



World Vegetable Center



Vegetables and Nutrition for Schools in **Bhutan**

***Garden, Nutrition and Health: Teaching Material for Primary
School Teachers and Students***

Vegetables and Nutrition for Schools in Bhutan



AVRDC

The World Vegetable Center



University of Freiburg

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INTRODUCTION TO GOOD NUTRITION



Good nutrition means eating healthy foods and a balanced diet to provide the energy and nutrients we need for proper growth and to stay healthy for work, study, and fun. Without good nutrition, people easily become sick and suffer from diseases, infections, and poor energy. Healthy foods help the family fight common diseases and save money on hospital visits.

Good nutrition comes from eating plenty of different types of foods every day.

NUTRITION IN BHUTAN

Malnutrition

Nutrition is important for Bhutanese people. When people have poor diet and food choices, problems of malnutrition can happen.

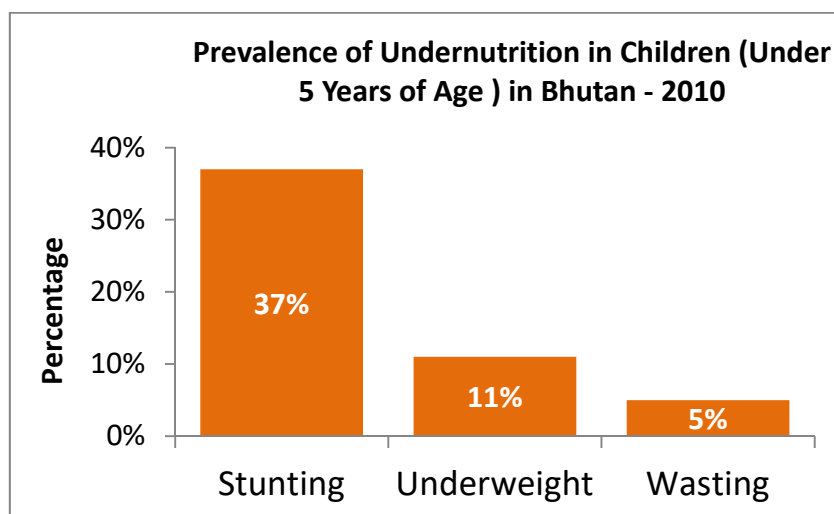
Malnutrition can be one of two kinds:

- **Under nutrition:** Not eating enough healthy foods
- **Overweight and obesity:** Having an imbalanced diet and eating more than enough foods for the body's use

Under nutrition can cause stunting, underweight and wasting in children:

- **Stunting** is when the child's height is shorter than an average child his or her age due to malnutrition
- **Underweight** is when the child's weight is less than an average child his or her age due to malnutrition
- **Wasting** is when the child's fat and muscles are wasting away, making them thin due to being hungry or starving recently

Children especially those under the age of five are prone to long-lasting growth and health consequences if they do not have good nutrition in early childhood. Due to malnutrition, about two out of five children in Bhutan are stunted and one out of ten is underweight.



