



GUIDE TO
SUSTAINABLE
MENUS



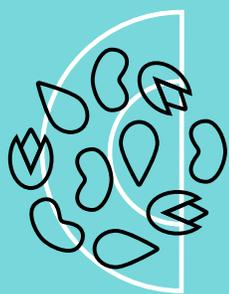
A guide to sustainable menus

A step by step approach
to sustainability



NOURISH
The future of food
in health care.

November 2019



Chapter 10

Choosing your sustainable beverages and snacks



Sustainable beverages and snacks

Why consume beverages and snacks?

Beverages and snacks can complete your clientele's nutritional needs for the day. They can be easy, accessible sources of nutrition to provide sustenance between meals.

Why is it important to choose sustainable beverages and snacks?

Snacks and beverages are often ultra-processed foods that contain many unsustainable ingredients (such as certain oils and additives). These foods provide little nutritional value and require a lot of energy to produce. In addition, they are often individually packaged in plastic, which is a large source of waste. Switching to more sustainable snacks and beverages that are sourced and served in bulk could not only allow for nutritional satiety but also reduce environmental impact.

How do sustainable beverages and snacks impact health?

The sustainable choice is often the healthy choice: for example, raw, seasonal fruits and vegetables have minimal packaging and provide good nutritional value. Ideally, a sustainable snack or beverage can be a source of protein along with fibre (if tolerated) to sustain clients until their next meal. It is easy to introduce new kinds of vegetable protein as snacks, which can help reduce the quantities of protein you need to provide in main meals.

2

What are my beverage and snack standards?

Before choosing the type of beverage and snack for a menu, standards must be written. Beverage and snack standards are guidelines that you must work with such as dietary restrictions, allergies, and patient preferences.

Below is an example of beverage and snack written by a food service manager for their institution. The last two columns indicate a clientele to which they may apply (examples might be the elderly, youth, acute care, etc.).

Beverage standards	Clientele a	Clientele b
Tap or filtered water is accessible at all time on the units	X	X
Only 100% juice is offered at patient's request	X	X
Hot beverages are available 3 times a day (hot water, tea, coffee, caffeine-free substitute)	X	X
One kind of protein-rich plant-based beverage (e.g. soy) and 2% milk are always available	X	X

Snack standards	Clientele a	Clientele b
A limited stock of bulk snacks are available on each unit	Hypoglycemia kit	X
Two personalized snacks (diet, texture, consistence) are given every day (morning and evening)	X	X
A variety of snacks are offered in a menu cycle		
A list of snacks is always available on demand in the kitchen for clients who do not enjoy the options being served	X	X
PM and after-supper snacks are offered	If needed	X
A substitution tool is provided to assist nursing staff in choosing alternative snacks for clients who do not enjoy the options being served		

3

Making sustainable beverage choices

CHOICE OF BEVERAGE
(most to least sustainable
unless indicated)

1. Water

TIPS FOR CHOOSING

Make water the drink of choice.

- **Avoid bottled water.**
 - Bottling water consumes energy, water, and results in large amounts of plastic waste. Packaging, transportation, and other supply chain methods could result in an overall water use six or seven times greater than what is actually bottled.²³⁶
- **Drink tap water.**
 - Tap water is the cheapest, most sustainable source of water. It is strictly regulated by the Canadian Drinking Water Guidelines.²³⁷

TIPS FOR SERVING

- **Serve bulk.**
 - Instead of serving plastic bottles, fill a pitcher or dispenser with tap water.
- **Offer the possibility of homemade flavoured water.**
 - Simply cut up local fruits or vegetables such as strawberries, watermelons, cucumbers and place in a large water dispenser. Sliced oranges, lemons and limes are another good option.

See Chapter 8 for sustainable fruit choices.

See Chapter 6 for sustainable vegetable choices.



2. Plant-based water



MAPLE - COCONUT

- Tree sap²³⁸ and coconut water²³⁹ are electrolyte-rich and may also be a good source of antioxidants.
- **Choose regional suppliers from nearby provinces and states.**
 - Canada is the world's largest producer of maple sap, with 80% of the world's production!²⁴⁰
- **Choose organic.**
 - Look for labels such as Canada Organic or USDA organic, which guarantee that the product is sustainably produced.

- **Look for recyclable packaging.**
 - Consider cardboard or aluminum packaging which is recyclable. Or use reusable glass bottles.

