- 4 dogfish tails.
- 300 g skate skins.
- 500 g tuna skin.
- 1 carrot.
- 1 onion.
- ½ leek.
- 50 g fish chorizo.
- 50 g mojama.
- ½ cayenne pepper.
- 100 g homemade tomato sauce.



2. Place the dogfish tail and skate skin in a net. Cook in pressure cooker 1 hour and 15 minutes.
3. Boil the vegetables separately.



Method:

1. Blanch the tuna skin in seawater for 35 seconds. Scale, chop into squares and cook in pure water for 20 minutes.
4. Fry the mojama with the cayenne pepper. Add the tomato sauce, cook for 15 minutes and add the previously boiled vegetables blended together with their cooking water.
5. Add the tuna skin and dogfish tails and diced skate skin. Cook 20 minutes and add a sprig of mint for 3 minutes.

Recipe by **Ángel León** taken from the **Capel Gastrotas** blog.



Grilled Swiss Chard Stems with Anchovy Vinaigrette



Ingredients (serves 4)

- Anchovy vinaigrette:
 - 60 g anchovies (preferably salt-packed, cleaned, rinsed and soaked in a few changes of milk*).
 - 3 small cloves garlic, minced.
 - 3/4 cup plus 4 teaspoons extra-virgin olive oil.
 - 1/2 teaspoon red chilli flakes.
- * To soak anchovy fillets, cover in 25 ml milk for 12-24 hours, changing the milk once or twice. Taste them periodically for saltiness until they have the level of saltiness you like.



2. Wash the chard stems, cut off any dark edges and cut into 15 mm lengths.

3. Blanch stems in salted boiling water in batches till just tender, about 2 minutes per batch, then transfer to an ice bath.
4. Dry the blanched stems, toss them lightly with olive oil, salt, and pepper, and place them on the grill in a single layer. Grill long and slow until they become quite dark and charred but not burned.
5. Toss with the anchovy vinaigrette and a splash of sherry vinegar. Serve warm.

Grilled Swiss Chard Stems:

- Stems from 1 large bunch Swiss chard.
- Anchovy vinaigrette (above).
- Extra-virgin olive oil.
- Salt and freshly ground pepper.
- Splash sherry vinegar.



Method:

1. For the anchovy vinaigrette, blend all ingredients in a blender or food processor until well combined but still a little chunky.

Recipe adapted from **Anna Klinger** taken from the **Food52** website.





Peanut Butter Chocolate Chunk Banana Bread



Ingredients (serves 4)

- 350 g very ripe banana (about 3 large bananas or 1.5 cups purée), mashed.
- 150 g chocolate chunks.
- 2 large eggs.
- 1/3 cup peanut butter (use chunky if you want bits of peanuts in your bread).
- 1/2 cup plain yoghurt.
- 256 g flour.
- 50 g sugar.
- 1 teaspoon baking soda.
- 85 g unsalted butter.
- 1 teaspoon vanilla extract.
- 1/4 teaspoon salt.



Method:

1. Put the oven rack in the central position and preheat to 175°C. Grease a 23 x 13 x 8 cm loaf pan and dust the inside with sugar.
2. Whisk the flour, sugar, baking soda and salt together.

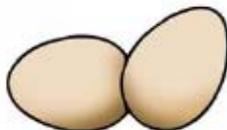


3. Put the peanut butter and butter in a small microwave-safe bowl and heat until melted.

Whisk together and let the mixture cool enough so that you can touch it without burning yourself.

4. In a separate bowl, add the mashed banana, yoghurt and vanilla extract.
5. Separate the eggs, adding the yolk to the melted butter mixture and the white to the banana mixture. Whisk each one separately until combined and then dump the butter mixture into the banana mixture and whisk together.
6. Add the wet ingredients into the dry ingredients, along with the chocolate and fold together with a spatula until the mixture is just combined. It's okay if there are still small lumps of flour as long as there are no big pockets of flour remaining. Add the batter to the prepared loaf pan and level off the top.
7. Bake 50 to 60 minutes.

Recipe adapted from **Marc Matsumoto** extracted from the **Fresh Tastes** blog.



Chocolate Croissant Pudding



Ingredients (serves 4)

- 8 small chocolate filled croissants.
- 3 eggs.
- 2 tablespoons packed sugar.
- 2 teaspoons corn flour.
- 300 ml milk.
- 1 teaspoon vanilla extract.
- Icing sugar to serve (optional).