Source: NLiS, 2014

Nutrient Deficiencies

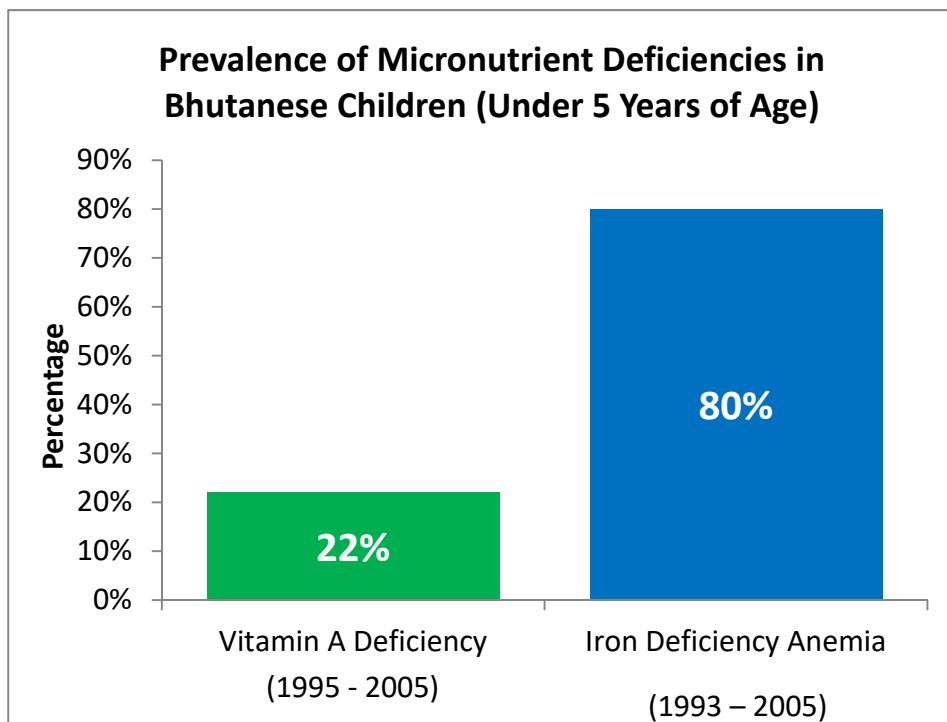
Malnutrition can also lead to many nutrient deficiencies. The nutrients we receive from different foods help our body maintain normal functions. When one or more of the nutrients are lacking, our body becomes weak and do not function properly.

This table outlines the nutrients in foods, signs of nutrient deficiencies:

Nutrient	Function	Signs of Deficiency
Protein	Used to build new cells, repair wounds, for energy	Stunted growth, lack of energy, often sick
Water	Needed for body processes and cooling; especially important with excessive sweating, diarrhea, fever	Dehydration; dark urine, small amount
Vitamin A	Prevents infection; essential for eye health; important for growing children; support immune system	Night blindness and other eye problems; weak immune system
B Vitamins	Help body use nutrients	Weakness, tiredness
Vitamin C	Needed for healthy bones, blood vessels; protects immune system	Swollen, bleeding gums
Folate	Helps red blood cells carry oxygen to the body; may prevent anemia	Anemia – fatigue, reduced productivity, slower learning
Calcium	Strong teeth and bones; very important for growing children	Thin bones, muscle spasms
Iron	Needed for red blood cells to carry oxygen; especially important for girls and women ages 10-55	Fatigue, reduced productivity, slower learning
Magnesium	Needed for strong bones, teeth; protects immune system	Muscle spasm, tiredness, loss of appetite
Potassium	Needed to rehydrate the body; important with excessive sweating and diarrhea	Dehydration
Zinc	Important for proper growth for children	Stunted growth
Fiber	Improves digestion and nutrient absorption; food has more bulk, gives feeling of fullness	Hard stools, constipation

Vitamin A and iron are nutrients that are most often deficient in children and adults, especially pregnant and young mothers. In Bhutan, there is approximately one out of 5 children under the age of five with vitamin A

deficiency. This can lead to long-term eye problems such as night blindness, xerophthalmia (extreme dry eyes), and eventually going blind. Around 8 out of 10 children under 5 years old are iron-deficient. The immediate consequence is iron deficiency anemia which is often seen as being physically very tired, slow in learning and unmotivated, and not being able to work or study.



