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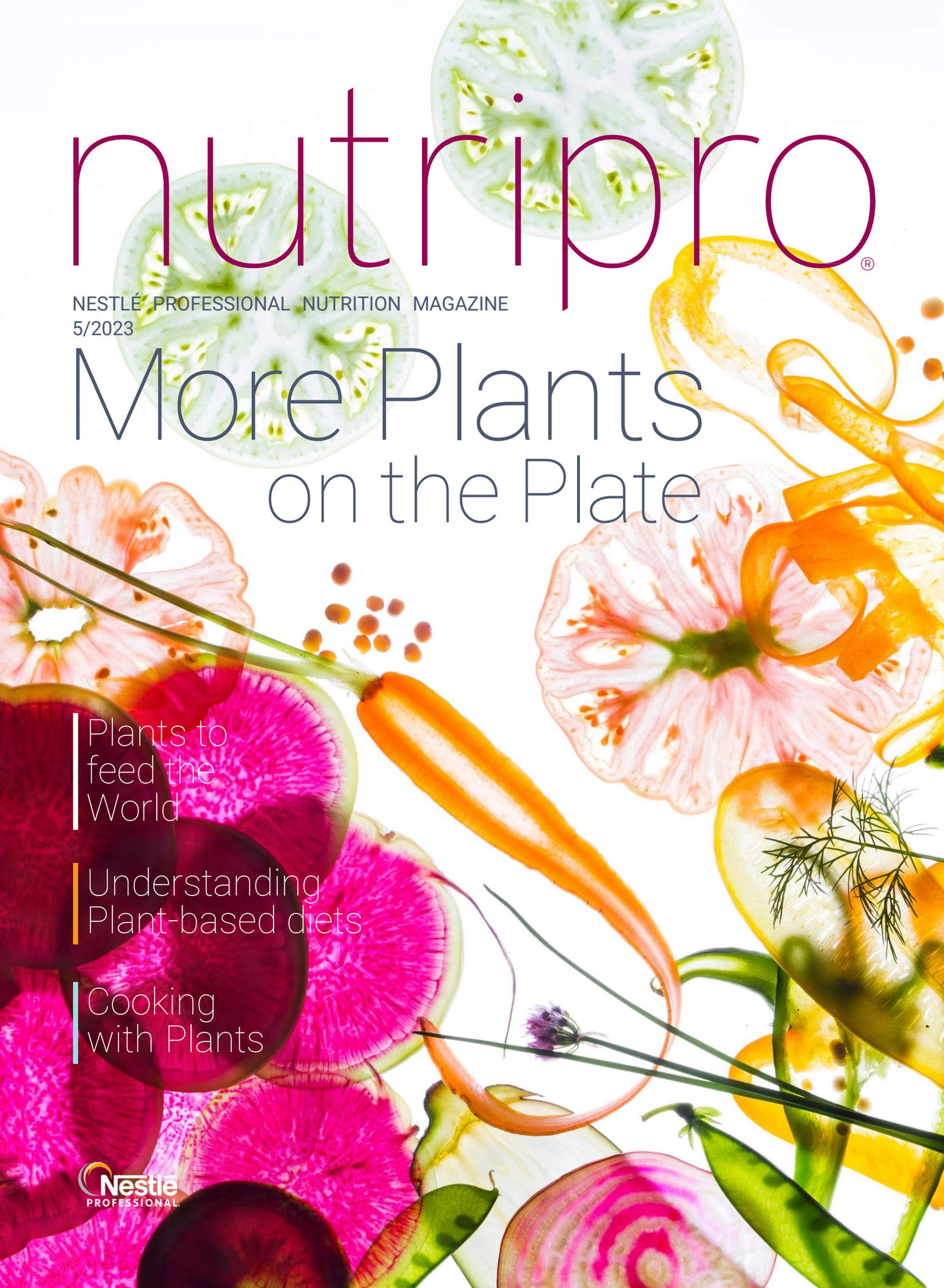
More Plants on the Plate