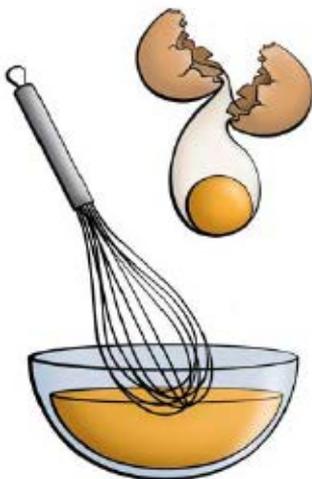
Method:

1. Preheat oven to 160°C.
2. Grease a baking dish with a little butter.
3. Spread croissants out in the dish.
4. Beat all 3 eggs with two tablespoons sugar.



5. In a bowl beat the corn flour with the milk and vanilla extract.
6. Add the milk mixture to the egg mixture and whisk all the ingredients well. Spoon the mixture over the croissants.
7. Bake 30-40 minutes depending on how small and/or deep the baking dish is. It will be ready when you insert a skewer into the centre and it comes out clean.
8. Allow to warm at room temperature for a while and cool in fridge.
9. Sprinkle with icing sugar before serving.

Recipe adapted from the [Delikatissen](#) blog.







Information and Tips for Customers

10 Point Consumer Guide

Storing Food at Home

Recipes to Make the Most of Leftovers at
Home

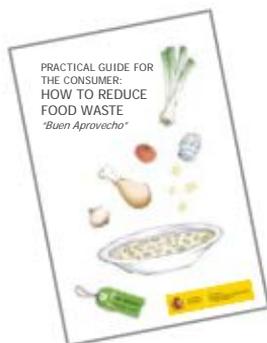


INFORMATION AND TIPS FOR CUSTOMERS

We are all consumers and we can help fight food waste in our homes or when we eat out.



Help raise customer awareness with simple tips! Guide them on amounts to order, encourage them to take their leftovers home from the restaurant and suggest how they can be kept, mention irresistible recipes for using leftovers...



In the **"Practical Guide for the Consumer: How to Reduce Food Waste. "Buen Aprovecho"** you can find more information on food waste and **tips and ideas** that can be very helpful **for your customers and the people around you.**

It is available on the website:
www.menosdesperdicio.es

The Tiffin Project



An initiative that seeks to expand the use of reusable containers by restaurant customers to carry their takeaways in. The container can be purchased over the project website or at participating establishments and each time a customer uses their to-go container they get a discount on their meal.

For more information:
www.thetiffi nproject.com

10 POINT GUIDE FOR CONSUMERS

10 ways to reduce food waste from the *I Use It, Do You?* campaign.

1

Plan your weekly menu and avoid impulse buying.



2

Purchase responsibly. Take a list with you and only buy what you need.



3

Store food properly, organise your fridge and do not break the cold chain.



4

Freeze foods to keep them for longer.



5

Read labels carefully and know the **difference** between **use by** and **best before** dates.



6

Take a FIFO approach to **consuming** food: use the oldest things first.



7

Do not guess amounts by looking at them. **Adjust** serving sizes and try to cook as needed.



8

Take advantage of leftover foods and reuse them **creatively**.



9

When it comes to throwing food away, **only throw out things you definitely cannot use**.



10

At a restaurant, only order what you are going to eat and do not hesitate to **take your leftovers with you**.



Available at:

www.alimentacion.es



STORING FOOD AT HOME

The following **tips** can help **customers keep the food they take home from the restaurant properly.**

Fridge

In the fridge (optimal temperature 0-5 °C) **cooked foods** must be located on the **top shelves** and **separated from raw food** using suitable containers.



Freezer

- **Hot food** must be allowed to cool before it is put in the freezer.
- **Label** containers with the date of freezing, contents and number of servings.
- **To defrost food**, remember to take it out **24 hours before** and leave in the lower part of the fridge. Otherwise, use the microwave on the "defrost" setting.

Packaging and storage systems



Tupperware and glass jars with airtight lids are ideal for storing surplus liquids or semi-solid foods in the fridge.



Vacuum packing promotes longer shelf life and can be used for many different foods and cold meats.



Cling film protects against moisture and odours. It is freezer-friendly and some types can also be used in the microwave.



Aluminium foil is not microwave-safe.

Tell your customers **whether they can freeze the leftovers** at home or not. Remember that raw frozen foods can be re-frozen once cooked.

For more information:

Tips for **keeping food safe and in optimal condition** are available at the **AECOSAN (Spanish Consumer, Food Safety and Nutrition Agency) website:**

www.aecosan.msssi.gob.es



RECIPES FOR USING UP LEFTOVERS AT HOME

Gluten-Free Veggie Pasties

Ingredients (for 12 pasties)

- 400 g leftover vegetables, such as potatoes, carrots...
- 1 large leek.
- 60 g mature Cheddar cheese.
- 1 large free-range egg.
- 1 knob of unsalted butter.
- 5 sprigs of fresh thyme.
- 4 sprigs of fresh flat-leaf parsley.
- 1 tablespoon English mustard.
- Salt and freshly ground black pepper.