236 Gustafson, 2013.
237 Health Canada, 2017.
238 Yuan et al., 2013.
239 Yong et al., 2009.
240 Peritz, 2017.

CHOICE OF BEVERAGE
(most to least sustainable
unless indicated)

3. Juice



HOMEMADE WITH FIBRE - 100% FRUIT AND/OR VEGETABLE, NO SUGAR ADDED

TIPS FOR CHOOSING

See Chapter 8 for information on in-season fruits.

See Chapter 6 for information on in-season vegetables.

- **Prefer homemade juice**
 - Juices are a good way to use fruits that does not look appetizing.
- **Avoid added sugars.**
 - Juices contain free sugars and are associated with an increased risk of tooth sensitivity.²⁴¹ Beverages containing free sugars should not be consumed on a regular basis. However, sometimes they may be helpful for increasing caloric intake when clients have a low overall intake.
- **Choose organic.**
 - Look for labels such as Canada Organic or USDA organic which ensure the product is sustainably produced.

TIPS FOR SERVING

- **Serve bulk.**
 - Instead of purchasing pre-packaged juice boxes, fill a pitcher or dispenser with juice.

4. Smoothie



100% FRUIT AND VEGETABLES, NO SUGAR ADDED - WITH PLANT-BASED PROTEIN - WITH ANIMAL PROTEIN (EGGS, DAIRY)

See Chapter 8 for information on in-season fruits.

See Chapter 6 for information on in-season vegetables.

- **Add protein to increase the nutritional value.**
 - Prioritize plant-based sources of protein, such as soy powder, nuts and seeds. This will sustain your clientele until their next meal.
- See Chapter 4 for sustainable choices.

- **Serve bulk.**
 - Instead of serving or purchasing individual smoothie bottles, fill a pitcher or dispenser and position reusable cups alongside.



CHOICE OF BEVERAGE
(most to least sustainable
unless indicated)

5. Tea



HERBAL - LABRADOR TEA - GREEN - PU'ER - WHITE - OOLONG - BLACK (ORANGE PEKOE)

TIPS FOR CHOOSING

Tea contains many compounds called flavonoids that may promote health or help prevent chronic disease.²⁴² Numerous studies on both rat and human models using these specific compounds have demonstrated improvements in cancer and cardiovascular disease.²⁴³ However, there is still a need for more research.

- **Choose regional suppliers from nearby provinces and states.**
 - Consider local teas made from regional plants and herbs, for example, Indigenous owned companies creating herbal teas sourced locally, e.g. juniper, crowberry, and cloudberry. Labrador tea has particular health benefits, with recent research showing its promise to control sugar levels in diabetic patients.²⁴⁴
- **Look for certifications and labelling, particularly with imported products.**
 - Labels such as Canada Organic, Fairtrade, and Rainforest Alliance Certified guarantee that the product is sustainably produced.

See the appendix for more information on sustainable tea practices.

TIPS FOR SERVING

- **Avoid single-use packaging.**
 - Consider buying bulk tea leaves rather than prepackaged tea sachets. If this is not possible, consider tea sachets made from biodegradable, compostable materials (some contain plastic, e.g. polypropylene).
- **Serve bulk.**
 - Fill a hot water dispenser or large teapot with tea to serve.
- **Serve with sustainable milk.**
 - See below for sustainable milk choices.
- **Serve with sustainable sugar.**
 - See Chapter 9 for sustainable choices.

6. Fermented drinks



KVASS - KOMBUCHA - WATER KEFIR - PLANT-BASED MILK KEFIR DAIRY KEFIR

Fermented drinks are a great source of probiotics, which help maintain a healthy gut.²⁴⁵

Kvass is a fermented cereal beverage, often made with rye. It is typically sweetened with fruits and herbs (strawberry, mint).

Kombucha is a type of sweetened fermented tea. The tea flavonoids are enhanced through the fermentation process.²⁴⁶

Kefir is made by adding kefir grains to milk, which is left to ferment.²⁴⁷ Kefir can also be made using sugar water and plant-based milks such as coconut milk.

- **Avoid added sugars.**
 - Fermented beverages have a naturally acidic taste and can be high in added sugar to counter this taste. Consider fermented drinks which use fruits to sweeten rather than added sugars.

242 Higdon & Frei, 2003.
243 Khan & Mukhtar, 2007.
244 Radio Canada, 2011.
245 Hemarajata & Versalovic, 2012.
246 Chakravorty et al., 2016.
247 Dlusskaya et al., 2007.