Plants to feed the World

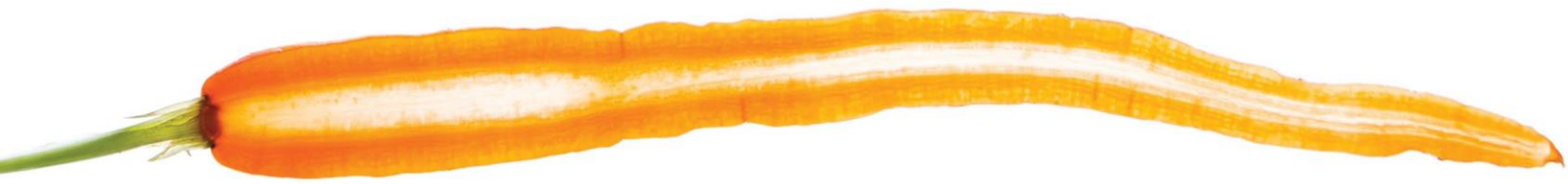
Understanding Plant-based diets

Cooking with Plants

Nestlé PROFESSIONAL

What's on the plate?

For a growing number of consumers, it's not meat.



While fruits, vegetables, and herbs have always been an important part of cooking, more and more people around the world are opting to eat only plants at some or all of their meals.

As a food service expert, it's important for you to stay on top of these rising trends. Of course, you don't have to abandon your existing menu, but by catering to both people who eat foods and beverages from animal sources and people who avoid them, you can expand your offerings to serve a wider range of consumers.

In this issue, we'll examine the main types of plant-based diets and the reasons people choose them. We'll also cover some of the unique challenges and opportunities of cooking without animal-based ingredients, along with helpful tips you can use in your establishment.

From an occasional meatless meal to a strict vegan diet, you'll know just what it takes to keep every guest satisfied.

6 IN 10

AUSTRALIANS HAVE TRIED OR ARE INTERESTED IN TRYING PLANT-BASED MEAT ALTERNATIVES.[1]

39%

OF EUROPEAN SHOPPERS ARE BUYING VEGETARIAN FOOD OPTIONS.[2]

IN 2020, THE U.S. RETAIL PLANT-BASED FOOD MARKET GREW

27.1%[3]

CHINA HAS COMMITTED TO REDUCE MEAT CONSUMPTION

50%

BY 2030.[4]

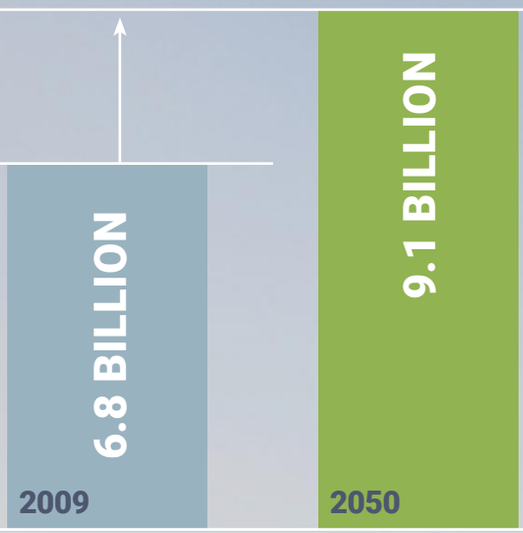
25%

OF AUSTRALIANS IDENTIFY AS FLEXITARIAN OR REDUCING MEAT CONSUMPTION.[5]

PLANTS TO FEED THE *world*[6]

BY 2050 THE GLOBAL POPULATION WILL INCREASE[6]

34%



BY THAT TIME, ABOUT 70% OF THE WORLD'S POPULATION WILL BE URBAN, UP FROM 49% IN 2009[6].

TO FEED THIS LARGER, WEALTHIER, URBAN POPULATION, FOOD PRODUCTION WILL NEED TO INCRE ASE BY:

70%

THROUGH 2050

OUR CURRENT FOOD SYSTEM USES[7]

- OVER **30%** OF ALL ICE-FREE LAND
- **70%** OF ALL FRESH WATER
- **20%** OF ALL ENERGY

UNDERSTANDING *Plant-based Diets*

There are many different approaches to plant-based eating, from people who simply want to eat meat less often to people who consume no animal products or by-products of any kind.

