



Leaf Vegetable Recipes

There are thousands of cookbooks full of recipes. Parent-teacher associations, church groups and celebrities all publish their favorite recipes. Specialty cook books offer recipes for every culture, every food and every physical condition. There are even a few that specialize in green leafy vegetables. The recipes in this book are intended not so much as blueprints for creating perfect dishes, but as suggestions, principles, and guidelines for helping to make green leafy vegetables a more important part of your diet.

Recipes have been chosen that support and reinforce the basic themes of this book. They draw from a wide variety of greens and can be easily adapted to make use of hundreds of the possible edible leaves available in your region. There are recipes employing greens—raw, fermented, and cooked in various ways—as well as ones that utilize dried leaf meal and leaf concentrate. I’ve tried to offer examples of how leafy vegetables can be incorporated into main dishes, sauces and dressings, soups and stews, salads, drinks, snacks, and desserts. While space won’t permit a dish from every society, innovative samples from many of the world’s food cultures are represented.

In keeping with this book’s themes, the dishes are nutritious, inexpensive, and easily made by families of modest means. Most of these recipes are highly adaptable. Savory side dishes can be made with a wide variety of leaf crops, and flavored with onions, garlic, chili, ginger, curry, and other herbs and spices. These can

be served over or alongside any of the starchy staples that provide inexpensive calories for most of the world’s people.

These staples include rice, corn meal, macaroni, potatoes, sweet potatoes, cassava, millet, wheat bulgur, and bread. Whenever possible whole grains and unpeeled potatoes are preferred for the more complex carbohydrates and the wider range of nutrients they supply. Refined sweets and highly processed ingredients are minimized due to their nutritional deficiencies as well as the additional environmental costs of their unwarranted processing.

For ecological, economic, and nutritional reasons, animal products—such as meat, fish, eggs, and cheese—are generally given a supporting rather than leading role. A small amount of oil, meat, eggs, or cheese will generally improve the acceptability and the nutritional completeness of most of these basic dishes. As a rule the overall nutritional value is improved by increasing the proportion of greens and decreasing the amount of fats, sugars, and salt in most recipes that I’ve encountered. Each of the recipes in this book provides more essential nutrients to the body than the traditional recipes upon which they were based.

Most of the recipes can be prepared with elemental kitchen gear, but a few call for an oven or a blender. Blenders or liquefiers are often quite inexpensive, and they are a superior household tool for improving the availability of many nutrients in leaf vegetables.

When using a blender in making sauces, try to blend the leaves with a liquid at the top speed for half a minute before adding other ingredients. This breaks open the plant cells and allows your digestive system better access to the proteins, vitamins, minerals, and antioxidants trapped within them.



While most of the recipes are vehicles for improving the nutritional value of inexpensive staple foods, some are ideal for people who are overweight. The growing number of us in this category benefit from reducing the calorie density of our food, while increasing its nutrient density. Soups made with leafy vegetables are especially well suited to this goal because the water and fiber are filling without any calories, and the leaves supply a large range of nutrients.

Recipes are always adjusted to local conditions of taste and availability of ingredients.

Bon appetit!



AOJIRU

- 1/2 lb fresh kale leaves, finely chopped
- 1 cup water

Put water in a blender and turn on highest speed. Gradually add chopped kale through the top of the blender. Blend until the leaves are reduced to a pulp, then strain the pulp through a strong cloth, separating the juice from the fibrous pulp. Drink the juice. Serves 1.

Aojiru is a Japanese phenomenon. Developed in 1943 to provide cheap nutrition during wartime food shortages, it has become a half billion dollar industry. It is most often made from the juice of kale, but also from barley grass and spinach mustard. Health food enthusiasts sometimes make a similar drink from wheat grass juice. All of these are extremely rich in nutrients that have been separated from the leaf fiber. Millions have found a way to gracefully accept the profoundly leafy flavor of aojiru. Be advised, however, that drinking aojiru is sometimes considered a punishment on Japanese game shows.

ATOLE

2 cups milk or water
1/2 cup ground oatmeal or cornmeal
1/4 cup dried leaf powder or leaf concentrate
1/2 cup sugar
1 teaspoon vanilla or other flavoring (optional)

Put milk or water in saucepan and heat on low. When warm add all other ingredients. Stir constantly until creamy and thickened. Atole should still be a liquid that can be poured. Serves 2.

Steaming-hot atole is a welcome morning drink in the mountains of Mexico. There are many similar drinks throughout the world. It is basically a thin porridge or pudding served warm. Atole is an excellent choice for enriching with leaf concentrate or dried leaf powder because the thick liquid keeps the powder from settling quickly. It is a good food for feeding lots of children, such as at childcare centers or schools, as it is easily made in large quantities.

BABY GREENS SALAD

Mixtures of very young raw leafy greens are becoming increasingly popular as salads. Sometimes referred to as mesclun, a French word for mixture, these may include lettuces, spinach, arugula, Swiss chard, Asian greens such as mizuna and tatsoi, mustard greens, endive, corn salad, dandelion, sorrel, and other leafy vegetables. These mixes have become a favorite at farmers' markets and community-supported agriculture endeavors. They are also appearing more often on restaurant menus. All of this is evidence of a trend; many people are now looking for more interesting and complex flavors and for better nutrition.

The trick with a good baby greens salad is having very fresh ingredients and finding a pleasing balance between the mild flavored greens and those with sharper, more intense flavors.

For an even more adventuresome salad try using some foraged wild greens. Purslane, chickweed, dandelion, wild garlic, cress, lambsquarters, and sorrel, are a few of the wild greens that can be eaten in salads. As with cultivated greens they are most palatable when they are young and eaten as soon as possible after harvest. Exercise caution in eating wild greens. Know the plants that you are eating and the conditions they grew in.

BRAZILIAN COLLARDS

- 2 tablespoons vegetable oil
- 2 cloves garlic, crushed
- 3 cups collard greens, washed and shredded
- 1 can beer
- 1 cup cooked black beans
- 1 orange, peeled and cut into bite-size pieces
- 1 teaspoon orange peel, grated finely
- 1/2 teaspoon salt

Heat oil in large skillet. When oil is hot, add garlic and cook for 1 minute. Stir in collard greens. Cook for 1 minute and add half the can of beer (don't drink the other half). Cook for another 10–15 minutes until greens are tender, adding beer as needed to prevent sticking. When greens are almost tender, add beans and continue cooking until greens are tender and beans are hot. Remove from heat and add orange pieces and grated orange peel and salt. Orange juice or vegetable stock can be substituted for beer, if you would rather just drink the beer. Serves 2–3.

Protein from the black beans, and vitamin C from the oranges complement the greens in this tasty nutritional powerhouse.

CARINATA AND COTTAGE CHEESE

- 1 cup cottage cheese
- 2 teaspoons fresh ginger, grated
- 2 cloves garlic, minced
- 1 pinch ground cloves
- 1 pinch ground allspice
- 2 tablespoons vegetable oil
- 1/4 cup chopped onions
- 4 cups chopped carinata or collard greens, packed

Briefly sauté the ginger and garlic, then add to cottage cheese along with cloves and allspice. Heat vegetable oil in large skillet. Stir in onion and cook till soft. Stir in greens and cook until wilted. Add a small amount of water as needed to prevent sticking. Serve greens over cottage cheese mixture. Serves 4.

The combination of green leaves and fresh cheese is the basis of several tasty dishes. Carinata is an African variety of collards, and this recipe is loosely based on a favorite Ethiopian recipe.



CHURRITOS

1-1/2 cups corn meal
 1/2 cup flour
 1/2 cup dried leaf powder or dried leaf concentrate
 1/2 tsp baking powder
 1 to 1-1/4 cups water
 Salt to taste
 Enough vegetable oil to deep fry

Mix all the ingredients well. Roll the dough into worm-like pieces.

This can also be done with a cake decorating gun or by driving the mixture through the holes in a meat grinder with the knife removed. Deep fry the churritos quickly at about 400° F. Dust the hot churritos with salt, finely ground chili or garlic powder. Serve as a snack. The recipe can be modified to include grated potatoes, chickpea flour and various flavorings. A bit of wheat flour helps them hold together. Serves 6.

Many cultures have fried snack foods similar to churritos. These are generally well accepted by children but somewhat tricky to make consistently because of the difficulty in controlling the oil temperature

COLCANNON

4 medium potatoes, cut into small pieces
 1/2 cup green onion, chopped
 4 cups kale, chopped
 2 tablespoons butter
 1/2 cup milk
 Salt and pepper to taste

Combine potatoes, onions, and kale in saucepan. Barely cover with water. Bring to a boil. Cook on medium heat until potatoes are tender (about 15 minutes). Drain and return to pot. Add butter, salt, pepper, and milk; mash together until creamy consistency. Serves 4.

There are hundreds of variations on this classic Irish dish, many using cabbage, leeks, or cream. All of them are satisfying and easy to prepare. This version is inexpensive and a superior source of readily available calcium for strong bones and teeth.



DINOSAUR COOKIES

- 1-2/3 cup flour
- 3/4 cup sugar
- 1/3 cup dried leaf powder or leaf concentrate
- 1 egg
- 1/4 teaspoon salt
- 1 teaspoon almond extract
- 3/4 cup butter or margarine

Preheat oven to 325° F. Combine flour, leaf powder and salt. Beat butter and sugar until creamy in a separate bowl. Add egg and flavoring. Beat well. Add flour mixture. Gather dough into a ball. Refrigerate 1 hour. Then roll dough until 1/4 inch thick. Cut out shapes and add candy eyes if desired. Bake 13–15 minutes. Do not brown. Yields about 36 cookies.

These are a great way to trick innocent children into eating leafy green vegetables. Kids who would need to be forced to eat a serving of turnip greens will fight over who gets a stegosaurus cookie with a yellow eye. You might also try cookies shaped like frogs, turtles, alligators, clover, or Christmas trees—anything that makes a recognizable shape that is normally green.

I have been asked many times about using coloring to defeat the natural green color of leafy vegetables. My experience has been that the chlorophyll is a powerful coloring agent that does not gracefully give way. We have made many dishes that came out an unpleasant olive drab (think military garb) color by trying to disguise the green.



We have found only one natural ingredient that has truly overwhelmed the green color of leaves, and that is the pulp of an intensely purple tropical cactus fruit called pitaya (*Hylocereus v. costaricensis*).

Adding significant amounts of artificial coloring to food for children, or for anyone, is a dubious nutritional practice. My suggestion is to go in the opposite direction and embrace and celebrate green as the color of life. Children who have eaten leaf enriched foods from an early age seem completely at ease with them.