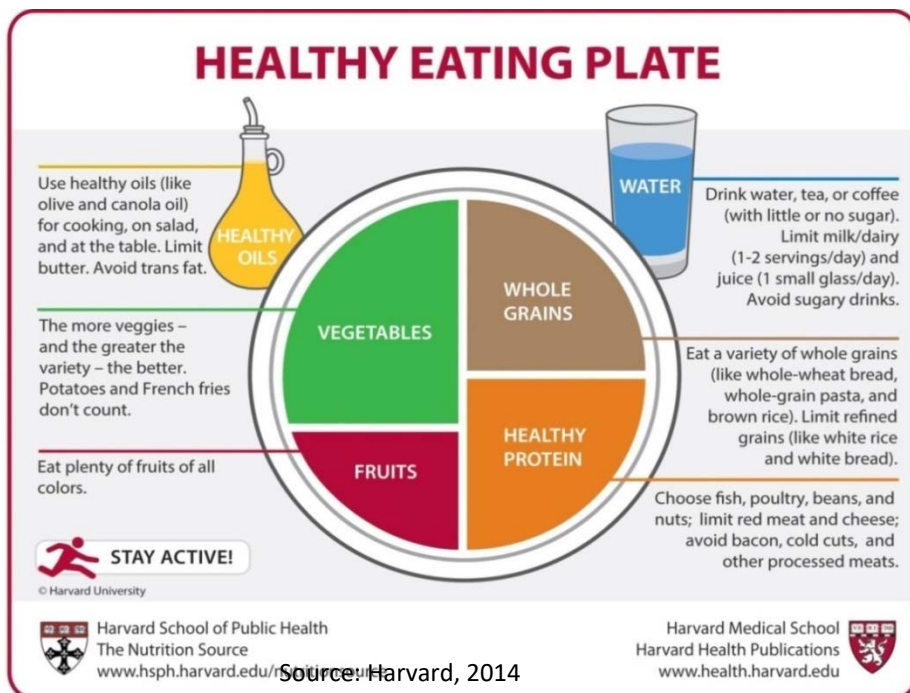
Source: WHO, 2008 and WHO, 2009

HEALTHY DIET FOR BHUTANESE PEOPLE

Nutritionists in Bhutan are currently writing the national guideline on healthy eating. For the meantime, a useful dietary guideline to follow is the Healthy Plate developed by the Harvard School for Public Health.

It recommends that your plate contains:

- Around 25% whole grains such as cereals, rice, other whole grains and bread
- Around 50% fruits and vegetables
- Around 25% protein foods such as meats, seafood, dairy, beans and nuts
- Healthy oils in moderation
- Drinking plenty of healthy liquid



NUTRITION THROUGH LIFE



Good nutrition is especially important for infants, children, adolescents, pregnant and breastfeeding women, and elderly people.

Newborn infants (0-6 months old): It is recommended by the World Health Organization (WHO) to feed only mother's breast milk to infants from 0 – 6 months of age. Breast milk is the best source of nutrition for newborn infants.

Breast milk:

- Provides all the nutrients a baby needs
- Is easily digested and used by the baby's body
- Is clean and safe
- Protects against infections
- Helps the bonding between mother and baby
- Costs less than infant formula or cow's milk



Infants (6 months and older): Start feeding soft and healthy foods to infants by 6 months of age along with mother's breast milk. When preparing food for babies, it is important to use boiled and clean water. Start with small amounts of soft foods and increase the amount as the baby grows. Mothers can continue to breastfeed the children until they are ready to be weaned.

Foods suitable for babies at this age include:

- Soft, well-cooked and clean porridge made from cereals and legume flour
- Well-cooked vegetables, fruits, meats, fish and eggs
- Add a small amount of oil or fat to the baby's food
- Give healthy snacks (for example: fruits, boiled potato, sweet potato, or taro, and snacks made from cereals/legume flours)

Older children and adolescents: Eat three healthy meals a day (breakfast, lunch, and dinner) to help children grow, study and play. Adolescents need greater amounts of nutritious foods than children as they are growing fast and becoming adults.

Foods suitable for older children and adolescents:

- Cooked potato and sweet potato or whole grain rice and porridge made from wholegrain cereals eaten with milk, eggs, other animal foods, fruits and vegetables



Pregnant and breastfeeding women: Eating nutritious meals many times throughout the day will help mothers provide important nutrients for their babies' growth.

- Eat more animal foods (for example: meat, fish, poultry, dairy, eggs)
- Eat more colored (yellow, orange, red, purple) fruits and vegetables, and dark leafy green vegetables
- Eat extra snacks (for example: a fruit, a vegetable, a starchy tuber, a bowl of porridge) to provide more nutrients during pregnancy and breastfeeding
- Avoid smoking tobacco and drinking beverages with high amounts of caffeine and alcohol during this time.



Elderly people: As people ages old, nutrition is especially important to keep the body strong against diseases.

- Eat more small portions and frequent healthy meals
- Avoid foods high in fat and salt
- Eat soft and well-cooked foods



HEALTH BENEFITS OF VEGETABLES



Vegetables are an important part of a healthy diet and provide many health benefits. They are especially rich in fiber, vitamins and minerals.

Vegetables are low in fat. They are good foods for keeping our weight healthy. Eating vegetables can help reduce illnesses such as high blood pressure, high blood glucose or diabetes, heart diseases, obesity, cancers, eye and digestive problems.