For the gluten-free shortcrust pastry:

- 300 g gluten-free flour plus extra for dusting.
- 1 large free-range egg.
- 50 g unsalted butter.
- 1 teaspoon salt.
- 1 teaspoon xanthan gum.

Method:

1. To make the pastry, sieve the flour, salt and xanthan gum into a bowl. Place the butter and 130 ml water into a small pan over a low heat and bring to the boil, then set aside to cool slightly. Beat the eggs, then stir into the flour mixture. Gradually add the warm butter until it comes together into a rough dough. Bring it together with your hands. Cover and leave to rest.



2. Preheat oven to 180°C. Cover large baking dish with baking paper.
3. Trim and finely chop the leek. Melt the butter in a medium pan over a low heat, then add the leek and thyme leaves. Cook for 10 to 12 minutes, or until softened, then leave to cool. Pick and roughly chop the parsley leaves, then add to a bowl with the leftover veggies, mustard and a pinch of salt and pepper. Mash well, stir in the cooled leeks and grate in the cheese.
4. On a lightly floured surface, divide the pastry into 12 equal pieces and cut into circles of the thickness of a coin and 12 cm in diameter. Place roughly a spoonful of the mixture on one half of each pastry round, spreading it out slightly. Beat the egg, then brush it around the edges before folding the pastry over the filling. Place on baking tray, brush with a little more egg and repeat halfway through the baking. Bake 35 to 40 minutes or until golden and crisp. Serve hot.

Chicken Salad with Couscous and Oranges

Ingredients (serves 4)

- Handful chicken meat from a leftover roast chicken.
- 2 large handfuls couscous.
- 1 handful chopped fresh chives.
- 1 handful fresh basil leaves.
- 1 handful pea shoots.
- 1 lemon, juice only.
- 3 oranges, 2 juice only, 1 left whole.
- Couple glugs fruity olive oil.
- Salt and freshly ground black pepper.



2. In a separate mixing bowl, whisk together the lemon juice and the orange juice with the olive oil and season well with salt and freshly ground black pepper.

Pour the dressing over the cooked couscous and let it soak the dressing up for about 10 minutes.

Method:

1. Put the couscous in a bowl and pour some boiling water over it (it should cover the grains by a couple of centimetres or so). Leave for about 15 minutes, until the couscous has absorbed the liquid.

3. Peel and chop the orange into good-sized chunks by removing the skin. Add the orange chunks, chicken and herbs to the couscous and mix gently.
4. Divide the pea shoots between two shallow dishes and then gently top each with the chicken couscous salad.

Recipe adapted from **Nigel Slater** taken from the **BBC Food** website.





Pork Ribs and Rice Ragout

Ingredients (serves 4)

- 1 L beef broth, remains of beef stew and 4 cooked pork ribs.
- 400 g bomba rice.
- 2 cloves garlic, 1 tomato and 1 pepper.
- Extra-virgin olive oil.
- Salt and saffron.

Method:

1. Finely chop the garlic, tomato and pepper and make a sofrito base.



2. Add the bomba rice and stir until it looks transparent. Add the broth and simmer for 8 minutes over a high heat. Reduce heat to low and cook another 4 to 5 minutes.
3. Add the stewed beef with its juice. Position the ribs into a cross.
4. Turn off after 5 minutes and leave to rest until broth is absorbed by rice.
5. Serve each helping with a rib on top.

Recipe adapted from **Pakus** taken from the **Directo al Paladar** website.



Spring onion, Potato and Cheese Fritters with Beetroot Pickle

**Ingredients (serves 4)**

For the pickle:

- 1 beetroot, peeled and cut into long, thin matchsticks.
- 1 teaspoon caster sugar.
- 2 tablespoons cider vinegar.
- Pinch of allspice.
- Salt and freshly ground black pepper.

For the fritters:

- 100 g leftover baked, boiled or raw potatoes, grated.
- 2 spring onions, thinly sliced.
- 50 g hard cheese, finely grated.
- 1 egg, beaten.
- 3½ tablespoons cold beer or water.
- 50 g self-raising flour.
- ½ teaspoon caraway seeds.
- Olive or sunflower oil.



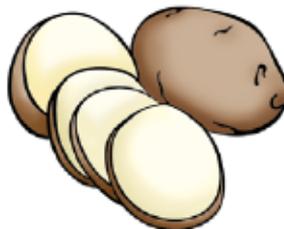
Mix well and set aside for a few minutes. Drain off any excess liquid, then trickle over the vinegar and mix well.