GREEN BIRTHDAY CAKE

- 1 cup all purpose flour
- 1/4 cup dried green leaf powder
- 2/3 cup sugar
- 2 teaspoons baking powder
- 1/4 cup butter or margarine, softened
- 1 egg
- 2/3 cup milk
- 2 teaspoons vanilla or almond flavoring

In a bowl combine flour, leaf powder, sugar, and baking powder. Add the butter or margarine, milk, egg, and flavoring. Mix ingredients, then beat vigorously until batter is very smooth (1 minute on medium speed with electric beater). Pour into an 8 inch round greased and floured baking pan. Bake in oven at 350° F oven 25–30 minutes until a toothpick inserted into the middle comes out clean. Let cool 5 minutes before removing from pan. Serves 6–8.

Cakes for birthdays and other festivities are a great way to help kids develop positive attitudes about green, leaf enriched foods.

**GREEN BISCUITS**

- 1/4 cup dried leaf powder or leaf concentrate
- 3/4 cup whole wheat flour
- 3/4 cup unbleached white flour
- 2 teaspoons baking powder
- 1/2 teaspoon baking soda
- 1/4 teaspoon salt
- 1 egg, beaten
- 1/2 cup buttermilk (or soured milk or yogurt)
- 1/3 cup melted butter

Mix dry ingredients together in a bowl. Mix egg, milk, and butter together in a separate bowl, then add to dry ingredients. Stir lightly till combined, then pour onto floured surfaced and knead lightly till dough is uniform. Pat or roll dough lightly until it is 1/4 to 1/2 inch thick. Cut into circles with an upside-down cup dipped in flour (other shapes can be substituted). Place on lightly greased tray and bake 10–12 minutes at 450° F. Serve immediately. Makes 6–8 large biscuits.



GREEN GODDESS DRESSING

- 3/4 cup yogurt
- 1/4 cup fresh parsley, chopped
- 1/4 cup fresh moringa leaf, chopped
- 2 tablespoons olive oil
- 2 tablespoons lemon juice
- 1 teaspoon honey or other sweetener
- 2 tablespoons green onion, finely chopped
- 1/4 teaspoon salt
- Pepper to taste

Blend all ingredients at highest speed in blender. Keep refrigerated. Pour enough over salad to lightly coat the leaves.

The benefit of eating fresh green salads is often compromised when they are drenched in high fat salad dressings. This low fat dressing will add to both the flavor and the nutritional value of any salad.

GREEN LEAF TORTILLAS

- 2 cups masa harina flour
- 1/2 cup dried leaf powder or leaf concentrate
- 2 cups hot water

Mix together and let sit for 5 minutes. Then knead the dough for another 5 minutes, adjusting the moisture by adding more water or more masa flour if necessary. Form into balls about 2-1/2 inches in diameter. Tortillas can be shaped by hand or rolled out with a rolling pin. Inexpensive wooden tortilla presses can be found at Mexican markets. Use wax paper or plastic to keep the dough from sticking to the rolling pin or to the press. Toast the tortillas for about half a minute on each side in a hot ungreased frying pan or griddle. Serve hot. Makes about 15 tortillas about 6 inches in diameter.

Note: Tortillas are central to the diet of Mexico and Central America. They make wrappers for tacos and enchiladas, and are served with nearly every meal. Many cultures have simple flat breads that play a similar role in the cuisine, such as India's chapatti or Ethiopia's injera. Adding 20% dried leaf powder or leaf concentrate makes these basic breads much more nutritionally complete.

GUNDRUK

Harvest about 20 liters (5 gal.) of brassica leaves (kale, collards, turnips, mustard, cauliflower, or radish). Cut leaves into 5 cm (2 in.) pieces. Wilt one day in warm shade (leaves should be wilted but not dried). Rinse well and drain. Pack tightly into a 10-liter (2½ gal.) bucket. Cover with lukewarm water. Place a clean plate on top of the shredded leaves. Place a clean weight (rock, bucket of water, etc) on plate to hold the leaves under the water.

Remove any scum that forms on top and make sure water level is above the leaves once a day (see notes under sauerkraut). Leave for seven days at room temperature. On the eighth day drain, but don't rinse. Dry or refrigerate.

Gundruk is one of the few fermented leaf vegetable dishes made without salt.

KIMCHI (1)

2 lb Chinese cabbage (napa), cut into 2 in. pieces.

2 carrots, thinly sliced

Brine: 2 quarts water with 8 tablespoons salt per quart.

1 jalapeno pepper, chopped

7 scallions, sliced

4 cloves garlic (minced or thinly sliced)

2–3 tablespoons shredded fresh ginger

Mix the cabbage and carrots. Soak these for 2–7 hours (or more) in the brine. Rinse well and drain. Mix in pepper, scallions, garlic, and ginger. Pack tight in wide mouth liter or quart jars. Add brine if needed to cover cabbage mixture. Put clean glass of water inside the wide mouth jar with enough weight to hold cabbage mixture below the brine. Cover with towel.

Ferment at room temperature for one week, longer in cooler temperature. It should keep for two months in a refrigerator. Kimchi may also be canned at this point, but the benefit of the live bacteria is then lost as is some of the fresh flavor.



KIMCHI (2)

- 1 lb red and/or green cabbage, shredded
- 1 large carrot, sliced thinly
- 2 scallions, sliced thinly
- ½ cup water
- ¼ cup soy sauce
- 4 cloves garlic
- 1 teaspoon fresh ginger, minced
- 3 tablespoons apple cider vinegar
- 2 tablespoons honey
- 2–4 dried small hot peppers, cut lengthwise

Put shredded cabbage, carrots, and scallion in a bowl. Toss with soy sauce and water. Cover and let stand overnight. Drain liquid from vegetables into a bowl. Add honey and vinegar and stir well. Add ginger, garlic, and peppers to the vegetables and pack them into a sterilized, one quart jar. Pour the liquid into the jar. If more liquid is needed to cover vegetables, add water.

Cover loosely with a lid and let sit for 3–5 days to ferment. The liquid will bubble and the flavor will become sour. Kimchi should then be refrigerated. In 3 more days it can be served, or it can be stored in a refrigerator for 2 months. Yields 1 quart. Serves 6.

KOLA KANDA

- 5 cups water
- 2 cups dry rice
- 1 cup shredded coconut
- 1 cup leaf juice (Malabar spinach, spinach, etc.)

To make leaf juice, pound or blend leaves in a small amount of water and squeeze through open-weave cloth. Cook rice, water, and coconut until a thick porridge is formed. Stir often. Add more water if needed to prevent sticking. When almost done, stir in leaf juice. Serve as a side dish or as a dessert if sweetened coconut is used. Serves 4.

This is an important food in Sri Lanka, a large island off the southern coast of India. The combination of green leaves, rice, and coconut makes for interesting flavor and texture. There are many variations of Kola Kanda. Using dried leaf meal or leaf concentrate instead of leaf juice makes a more nutritionally potent dish.

LEAF BURGERS

- 1/2 cups dried bread crumbs
- 1/4 cup dried leaf powder or leaf concentrate
- 1 egg
- 1/4 cup ground oatmeal
- 1 teaspoon prepared mustard
- 2 cloves garlic, chopped fine
- 1/2 teaspoon salt
- 1/2 cup water

Combine all ingredients. Form into patties and fry. Makes 3–4 burgers.

No one will ever mistake these for Whoppers or Big Macs, but the burger is a food idea that is growing in popularity. Leaf concentrate, if available, works better than dried leaf meal. There are several variations on this idea that can be used in place of meatballs, meatloaf, taco filling, sloppy Joes, etc. where meat is not an option due to economic, religious, or health considerations. Smoke flavoring assists the meaty illusion.

**MALABARS**

- 3 eggs
- 1 cup flour
- 1 cup skim milk
- 1 teaspoon salt
- 1 teaspoon baking powder
- 1/2 lb sharp cheddar cheese, grated
- 1 small onion, chopped finely
- 2 cups cooked, chopped Malabar spinach (basella) leaves, well drained.

Mix all ingredients together. Pour into greased 9 x 13 inch pan. Bake at 350° F for 45 minutes. Let cool before cutting into bars. Spinach, Swiss chard, or other mild flavored greens can be substituted for basella. Serves 6–8.

These bars make delicious mid-morning or after-school snacks.

MEXICAN TAMALES

- 2 cups masa harina or cornmeal
- 1/3 cup dried leaf powder or leaf concentrate
- 2 teaspoons baking powder
- 1 teaspoon salt
- 1/3 cup lard or vegetable shortening
- 1-1/2 cup soup stock or water
- Dried corn leaves

Soak corn leaves in warm water for about 30 minutes until they become flexible, carefully separating them. Combine dry ingredients. Beat the lard or shortening until creamy, then gradually beat in the dry ingredients. Slowly add the soup stock or water, stirring constantly. Spread about 1 tablespoon of this dough in the center of a clean corn leaf. Wrap the dough in the corn leaf by neatly folding in the edges. Chili or other flavorings and sweeteners can be added to the tamale dough, or a teaspoon of cheese or meat can be added by placing it on the center of the dough before it is wrapped. Repeat until all the dough is wrapped. Steam the tamales for 40–60 minutes. Serve hot. This makes around 25 tamales, enough for 8 people.

Making tamales is often an entertaining social event. Extra tamales can be frozen for later use.

MORINGA LEAF OMELET

- 1 cup fresh moringa leaves
- 3 eggs
- 1/2 onion, sliced
- 1 small tomato, diced
- 2 cloves garlic, crushed
- Salt and pepper to taste

Add a small amount of water to frying pan. Cook onions and garlic in water for 2 minutes. Add tomatoes, greens, salt, and pepper. Cook until greens are tender, adding enough water to prevent sticking if needed. Beat the 3 eggs together in bowl. When leaves are tender and liquid is absorbed, add eggs and fry till eggs are firm. Serves 2.

A fast and super-nutritious meal when eggs are available.

MORINGA SIDE DISH

- 2 cups fresh moringa leaves, coarsely chopped
- 1 cup water
- 1 medium onion, chopped
- 2 cloves garlic, crushed
- 1 tablespoon butter or vegetable oil
- Salt and chili to taste

Boil leaves and all other ingredients in water until leaves are tender and water is absorbed.

Serve hot over rice, potatoes, cassava, corn meal pap, etc. Serves 2.

Almost any hearty green can be substituted in this extremely versatile and inexpensive way to add flavor and nutrition to basic staple meals.