CHOICE OF BEVERAGE
(most to least sustainable
unless indicated)

7. Coffee



REGULAR - DECAFFEINATED

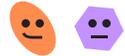
TIPS FOR CHOOSING

- **Avoid decaffeinated coffee.**
 - Caffeine is removed from coffee beans through a number of solvent-based processes, which may use water, methylene chloride, and carbon dioxide.²⁴⁸ There is limited research on the sustainability of these processes.
- **Look for certifications and labelling.**
 - Labels such as Certified Organic, Fairtrade, Ecologo, Bird-friendly and Rainforest Alliance Certified certify social or environmental production methods.
 - See the appendix for more information on sustainable coffee.
 - See Conservation International's [Sustainable Coffee Challenge](#)

TIPS FOR SERVING

- **Avoid single-use plastic.**
 - Buy bulk ground coffee rather than single-use coffee pods.
- **Serve bulk.**
 - Fill a hot beverage dispenser with coffee for service.
- **Serve with sustainable milk.**
 - See below for sustainable milk choices.
- **Serve with sustainable sugar.**
 - See condiments, seasonings, sweeteners, fats chapter for sustainable choices.

8. Beverage / Milk



PLANT-BASED MILKS - SOY - OAT - RICE - ALMOND/CASHEW DAIRY MILK

- **Choose high-protein, fortified plant-based milk.**
 - Soy milk is the plant-based milk with the greatest protein content and lowest environmental impact.²⁴⁹ Although there are other plant-based milk options, be conscious of the nutritional values to ensure that they meet all requirements for your clientele.²⁵⁰
- **Avoid sweetened plant-based milk.**
 - Choose plain, original, unsweetened plant-based milks. Many plant-based milks often have sugar as the second ingredient.²⁵¹
- **Choose organic plant-based milk.**
 - Look for labels such as Canada Organic or USDA organic which guarantee that the product is sustainably produced.
- **Choose sustainable dairy milk.**
 - This includes grass-fed, pasture raised and organic dairy.
 - See Chapter 4 for more information.

- **Serve bulk.**
 - Instead of purchasing individual cartons of milk, purchase large cartons or jugs and serve with reusable cups instead.

AVOID: Flavoured/sugar sweetened beverages

POP/SODA - ENERGY DRINKS - HOT CHOCOLATE - FLAVOURED COFFEE AND TEA - FLAVOURED MILKS - JUICE BLENDS

- **Avoid artificial flavours.**
 - Consider beverages that use whole ingredients instead.
 - See the appendix for list of additives and preservatives and more information on artificial flavours.
- **Avoid high sugar or sodium content.**
 - Sugar should not be the main ingredient, and salt should not be among the main ingredients. Products with a high sugar content can increase the risk of obesity and tooth sensitivity and decay.²⁵²
- **Limit saturated fats.**
 - There should be less than 3 g of saturated fat in every 30 g of food.

4

Making sustainable snack choices

CHOICE OF SNACK
(most to least sustainable
unless indicated)

1. Fruit

RAW (SLICED) - BLENDED (SMOOTHIE) - FROZEN - DRIED

TIPS FOR CHOOSING

See Chapter 8 for sustainable fruit choices.

- **Avoid high-sugar and processed options.**
 - Try to choose whole ingredients without added sugar, including dried fruits with no additives. Sliced fruits such as apples or pears, berries, and cherries are great options.

TIPS FOR SERVING

- **Avoid single-use packaging.**
 - Single-serve snacks typically contain many preservatives, few whole ingredients and produce a lot of waste.
- **Serve bulk.**
 - When possible, buy in large quantities and serve in smaller portions on serving trays.



2. Vegetable and dip



**HUMMUS - NUT BUTTERS - BABA GHANOUSH (EGGPLANT DIP)
YOGURT WITH DILL - LABNEH - CHEESE CUBES, CREAM CHEESE**

See Chapter 6 for sustainable vegetable choices.

- **Avoid high sodium and sugar in dips.**
 - Processed dips may include high amounts of sodium and sugar.
- **Avoid additives in dips.**
 - Choose dips with flavours coming from whole ingredients such as herbs and spices.
 - See the appendix for a list of additives and preservatives.
- **Choose plant-based dips.**
 - Hummus and peanut butter are great sources of protein.