A RANGE OF OPTIONS

Flexitarian: actively chooses to eat less meat, whether that means reducing the amount on the plate or avoiding meat on certain days of the week.

Vegetarian: does not eat meat of any kind, but may consume animal by-products.

Lacto-ovo vegetarian:
Eats dairy products and eggs, but not meat.

Ovo-vegetarian:
Eats eggs, but not dairy products or meat.

Lacto-vegetarian:
Eats dairy products, but not eggs or meat.

Vegan: does not eat meat, eggs, dairy products, or any other ingredients created from or produced by animals, including honey.

Pescatarian: eats fish, seafood, eggs and dairy products, but no red meat, pork or chicken.

WHY PEOPLE ARE EATING MORE PLANTS

Like many lifestyle choices, there are multiple reasons people might choose to follow a plant-based diet. Understanding these reasons can help you connect with your guests and shape your menu around their preferences.

Health

Plant-based foods can be a good source of vitamins, minerals, dietary fibre, and even unsaturated fatty acids and protein. Some people reduce or eliminate animal products from their diet because of dietary intolerances (like dairy), health conditions or general well-being. 40% of Australians choose to eat plant-based for health reasons[8].

Affordability

Another factor for some who choose to eat less meat is cost. For example, dried beans and rice are a cost-effective alternative to high-priced meat products, and they are also a good source of protein.

Ethics

Others choose not to eat meat because of ethical reasons and their interest in animal welfare. A common consumer concern is the general treatment of the animals and the animal's living conditions[9]. And some don't believe that humans have the right to kill animals for food[10]. 18% of Australians choose to eat plant-based because it aligns with their values on animal welfare[8].

Religion

Several religions advise their followers to avoid eating meat or animal-based products. For example, Hindus and Buddhists have a strong tradition of vegetarianism, Jainists follow a vegan diet, and Seventh-Day Adventists promote lacto-ovo-vegetarianism.

Sustainability

Still another reason that people limit meat from their diets is concern for the environmental impact, whereas plant-based diets represent a one opportunity to reduce greenhouse gas emissions (GHGs).[11] 28% of Australians choose to eat plant-based because they think it's better for the environment[8].

Sensory and Preference

Finally, there are some people who simply don't enjoy eating animal products due to their characteristic taste, texture, or smell.

Getting PROTEIN

WHAT IS PROTEIN?

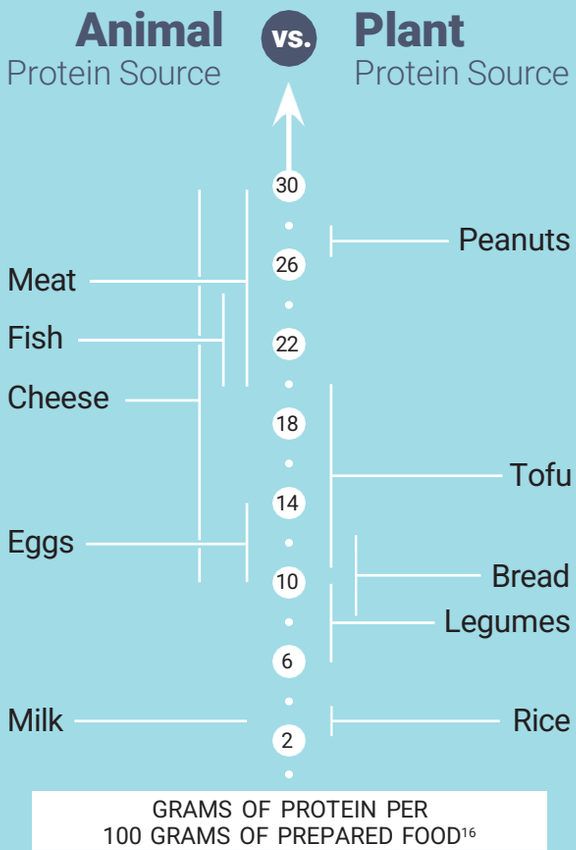
Protein is one of the three essential macronutrients—together with fat and carbohydrates. Proteins are large molecules made up of different combinations of smaller units, called amino acids. Our bodies need 20 amino acids: 9 of them are considered essential amino acids and can be obtained only from food—as our bodies can't produce them—while the others are considered non-essential, because they can be synthesized by the human body.[12]

WHY DO WE NEED IT?