PASTA

4 cups all purpose or bread flour
 1 cup dried green leaf powder or leaf concentrate
 1 teaspoon salt
 Water

Mix flour and salt, then add leaf powder and a small amount of water. Knead for 10 minutes. Dough should be heavy but elastic. Roll the dough out as thin as possible and cut into strips.

With some patience pasta can be made without a machine, but it is a lot of work and the results will be less uniform. Roll out the kneaded dough with a rolling pin or a bottle. When it is as thin as you can get it without tearing the sheet of dough, slice it into 1/4 inch wide strips. If your dough is too wet the strips will stick together; too dry and the pasta will break.

The strips can be cooked fresh; or dried in a dark room, sealed in a plastic bag, and cooked when convenient.

This pasta cooks somewhat faster than commercial pasta. A simple but effective pasta drying rack can be made with dowels or bamboo.

Hand operated stainless steel pasta rollers are available in some gourmet cook shops and department stores for about \$40-\$75 (US). They make very uniform pasta. Machines made in Italy are generally the best quality.

A simple variation is spaetzle, which can be made with slightly wetter dough using a cheese grater or a potato ricer. It is usually cooked immediately in boiling water, hot broth or soup.

Pasta was first eaten in China over 1,500 years ago. It has been gaining in popularity ever since. Everyone agrees that homemade pasta is the best and pasta making is a fun activity for children. Replacing 20% of the flour with dried leaf powder or leaf concentrate turns a favorite food into a convenient dynamo of good nutrition.

PESTO

- 1-1/2 cups fresh basil or cilantro leaves removed from stems
- 1/4 cup fresh parsley
- 2 cloves garlic, crushed
- 1/4 cup chopped walnuts or pine nuts
- 1/2 cup grated Parmesan cheese
- 1/4 cup olive oil
- 1/2 lb dry pasta

Blend all ingredients until a smooth paste is formed. Cook pasta until tender. Toss pesto with hot drained pasta. Traditionally, pesto Genovese is made with basil and pine nuts. Try using cilantro or other flavorful greens as well as basil, and substituting walnuts, almonds, or peanuts for the pricey pine nuts. Serves 2–3.

Fresh pesto can add a luxurious touch to any pasta, rice, or potato dish. Extra pesto can be frozen in an ice cube tray to make convenient portions for later use. Pesto is delicious but packs a lot of calories.



POTATOES WITH FENUGREEK LEAVES

- 3–4 medium-size potatoes, cut into cubes
- 1 cup fresh fenugreek greens, chopped finely
- 2 tablespoons vegetable oil
- 1 teaspoon turmeric
- Pinch of salt, red pepper, and sugar
- Enough broth to keep greens from sticking

Boil potatoes till nearly soft. In a separate skillet heat oil, and add turmeric and red pepper when hot. Stir for one minute, then add drained potato cubes, salt, and sugar. Fry until potatoes are browned. Add fenugreek leaves and enough water or broth to prevent sticking. Cook until greens are wilted and liquid is absorbed. Serves 2–3.

Fenugreek (often called methi) is an important legume whose seeds are used to impart a unique maple flavor to foods. The leaves have a slightly snappy flavor of their own and go well with Indian chapattis, or dahl.

POWER BALLS

- 1 cup creamy peanut butter
- 1/4 cup dried green leaf powder or leaf concentrate
- 1/4 cup raisins
- 1/4 cup powdered milk
- 1/4 cup sweetened shredded coconut

Knead all the ingredients except the shredded coconut together by hand. Roll this mixture into balls 1–1½ inch in diameter. Spread coconut on a cookie sheet or plate and roll the balls in the coconut until they are evenly coated. Good for 2 days without refrigeration or 2 weeks with it. Makes about 15 power balls.

These are tasty and extremely dense packets of nutrition. Peanut butter has a nearly universal appeal to children. Together with the calcium and protein from the powdered milk, the energy and antioxidants from raisins, and the wide range of nutrients from the leaf powder or concentrate, they provide what the body needs. These are ideal whenever you need a blast of energy. Unlike sugary snacks and caffeinated sodas, the benefit is lasting.

PUDDING

- 3 cups milk
- 3/4 cup sugar
- 1/3 cup dried leaf powder or leaf concentrate
- 2 eggs, beaten
- 1 tablespoon butter or margarine
- 2 teaspoons vanilla or almond flavoring

In a saucepan combine sugar and leaf powder. Stir in milk. Cook over medium heat, stirring constantly, until mixture is thick and bubbly. Cook and stir for 2 more minutes. Remove from heat and gradually stir one cup of the hot mixture into the beaten egg. Return the egg mixture to the saucepan and stir together. Cook on low heat until mixture is not quite boiling. Cook and stir for 2 more minutes. Remove from heat, stir in butter and flavoring, pour into bowl and chill. Serves 6.

PUMPKIN LEAF AND PEANUT

- 3 cups fresh pumpkin leaves, chopped
- 1 cup finely chopped peanuts
- 1 tablespoon vegetable oil
- 1 tomato, diced
- 2-1/2 cups water
- Salt and chili to taste

Heat oil in large skillet. When hot, add pumpkin leaves and tomato. When leaves are tender add peanuts. Slowly add water and spices, stirring constantly until a creamy paste is formed.

Serve over cornmeal pap, rice, cassava, etc. Serves 4.

This is an important dish in much of sub-Saharan Africa. The oil and protein in the peanuts fortify the meal and help the body absorb vitamin A from the pumpkin leaves more easily. A popular variation on this is the Congolese dish saka-saka, made with cassava leaves and peanut butter.



SAAG PANEER

- 2 lb fresh spinach, washed and trimmed
- 1/4 cup vegetable oil
- 1/2 lb cubed fresh mozzarella or firm tofu
- 1 yellow onion, finely chopped
- 3 garlic cloves, minced
- 1 teaspoon freshly grated ginger
- 2 teaspoons curry powder
- 1/2 cup buttermilk
- 1/4 cup plain yogurt
- Salt

Bring a small amount of water to a boil, toss in the spinach and cook for 1 minute. Drain the spinach well. Chop finely. Heat the oil in a deep skillet on medium-high. Add the cubed cheese or tofu and fry for a couple of minutes until light brown on all sides, gently turning to avoid breaking up the cubes. Remove from skillet and set aside. Return the skillet to the heat and sauté the onions, garlic, and ginger: cook and stir for about 5 minutes until soft. Add curry powder and cook for another minute, then add chopped spinach. Remove from heat and stir in buttermilk, yogurt, and salt. The mixture should be thick and creamy. Gently add cheese or tofu and serve with rice or chapattis. Serves 3.

RED CALLALOO

- 1 cup chopped red amaranth leaves
- 1 cup chaya leaves
- 1 small onion, finely chopped
- 1 tomato, chopped
- 1/2 cup sliced okra
- 2 cloves of garlic, crushed
- 1 teaspoon fresh thyme, finely chopped
- 1 cup water or broth
- 1 cup coconut milk
- 1/2 teaspoon chili sauce
- Salt to taste

Put all ingredients in pot. Bring to near boiling, then simmer for 45 minutes. Serves 3–4.

Callaloo is a classic leaf-based soup or stew dish from the Caribbean, with as many variations as there are islands. Taro leaves and amaranth leaves are two of the favorites.



SAUERKRAUT

4-1/2 lbs. shredded cabbage with core removed
2 apples, grated
2 teaspoons dill seed
2½ tablespoons salt

Mix well. Pack very tightly into a 2½ gallon (10 liter) bucket. A salty water solution called brine will form as water is drawn out of the cabbage. Place a clean plate on top of the shredded cabbage mixture. Place a clean weight (rock, bucket of water, etc) on plate to hold cabbage below the brine. This prevents aerobic bacteria from entering. Check daily to see if it is becoming sour tasting. Remove any scum that forms on top and make sure that brine is above the cabbage.

It is ready in two to three weeks at room temperature, or slightly longer at cooler temperatures. The simplest way to determine if it has fermented enough is to taste a small amount every two or three days. When it is no longer becoming more acidic or sour it is ready. Refrigerate the sauerkraut. It can also be canned at this point, though this kills the beneficial bacteria. It is usually spoiled if it turns brown and soft. Sauerkraut can be rinsed before use to reduce the excessively high sodium levels from the salt.

ST. PATRICK'S SMOOTHIE

1 glass (8 ounces) fruit juice
1/2 banana
1 tablespoon dried green leaf powder or leaf concentrate

Blend all ingredients together. Serve cold. Any fruit juice may be used, or water may be used with a teaspoon of sugar or honey. Yogurt is also a good addition. Fresh, mild flavored greens such as parsley or spinach can replace the leaf powder or concentrate. Serves 1.

Smoothies (shakes or licuados) are a great way to get the day going, or for a midday energy boost. They can help compensate for some of the dietary shortcomings of a fast-paced lifestyle. With potassium from the banana, calcium, and protein from yogurt, and antioxidants and vitamins from the green leaves and fruit juice, a smoothie can pack serious nutrition into a drink.

STIR-FRIED ROSELLE LEAVES

- 5 cups water
- 1 teaspoon chili powder
- 2 large cloves garlic, minced
- 1 medium onion, finely chopped
- 1 cup fresh roselle leaves, chopped
- 1/2 teaspoon turmeric
- 2 tablespoons vegetable oil
- 1/4 cup grated carrots

Pound or blend chili, onion, and garlic together until they become a paste. Heat oil in large skillet, add the paste and turmeric, and stir until brown. Add roselle leaves and cook for 5 minutes. Add grated carrots and cook for 10 minutes more until leaves are tender. Add a small amount of water as needed to prevent sticking. Season with salt and pepper. Serves 2.

Roselle is a beautiful plant in the hibiscus family. The bright red flower bud is often used to flavor teas and drinks. Its slightly tangy leaves enhance the flavor of boiled or baked sweet potatoes.

STUFFED GRAPE LEAVES



- 1 medium onion, chopped
 - 2 medium tomatoes, chopped
 - 1-1/2 cups cooked spinach, chopped
 - 1/2 teaspoon salt
 - 1/2 teaspoon black pepper
 - 1 cup uncooked rice
 - 1 teaspoon of lemon juice
- Large leaves to use as wrappers. Grape leaves are traditional. Swiss chard, wong bok, napa, and collard leaves can also be used.

Soften wrapping leaves in a bowl of hot water. Mix all other ingredients together in a large bowl. Place some of the mixture on a leaf. Fold both longer edges of leaf towards the center. Then roll from the stem end towards the top to seal ingredients inside. When all leaves are filled, layer in a pot. Add enough water to cover leaf layers. Add a few drops of oil and lemon juice to the water to reduce discoloration. Cover and bring to a boil. Lower heat and cook 1 to 1 1/2 hours until most of the water has been absorbed. Serves 4–6.