2. Put the potatoes in a bowl and season with salt, pepper and caraway seeds. Mix in the spring onions and cheese. Pour in the egg and beer, stir, then mix in the flour to make a thick batter.
3. Pour 2.5 cm oil into a deep saucepan and heat to 180°C. Pour tablespoons of mixture into hot oil and cook for 1 minute, then turn and cook the other side until golden and firm. Transfer to kitchen paper using a slotted spoon.
4. Season with a little salt and pepper and serve with the pickled beetroot.

**Method:**

1. put the beetroot in a bowl and season with the sugar and allspice, a pinch of salt and a grind of pepper.

Recipe adapted from **Tim Maddams** taken from the **BBC Food** website.





"Cocido" Emulsion with Ham Hock and Mint



Ingredients (serves 4)

- 120 g cooked ham hock.
- 400 ml "cocido" stock.
- 400 g cooked chickpeas.
- 20 g mint.
- 80 ml extra-virgin olive oil.
- Table salt.



Method:

1. Put the ingredients, except hock and oil, in the blender. Blend to a thin emulsion. Add oil gradually while motor is



running. When the emulsion is done, put on a low heat to warm, stirring occasionally.

2. Slice the cooked and still warm hock into thin strips.
3. Ladle a little of the emulsion into a bowl and sprinkle the hock strips over it. Add chopped, fresh herbs. Finish with fresh herbs and a few drops of mint oil (made by leaving the mint to marinate in olive oil and a little salt).

Recipe by **Mario Sandoval** taken from the **Cocina para levitar** blog.



Duck Dumplings



Ingredients (serves 4)

- 200 g duck, cooked and shredded.
- 30 wonton skins.
- 4 spring onions, trimmed and very finely chopped.
- 1 garlic clove, crushed to a paste.
- 1 tablespoon of ginger, grated.
- 1 red chilli, large, deseeded and very finely chopped.
- 1 teaspoon Chinese five-spice powder.
- 1 tablespoon of hoisin sauce, large.
- 1 dash of rice wine, shaoxing, or dry sherry.
- Soy sauce.
- 75 ml water, plus extra to seal.
- Vegetable oil (or groundnut oil).
- Salt and black pepper.



Method:

1. Mix together the duck, spring onion, garlic, ginger, chilli, five spice, hoisin sauce, and season with salt and pepper.



2. Put a spoonful of the mix in the centre of a wonton wrapper. Dip your finger into a glass of water and apply around the edge of the dough. Fold over and seal. Repeat with the remaining wrappers, covering the finished specimens with a damp tea towel to prevent them from drying out.
3. Heat a splash of oil in a frying pan or wok, and add the dumplings, frying until crisp. Add a splash of wine and the water. Cover tightly and cook for a further 2-3 minutes, until the steam has all been absorbed. Serve with soy sauce.

Recipe adapted from **James Ramsden** taken from the **Great British Chefs** website.





Beef or Lamb Jhal Faraizi



Ingredients (serves 4)

- 340 g roasted beef or lamb.
- 340 g potatoes.
- ½ teaspoon whole cumin seeds.
- 1 medium onion.
- 2-3 fresh, hot green chillies, chopped.
- 2 tablespoons olive or rapeseed oil.
- 1 teaspoon salt; freshly ground black pepper.



Method:

1. Boil the potatoes ahead of time and set aside to cool. Peel them and then cut into 7 mm dice.
2. Put the oil in a large frying pan and set over a medium-high heat. When hot, put in the
3. Add the meat cut into 7 mm dice, salt and lots of black pepper. Stir and mix for 1 minute. Reduce the heat to medium-low. Press down on all the ingredients with a spatula to form a flat cake that fills the pan. Cook 15 minutes, moving and turning the cake. Serve hot.



cumin seeds. Let them sizzle for 5 seconds. Add the peeled onion cut into 7 mm dice, potatoes and chillies. Lower the heat to medium. Stir and fry about 5 minutes, or until the onion turns somewhat translucent.

Recipe adapted from **Madhur Jaffrey** taken from the **Happy Foodie** website.



Leftovers Affogato with Crumbled Amaretti Biscuits



Ingredients (serves 1)

- 75 g leftover dessert, Christmas pudding, chocolate mousse, tart, torte or pie.
- 1 scoop good-quality vanilla ice cream.
- 1 shot good-quality hot espresso.
- 1-2 amaretti biscuits.



Method:

1. Spoon or crumble leftover pudding into the bottom of a small cup, glass or bowl.



2. Top with the scoop of ice cream and pour the shot of espresso over it.
3. Crumble the biscuits then sprinkle one or two over the top of each pudding so it is nicely presented.