CHOICE OF SNACK
(most to least sustainable
unless indicated)

3. Popcorn



UNSEASONED (PLAIN) - SEASONED (BUTTER, HERBS, SPICES)

TIPS FOR CHOOSING

- **Avoid high sodium and additives.**
 - Try to choose plain popcorn or popcorn seasoned with herbs and spices rather than high amounts of sodium.
- **Make your own popcorn using bulk popcorn kernels.**
 - Instead of buying processed, popped, and seasoned popcorn, try popping your own and adding herbs and spices.
 - See Chapter 9 for herb and spice ideas.
- **Choose regional corn suppliers who use organic and/or sustainable production methods.**
 - Corn in Canada is a genetically modified (GM) crop.
 - See the appendix for more information on GM crops.

TIPS FOR SERVING

- **Avoid single-use packaging.**
 - Single-serve snacks typically contain many preservatives, few whole ingredients and produce a lot of waste.
- **Serve bulk.**
 - When possible, buy in large quantities and serve in smaller portions on serving trays.

4. Crackers



UNSEASONED (PLAIN) - SEASONED (BUTTER, HERBS, SPICES)

- **Avoid high sodium, additives, and added sugars.**
 - Try to choose products made with whole ingredients, such as crackers seasoned with herbs and spices.
- **Avoid crackers that contain unsustainable oils.**
 - Palm oil is particularly damaging for the environment.
 - See Chapter 9 for more information.
- **Choose high-quality fibre content.**
 - Consider ancient and/or whole grains such as kamut or sorghum.
 - See Chapter 5 Chapter 5 for sustainable choices.
- **Choose high-quality protein content.**
 - Crackers with plant-based protein such as nuts and seeds can keep your clientele full until the next meal.
 - See Chapter 4 for sustainable choices.

- **Avoid single-use packaging.**
 - Single-serve snacks typically contain many preservatives and few whole ingredients, and produce a lot of waste.
- **Serve bulk.**
 - When possible, buy in large quantities and serve in smaller portions on serving trays.

CHOICE OF SNACK
(most to least sustainable
unless indicated)

5. Dried/roasted beans



ROASTED CHICKPEAS - EDAMAME - FAVA BEANS
NOT LISTED IN ORDER OF SUSTAINABILITY

TIPS FOR CHOOSING

- **Avoid high sodium and additives.**
 - Try to choose whole ingredients that use minimal salt, such as beans seasoned with herbs and spices.

TIPS FOR SERVING

- **Avoid single-use packaging.**
 - Single-serve snacks typically contain many preservatives and few whole ingredients, and produce a lot of waste.
- **Serve bulk.**
 - When possible, buy in large quantities and serve in smaller portions on serving trays.

6. Nuts



CASHEWS - ALMONDS - WALNUTS - PECANS - PISTACHIOS
BRAZIL NUTS - NUT BUTTERS

See Chapter 4 for more information.

- **Avoid high sodium, sugar, and highly processed options.**
 - Try to choose raw nuts or seasoned nuts with minimal salt, such as nuts seasoned with herbs and spices.
- **Choose natural nut butters.**
 - These nut butters come from whole ingredients, typically only nuts and salt and/or sugar. Natural nut butter should be kept in the refrigerator because aflatoxins produced by moulds may develop in warm, humid conditions.²⁵³

- **Avoid single-use packaging.**
 - Single-serve snacks typically contain many preservatives and few whole ingredients, and produce a lot of waste.
- **Serve bulk.**
 - When possible, buy in large quantities and serve in smaller portions on serving trays.

CHOICE OF SNACK
(most to least sustainable
unless indicated)

7. Pudding and yogurt

**PLANT-BASED (SOY, ALMOND, CASHEW, COCONUT) PUDDING
- PLANT-BASED (SOY, ALMOND, CASHEW, COCONUT) YOGURT -
NATURAL, PLAIN YOGURT - YOGURT MIXED WITH FRESH FRUIT OR
LOW-SUGAR JAM - WITH GRANOLA OR CEREAL**