Depending on their size, the nature of the filling and whether or not a sauce is served with them, stuffed leaves can be anything from a snack to the main course of a meal. Grape leaves are among the best sources of vitamin A and magnesium.

SWEET POTATO LEAVES WITH COCONUT MILK

2 cups sweet potato leaves, washed and finely chopped
1/4 cup green onions, finely chopped
1 clove garlic, crushed
1 teaspoon minced fresh ginger
1 teaspoon turmeric powder
Chili pepper and soy sauce to taste
1 tablespoon vegetable oil
1/2 cup coconut milk
1/2 cup water
6 oz tofu, cooked fish or seafood (optional)

Blanch chopped leaves in boiling water for 2–3 minutes. Rinse with cold water and set aside. Heat oil in frying pan and add green onions, garlic, ginger, turmeric, chili, and soy sauce; stir for 2 minutes. Add coconut milk and water. Bring to a boil and add leaves (also tofu, fish, or seafood if desired). Bring to boil again, simmer for 2 minutes and serve over rice, cassava, or couscous. Serves 4.

The coconut milk in this recipe helps bring all the flavors together.

TABOULI

3/4 cup boiling water
1/2 cup dry bulgur wheat
2 tablespoons lemon or lime juice
1/4 cup chopped green onions
2 cloves garlic, crushed
1–2 tablespoons olive oil
3/4 cup chopped fresh parsley
1 tomato, diced
1/2 teaspoon salt

Combine bulgur, salt, and boiling water in bowl. Cover and let sit until all the water is absorbed. Add lemon juice, garlic, and olive oil; mix thoroughly. Let marinate for 2–3 hours. Refrigerate if possible. Add parsley, onions, and tomato. Mix gently and serve. Serves 2–3.

This is a classic Middle Eastern dish—half salad and half side dish. It showcases the clean distinct flavor of parsley, a green leafy vegetable usually relegated to a minor role as a garnish.

Glossary

Acute

describing a disease or condition with a rapid onset and short but severe course

Aerobic

living or occurring only in the presence of oxygen (e.g. aerobic bacteria)

Aflatoxin

naturally occurring, highly carcinogenic toxins that are produced by many species of *Aspergillus* fungi

Agroecology

the holistic study of agricultural ecosystems, including environmental and human elements. Its goal is to improve biological efficiency, diversity, and self-regulation.

Alkaline soils

soils with a pH above 7.0

Anaerobic

living or active in the absence of free oxygen (e.g. anaerobic bacteria)

Anemia

reduced capacity of the blood to carry oxygen to the tissues either because of too few red blood cells, or because of too little hemoglobin. It causes fatigue and increased susceptibility to infection.

Annual

a plant that typically completes its entire life cycle within a year

Anthropocentrism

the belief that humans are the central and most significant entities in the universe, or the assessment of reality through an exclusively human perspective

Anti-Nutrient

natural or synthetic compounds in food that interfere with the absorption of nutrients

Antioxidant

molecules capable of slowing or preventing the oxidation of other molecules. Oxidation reactions can produce free radicals, which start chain reactions that damage cells.

Apical meristem

a group of plant cells that are found at the growing tip of a root or a stem. These cells are capable of dividing indefinitely and their main function is the production of new growth.

Arcadian

a social philosophy based on harmony with nature, neighborliness, and moderate demands

Biennial

a plant that normally lives two years from germination to death, usually flowering in the second season

Bioavailability

the extent to which a compound is available for use by organisms

Biodiversity

the variety of life forms within a given ecosystem, biome, or the whole planet. Biodiversity is often used as a measure of the health of biological systems.

Biofuel

solid, liquid, or gaseous fuel obtained from relatively recent biological material (biomass); different from fossil fuels, which are derived from biological material that has been dead for a long time. Usually bio-fuels are produced from crops that are rich in either simple carbohydrates or oil.

Bio-gas

combustible gas produced by the biological breakdown of organic matter in the absence of oxygen

Biophilia

the hypothesis that there is an instinctive bond between human and other living beings. Edward O. Wilson introduced and popularized the hypothesis in his book entitled *Biophilia*.

Blanch

partially cooking foods by exposing them to steam, boiling water, or microwave heat for a few minutes

C-4 metabolism or C4 carbon fixation

one of three biochemical mechanisms used in photosynthesis. C-4 plants are generally better adapted to high temperature and low moisture conditions than the much more common C-3 plants.

Carotene

orange colored pigment important for photosynthesis. Alpha and beta carotene are two carotenes that can be converted into vitamin A in the liver.

Carrying Capacity

the number of individuals who can be supported within the natural resource limits of a given area, without degrading the natural social, cultural, and economic environment

Crassulacean Acid Metabolism (CAM)

a photosynthetic pathway largely limited to succulent plants in arid and semiarid environments, in which carbon fixation takes place at night, when lower temperatures reduce the rate of water loss during CO₂ uptake

Catalyst

a substance that initiates or accelerates a chemical reaction without itself being affected

Cell Wall

a semi rigid, permeable structure that is composed mainly of cellulose and lignin that encloses most plant cells

Chapin Bucket Irrigation System

a simple inexpensive drip irrigation system using water supplied by gravity from a raised bucket

Chlorophyll

a green pigment found in most plants, algae, and cyanobacteria. It is the compound in plants that converts radiant energy to chemical energy through the process of photosynthesis.

Chloroplasts

chlorophyll-rich bodies found mainly in cells near the surface of leaves

Chronic

describing a disease or condition of long duration with gradual onset

Cladode

the photosynthetic stem of a plant whose foliage leaves are absent or much reduced, such as in many types of cactus

Clone

a group of identical cells that share a common ancestry, derived from the same mother cell

Community Supported Agriculture (CSA)

a system of direct marketing in which consumers “invest” in a farm for the growing season, and in return receive a weekly or monthly payout of fruits and vegetables. This reduces waste and risk for the farmer and gives the consumer a better understanding of where their food comes from.

Compound Leaf

having the blade divided into two or more distinct leaflets

Confined Animal Feeding Operation or Concentrated Animal Feeding Operation (CAFO)

the practice of raising livestock in confinement at high density typical in industrial agribusinesses farming

Corm

a fleshy, swollen stem base, usually underground, in which food reserves are stored between growing seasons

Damping Off

a fungal disease that attacks seedlings, causing them to shrivel at the base; usually *Pythium* and *Rhizoctonia* fungi, which thrive in stagnant air and high humidity

Deciduous

referring to trees or shrubs that lose their leaves seasonally

Degenerative Disease

a disease in which the function or structure of the affected tissues or organs will progressively deteriorate over time, whether due to normal bodily wear or lifestyle choices such as exercise or eating habits

Desertification

extreme deterioration of land in arid areas due to loss of vegetation and soil moisture; chiefly from man-made activities

Drip Irrigation

also known as trickle or micro irrigation, is a method that conserves water by allowing it to drip slowly to the roots of plants, either onto the soil surface or directly onto the root zone, through a network of tubing

Ecology

the branch of biology concerned with the relations between organisms and their environment

Eco-System

a biological community and the physical environment associated with it. An eco-system can refer to a very specific area, such as a small stretch of a stream, or a very large area such as an ocean.

Entropy

the tendency for all matter and energy in the universe to evolve toward a state of inert uniformity

Enzyme

protein-based catalysts that carry out all of the chemical changes involved in plant growth

Epithelial Cells

one of the 4 main bodily tissues, they often compose the linings of organs and membranes as well as the skin

Eutrophication

a condition caused by excessive nutrients in a lake or other body of water, usually caused by runoff (e.g. animal waste, fertilizers, sewage) from the land, which causes a dense growth of plant life. The decomposition of these plants depletes the supply of oxygen in the water, leading to the death of most aquatic life.

Evergreen

bearing green leaves throughout the year

Fertilizer

soil amendments applied to promote plant growth. The main nutrients present in fertilizers are nitrogen, phosphorus, and potassium (the “macronutrients”) and other nutrients (“micronutrients”) are added in smaller amounts.

Fiber or Dietary fiber

the indigestible portion of plant foods mainly from cell walls. Some fiber is soluble, but most is insoluble.

Folate

folate (the naturally occurring form) and folic acid (also known as folacin) are forms of the water-soluble vitamin B-9. It plays an important role in DNA and RNA synthesis, production of red blood cells, wound healing, building muscles, maintenance of the nervous system, and for every function that requires cell division.

Food Security

physical and economic access, at all times, to sufficient, safe, and nutritious food to meet dietary needs and food preferences for an active and healthy life

Food System

a food system includes all processes involved in feeding a population: growing, harvesting, processing, packaging, transporting, marketing, consumption, and disposal of food and food-related items

Genetically Modified Organism (GMO) or Genetically Engineered Organism (GEO)

a living being whose genetic material has been altered usually by the inclusion of foreign genetic material or by the alteration of some of its DNA

Genus

a unit of biological classification that groups organisms with common characteristics that make them distinct from organisms outside of that unit

Glabrous

without hairs

Global Warming

heating of the Earth's atmosphere that occurs when elevated levels of carbon dioxide and other gases, largely from burning coal, oil, and natural gas, trap the sun's heat

Globalization (or Globalisation)

an ongoing process by which regional economies, societies, and cultures become integrated into a global network of communication and trade

Glomalin

a glycoprotein produced abundantly by mycorrhizal fungi in soil and in roots. It permeates organic matter, binding it to silt, sand, and clay particles forming clumps that improve soil structure.

Glucose

a simple sugar with the molecular formula of C₆ H₁₂ O₆; it is a principle source of energy for cellular metabolism. Glucose is a building block for larger molecules such as sucrose (a disaccharide) and cellulose, starch, and glycogen (polysaccharides). Plants produce glucose during photosynthesis.

Glucosinolate

one of about 120 different sulphur-containing phytochemicals commonly found in plants of the cabbage and onion families. Plants use glucosinolates to protect against feeding from insects and animals. When the plant cell is damaged the enzyme myrosinase combines with glucosinolates to form sharp tasting isothiocyanates, as in horseradish.

Glycemic Index

a ranking of carbohydrate containing foods by how quickly they raise blood sugar. The scale is based on glucose, which is 100. High glycemic index foods have numbers above 70. Intermediate foods have numbers between 55 and 70 and low glycemic index foods are below 55. Heavy consumption of foods high on the index is tied to increased risk of diabetes and obesity.