Recipe adapted from **Jamie Oliver** taken from the jamieoliver.com website.







Food Waste Initiatives





FOOD WASTE INITIATIVES

Numerous **Spanish and international initiatives** are emerging **to tackle food waste issues** throughout the food chain, addressing the problem within a policy of sustainability and a commitment to responsible action for the environment.

In the catering sector, a direct relationship with customers who are increasingly committed to protecting the environment and concerned about what they eat **is a great incentive** for taking action.

See more initiatives at the **Catalogue of National and International Initiatives on Food Waste** published by the Ministry of Agriculture, Food and Environment.

Available at:

www.menosdesperdicio.es

Relæ: the world's most sustainable restaurant ... and with a star 



Established in Copenhagen, Relæ was the winner of the 2015 Sustainable Restaurant Award given by The World's 50 Best Restaurants Academy and was also the only Michelin-starred restaurant using organic produce.

Its policy is to follow sustainable practices from the resources it uses to the actions it carries out: local and seasonal food, support for environmentally friendly farming, collaboration with social and charitable entities...

 www.restaurant-relae.dk

Restlos Glücklich volunteers are gearing up to open their restaurant



The Restlos Glücklich association wants to help combat food waste by opening a non-profit restaurant in Berlin, serving dishes made primarily from food donated by producers, distributors or retailers to stop it from ending up in the bin.

To help raise public awareness, they also organise cooking courses and workshops on food production, use and recycling.

www.restlos-gluecklich.berlin

Innovation in take-out packaging design

A student at the International School of Design in Cologne has designed a simple box to take leftover food from restaurants home and heat or recook it following the instructions on the label.

www.fh-koeln.de/hochschule/geschenk-statt-doggy-bag_19521.php

The Eagle and Child produces its own ingredients



The Eagle and Child serves meals made from ingredients it grows, or breeds in the case of animals, as well as from local suppliers, prioritising seasonal produce.

Its environmental commitment involves minimising waste and energy consumption, reuse and recycling. On the social front, it provides training for young people at risk of social exclusion.

www.eagle-and-child.com



Getting back to the roots at SILO

Silo is committed to getting back to the roots of food, avoiding the unnecessary processing of ingredients and seeking the highest quality.



Its goals include zero waste, so it recycles all waste through an organic composter, converting leftovers and scrap into compost. It also helps reduce food waste by sourcing produce directly from local farmers with no intermediaries.

www.silobrighton.com



Bennett Hay and the commitment to reducing food waste



Bennett Hay, a hospitality support company, included audits based on Winnow technology among its activities to achieve an annual reduction in unused food of 3.4 tonnes and an economic saving of over €10,000.

In addition to signing up to the SaveFood initiative, it won the Best Food Waste Strategy Award at the 2015 Sustainable Restaurant Awards.

www.bennetthay.co.uk

WastED Community “revives” food waste



Cooks, farmers, fishermen, distributors, processors, producers, designers and retailers and their joint work to reduce the “waste” of food produced along the food chain saw the Blue Hill restaurant, in New York’s Greenwich Village, propose, for three weeks in March 2015, exquisite recipes based on overlooked by-products of the food system.

www.wastedny.com

TERMS you will be hearing more often

★ **Pop-up restaurant or supper club:** a temporary restaurant located in places of varied characteristics (conventional premises, industrial spaces, etc.) for a short period of time (hours to months). Often characterised by secrecy and exclusivity.

★ **Foodie:** an informal term for a person who is a food and drink aficionado in terms of consumption, study, preparation and staying up to date with the latest news.

★ **Slow food:** an international movement promoting gastronomy linked to pleasure and culture and committed to a sustainable consumption model. Committed, among other things, to the quality of produce and how food is cooked, traditional farming methods and an ethical commitment to producers.



For more information:

www.slowfood.es
(Slow Food Spain)



OTHER INITIATIVES OF INTEREST

Ekonek



Ekonek, a Guipuzkoa-based company dedicated to innovation in by-product recovery, has developed a way to dry food-waste industry derivatives resulting in a homogeneous and stable “powder” that preserves most flavours and components. The powder can be used in human nutrition to, among other purposes, reconstitute food and as an enhancer and flavouring agent.

www.ekonek.eu

Huertos de Soria



By growing fruit and vegetables, processing surpluses into vegetable preserves and marketing its produce, this non-profit social initiative seeks to promote the workplace integration of groups at risk of exclusion in the municipality of Soria.

www.huertosdesoria.org

Development of a type of packaging that extends the shelf life of peeled and cut fruit



As part of the EasyFruit initiative, a team of companies and research centres developed an innovative active packaging that extends the shelf life of peeled and chopped orange and pineapple to 9 and 12 days respectively to encourage consumption and reduce food waste.

www.easyfruit.eu

Universities worldwide partner to reduce food waste

The World Food Preservation Centre is an association of six research universities in the United States, China, the UK, Africa, Australia and South America which seeks to combat food loss and hunger through sustainable cost innovation to reduce post-harvest losses in developing countries. It plans to work around the world to correct the imbalance in population growth and food production through education, innovation and promotion.