TIPS FOR CHOOSING

- **Avoid long ingredient lists with additives and preservatives.**
 - Additives and preservatives prolong ingredient lists to maintain shelf life. Look for whole foods.
- **Avoid high amounts of sugar and artificial sweeteners.**
 - Artificial sweeteners are often used in reduced-calorie products. However, because artificial sweeteners have no nutritional value, it is unclear whether they are particularly helpful or harmful in maintaining overall energy balance.
See the appendix for a complete list of artificial sweeteners.
- **Avoid 0% fat products.**
 - Fat-reduced products usually contain additives such as thickening agents (which increase the carbohydrate content of the product)²⁵⁴, artificial sweeteners, and high amounts of salt and sugar to enhance flavor.
- **Choose organic soy pudding and yogurt.**
 - Organic soy is upheld to USDA and/or Canada Organic standards, which ensures that farming practices consider and practise environmental sustainability. Organic soybean has also been found to have a better nutritional profile than conventional soybean.²⁵⁵
- **Choose organic dairy pudding and yogurt.**
 - Organic dairy comes from cows which are fed with feed free of synthetic pesticides, herbicides, and fungicides. Organic dairy cows also have more access to pasture.²⁵⁶
See Chapter 4 for more information.
- **Choose whole grain granola or cereal if serving alongside.**
 - See Chapter 5 for sustainable choices.

TIPS FOR SERVING

- **Avoid single-use packaging.**
 - Single-serve snacks typically contain many preservatives and few whole ingredients, and produce a lot of waste.
- **Serve bulk.**
 - When possible, buy in large quantities and serve in smaller portions on serving trays.

8. Hard-boiled eggs

All Canadian eggs are antibiotic and growth hormone-free.

- **Choose free-run or free-range eggs.**
 - Free-run hens have freedom to roam within an enclosed barn, while free-range hens have access to the outdoors, in contrast to conventional hens which remain in battery cages.²⁵⁷
- **Choose organic eggs.**
 - Canadian organic poultry is fed with no animal by-products or antibiotics.
See Chapter 4 for more information.

CHOICE OF SNACK
(most to least sustainable
unless indicated)

9. Cheese slices or cubes

COTTAGE CHEESE - FETA - CHEDDAR - MOZZARELLA - HAVARTI - EDAM - GOUDA - SWISS - GRUYERE - ASIAGO - PEPPER JACK

NOT LISTED IN ORDER OF SUSTAINABILITY

TIPS FOR CHOOSING

All Canadian dairy products are antibiotic and growth-hormone free.

- **Avoid flavoured, processed cheese.**
 - Flavoured cheeses, such as smoked cheese, can contain more sodium.
- **Avoid high saturated fat.**
 - Most cheese is high in saturated fat. Ensure that portions are given as appropriate.
- **Choose organic dairy.**
 - Organic dairy comes from cows which are fed with feed free of synthetic pesticides, herbicides, and fungicides. Organic dairy cows also have more access to pasture.²⁵⁸

See Chapter 4 for more information.
- **Choose dairy from grass-fed and pasture-raised animals.**
 - Look for certification or language such as “100% grassfed and finished”.

TIPS FOR SERVING

- **Avoid single-use packaging.**
 - Single-serve snacks typically contain many preservatives and few whole ingredients, and produce a lot of waste.
- **Serve bulk.**
 - When possible, buy in large quantities and serve in smaller portions on serving trays.

10. Homemade sweets

PUDDING (MILK OR MILK ALTERNATIVES) - COOKIES - MUFFINS
NOT LISTED IN ORDER OF SUSTAINABILITY

See Chapter 8 for sustainable choices.

- **Limit sugar content.**
 - Consider using other sources of sugar such as honey or maple syrup, which can be sourced locally and sustainably.

See Chapter 9 for more sustainable sugar choices.
- **Choose sustainable, high-quality flours and grains.**
 - These will add more nutritional value and help keep your clientele full until the next meal.

See Chapter 5 for sustainable choices.

- **Avoid single-use packaging.**
 - Single-serve snacks typically contain many preservatives, few whole ingredients and produce a lot of waste.
- **Serve bulk.**
 - When possible, buy in large quantities and serve in smaller portions on serving trays.

CHOICE OF SNACK
(most to least sustainable
unless indicated)

11. Protein sandwich



PLANT-BASED SUBSTITUTES - CHEESE - EGGS - SEAFOOD AND FISH - POULTRY

TIPS FOR CHOOSING

- **Choose sustainable, high-quality plant-based proteins.**
 - Although tofu, tempeh, and seitan are traditional foods in many cultures, meat substitutes can also have long ingredient lists with salt, sugar, fillers, and additives.²⁵⁹
 - Try a tofu spread with spices and mayonnaise, or a nut butter sandwich.
 - Refer to the nutritional guidelines for information on sodium content.
- **Choose sustainable, high-quality animal proteins.**
 - Consider organic, grass-fed, and free-run options. See Chapter 4 for sustainable choices.
- **Choose high-quality bread.**
 - See Chapter 5 for sustainable bread choices.
- **Add vegetables.**
 - Include sliced options for sandwiches such as lettuce, tomato, and cucumber. See vegetable table for sustainable vegetable choices.