Goitrogen

a substance that interferes with iodine absorption which can diminish the functioning of the thyroid gland

Green Manure

a cover crop grown primarily to improve the fertility and structure of the soil

Green Revolution

the rapid introduction of hybrid seeds, fertilizers, and irrigation in the 1960's to dramatically increase grain yield in developing countries, especially Asia

Greenhouse Gas

gases in the atmosphere that absorb radiation and increase the Earth's surface temperature; mainly water vapor, carbon dioxide, methane, nitrous oxide, and ozone

Habitat

the environment in which a plant or animal lives

Halophyte

a plant adapted to living in highly saline conditions

Heirloom variety

any plant variety that owes its existence to its preservation by home gardeners or private individuals, rather than the seed trade, including old varieties whose origin is unknown which have been passed down from generation to generation

Herb

a vascular plant that never produces a woody stem

HIV & AIDS

infection by the human immunodeficiency virus (HIV), a retrovirus that causes immune system failure and causes the often fatal condition, acquired immune deficiency syndrome (AIDS)

Homocysteine

an amino acid used normally by the body in cellular metabolism and the manufacture of proteins. Elevated concentrations in the blood are thought to increase the risk for heart disease by damaging the lining of blood vessels and enhancing blood clotting.

Hybrid seed

seed produced by artificially cross-pollinated plants. Hybrid seed cannot be saved, as the seed from the first generation of hybrid plants does not reliably produce true copies.

Hydrated Lime

calcium hydroxide: a caustic substance produced by heating limestone

Hydrocyanic acid

a toxin that interferes with enzymes; essential for respiration. (also called Prussic acid)

Hydrophyte

a plant normally living with the vegetative parts submerged or floating in water

Hypoxic Zones

low-oxygen dead zones in the world's oceans and large lakes most often caused by increased nitrogen and phosphorus in the water. They have been increasing in size since the 1970s.

Insulin resistance

a condition in which the pancreas fails to keep up with the body's need for insulin to process carbohydrates properly. A precursor to diabetes, it is linked to excessive consumption of sugars, especially fructose.

Intercrop

the practice of cultivating two or more crops on the same land at the same time, often associated with sustainable agriculture

Internode

the part of the stem between the points of leaf attachments

Introduced

not indigenous or native to the area in which it now occurs

Isothiocyanate

important phytochemicals, mainly from cabbage and onion family plants. They are potent anti-cancer agents but also are goitrogens that interfere with iodine absorption.

Lamina

the blade or flat surface of a leaf

Leaf Area Index (LAI)

the ratio of total upper leaf surface of vegetation divided by the surface area of the land on which the vegetation grows. LAI typically ranges from 0 for bare ground to 6 for a dense forest.

Leaf Concentrate

an extremely nutritious food produced by coagulating the juice of certain fresh green leaves. The process of removing most of the water and fiber transforms dark green leaves into a more concentrated, more digestible, and more adaptable food. Leaf concentrate is sometimes known as leaf protein, leaf protein concentrate, leaf nutrient concentrate or leaf extract.

Legumes

plants belonging to the pea family, Fabaceae (or Leguminosae), which typically host symbiotic nitrogen-fixing bacteria

Lignin

an indigestible substance related to cellulose that provides rigidity. Together with cellulose, it forms the woody cell walls of plants and the cementing material between them.

Lipoxidase or Lipoxygenase

an enzyme that catalyzes oxidation of unsaturated fatty acids to yield peroxides, which cause "off" flavors and rancidity in oils

Malnutrition

the insufficient, excessive, or imbalanced consumption of nutrients. A number of different nutrition disorders may arise, depending on which nutrients are under or overabundant in the diet.

Metabolic syndrome

a combination of high blood sugar, high blood pressure, high triglycerides or cholesterol in the blood, and large waist circumference associated with an industrialized diet. It increases the risk of heart disease and diabetes.

Microgreens

small young shoots of plants used as salad greens

Midrib

the central and most prominent vein of a leaf

Mineralization

in terms of soil, this is when the chemical compounds in organic matter decompose, or are oxidized (chemically combined with oxygen) into forms accessible to plants

Monocotyledon

a flowering plant whose embryo has only one cotyledon or seed leaf; e.g. maize or sugar cane

Monocrop

the agricultural practice of growing a single crop over a large area or growing the same crop year after year on the same land, without the rotation of other crops

Mucilage

slimy material created by certain plants or plant organs and some microorganisms.

Mulch

a protective covering that is spread on the ground around plants to inhibit evaporation and weed growth, control soil temperature, enrich the soil, or prevent the spread of pathogens

Mutualism

a relationship between individuals of different species in which both individuals derive a benefit; sometimes called symbiosis

Neo-Luddite

one who opposes modern technology. Neo-luddism is based on the historical legacy of the British Luddites who were active between 1811 and 1816.

Nitrate

a natural material in soils. Adequate supply of nitrate is necessary for good plant growth. Probably more than 90 percent of the nitrogen absorbed by plants is in the nitrate form.

Nitrite

an unstable, easily oxidized form of nitrogen, commonly used in processed meats

Nitrogen fixation

the conversion of atmospheric nitrogen into forms that plants can use. Many micro-organisms fix atmospheric nitrogen, but the most important by far are the nitrogen-fixing nodules formed by Rhizobia bacteria on the roots of most legumes.

Nitropryrin (or Nitrapyrin)

a commercial product that blocks the activity of Nitrosomonas bacteria, keeping soil nitrogen in the ammonium form which is not prone to leaching

Node

the part of a stem that holds buds; The internode is the distance between one node and the next.

Nutrient

a chemical that an organism needs to live and grow; a substance used in an organism's metabolism which must be taken in from its environment

Obesity

a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health, leading to reduced life expectancy and/or increased health problems

Open-pollinated seed

seed that requires pollination by insects, birds, wind, or other natural mechanisms. As open pollination is not controlled, different kinds of traits will come up in the next generations. Unlike hybrid seed, farmers and gardeners can collect and select open-pollinated seed according to the traits they desire.

Organelle

a specialized structure found inside cells that carries out a specific life process

Organic agriculture

a term often used to indicate any farming or gardening system that does not use chemical inputs and has certain ecological, social, and economic objectives

Osmotic pressure

the movement of water across a semi-permeable membrane due to the difference between the concentration of the solutions on both sides

Oxalic acid

a common organic acid that is found in plants that binds with some essential mineral nutrients, reducing their availability to the body

Peak oil

the point in time when the maximum rate of global petroleum extraction is reached, after which the rate of production enters terminal decline

Peat moss

partially decomposed sphagnum moss or sedge; often used in making potting soil because of its ability to hold air and water

Perennial

living three years or more

Peri-urban

areas on the borders of large towns and cities

Perlite

heat expanded obsidian (a volcanic rock) that is added to potting soil to improve moisture retention and drainage

Permaculture

an attempt to create perennial agricultural systems that mimic the structure and interrelationships found in natural ecologies

pH

a scale, running from 0 to 14, with distilled water at 7, that measures how acid or alkaline soil is. pH is the concentration of hydrogen (H) ions—the less hydrogen ions there are, the more alkaline the soil is. Above 7 is considered to be alkaline while below 7 is acid. Plant nutrients including phosphorus, iron, and manganese are less available in alkaline soils.

Pesticide resistance

genetic change in response to selection by a pesticide, resulting in the development of strains capable of surviving a dose lethal to most individuals in a normal population. Resistance may develop in insects, weeds, or pathogens.

Phloem

tissue within plants which transports carbohydrates produced in the leaves throughout the rest of the plant

Photosynthesis

process by which plants convert carbon dioxide and water into organic compounds using energy from sunlight

Phytase

an enzyme that can break down the indigestible phytic acid (phytate) found in grains and oil seeds and thus release digestible phosphorus, calcium, and other nutrients

Phytate (Phytic acid)

the principal storage form of phosphorus in many plant tissues, especially bran and seeds. It interferes with absorption of minerals but may have beneficial anti-cancer and anti-diabetes effects as well.

Phytochemical

a chemical compound such as beta-carotene that occurs naturally in plants; has a health benefit, but is not yet established as an essential nutrient

Pollination

the transfer of pollen from the male organ of a plant, where it is formed, to the receptive region of a female organ, e.g. from anther to stigma

Protein

a large group of nitrogen containing organic compounds that are essential to all living cells

Pubescent

covered with short soft hairs

Reductionism

the tendency to oversimplify complex biological systems in order to make them easier to manipulate. In agriculture, nutrition, and medicine it manifests as the excessive focus on a particular outcome at the expense of the system as a whole.

Rhizobia

a type of soil bacteria that can fix atmospheric nitrogen after becoming established inside root nodules of legumes. They require a plant host as they cannot independently fix nitrogen.

Rhizome

an underground stem, usually growing horizontally

Root

the usually underground organ that lacks buds or leaves or nodes; it absorbs water and mineral salts and anchors the plant to the ground.

Root Zone Irrigation

plant watering systems that place the water below the surface, in the root zone, thus improving water efficiency by improving uptake and reducing evaporation and runoff

Row Covers or Floating Row Covers

very lightweight, translucent material (usually spun polypropylene) that can be placed directly over crops in order to protect them from insect damage and temperature extremes

Ready-to-Use Therapeutic Food (R.U.T.F.)

fortified, high energy, ready-to-eat food used in the treatment of malnourished children

Ruminant

an animal with a complex digestive system that enables gut bacteria to break down fibrous food. Cattle, sheep, and goats are ruminants; pigs and poultry are not.

Salinization

the accumulation of salts in soil to the extent that plant growth is inhibited. This is a common problem when crops are irrigated in arid regions; much of the water evaporates and salts accumulates in the soil.

Scape

the stem-like, flowering stalk of a plant with leaves clustered at the base of the stem

Seed

a propagating organ formed in the sexual reproductive cycle of plants, consisting of a protective coat (testa) enclosing an embryo and food reserves

Shrub

a woody plant usually less than 5 meters (16 feet) high, either without a distinct main trunk, or with branches persisting on the main axis almost to its base

Social Marketing

the use of marketing principles and techniques for the social good. It attempts to influence a target audience to voluntarily accept or reject a behavior for the benefit of themselves and/or society as a whole.

Species

a group of plants or animals that are unable to produce viable offspring with individuals outside of that group

Sprouts

the young growth of any seed, often referring to those that are eaten in salads

Stacking Functions

getting many useful outputs from one element (i.e. plant, animal, tool) in an agricultural system. One of seven principles of pemaculture

Stem or Stalk

a slender or elongated structure that supports a plant or part of a plant

Stoma (plural Stomata)

pores most often on the underside of leaves that are used for exchanging gases

Sub-tropics

the geographical and climatic zone of the Earth immediately north and south of the tropical zone. In practice, areas with at least nine months of growing season.