Proteins are essential for the human body and adequate consumption levels are important. Proteins participate in biological processes, and they provide amino acids that contribute to growth and maintain muscle mass. They also contribute to the maintenance of bones.[13]

HOW MUCH DO WE NEED?

The daily protein recommendation for adults is 0.75 – 0.84 g for every kg of body weight, (about 45-50 grams for a 60 kg person) and from 0.8 - 1.6 g per kg of body weight for infants and children[14]. Older adults require more protein to maintain muscle mass and athletes consume more protein to build muscle. Because the body rapidly turns over protein stores, people need to consume adequate amounts of the amino acids that make up proteins in order to maintain good health[15].



Complete your profile

Some foods contain all of the essential amino acids you need in sufficient quantities. These are known as complete protein sources. Along with meat, seafood, eggs, and dairy, you can also get complete proteins from plants such as quinoa, buckwheat, amaranth, soy, hemp, and chia seeds.

Foods that don't contain all nine essential amino-acids are known as incomplete protein sources. While they don't offer enough essential amino acids on their own, they can be combined with a variety of other foods throughout the day to provide an adequate intake of proteins. Examples include nuts and seeds, legumes, grains, and vegetables.

complementary proteins

ACROSS CULTURES

You don't have to look far to find examples of foods that complement each other to provide all of the amino acids you need. All around the world, traditional dishes have found a way to satisfy people's hunger, tastes, and basic protein needs by relying on plant crops. Traditional plant-based dishes that offer a complete amino acid profile include:

Mexico: Black beans with corn and/or rice

Lebanon: Falafel and tahini-based sauce

Morocco: Couscous with chickpeas

Ethiopia: Injera (flat bread made with teff flour) with wat (lentil stew)

Punjab region, North India: Kaali daal (black lentils) with rice

Switzerland: Muesli (nuts and grains)

South Africa: Samp (corn) and beans

PLANT-BASED *Beverages*

From the grocery store to the local coffee shop

Dairy alternatives are everywhere, and consumers are eager to embrace them. In fact, plant-based alternatives make up $19 billion USD of the nearly $184 billion global dairy market in 2022, and the per capita consumption of dairy alternatives is equal to 10% of the per capita consumption of milk products.[17]

In general, you can substitute any plant-based milk 1:1, except in recipes where the protein plays an important structural role (e.g. baked applications).

You can also try combining beverages like soy or oat and pea to improve the quality of protein.

You may want to consider the differences in flavour and nutrition. Many milk alternatives have added sugar to mask the "beany" or "cerealy" flavours and to replicate the sweetness naturally found in milk (due to its lactose content).

In many countries, milk may also be fortified with key nutrients (like vitamins A & D), so look for plant-based options that have no (or low) added sugars and contain added vitamins and minerals e.g. calcium, vitamins A, D, B2 and B12.

Milk & Plant-based Alternatives[13]

Samples are arranged according to protein content.

Information is based on available databases and does not represent all products in the market.