TIPS FOR SERVING

- **Avoid single-use packaging.**
 - Single-serve snacks typically contain many preservatives, few whole ingredients and produce a lot of waste.
- **Serve bulk.**
 - When possible, buy in large quantities and serve in smaller portions on serving trays.

12. Outsourced sweets & salty snacks



SWEET: COOKIES - MUFFINS - PUDDING - SORBETS, ICE CREAM - POPSICLES

SALTY SNACKS: CRACKERS - CHIPS

- There is a wide range of manufacturing processes that contribute to the sustainability of outsourced sweets, ranging from small-scale artisan companies to large-scale factories.
- **Avoid long ingredient lists with additives and preservatives and artificial flavors.**
 - Additives and preservatives prolong ingredient lists to maintain shelf life. Look for whole foods.
 - Consider flavours that come from whole ingredients instead. See the appendix for list of additives and preservatives.
- **Avoid palm oil.**
 - Palm oil is extremely destructive for the environment, wildlife, and human health. Seek sustainable production practices or limit consumption. See the appendix of Chapter 8.
- **Avoid trans fats.**
 - Small amounts of trans fats occur naturally in food. The addition of industrial trans fats, in the form of hydrogenated oils, has been banned in Canada since September 17, 2018, but companies have two years to change their products.²⁶⁰
- **Avoid high sugar or sodium content.**
 - Sugar should not be the main ingredient, and salt should not be among the main ingredients.
- **Limit saturated fats.**
 - There should be less than 3 g of saturated fat in every 30 g of food.
- **Choose whole grains.**
 - See starches table for sustainable choices.

- **Avoid single-use packaging.**
 - Single-serve snacks typically contain many preservatives and few whole ingredients, and produce a lot of waste.
- **Serve bulk.**
 - When possible, buy in large quantities and serve in smaller portions on serving trays.



Learning about traditional Indigenous beverages and snacks

These food examples may represent food of a specific geographical location / indigenous territory. Please be mindful to become aware of the indigenous territory you are on, make connections, build relationships and learn what food is original to this territory.

Indigenous people have traditionally used locally accessible trees, plants, and herbs to make various beverages. For example, mint, wild bergamot, spruce, cedar, raspberry and blueberry leaves were used for herbal teas and the fruits of these plants were often consumed raw as snacks, or dried and preserved for storage.²⁶¹

One common example is Labrador tea, a plant widely used. The following comes from Agriculture and Agri-Food Canada²⁶² :

Labrador tea

Labrador tea (*Rhododendron groenlandicum*) is a wetland plant that grows wild in most regions of Canada and the northern United States. Its highly aromatic leaves can be used to brew a tasty herbal tea. A number of Indigenous peoples used Labrador tea as infusions to treat inflammatory conditions, such as burns, rheumatism, arthritis, and asthma. An industry partner is now working with Agriculture and Agri-Food Canada (AAFC) scientists to develop an extract of Labrador tea to be used in a variety of products.

Indigenous snacks made use of seasonal animals and plants. Otherwise, they would be preserved for consumption later in the year, particularly during the winter when resources were scarce. Common snacks include wild berries, nuts, and smoked meats and fish.²⁶³

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Kuhnlein & Turner, 1991.
Agriculture & Agri-Food Canada, 2017.
First Nations Health Authority, 2014.

Appendix

Additives

See Health Canada's complete list of approved additives.

ARTIFICIAL FLAVOURINGS

The chemical composition of artificial flavours and natural flavours are the same. The only difference is the source of the chemicals: synthesized from numerous chemicals in the former or derived from numerous chemicals found in plants and/or foods in the latter.²⁶⁴ Natural does not necessarily mean "good" or "safe" and neither does artificial. Ultimately, dosage dictates toxicity: flavourings are safe for consumption in appropriate amounts.