Sustainability

the capacity of a biological system to remain diverse and productive over an indefinite time without damaging the environment or depleting resources

Systems thinking

a logical framework that emphasizes interrelationships and patterns of change

Taproot

the dominant descending root of a plant

Tendrils

a slender climbing organ usually formed by modification of a plant's stem or leaf

Testa

a seed coat

Toxin

any chemical that interferes with normal cell function. Toxins may be man-made (such as DDT), or made by plants (phytotoxins), fungi (mycotoxins), or bacteria.

Traditional Variety

any plant variety developed more than 50 years ago

Tropical Sprue

a nutrient malabsorption disease commonly found in the tropical regions, marked with abnormal inflammation of the lining of the small intestine

Tropics

the area between 23.5 degrees north (Tropic of Cancer) and 23.5 degrees south (Tropic of Capricorn) of the equator, sometimes used to describe any area that is frost free year round

Tuber

a modified underground plant structure that is enlarged to store nutrients and is sometimes used in asexual reproduction

Turgid

swollen due to high water content

Vermiculite

a material made from heat expanded mica. It is used to increase the moisture and air holding capacity of soils used for container growing.

Xerophyte

a plant which can survive with little available water

Xylem

the tissue in a plant that conducts water and mineral salts from the roots to the leaves

Waterlogging

the saturation of the soil by groundwater that results in anaerobic (absence of free oxygen) conditions which can stunt or kill many plants



Lacinato kale (*Brassica oleracea acephala*)

APPENDIX 3

Useful Latin Words for Leaf Vegetables

COLORS

| | |
|---------------------|---------|
| <i>aurea, aureo</i> | golden |
| <i>alba, albo</i> | white |
| <i>glauca</i> | blue |
| <i>rubra</i> | red |
| <i>purpurea</i> | purple |
| <i>coccineus</i> | scarlet |
| <i>croceus</i> | yellow |
| <i>niger</i> | black |
| <i>argent</i> | silver |
| <i>chrys</i> | golden |
| <i>xanth, lute</i> | yellow |

LEAF SHAPES

| | |
|----------------------|--------------------|
| <i>angustifolius</i> | narrow leaves |
| <i>aquifolius</i> | spiny leaves |
| <i>parvifolius</i> | small leaves |
| <i>macrophylla</i> | large leaves |
| <i>heterophylla</i> | varied size leaves |

GENERAL PLANT DESCRIPTIONS

| | |
|----------------------|-----------------------|
| <i>dendron</i> | tree-like |
| <i>flora, florus</i> | flowers |
| <i>phylla, folia</i> | leaves |
| <i>baccatus</i> | having berries |
| <i>campan</i> | bell |
| <i>rotund</i> | round |
| <i>cordatus</i> | heart shaped |
| <i>edulis</i> | edible |
| <i>floridus</i> | flowering |
| <i>fulgens</i> | shiny |
| <i>grandi</i> | large, showy |
| <i>officinalis</i> | medicinal |
| <i>plumosus</i> | feathery |
| <i>rugosus</i> | wrinkled, rough |
| <i>ramos-</i> | referring to branches |
| <i>caul-</i> | referring to a stem |
| <i>frond-</i> | referring to a leaf |

PLANT SHAPES AND GROWTH HABITS

| | |
|------------------------|----------------------------------|
| <i>altus, elat</i> | tall |
| <i>arboreus</i> | tree-like |
| <i>compactus</i> | compact, dense |
| <i>contortus</i> | twisted |
| <i>elegans</i> | slender, willowy |
| <i>humilis</i> | small, low growing |
| <i>procumbens</i> | trailing |
| <i>repens, reptans</i> | creeping |
| <i>variegata</i> | variegated foliage |
| <i>tricolor</i> | three color blend of variegation |
| <i>pendula</i> | weeping growth |

PLACE OF ORIGIN

| | |
|-------------------|-----------------------------|
| <i>africanus</i> | native to Africa |
| <i>campestris</i> | native to plains and fields |
| <i>chinesis</i> | native to China |

APPENDIX 4

Seeds and Supplies

▶ **Agro Haitai**

www.agrohaitai.com/
good source for Asian vegetable seeds

▶ **Amazon.com/**

useful customer reviews of gardening and nutrition books and food processing equipment sold over the Internet

▶ **B&T Growers Supply**

www.growersupply.com/
large selection of greenhouse and other commercial agriculture supplies at good prices

▶ **B & T World Seeds**

b-and-t-world-seeds.com
French based company with one of the largest collections of vegetable seeds in the world

▶ **Bountiful Gardens**

www.bountifulgardens.org/
vegetable seeds and legume inoculants; excellent gardening information from bio-intensive perspective

▶ **Chiltern Seeds**

www.chilternseeds.co.uk
British based company with very large selection of vegetable seeds

▶ **Evergreen Seeds**

www.evergreenseeds.com/vegetableseeds.html
250 varieties of Asian vegetable seeds and books for Oriental gardening and cooking

▶ **Fedco Seeds**

fedcoseeds.com/
good inexpensive garden seeds and informative catalog

▶ **Florida Herb House**

www.sharpweblabs.com
sells dried spinach and alfalfa

▶ **Frontier Natural Products Coop**

www.frontiercoop.com/
sells a variety of dried vegetable powders

▶ **Johnny's Selected Seeds**

www.johnnyseeds.com/
large selection of organic and non-organic vegetable seeds especially for cooler climates; garden supplies and informative catalog

▶ **Kitazawa Seed Company**

www.kitazawaseed.com/
US company specializing in Asian vegetable seeds

- ▶ **Nichols Garden Nursery**
www.nicholsgardennursery.com
family owned source of seed for many unusual leaf vegetables
- ▶ **Pinetree Garden Seeds**
www.superseeds.com
good selection of inexpensive vegetable seed in small packets
- ▶ **Peaceful Valley Farm Supply**
www.groworganic.com/
very large selection of organic seeds and supplies including good range of cover crop seeds and agricultural tools, geared toward organic farms and larger gardens
- ▶ **Sakata Seeds**
www.sakata.com/
Japanese seed company with distributors throughout the world
- ▶ **Seeds of India**
www.seedsofindia.com
US company specializing in vegetable seeds of the Indian sub-continent
- ▶ **Terroir Seeds**
www.underwoodgardens.com
specializing in heirloom vegetable seed
- ▶ **Thompson & Morgan Seeds**
www.thompson-morgan.com
British company with huge selection of vegetable seeds
- ▶ **VNR Seeds**
www.vnrseeds.com/
Indian vegetable seed company with branches around the world
- ▶ **Z Natural Foods**
www.znaturalfoods.com/
sells dried moringa, barley, alfalfa, spinach, and other dried leaf powders

APPENDIX 5

Useful Websites

- ▶ **American Community Gardening Association**
www.communitygarden.org/
support for the community garden movement in the United States and Canada with much useful vegetable gardening information
- ▶ **Association for the Promotion of Leaf Concentrate in Nutrition**
www.nutrition-luzerne.org/
information on the production and consumption of leaf concentrate, especially from alfalfa, for the alleviation of malnutrition in English and French
- ▶ **Center for New Crops & Plant Products**
www.hort.purdue.edu/newcrop/
information on new and specialty crops
- ▶ **Eco-Crop**
ecocrop.fao.org/
helps identify a suitable crop for a specified environment, habit of growth, or use; provides information on the environmental requirements and uses of a given crop throughout the world.
- ▶ **Educational Concerns for Hunger Organization (ECHO)**
www.echonet.org/
site contains a wealth of information on small farm tropical agriculture; an excellent source of seed for many leaf crops.
- ▶ **Family Gardens Against Malnutrition**
en.calameo.com/read/0003185461d0c7d5a194f
Brief presentation of the case for greater use of home gardens to combat malnutrition
- ▶ **Food and Nutrition Information Center (FNIC)**
www.fnic.nal.usda.gov/
mainstream nutrition information from the US National Agriculture Library including extensive composition of foods databases
- ▶ **International Development Enterprises**
www.ideorg.org/
income generation for small subsistence farmers, especially focused on low cost irrigation
- ▶ **Kitchen Gardeners International**
kitchengardeners.org/
a network of over 20,000 people from 100 countries promoting greater food self-reliance through small vegetable gardens
- ▶ **Leaf for Life**
www.leafforlife.org/
information on making better use of leaf crops to improve human nutrition, especially leaf concentrate and dried leaf powders. Some Spanish language

- ▶ **Moringanews**
www.moringanews.org/
an international network linking people working with Moringa and providing excellent information on the various uses of this plant
- ▶ **National Sustainable Agriculture Information Service**
attra.ncat.org/
publications on sustainable production practices, alternative crops, and innovative marketing
- ▶ **Plants For A Future**
www.pfaf.org/
information on ecologically sustainable horticulture including a database of approximately 7000 edible species and otherwise useful plants in English, Dutch, and Danish
- ▶ **Plant Physiology Online**
4e.plantphys.net/contents.php
a well-organized collection of essays covering all aspects of plant physiology, mainly on a beginning college level
- ▶ **Plant Resources of Tropical Africa**
www.prota.org/
extensive information on roughly 7,000 useful African plants in English and French
- ▶ **Southern Institute for Appropriate Technology (Servants in Faith and Technology)**
www.sifat.org/
a Christian nonprofit organization that provides training in self-help programs, including techniques for increasing the value of leaf vegetables, for community workers throughout the world
- ▶ **Texas A & M University Horticulture**
aggie-horticulture.tamu.edu/lawn_garden/veg.html
offers guides and factsheets on growing vegetables
- ▶ **The International Seed Saving Institute**
www.seedsave.org
information on saving seeds with specific instructions for 27 vegetables
- ▶ **World Vegetable Center (formerly Asian Vegetable Research and Development Center)**
www.avrdc.org/
excellent source of information on leaf crops, especially Asian leaf crops