Nutritional values per 100 ml

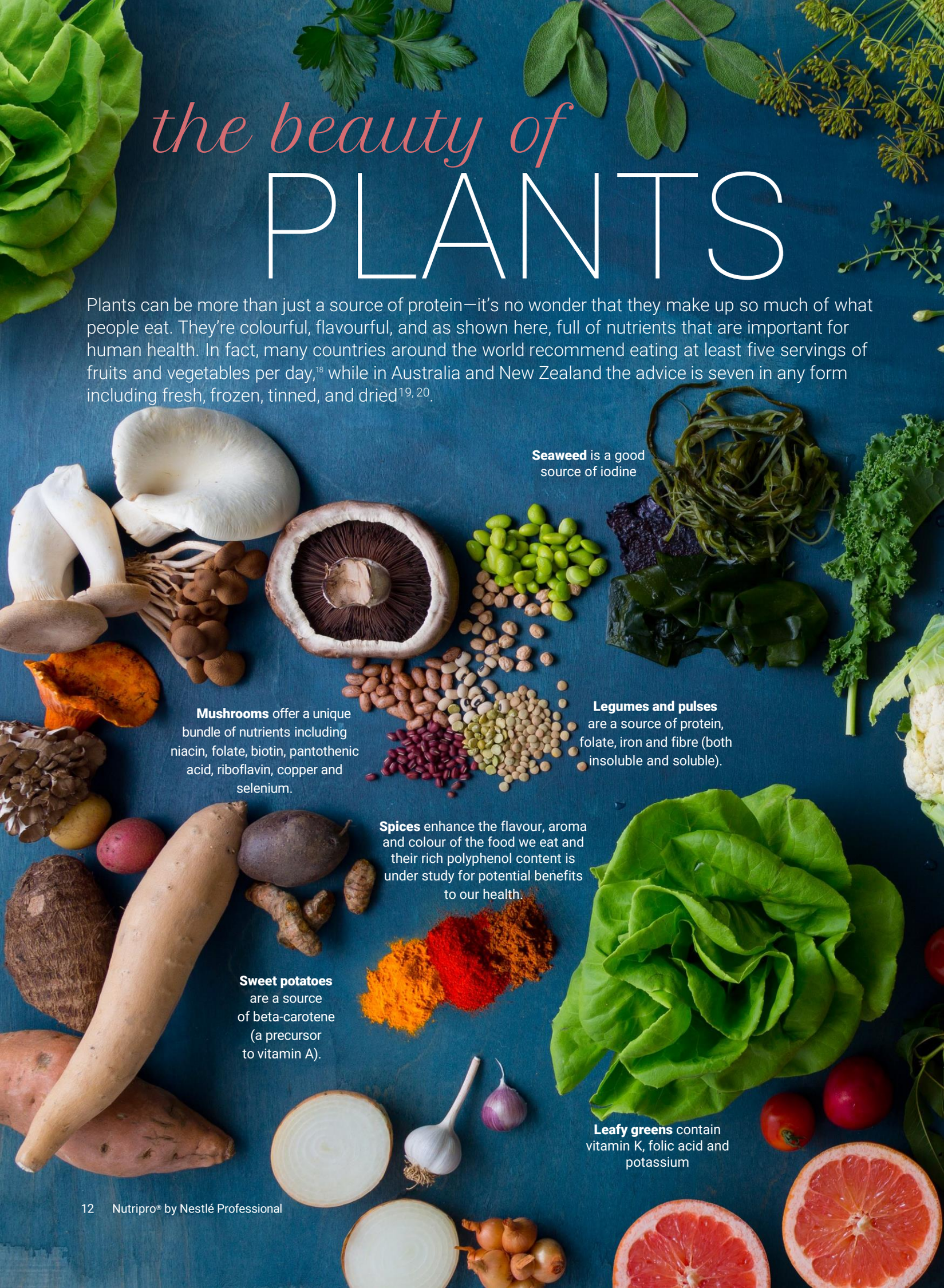
Whole Milk (Cow)	Pea	Soy	Oat	Coconut	Almond	Rice
3.3g PROTEIN	**3.3**g PROTEIN	**2.6**g PROTEIN	**1.3**g PROTEIN	**1.3**g PROTEIN	**0.6**g PROTEIN	**0.3**g PROTEIN
60 KCAL	**29** KCAL	**43** KCAL	**50** KCAL	**75** KCAL	**15** KCAL	**47** KCAL
3.2g FAT	**1.9**g FAT	**1.5**g FAT	**2.1**g FAT	**7.5**g FAT	**1.1**g FAT	**1**g FAT

DID YOU KNOW?