What are the nutrients in vegetables that help keep my body healthy and strong?

FIBER in vegetables helps good **DIGESTION** for healthy stomachs
Almost all vegetables are good sources of fiber

Ash gourd Bitter gourd Brinjal Beans





PROTEIN in vegetables builds **MUSCLES** that helps our arms, legs, and body movements. *Peas and beans are good sources of protein for a healthy human growth.*

CALCIUM in vegetables builds healthy **BONES, TEETH** and **NAILS**. *Dark green leafy vegetables are good sources of calcium*

Amaranth



Drumstick (Moringa)



Spinach



IRON in vegetables is good for our **BLOOD** and protect against **ANEMIA**. *Dark green leafy vegetables are good sources of iron*

Amaranth



Pumpkin leaves



Ridge gourd leaves



Spinach (Sags)



VITAMIN A in vegetables keeps our **EYES** healthy and prevents **NIGHT BLINDNESS**. *Orange-colored vegetables and dark green leafy vegetables are good sources of Vitamin A.*

Carrot



Pumpkin



Sweet potato



Amaranth



Spinach (sags)



VITAMIN C in vegetables helps heal **WOUNDS** and **CUTS**

Most vegetables are good sources of Vitamin C.

Bitter gourd



Cauliflower



Amaranth



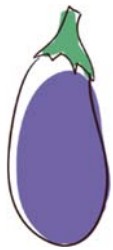
Kohlrabi



Functions and sources of main nutrients present in vegetables

Nutrient	Role/Function	Vegetable Sources
Fiber	<ul style="list-style-type: none"> • Aids proper digestion of foods and maintains healthy stomach and intestines • Makes the food bulkier and gives the feeling of fullness • Absorbs water and makes the stools soft, which prevents constipation and other gut-related diseases such as diverticulitis • Reduces cholesterol and glucose absorption, lowering the risk of heart diseases and diabetes • Promotes good gut bacteria that aids in digestion and absorption of nutrients 	<p><i>Almost all vegetables</i></p> <p>Examples: Beans, carrot, cowpea, and parsley</p>
Minerals		
Calcium	<ul style="list-style-type: none"> • Helps build strong bones and teeth • Maintains normal heart and muscle functions • Helps blood clotting and regulation of blood pressure • Important in immune functions 	<p><i>Most dark green leafy vegetables</i></p> <p>Examples: Amaranth, beans, celery, coriander, and parsley</p>
Iron	<ul style="list-style-type: none"> • Makes red blood cells • Helps brain and immune functions • Plant-based iron is not as efficiently absorbed as animal-based iron 	<p><i>Most dark green leafy vegetables and beans</i></p> <p>Examples: Beans, celery, and parsley</p>
Vitamins		

Nutrient	Role/Function	Vegetable Sources
Vitamin A	<ul style="list-style-type: none"> Beta-carotene is found in high amounts in orange and yellow vegetables In the body beta-carotene is converted to vitamin A Essential for maintaining healthy skin, immune system, vision and promote normal growth and development Fat soluble vitamin Eating or cooking orange and vegetables with a small amount of oil can promote absorption of vitamin A 	<p><i>Orange colored vegetables</i> Examples: carrot, pumpkin</p> <p><i>Dark green leafy vegetables</i> Examples: Amaranth, chard, Chinese cabbage, lettuce, mustard green (sag), and parsley</p>
Vitamin C	<ul style="list-style-type: none"> Helps heal cuts and wounds and keeps teeth and gums healthy Aids in iron absorption and uses calcium and other nutrients in building the body Water soluble vitamin, can easily be lost when food is cut, heated or boiled for a period of time 	<p><i>Most vegetables</i> Example: broccoli, cauliflower, coriander, mustard green (sag) and peas</p>
Folate (Folic acid)	<ul style="list-style-type: none"> Helps body form red blood cells and other cells Reduces the risk of central nervous system in developing fetus such as neural tube defects, spina bifida, and anencephaly 	<p><i>Beans and leafy vegetables</i> Example: Amaranth and beans</p>



Do all vegetables have the same kind of nutrients?