★ www.restlos-gluecklich.berlin ★



Transforming citrus fruit into textile fabrics



Two Sicilian fashion-forward environmental and sustainable-development fans have made a new fabric from discarded lemons and oranges.

To manufacture "Orange Fiber" fabric, they extract the cellulose from squeezed fruit and use nanotechnology to encapsulate the essential oils and enrich the fibres with them. The result is a tissue that releases vitamin C on the skin. The breakthrough silk-spun fabric was introduced at Milan Fashion Week in September.

★ www.orangefi.ber.it ★



Freeze-dried foods made from products about to expire



FoPo Food Powder is a new freeze-dried food product created by students from the University of Lund (Sweden) from fruit and vegetables approaching their use by date or foods that were discarded for not meeting market standards.



The resulting product has a shelf life of up to two years and maintains much of the nutritional properties of the original foods.

www.tffchallenge.com/team/2014/fopo-food-powder

Israeli entrepreneurs could have the answer to global hunger with a "Star Trek-style" replicator



A new invention called Genie prepares freeze-dried foods in a bid to reduce food waste and achieve healthy eating.

www.youtube.com/watch?v=ULTVgwcq3m4

PareUp mobile app



PareUp is a mobile app that aims to put consumers in touch with restaurants and food shops that have too much food. Before retailers throw food out, they alert app users and offer their surplus stock at a lower price.

www.pareup.com

RipeNearMe helps people around the world share fruit and vegetables



The RipeNearMe website launched in Australia, connecting people around the world to exchange, share or sell surplus fruit and vegetables that would otherwise go to waste. It improves access to local and seasonal food.

★ www.youtube.com/watch?v=ULTVgwcq3m4 ★

All fruit and vegetables are good: Imperfect Picks



Australian supermarket chain Harris Farm Markets has launched the “Imperfect Picks” range – fruit and vegetables that are not perfect for a cosmetic or size reason. Buying these products can help reduce food waste and support the country’s farmers and the environment, saving consumers money by offering them at a cheaper price.

The chain also works directly with farmers, helping them achieve financial sustainability.

★ www.harrisfarm.com.au/blogs/campaigns/15320613-imperfect-picks ★

Discovering recipes from dishes photographed on Instagram



Created in 2013 to reduce food waste, Handpick gives ideas on what to cook from 10,000 ingredients and offers recipes from photographed dishes that appear on Instagram.

★ www.handpick.com ★





Bibliographic
references



BIBLIOGRAPHIC REFERENCES

- *Kader, Adel and S. Rolle, Rosa. The role of post-harvest management in assuring the quality and safety of horticultural produces [online]. FAO, 2004.*
Available at: www.fao.org/docrep/007/y5431e/y5431e00.htm#Contents
- *Asociación 5 al día [online website].*
Available at: www.5aldia.com
- *Official Chamber of Commerce and Industry of Madrid, Directorate-General for Trade, Ministry of Economy and Technological Innovation at the Madrid Autonomous Region and CEIM (Madrid Business Confederation – CEOE). Business Training Programme for Specialist Retailers, Region of Madrid. Greengrocers [online]. Madrid Chamber of Commerce and Industry.*
Available at: www.madridcomercio.org/docs/CUR.SE.Fruteria.pdf
- *Spain. Bank of Spain. Annual Report, 2013 [online]. Bank of Spain. Madrid, 2014. ISSN: 1579 – 8623.*
Available at: www.bde.es/f/webbde/SES/Secciones/Publicaciones/PublicacionesAnuales/InformesAnuales/13/Fich/inf2013.pdf
- *Spain. Ministry of Agriculture, Food and Environment. Catalogue of National and International Initiatives on Food Waste. Ministry of Agriculture, Food and Environment. Madrid, November 2014.*
Available at: www.mapama.gob.es/es/alimentacion/temas/estrategia-mas-alimento-menos-desperdicio/CATALOGO_DE_INICIATIVAS_2014_alta_tcm7-353395.pdf
- *Spain. Ministry of Agriculture, Food and Environment. Practical Guide for the Consumer: How to Reduce Food Waste Ministry of Agriculture, Food and Environment. Madrid, November 2014.*
Available at: www.mapama.gob.es/es/alimentacion/temas/estrategia-mas-alimento-menos-desperdicio/guia_consumidor_alta_tcm7-354458.pdf
- *Spain. Ministry of Agriculture, Food and Environment. A Practical Guide to Reducing Food Waste in the Retail Business. Fruit and Vegetable Sector. Ministry of Agriculture, Food and Environment. Madrid, August 2015.*
Available at: www.mapama.gob.es/es/alimentacion/temas
- *Spain. Spanish Foundation for Nutrition. Electronic Guide on Good Practices in Using Food Waste to Make Better Use of Food. Madrid.*
- *Spain. Act 27/2014 of 27 November on Corporation Tax. Official State Gazette of 28 November 2014, no. 202, pp. 31410-31418.*
Available at: www.boe.es/boe/dias/2014/11/28/pdfs/BOE-A-2014-12328.pdf
- *Spain. Act 49/2002 of 23 December on the tax regime for non-profit entities and tax incentives to sponsorship. Official State Gazette of 24 December 2002, no. 307, pp. 45229-45243.*
Available at: www.boe.es/boe/dias/2002/12/24/pdfs/A45229-45243.pdf
- *Spain. Royal Decree 1334/1999 of 31 July approving the General Standard for the labelling, presentation and advertising of foodstuffs. Official State Gazette of 24 August 1999, no. 288, pp. 96939- 97097.*
Available at: www.boe.es/boe/dias/1999/08/24/pdfs/A31410-31418.pdf