Grains and legumes tend to be complementary proteins. Mixing rice and pea beverages can form a complete source of protein; soy beverage is a complete source on its own.

the beauty of PLANTS

Plants can be more than just a source of protein—it's no wonder that they make up so much of what people eat. They're colourful, flavourful, and as shown here, full of nutrients that are important for human health. In fact, many countries around the world recommend eating at least five servings of fruits and vegetables per day,[18] while in Australia and New Zealand the advice is seven in any form including fresh, frozen, tinned, and dried[19, 20].



Seaweed is a good source of iodine

Mushrooms offer a unique bundle of nutrients including niacin, folate, biotin, pantothenic acid, riboflavin, copper and selenium.

Legumes and pulses are a source of protein, folate, iron and fibre (both insoluble and soluble).

Spices enhance the flavour, aroma and colour of the food we eat and their rich polyphenol content is under study for potential benefits to our health.

Sweet potatoes are a source of beta-carotene (a precursor to vitamin A).

Leafy greens contain vitamin K, folic acid and potassium

Wholegrains provide dietary fibre. Oats and barley also contain beta-glucan, which can help lower cholesterol reabsorption as part of a diet low in saturated fat that contains 3g of beta-glucan per day.

Yellow and orange fruits and vegetables are typically a good source of vitamin C and beta-carotene (a form of vitamin A). Vitamin A helps to maintain normal vision.

Cruciferous vegetables may be rich in folate and vitamin K, nutrients important in the growth and development of children. They also contain phytonutrients which may benefit health.

Blue and purple produce contain flavonoids, which are under investigation for benefits to health. Their skin is also rich in the antioxidant anthocyanin.

Nuts & Seeds contain polyunsaturated fat (as omega-3 fatty acids), fibre, protein and magnesium.

Red fruits & vegetables contain vitamin C and lycopene which is under study for potential benefits to health.

KEEPING *a watchful eye*

Anti-nutrition

Some plants have anti-nutritional factors that can interfere with the absorption of nutrients or can even be toxic.

Potatoes should not be eaten once they've started to sprout because of elevated levels of glycoalkaloid (a toxin) and nitrates. Avoid storing them too long, and keep them in the dark to help prevent germination.

Soy Beans contain a natural toxin called a trypsin inhibitor which can stop proper digestion. The toxin is destroyed by proper cooking, so when using dried beans, soak them overnight and simmer for three hours before eating.

Did you know?

The beta-carotene in carrots and tomatoes is better absorbed by the body when cooked.

Hidden Animal-based Ingredients

While meat, eggs, and dairy milk are easy to identify, there are other foods where the presence of animal products is not so obvious. To respect your guests' wishes, double-check the following ingredients as requested.

Hidden Dairy Ingredients

Coffee creamer and some alternative dairy sources
May contain casein from milk (E469)

Bread and baked goods
May contain whey from milk

Protein powder
May contain whey from milk

Hidden Animal Ingredients

Confectionary, cakes, soft drinks and dairy
Gelatin is made with bone or hide and is common in confectionary and as a thickener in some dairy foods. Cochineal and Carmine (E120) are red colourings derived from insects

Breads and baked goods
Check label for L-cysteine, used as a dough conditioner derived from animal sources

Cheese
Rennet is an enzyme sourced from the stomachs of calves and used in cheese production. Vegetarian forms of rennet exist and if used will generally be stated on the label.

Sauces, salad dressings, meringue
Check labels for flavour enhancers in the E600 series as these are usually animal derived

Other Animal Products

Honey

Figs
The Fig Wasp pollinates a variety of figs and will die in the process. As a result the dead wasp remains within the fruit as it develops.

Serving IT UP

Integrating more plants into your menu? Here are some ideas to expand your plant-based options.

Planning a plant-based meal

1. Select the category of your dish. Is it a roast, soup or stew, or multi-component main dish?
2. Choose your anchor vegetables. What's in season?
3. Consider how it can be prepared and choose your cooking method.
4. Plan your spices and seasonings around your choices.
5. Add balance from a nutritional perspective. Can you combine foods to provide a complete protein?
6. Enhance your plating, with complementary colours, shapes, flavours, and textures.