No, every vegetable contain different amount of nutrients that are good for our body. Eating one type of vegetable cannot supply all the nutrients our body needs for good health. *It is important to eat 2-3 types or more of vegetables everyday or every week to have a variety of nutrients for good health.*






How many vegetables should I eat?

The World Health Organization suggests eating **at least 200 g of vegetables and 200 g of fruits every day**. Since vegetables are low in sugar and fat, eating more than 5-7 servings a day is encouraged.

An easy way to estimate serving size is using the adult fist. One serving of cooked vegetables or raw, leafy greens similar to the size of a fist would be considered one serving size.



Portion size for 1 serving of vegetables

1 serving of vegetable is equivalent to 75-80 g of vegetables		
OR	1 cup* of raw leafy vegetables	
OR	1/2 cup* of non-leafy vegetables	
OR	1/2 cup* of cooked or canned vegetables	
OR	1/2 cup* of vegetable juice	
OR	Vegetables the size of an adult fist	
*1 cup = 250 ml		

What type of vegetables should I eat?

When selecting vegetables, it is important to choose vegetables that are fresh and in season. Eat different types and colors of vegetables, such as dark leafy greens, bright orange, red, yellow and dark purple vegetables to add diverse nutrients to your plate.

Eating one single type or color of vegetable will not help meet daily nutrient needs. It is important to eat many types of vegetables every day or during the week.



For example, orange-colored vegetables (such as carrot) are especially rich in vitamin A, especially good for eyes. Red-colored vegetables such as tomatoes and red peppers are especially high in antioxidants called lycopene and capsanthin. Dark green vegetables are good sources of folate and minerals. Purple vegetables contain antioxidants. All these nutrients have protective effects on many important body organs such as the eyes, heart, lungs, liver, and digestive system.

How do I use vegetables?

Clean vegetables thoroughly before cutting or cooking

Eat vegetables raw, blended in juices or cooked in any family dishes



Before cooking or eating, it is important to handle fresh vegetables safely. Be sure to wash the vegetables thoroughly with clean water to remove any dust, bacteria and pesticide residues. Only scrub vegetables with a tough outer skin (for example, carrots, cucumbers, and pumpkins) that do not bruise easily.

Use a clean chopping board to cut vegetables. If possible, use a separate chopping board for fruits and vegetables and another one for raw meats.

Vegetables could be eaten raw, blended into juices or prepared with any suitable cooking methods such as boiling, steaming, stir-frying, stewing and braising. To maximize the nutrient content of vegetables, it is recommended not to cook for a long period of time at a high temperature. It is advisable to avoid adding too much salt, sugar and cooking oil.

Generally, raw vegetables are highly nutritious, as cooking can reduce the nutrient content. However, adding a small amount of cooking oil, preferably vegetable oil, when eating and cooking can increase the absorption of fat-soluble vitamins (vitamin A, D, E, and K) in vegetables. Water-soluble vitamins (vitamin B and C) are easily lost through heat, and in the water when boiled. Minerals that are resistant to heat can also be lost in the cooking water. Therefore, the cooking water or left-over broth should be saved for use in soups, juices, and sauces to maximize the nutritional benefits of vegetables.

Grow your own vegetables!







Apart from buying vegetables, why not grow your own vegetable garden to feed your family?








- Grow vegetables near your home
- Grow different types of vegetables
- Grow vegetables all year round
- Harvest, eat and share the treasures from your garden
- Raise fish and livestock to add more nutritious foods for your family










NAMES & PHOTOS OF COMMON VEGETABLES

English Name	Bhutanese Name	Scientific Name	Photo
Amaranth	ayem	<i>Amaranthus</i> spp.	
Asparagus	Nya khagchung	<i>Asparagus officinalis</i>	
Beans (French bean, broad bean)	semchung	<i>Phaseolus vulgaris</i> (French bean); <i>Vicia faba</i> (Broad bean)	
Beet root	nyungdo	<i>Beta vulgaris</i> L. Crassa group	
Bitter melon	khagtem		
Broccoli	Meto hoentsoe	<i>Brassica oleracea</i> L. Italica group	