ARTIFICIAL COLOURING, ARTIFICIAL FOOD COLOURANTS (AFCs)

Most of the controversy surrounding artificial food colourants (AFCs) involve links between its consumption and children's behaviour, and attention deficit disorder in particular. It is statistically challenging to come to a hard conclusion of the effect of one variable on the other because of the variance in data collection and methodologies over the past 35 years.²⁶⁵ Ultimately, the United States Food and Drug Administration along with the European Food Safety Authority have concluded that there is no substantial link between the tested colourants and behavioural effects.²⁶⁶ Again, dosage dictates toxicity: artificial colourants are safe for consumption in appropriate amounts.

ARTIFICIAL SWEETENERS

Artificial sweeteners are a sugar substitute which can either come in low-calorie or zero-calorie forms. They are commonly used by diabetic patients and those looking to lose weight.²⁶⁷ However, few studies support their efficacy: most provide evidence of their contribution to high blood sugar and obesity as a result of altering the gut microbiota.^{268 269}

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Bloom, 2017.
Nigg et al., 2012.
International Food Information Council (IFIC) & U.S. Food and Drug Administration (FDA), 2010.
Dietitians of Canada, 2018.
Suez et al., 2014.
Feehley & Nagler, 2014.

Coffee

Many of the world's coffee-growing regions are around the equator in the Southern Hemisphere, in Central/South America, Africa, and Southeast Asia. Coffee is a crop that is sensitive to a changing climate, due particularly to its biophysical needs but also to its vital economic importance to growers around the world. In Central America, smallholder farmers are dependent on coffee as an export crop that contributes significantly to the economy, through GDP and employment.²⁷⁰ In Africa, agroforestry practices that ensure crop diversity are typical, but most coffee farmers are poor smallholder farmers who receive minimal benefits from the market.²⁷¹

Certified coffee schemes such as Rainforest Alliance²⁷², which promotes producer sustainability and welfare, have been found to increase the net income of participating producers.

Tea

Tea is native to the mountains of Asia but is also grown in small areas of Southeast Africa.²⁷³ Tea is an extremely labour-intensive crop, produced on estate plantations or by smallholder farmers. In the former, tea workers do not generally own the land they farm on, and safety and health issues are widely ignored, raising ethical concerns.²⁷⁴ In Kenya, Rainforest Alliance certification was found to improve work conditions and natural resource conservation to a limited extent, although no difference was found between these certified farms and regular farms in terms of living conditions and health benefits.²⁷⁵

Determining the sustainability of coffee and tea is complex, with many factors coming into play. However, there are a number of certifications to guide your choices:

The fair trade system guarantees that farmers are rightfully paid, work under safe conditions, and employ environmental sustainability.²⁷⁶

Organic certification upholds the principles of health, ecology, and care in agriculture to ensure soil fertility, animal welfare, and conscious use and recycling of natural resources.²⁷⁷

270 Mendez et al., 2010.
 271 Kufa, 2010.
 272 Barham & Weber, 2010.
 273 Kato & Shibamoto, 2010.
 274 Ahmmed & Hossain, 2016.
 275 Postles, 2018.
 276 Fairtrade Canada, n.d.
 277 Canadian General Standards Board, 2015.

Rainforest Alliance audits farms to assess the conservation of biodiversity, ethical labour, natural resource conservation, and proper farm planning and management.²⁷⁸

The University of Saskatchewan has a Sustainable Purchasing Guide for coffee and tea: <https://sustainability.usask.ca/documents/commodity-protocols/Coffee%20and%20tea.pdf>

Genetically modified organisms (GMOs), genetic engineering (GE), genetically modified (GM)

Crops have been genetically modified for thousands of years. Through plant breeding and artificial selection, we have been able to domesticate plants into the fruits and vegetables we consume today.²⁷⁹ Genetic engineering is a new technology for genetically modifying crops. Before a genetically engineered crop is approved for growth and sale in Canada it must undergo a rigorous assessment by Health Canada to ensure it is safe for human consumption.²⁸⁰ Genetic engineering is used in several different forms of pesticides (a term that includes herbicides, insecticides and fungicides)²⁸¹. GM crops are commonly genetically engineered to resist herbicides that may be used to control weeds. However, the use of these crops prompts the proliferation of herbicide-resistant weeds, increasing farmers' reliance on chemical herbicides and allowing herbicide-resistant weeds to proliferate.²⁸² The chief concerns with GM crops arise from the uncertainty related to the long-term health effects of both consumption and the associated increased use of herbicides and pesticides. Dietitians of Canada and Health Canada state that there are no such effects^{283 284}. However, Health Care Without Harm encourages healthcare facilities to refrain from purchasing genetically engineered foods due to evidence of risks worldwide.²⁸⁵ In Canada, four GM crops are currently grown: corn, soybean, canola, and sugar beet.²⁸⁶