Add appeal to plants

Use interesting textures to intrigue the senses. Try roasting vegetables for a crispy feel, or oven-dry them to concentrate the flavours, increasing the "meaty" texture. You can also combine vegetables with raw nuts and seeds to provide varying levels of crunchiness.

Try unusual spice and flavour combinations.

This is a good way to complement or accent the flavours of the produce. For example, nutmeg is good with root vegetables such as sweet potatoes, potatoes, and pumpkins. Cumin and coriander go well with sweet vegetables like beets. And mustard complements cabbage, broccoli, sprouts, and kale. Smoking or grilling fruits and vegetables can also enhance their flavour profile.

Experiment with the form of the dish.

Just by slicing vegetables differently, you can create a different experience. Try serving a portabello mushroom as a "steak," slice cucumber or zucchini into ribbons and serve in place of pasta, or use a ricer on cooked cauliflower. You can even cook carrots and puree them into a foam or blend with pulses for hummus.

Make room on the menu

It's a good idea to integrate vegan and vegetarian dishes with the rest of the menu. This draws more attention to your plant-based recipes and avoids creating a stigma around non-meat dishes. Research shows integrating plant-based options within the main menu help draw the attention of consumers and increase sales of plant-based items[21]. Make sure your descriptions are just as cravable as the rest of the menu, and these dishes may become some of your guests' new favourites.

Choosing an alternative centre of plate

Putting protein on the plate drives satiety and delays digestion. If you're not using meat in your dish, there are many other interesting ways to provide bulk and quiet hunger pangs. While some of these options are also good sources of protein, others need to be combined with different foods in order to provide a complete protein.

Plant-based meat alternatives

Close to familiar meat form and texture. May contain spices or other flavouring to simulate meat taste. Substitute wherever you would use meat.

Tofu

Comes in many forms including extra firm, firm, soft and silken. Soft, smooth and flavourless on its own, it is a prime candidate for flavourful marinades, sauces, and seasonings. Add to soups, stir-fries, and scrambles.

Tempeh

Sold in flat, rectangular pieces. Has a slightly earthy taste and chewy texture. Crumble and add to soups, salads, or pasta, or serve in a sandwich.

Seitan

Made from cooked wheat gluten, it has a chewy texture and is a good source of protein. It's commonly used in Asian dishes.

Pulses (beans and lentils)

Available dry or canned. Firm texture, may have slightly nutty flavour. Add to soups, salads, stews or casseroles, or make into "meat"balls.

Mushrooms

Porcini, shiitake, and portabello mushrooms add umami flavour and hearty texture. Can be eaten raw, cooked in salads, sauces, soups, and sandwiches, or grilled.

Jackfruit*

Choose unripe or canned in water or brine to avoid sweetness. Grill and shred like pulled pork, slice into "steaks," or add to stir-fries and salads.

Cauliflower*

Mild taste absorbs flavours easily. Chop and eat raw, slice into "steaks" and oven roast, add to curries and stir-fries, or boil and mash or put through a ricer.

Root vegetables*

Cost-effective, filling, and absorbs flavours readily. Boil, bake, roast, mash, or fry. Try sweet potatoes with black beans in enchiladas.

Bulbs*

Fennel and artichokes add textural interest and presence on the plate. Roast with olive oil and add to salads or dips.

Beetroot*

Roasted and caramelized, it plates nicely and adds rich colour. Roast or boil and add to soups or salads.

Nuts, seeds & peanuts

Enhance food with a nutty flavour and crunch. Add to salads, pasta, desserts, etc.

*Not a good source of protein.

COOKING WITHOUT ANIMAL-BASED INGREDIENTS

Milk, eggs, and other animal-based ingredients often perform functional roles in cooking, so it can be a challenge to replace them. Finding a suitable alternative depends on their role in the original recipe. While substitution is an experimental process, the following tips and tricks are a good place to start.