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Index

- Abelmoschus caillei, 164
Abelmoschus esculentus, 42, 164, 183, 196–197
Adansonia digitata, 187
aflatoxin, 84
African nightshade, 167
agretti, 201
alfalfa, 32–33, 59–63, 72–73, 78–79, 81, 112, 121, 136–137, 139–140, 192–193, 204
algae, 1, 59, 117–118, 122, 188
alkaline soils, 119, 199
Allium cepa, 162, 176, 189
Allium cepa aggregatum, 176
Allium cepa proliferum, 176
Allium fistulosum, 176, 183, 192
Allium sativum, 163
Allium schoenoprasum, 189
Allium tricoccum, 176
Alternanthera sissoo, 173, 190, 196
Alzheimer's disease, 42
Amaranthus cruentus, 125, 193, 197
Amaranthus hypochondriacus, 154, 158
Amaranthus tricolor, 166
anaerobic, 95
anemia, 3, 6, 11, 17, 20, 24–25, 27–28, 33–34, 61, 73, 97, 174, 178, 192, 204–205
annual, 4, 15, 19, 89, 101, 112, 125, 132, 140–142, 144–145, 147, 151–152, 154, 156, 158, 161–162, 164–169, 173–174, 176, 185, 188, 190, 199
antioxidant, 7, 42, 45, 71, 148, 152, 154, 160, 163, 170, 178–179, 192, 204
apical meristem, 170
Arcadian, 103
arugula, 44, 47, 189, 192–193, 213
Asian Vegetable Research and Development Center, 18, 24, 28, 174
Atriplex halimus, 200
Atriplex hortensis, 62, 125, 193, 200
Austrian winter pea, 140
bacteria, 9, 23, 51, 70, 83–85, 92, 95–97, 103–104, 106, 116–120, 122, 130, 139, 146, 172, 184, 192, 198–199, 201, 219, 227
baobab, 187

barley, 3, 19, 55, 59, 93, 100, 121–122, 136–139, 142, 145–147, 153, 186, 192, 194, 200, 212
Basella alba, 17, 42, 171, 183, 195, 197
Basella rubra, 125, 171, 196
beets, 51, 126, 136, 138–139, 151, 158, 160, 174, 186, 193–194, 200, viii
belembe, 52, 156–157, 188, 190, 196
bell bean, 138, 142
Benincasa hispida, 160
beta-carotene, 5, 7, 27, 29, 31–33, 49, 60, 85, 87, 96, 104, 127, 140, 143–144, 146, 148, 162–163, 165, 167, 173, 178, 187, 192
Beta vulgaris, 62, 121, 160, 186, 189, 192, 199–200, viii
Beta vulgaris var. cicla, 62, 192, 199–200
biennial, 151, 160–162
bioavailability, 20, 28, 31–32, 36, 49, 60–61, 71, 73, 78, 91, 141
biodiversity, 15, 18, 99, 104, 106, 113–114, 117, 153
bio-fuel, 13
bitter gourd, 30, 40–41, 43, 101, 160–161, 177–178, 207
black nightshade, 167
blanch, 89, 92, 156, 229
bottle gourd, 160
Brassica campestris, 149
Brassica chinensis, 192
Brassica hirta, 149
Brassica juncea, 62, 149, 153, 186, 189, 192
Brassica napus, 106, 149, 192, 200
Brassica napus pabularia, 106, 192
Brassica narinosa, 192

Brassica nigra, 149
Brassica oleracea longata, 175
Brassica oleracea palmifolia, 175
Brassica oleracea var. acephala, 153
Brassica oleracea var. capitata, 153
Brassica rapa, 134, 149, 153, 161, 186, 189, 192, 196
Brassica rapa nipposinica, 192
Brassica rapa var. chinensis, 153
Brassica rapa var. japonica, 153
Brassica rapa var. pekinensis, 153
Brassica rapa var. perviridis, 153
Brassica rapa var. rapa, 134, 149, 153, 161, 186
Brazilian spinach, 173–174, 190, 192
bunching onions, 183
bush okra, 27, 42, 164–165
cabbage, 18, 21, 24, 30, 34–35, 41, 43–45, 47, 50, 53–54, 71, 94–97, 104, 113, 125, 130, 138–139, 148, 151–153, 166, 168, 170, 175–176, 189, 193, 215, 219–220, 227
calcium, 17, 22–24, 40–41, 53, 55, 60, 72–73, 89–90, 93, 114, 119–120, 122, 126–127, 140–141, 143–144, 146, 148–149, 152–154, 157–160, 162–167, 170–173, 175–176, 187, 192, 196, 200, 215, 225, 227
calorie, 6, 12, 18, 39, 212
cancer, 6–7, 12, 39–41, 44–45, 47, 51, 96, 148–149, 153, 160, 162–163, 170, 177, 179
Canola, 149
Capsicum annum, 163
Capsicum chinense, 163
Capsicum frutescens, 163
carbohydrate, 40

- carotene, 5, 7, 27, 29, 31–33, 49, 60, 85–87, 96, 104, 127, 140, 143–144, 146, 148, 162–163, 165, 167, 173, 178, 187, 192
 carrying capacity, 100–101, 108
 Carson, Rachel, 8
 cassava, 3, 6, 17–19, 47, 49–50, 53–57, 80–81, 85, 96–97, 124–125, 140, 143, 153–156, 161, 167, 170–171, 177, 196, 207, 211, 222, 225, 229
 cat's whiskers, 166
 cellulose, 19, 31, 133
 cell wall, 19, 65
Celosia argentea, 50, 125, 165, 182–183, 185, 194, 196–197
 chaya, 18, 24, 27, 40–41, 47, 49–50, 54, 57, 97, 124–125, 127, 168, 170–172, 196–197, 207, 209, 226
 chayote, 115, 160–161, 197
 chekkurmanis, 172
Chenopodium album, 21, 62, 81, 126, 191, 200
Chenopodium bonus-henricus, 174
Chenopodium quinoa, 154, 157, 200
Chichorium endivia, 189
 Chinese boxthorn, 18, 97
 chives, 53, 176, 178, 189, 204
 chlorophyll, 1, 31–33, 41, 48, 84, 146, 193, 216
 chronic, 6, 12, 39–41, 43, 57, 155, 186, 204
 claytonia, 186
Cleome gynandra, 92, 166, 197
Cnidoscolus aconitifolius, 170
Cnidoscolus chayamansa, 170
Coccinia grandis, 126, 160
 cocoyam, 156
 collards, 21, 41, 44, 53, 62, 97, 125, 153, 175, 182, 186, 189, 204, 209, 214, 219
Colocasia esculenta, 156, 188
 comfrey, 179
 common bean, 142–143
Corchorus olitorius, 27, 30, 42, 164
 corm, 157
 cowpea, 24, 30, 34, 41, 43, 62, 64, 81, 91, 97, 123, 140–141, 144
 cranberry hibiscus, 131, 183
Crassocephalum crepidioides, 190
 cress, 4, 186, 188–189, 192, 213
Crithmum maritimum, 201
Cucumis sativus, 160
Cucurbita mixta, 160
Cucurbita pepo, 160
 curd, 3, 59–63, 67–71, 74–76
 damping off, 129, 166, 193
 dasheen, 156
 dietary fiber, 42, 54, 114, 146
 diverticulosis, 42
 drip irrigation, 128, 182
 drumstick tree, 169
 ECHO, 144, 191
 ecology, 9, 37, 99, 108, 111, 116, 200
 eddoe, 156
 endive, 53, 189, 192, 213
 enzyme, 9, 20, 41, 47–48, 55, 83, 139, 156–157
 epithelial cells, 29
Eruca sativa, 189, 192
 eutrophication, 117, 119, 188
 fenugreek, 19, 136, 144–145, 177, 192, 224
 fermentation, 68, 95–97, 207
 fertilizer, 4, 13, 28, 51, 53, 73, 81, 106–108, 116–120, 136, 141, 143, 154–156, 166–167, 183, 187, 189, 191, 197, 200, 209
 Find Your Feet, 59–60, 200
 fluted pumpkin, 57, 160–161
 fodder radish, 149, 194
 folate, 11, 22–23, 25, 28, 33–35, 45, 47, 114, 152, 154, 156–157, 159, 162–163, 172, 177–178, 187, 194, 196, 205
 food security, 12, 73, 76, 97, 114–115, 153, 156
 food system, 11–13, 15, 18–19, 37, 49, 81, 92, 108, 113, 116–117, 149, 168, 206, 208–209
 garden huckleberry, 167
 garlic, 7, 19, 45, 53, 71, 89, 91–92, 96, 130, 162–163, 172, 177, 211, 213–215, 219–222, 224, 226, 228–229

genus, 21
 global warming, 14, 107, 116–117, 183
 glomalalin, 107, 198
 glossy nightshade, 167
 glucose, 1, 40
 glycemic index, 40
Gnetum gnemon, 190
 goji, 174, 178, 196
 Golden Rice, 33, 104
 Good King Henry, 168, 174–175
 gourds, 83, 115, 160–161
 grain, 1, 4, 34, 37, 81, 90, 102, 109, 117–118, 146, 153–154, 158–159, 193
 grape, 17, 30, 32, 41, 101, 228
 greenhouse gas, 107
 green manure, 121, 135, 149
 green revolution, 4, 11
Gynura crepioides, 173, 196
 herbicide, 9, 103–104, 109, 168, 209
Hibiscus acetosella, 131, 183
Hibiscus sabdariffa, 183
 hierba mora, 167
 homocysteine, 34
Hordeum vulgare, 146, 186, 200
 horseradish tree, 44, 169
 hung tsoi, 173
 hydrocyanic acid, 50, 54–55, 57, 61, 96–97, 155, 171, 193
 iceplant, 201
 insecticide, 8, 104, 209
 insulin, 6, 40
 intercrop, 81, 121, 140, 143, 145
 iodine, 11, 22–23, 35–36, 47, 54, 155
Ipomoea aquatica, 126, 188
Ipomoea batatas, 154, 183, 196
 iron, 2, 6, 11, 17–18, 20, 22–25, 27–29, 31–34, 36, 54, 60, 71–73, 89–90, 93, 97, 106, 114, 119, 126–127, 132, 137, 141, 143–144, 146, 152–153, 156–160, 162–163, 165–167, 170–176, 178, 192, 194, 196, 199, 204
 ivy gourd, 126, 160–161
 Jersey cabbage, 175
 Joseph's Coat, 166
 jute mallow, 90, 164
 kale, 17, 19, 21, 24, 30, 34, 41, 44–45, 52–53, 62, 89, 93, 97, 106, 125, 137–138, 148, 153, 175, 182, 186, 189, 192–193, 197, 200, 204, 209, 212, 215, 219
 kang kong, 188
 katuk, 124–125, 168, 172–173, 190, 196
 komatsuna, 153
 lablab bean, 142
Lablab purpureus, 7, 62, 80, 125, 142
Lagenaria siceraria, 160
 lambsquarters, 21, 24, 30, 34, 62, 81, 89, 97, 126, 129, 158, 174, 191, 200, 209, 213
Laportea canadensis, 175
 laterite, 26
Latuca sativa, 189
 leaf celery, 188
 leaf concentrate, 27, 32–33, 52–53, 55, 59–81, 91, 137, 139–140, 142, 153, 170, 172, 175, 200, 204, 206–207, 211, 213, 215–218, 220–223, 225, 227
 Leaf for Life, 59–61, 91
 leaf lettuce, 30, 151–152, 189, 192, 197, 209
 legumes, 19, 37, 49, 62, 80, 117–118, 122, 138–140, 143, 145, 148–149
 Leopard, Aldo, 9
Lepidium sativum, 186, 189, 192
 lettuce, 4, 19, 24, 30, 34, 41, 45, 47, 51, 53, 61, 89, 91, 109, 120, 123, 133, 139–140, 151–152, 162, 168, 173, 182, 186, 189, 192–193, 197, 203–204, 209
 lignin, 133
 lutein, 44–45, 152–154
Lycium barbarum, 80, 174, 196, 204
 mache, 186, 195
 macular degeneration, 42, 44
 magnesium, 22–23, 40–41, 48, 114, 119–120, 122, 166, 170, 175, 200, 228
 maize, 3, 80–81, 96, 145–146, 157, 161, 167, 169
 Malabar spinach, 21, 151, 196, 220–221
 malanga, 156