- *Royal Decree 126/2015 of 27 February 2015 approving the general law relating to the food information of unpackaged food for sale to the end consumer and to groups, of packaging at points of sales at the request of the purchaser, and of packaging used by retail traders . Official State Gazette, 4 March 2015, no. 54. pp 20059-20066.
Available at: www.boe.es/boe/dias/2015/03/04/pdfs/BOE-A-2015-2293.pdf*
- *European Commission and BIO Intelligence Service. Preparatory Study on Food Waste Across EU 27. October 2010. European Commission. 2011. ISBN 978-92-79-22138-5.
Available at: www.ec.europa.eu/environment/archives/eussd/pdf/bio_foodwaste_report.pdf*
- *FAO. Food wastage footprint. Impacts on natural resources. Summary Report [on line]. FAO. 2013. ISBN 978-92-5-107752-8.
Available at: www.fao.org/docrep/018/i3347e/i3347e.pdf*
- *FAO. Manual para el mejoramiento del manejo poscosecha de frutas y hortalizas. Parte I (Cosecha y Empaque) [on line]. FAO, 1987.
Available at: www.fao.org/docrep/x5055s/x5055S00.htm#Contents*
- *FAO. Manual para la preparación y venta de frutas y hortalizas. Del campo al mercado. [on line]. FAO, 2004.
Available at: www.fao.org/docrep/006/y4893s/y4893s00.htm#Contents*
- *FAO. Pérdidas y desperdicio de alimentos en el mundo – Alcance, causas y prevención [on line]. FAO. Rome, 2012. ISBN 978-92-5-307205-7.
Available at: www.fao.org/docrep/016/i2697s/i2697s.pdf*
- *FAO. Toolkit. Reducing the food wastage footprint [on line]. FAO. 2013. ISBN 978-92-5-107741-2.
Available at: www.fao.org/docrep/018/i3342e/i3342e.pdf*
- *FAOy OMS. Codex Alimentarius. Frutas y hortalizas frescas. Primera edición. Rome, 2007. ISBN 978-92-5-305839-6. Available at: www.fao.org/3/a-a1389s.pdf*
- *Mestre, Maria (Fundació ENT) y otros. Aprofitem els excedents alimentaris. Guia per a la implantació d'iniciatives d'aprofitament d'excedents alimentaris en circuits curts. Fundació ENT i Associació Espai Ambiental. November 2013.*
- *Themen, Daniel. Reduction of Food Losses and Waste in Europe and Central Asia for Improved Food Security and Agrifood Chain Efficiency. FAO. 2014.
Available at: www.fao.org/fileadmin/user_upload/Europe/documents/docs/ASI/FLW_draft_en.pdf*
- *Thompson, J.F., Kader, A.A. y Sylva, K. Compatibility chart for fruits and vegetables in short-term transport or storage. Division of Agriculture and Natural Resources, University of California. 1996. Publ. 21560 (poster).*
- *Unilever Food Solutions. Trabajo de manera inteligente: Abra los ojos ante los desperdicios. Trabajo de manera inteligente. 2011. Available at: www.unileverfoodsolutions.es/nuestros-servicios/tu-cocina*
- *Unilever Food Solutions. Las 5 claves para mejorar el día a día de los hosteleros. 2013. Available at: www.unileverfoodsolutions.es/nuestros-servicios/tu-cocina*
- *European Union. European Commission. "Best Before" and "Use By" dates on food packaging. Understand them right to prevent food waste and save money [on line].
Available at: www.ec.europa.eu/food/safety/food_waste/library/docs/best_before_en.pdf*