278 Rainforest Alliance, 2018.

279 Gepts, 2001.

280 Health Canada, 2012.

281 Canadian Biotechnology Action Network (cban.ca)

282 Gilbert, 2013.

283 Dietitians of Canada, n.d.

284 Health Canada, 2018.

285 Healthcare Without Harm, n.d.

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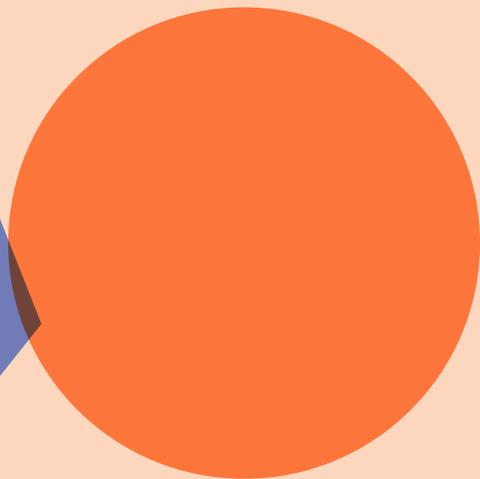
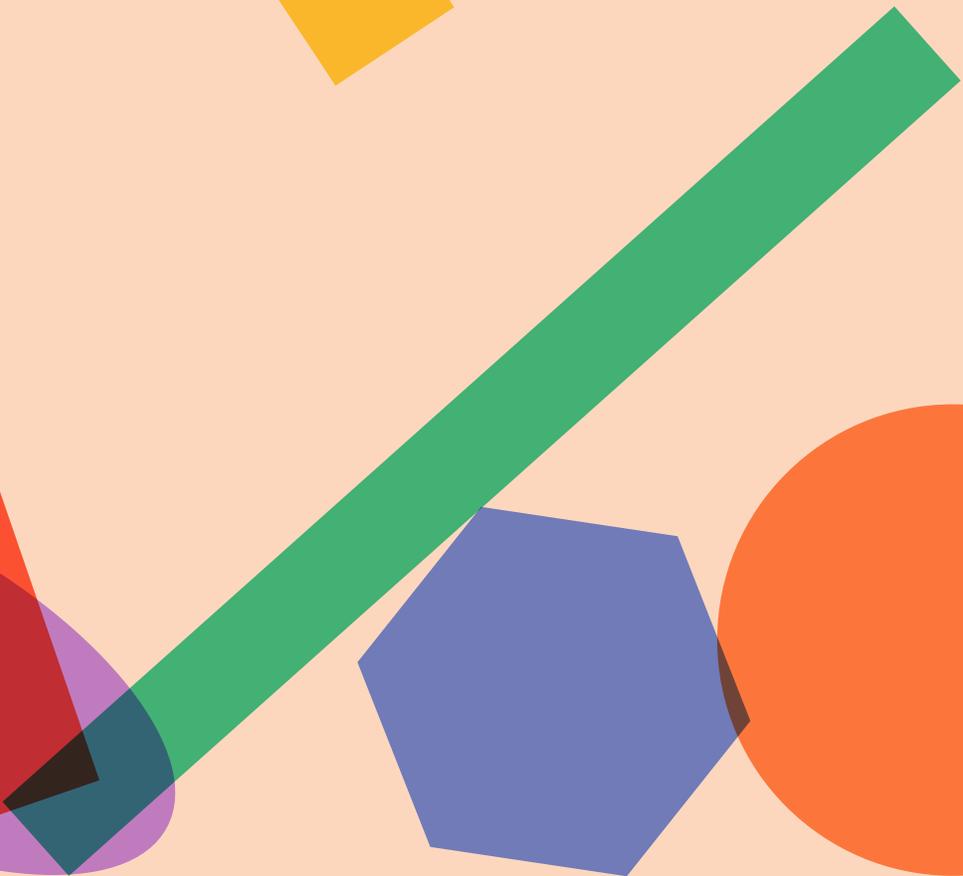
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