- malnutrition, 3, 11–12, 23, 25–26, 33, 39, 45, 57, 59–61, 76, 78, 80–81, 91, 97, 114, 154, 156, 170, 194, 203–206
- Manihot esculenta*, 56, 155, 196
- matrimony vine, 174
- Medicago sativa*, 62, 72, 139
- Mesembryanthemum crystallinum*, 201
- microgreens, 192–194
- micronutrient, 11–12, 18, 23–24, 29–30, 34–36, 39, 45, 81, 122, 203, 206
- microwave, 84, 89
- miners' lettuce, 186
- mizuna, 47, 153, 192–193, 213
- Momordica charantia*, 101, 160
- monoculture, 15
- Montia perfoliata*, 186
- moringa, 17–18, 24, 28, 30, 34, 41, 43–44, 47, 53, 62, 76, 89–91, 93, 97–98, 123–124, 133, 169–170, 172, 196, 204–205, 209, 218, 222
- Moringa oleifera*, 62, 98, 169, 196
- Moringa stenopetala*, 169
- mulch, 74, 122, 128–129, 135, 138–139, 141, 145, 147, 162–163, 174, 177, 182–183, 187, 195–197, 201
- mulukhiyah, 164
- mustard, 4, 24, 30, 34, 41, 44, 59, 62, 89, 97, 121–122, 125, 130, 137–139, 142, 148–149, 152–153, 162, 166, 170, 182, 186, 189, 192–194, 197, 209, 212–213, 219, 221
- Nasturtium officinale*, 188
- nematode, 62, 172
- new cocoyam, 156
- New Zealand spinach, 21, 183, 200
- nitrate, 51–55, 116–117, 152, 159, 167
- nitrite, 51–52
- nitrogen fixation, 81, 117, 122, 139, 141, 144, 207
- nopal, 187
- obesity, 6, 12, 39–40, 146
- Okinawa spinach, 173
- okra, 19, 27, 41–42, 45, 53, 121, 139, 164–165, 183, 189, 196–197, 207, 226
- onion, 21, 44, 53, 93, 130, 162–163, 176–177, 214–215, 218, 221–222, 226, 228
- Opuntia ficus-indica*, 187
- orach, 62, 125, 193, 200
- organic agriculture, 103–108
- osmotic pressure, 70–71
- osteoporosis, 34, 41, 43
- oxalic acid, 41, 53–55, 61, 96, 117, 126, 152–153, 158–159, 164–166, 173, 175
- oyster nut, 126, 160–161
- pak choy, 189, 192
- Parkinson's disease, 42, 136
- parsley, 18, 24, 27, 30–31, 34, 41, 53, 89, 93, 97, 177–178, 189, 193, 218, 224, 227, 229
- peak oil, 102
- perennial, 19, 47, 81, 129, 139, 142–143, 154–155, 162, 168–171, 173–177, 179, 192, 195–197, 204, 207
- perlite, 124, 191
- pesticide resistance, 8
- Petroselinum crispum*, 31, 189
- pe-tsai, 153
- pH, 28, 63, 71, 95, 107, 119, 142, 147, 153–154, 159–160, 162, 174, 176, 198–201
- Phaseolus vulgaris*, 142
- photosynthesis, 1, 19, 116, 186
- Phytolacca americana*, 179
- Pirie, N.W., 59
- Pisum sativa*, 140–141
- poke, 179
- pollination, 21
- polyphenol, 83
- Portulaca oleracea*, 182–183
- potassium, 22–23, 37, 40, 43, 73, 114, 116, 120–122, 148, 152, 170, 178, 194, 199, 227
- potato onion, 176
- precautionary principle, 9, 160
- prickly pear, 187
- protein, 1–2, 5–6, 12, 17, 20, 24–25, 34, 47, 54, 57, 59–60, 62, 66, 70, 72–73, 78, 89–90, 93, 96–97, 116, 126–127, 132–133, 140–144, 146, 153, 155–159, 161–162, 164, 166, 170–176,

- 181, 187, 196, 198, 209, 214, 225, 227
- Psophocarpus tetragonolobus*, 143, 147
- pumpkin, 24, 30, 34, 41, 43, 57, 93, 97, 160–161, 197, 207, 225
- purslane, 24, 30, 34, 41, 53, 97, 125–127, 129, 182–183, 213
- quail grass, 50, 125, 133, 165, 182–183, 185, 194, 196–197, 209
- quinoa, 153–154, 157–158, 174–175, 200
- radish, 44, 53, 125, 138–139, 148–149, 162, 192–194, 219
- ramps, 176
- rape, 103, 136, 138, 148–149, 194, 200
- Raphanus sativus*, 149, 162
- red palm oil, 29, 32
- reductionism, 104
- rhizobia, 117, 139–141
- rice bean, 145, 148, 197
- rock samphire, 201
- root zone irrigation, 128, 187
- roselle, 183, 228
- row covers, 130, 154, 161, 184
- Rumex acetosa*, 189
- ruminant, 73–74, 145
- Salicornia* spp., 201
- Salsola* spp., 201
- saltwort, 201
- samba lettuce, 151, 173
- samphire, 201
- Sauropus androgynus*, 172, 190
- scallion, 176, 220
- scape, 176
- sea orach, 200
- Sechium edule*, 160
- shallot, 176
- sissoo spinach, 173, 196
- sodium, 22–23, 39–40, 43, 97, 178, 200, 227
- soko, 19, 50, 125, 165
- Solanum americanum*, 167
- Solanum scabrum*, 167
- sorrel, 127, 168, 189, 213
- spiderplant, 166–167
- spinach, 4, 17, 19, 21, 24, 30, 34–35, 40–43, 45, 47, 49–51, 53–55, 61–62, 71, 90, 92–93, 97, 109, 111, 115, 121, 124–126, 137, 140, 151–152, 156, 158, 160, 164–165, 168, 170–174, 178, 182–183, 188–190, 192–193, 195–197, 200, 203–204, 209, 212–213, 220–221, 226–228
- Spinacia oleracea*, 152, 189, 200
- sprouts, 45, 53, 140, 145, 148, 154, 192–194
- sprue, 34
- stinging nettles, 127, 175
- stroke, 6, 12, 34, 39–40, 42–43
- sugar beet, 200
- summer squash, 160
- sustainability, 11–12, 18, 118, 204, 206
- sweetleaf bush, 172
- sweet potato, 24, 30, 34, 41, 53, 97, 129, 153–156, 183, 196, 229
- Swiss chard, 24, 30, 34, 41, 62, 89, 97, 126, 158, 160, 174, 192–193, 199–200, 209, 213, 221, 228
- Symphytum officinale*, 179
- Talinum triangulare*, 182
- tampala, 166
- tannia, 156–157
- tannier spinach, 156
- taro, 24, 30, 34, 41, 55, 97, 154, 156–157, 177, 188, 226
- tatsoi, 192, 213
- Telfaria occidentales*, 160
- Telfaria pedata*, 160
- Tetragonia tetragonoides*, 200
- thyroid, 35, 54
- Toona, 24, 30, 202, 204
- Toona sinensis*, 24, 30, 202, 204
- tossa jute, 164
- toxin, 50, 89, 95, 118, 154–156, 179, 196
- tree spinach, 170–171
- Trigonella foenum-graecum*, 144, 177
- Triticum aestivum*, 62, 146
- Triticum durum*, 146
- tropical asparagus, 172
- tropical sprue, 34
- tropics, 11, 14, 26, 28–29, 35, 40, 54, 80,

- 86–88, 111, 115, 120, 126, 132, 145, 147–148, 151, 154–156, 161–162, 165, 167, 169, 173, 181, 188–189, 196–197
- tuber, 1, 124, 154–156, 189
- turnips, 121–122, 136, 138–139, 148–149, 159, 161–162, 186, 196–197, 219
- tyfon greens, 192
- urbanization, 15
- Urtica dioica*, 127, 175
- Valerianella locusta*, 186
- Vicia faba*, 142, 186
- Vigna umbellata*, 125, 145, 148, 197
- Vigna unguiculata*, 62, 80, 140, 144, 183, 196–197
- vine spinach, 17, 24, 30, 34, 41–42, 90, 97, 115, 124–125, 171–172, 182–183, 195–197, 209
- Vitis vinifera*, 35
- walking onion, 176
- walking stick kale, 175
- watercress, 19, 24, 30, 34, 53, 148, 168
- waterleaf, 182
- waterlogging, 115, 141, 143, 145, 164, 169, 171, 177, 187–188, 190
- wax gourd, 160
- West African okra, 164
- wheat, 1, 3–4, 11, 17–19, 39, 42, 55, 59, 62, 93, 100, 121–122, 136, 143, 145–148, 153, 158–159, 168, 186, 192, 194, 196, 200, 211–212, 215, 217, 229
- whey, 55, 60–61, 63, 67, 69, 73, 75, 77–79, 81
- Wilson, E.O.
- winged bean, 24, 30, 34, 97, 143, 147
- winter squash, 31, 160
- wolfberry, 41, 80, 168, 174, 178, 196, 204
- wood nettle, 175
- Xanthosoma braziliense*, 196
- Xanthosoma sagittifolium*, 156
- xerophthalmia, 29
- yautía, 156
- zeaxanthin, 44–45
- zinc, 11, 22–23, 32, 36–37, 54, 117, 119, 121, 132, 137, 192