EGG SUBSTITUTES

Eggs may serve more than one purpose in a recipe. To choose an appropriate replacement, consider their function in your dish.

Coagulation/Gelation: A typical custard or flan recipe uses one egg to set 250 ml of full-cream milk with 25 g of added sugar. To replace the egg, substitute a combination of 3-4 g (1 tsp) corn starch + 0.5 g gum. Depending on the fat content of the milk , the amount of sugar, and additional ingredients in the recipe, this might have to be adjusted. If you are also replacing the milk with a plant-based alternative, add a pinch of salt to set the gel.

Emulsification: Eggs help incorporate oil and water-based liquids together into a stable substance. To replace them in salad dressings and mayonnaise substitute 5 g (1 tsp) lecithin + 0.5 g gum for one egg yolk. (Note that some lecithin is animal-based, so look for soy-based alternatives.) In sweet batters, combine thick fruit purées (like apple or banana) with the lecithin and gum to emulsify and add body to the recipe.

Foaming: The foaming ability of egg whites aerates foods to make them light and fluffy. When making mousses and terrines, replace egg whites with whippable non-dairy creams especially formulated for this purpose. In baked goods, you can replace eggs by increasing the amount of baking powder/baking soda and adding a teaspoon of vinegar/lemon juice for taste.

Colour: Instead of relying on eggs for browning, use a pinch of turmeric to add a light golden touch. Be careful not to overdo it, as turmeric could also impart its flavour.

Texture: Eggs are also used for binding, or holding ingredients together. To bind savoury dishes without eggs, try adding mashed potatoes, rice flour, or wheat or corn starch to thicken the recipe. In cake batters, mashed banana, apple puree, and a pinch of gum or corn starch will give a nice thick texture to the batter. In gluten-free recipes , create a slurry of 1 tbsp flax seed dissolved in 3 tbsp water and set it aside until sticky, then use this in place of egg.

Taste: Eggs add a richness to the flavour of baked goods, desserts, sauces, and dressings. Add a teaspoon of nut, sunflower, or olive oil to compensate for every egg removed in these recipes.

MILK SUBSTITUTES

Like eggs, milk has several functions in food, so there are no universally fail-proof substitutes.

Liquids: In beverages and pourable applications (like dressings and sauces), you can typically use a 1:1 substitution with plant-based dairy alternatives, vegetable broths, fruit juices, or water, depending on the recipe.

Other dishes: In more complex recipes, milk's protein, fats, carbohydrates, salts, and minerals may affect the dish's functionality. Several plant-based dairy alternatives for milk , cream, and yogurt, each with its own formulation and functionality, are commercially available, but finding the most suitable replacement for each recipe involves trial and error. You may need to adjust the flavour by adding a pinch of salt, sugar, or a squeeze of lemon to balance sweetness, saltiness, and acidity. For baked custards, batters, and egg & milk emulsions, add 1 g of additional salt per 250 ml of milk alternative.

GELATIN SUBSTITUTES

Bovine gelatin is used to set gels, moulded desserts, and candies, and sometimes to add a transparent coating or glaze to appetizers or fruit desserts. To replicate its setting ability, substitute the same amount of powdered agar (derived from seaweed) or carrageenan. Approximately 2 g of agar will set 250 ml of liquid. Alternatively, gums (from guar, xanthan, or locust bean) can also be used. One gram of gum will provide the same functionality as 3 g of gelatin or 2 g of agar.

HONEY SUBSTITUTES

Honey's primary function is to add sweetness or flavour to recipes. While the flavour is unique and can't be replicated by plant-based ingredients, you can substitute maple syrup, agave syrup, rice malt syrup or brown sugar in a 1:1 ratio to provide sweetness.

Every day more of us are relying

on plants for the nutrition and flavour we crave. While this shift is inevitable if we want to feed the world, it's also an exciting opportunity to expand your culinary repertoire. From grains to fruits, vegetables, herbs, and spices, the world of plant-based ingredients is full of colours, flavours, textures, and nutrients, all ripe and ready for you to satisfy your customers.

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