- 
- European Union. Directive 2000/13/EC of the European Parliament and of the Council of 20 March 2000 on the approximation of the laws of the Member States relating to the labelling, presentation and advertising of foodstuffs. *Official Journal of the European Communities* L 109, 6 May 2000, p. 29-42.
Available at: www.eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:32000L0013&from=EN
 - European Union. Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety. *Official Journal of the European Communities*. L31, 1 February 2002, p. 1-24.
Available at: www.eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:031:0001:0024:EN:PDF
 - European Union. Regulation (EU) No 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers. *Official Journal of the European Union*. L 304, 22 November 2011, p. 18-63.
Available at: www.eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:304:0018:0063:en:PDF
 - European Union. Regulation (EU) n° 543/2011/EU: Commission Implementing Regulation (EU) No 543/2011 of 7 June 2011 laying down detailed rules for the application of Council Regulation (EC) No 1234/2007 in respect of the fruit and vegetables and processed fruit and vegetables sectors. *Official Journal of the European Union*. L157, 15 June 2011, p. 1-163.
Available at: www.boe.es/doue/2011/157/L00001-00163.pdf
 - European Union. Regulation (EU) n° 594/2013: Commission Implementing Regulation (EU) No 594/2013 of 21 June 2013 amending Implementing Regulation (EU) No 543/2011 as regards marketing standards in the fruit and vegetables sector and correcting that Implementing Regulation. *Official Journal of the European Union*. L170, 22 June 2013, p. 43-59.
Available at: www.boe.es/doue/2013/170/L00043-00059.pdf
 - European Union. Regulation (EC) n° 2015/1221: Commission Regulation (EU) 2015/1221 of 24 July 2015 amending Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures, for the purposes of its adaptation to technical and scientific progress. *Official Journal of the European Communities*. L197, 27 July 2015, p. 10-23.
Available at: www.boe.es/doue/2015/197/L00010-00023.pdf
 - WRAP. 2010. Waste arising in the supply of food and drink to households in the UK. Available at: www.wrap.org.uk/content/wastearisings-supply-food-and-drink-uk-households

WEBSITE ADDRESSES

- www.aecosan.msssi.gob.es www.aesan.msssi.gob.es/AESAN/web/cadena_alimentaria/subdetalle/guias_GBPH_APPCC.shtml
- www.aesan.msssi.gob.es/AESAN/web/rincon_consumidor/subseccion/aditivos.shtml
- www.alimentacion.es
- www.alimentacion.es/es/campanas/etiquetado_de_alimentos
- www.alimentacion.es/es/campanas/pescados/etiquetado/default.aspx
- www.alimentacion.es/es/conoce_lo_que_comes/bloc/default.aspx
- www.alimentacion.es/es/campanas/programas-promocion/el-huevo-de-etiqueta/default.aspx
- www.chefcontrolcost.es/cloud
- www.duni.com/uk/for-your-business/products/Compostable-unicolours
- www.ec.europa.eu/food/safety/labelling_nutrition/labelling_legislation/index_en.htm
- www.elcastell.org/es/index/9564/Cinco-restaurantes-de-Castelldefels-en-un-programa-piloto-.html
- www.eletiquetadocuentamucho.aecosan.com
- www.elhuevoetiqueta.eu
- <https://es-es.facebook.com/BcnComparteixElMenjar>
- www.fen.org.
- www.gastrogestor.com/como-gestionar-y-reducir-los-desperdicios-en-tu-restaurante
- www.gestordecocina.com
- www.grupo2000.es/novedades-rd-1262015-sobre-informacion-alimentaria-facilitada-al-consumidor
- www.informacionconsumidor.com/portals/0/etiquetado/index.htm
- www.jamieoliver.com
- www.lescols.com/?lang=es
- www.nutricionsinfronteras.org/noticia/250
- www.perseo.aesan.msssi.gob.es
- www.restaurantessostenibles.com
- www.sustainweb.org/pdf/11/Top_10_waste_busting_tips.pdf
- www.thesra.org
- www.toogood-towaste.co.uk/get-involved/get-involved-for-restaurants
- www.wrap.org.uk/content/hospitality-and-food-service-agreement-0