English Name	Bhutanese Name	Scientific Name	Photo
Brussel sprouts		<i>Brassica oleracea</i>	
Bunch Onion (Spring Onion)	Dungchu Gop	<i>Allium fistulosum</i>	
Cabbage	Dhama copi	<i>Brassica oleracea</i> L. Capitata group	
Carrot	Laphu maap	<i>Daucus carota</i>	
Cauliflower	Meto copi	<i>Brassica oleracea</i> L. Botrytis group	
Celery	Hoentshoe dhama rim	<i>Apium graveolens</i>	

English Name	Bhutanese Name	Scientific Name	Photo
Chard (leaf beet, spinach beet, palak)	Hoentshoe	<i>Beta vulgaris</i> L. Cicla group	
Chayote	Be lkha		
Chili	ema	<i>Capsicum annuum</i>	
Chinese cabbage	Jana paytshoe	<i>Brassica rapa</i> L. Pekinensis Group	
Coriander	yoetsi	<i>Coriandrum sativum</i>	
Beans	Semchum rim	<i>Vigna unguiculata</i>	
Cucumber	goen	<i>Cucumis sativus</i>	

English Name	Bhutanese Name	Scientific Name	Photo
Eggplant/Brinjjal	dholom	<i>Solanum melongena</i>	
Fat Hen	Zha yoep	<i>Chenobodiun albun</i>	
Garlic	chagop	<i>Allium sativum</i>	
Gourds	Lauka	<i>Lagenaria siceraria</i>	
Fiddle Head (ferns)	naagkay	<i>Matteuccia struthiopteris</i>	
Japanese green	Japan Hoentshoe	<i>Brassica rapa</i> var. <i>Nipponica</i>	
Knolkhol		<i>Crassica oleracea capitata</i>	

English Name	Bhutanese Name	Scientific Name	Photo
Leek	Dama Gop	<i>Allium ampeloprasum</i>	
Lettuce	Hogye paytshoe	<i>Lactuca sativa</i>	
Moringa (drumstick)	Koma Tsang * (bji-nga)	<i>Moringa oleifera</i>	
Mustard green (Sag)	Pegacham	<i>Brassica juncea</i> L. Czerniak	
Okra (Lady Finger)	Langchu rao	<i>Abelmoschus esculentus</i>	
Onion	Gop	<i>Allium cepa</i> L. Cepa group	
Parsley	Yoesi	<i>Petroselinum crispum</i>	

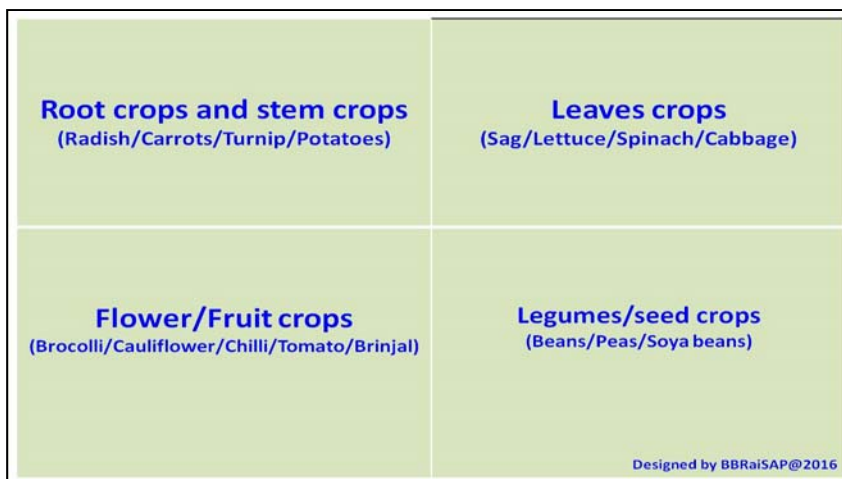
English Name	Bhutanese Name	Scientific Name	Photo
Parsnip		<i>Pastinaca sativa</i>	
Peas	Boetsem	<i>Pisum sativum</i>	
Pumpkin	Kakur	<i>Cucurbita moschata</i>	
Spring radish	Sokha laphu	<i>Raphanus sativus</i>	
Summer radish	Bja Laphu	<i>Raphanus sativus</i>	
Tomato	lambenda	<i>Solanum lycopersicum</i>	
Turnip	Nyungdo	<i>Brassica campestris</i> L. ssp. <i>rapifera</i>	

VEGETABLE PLANTING CALENDAR

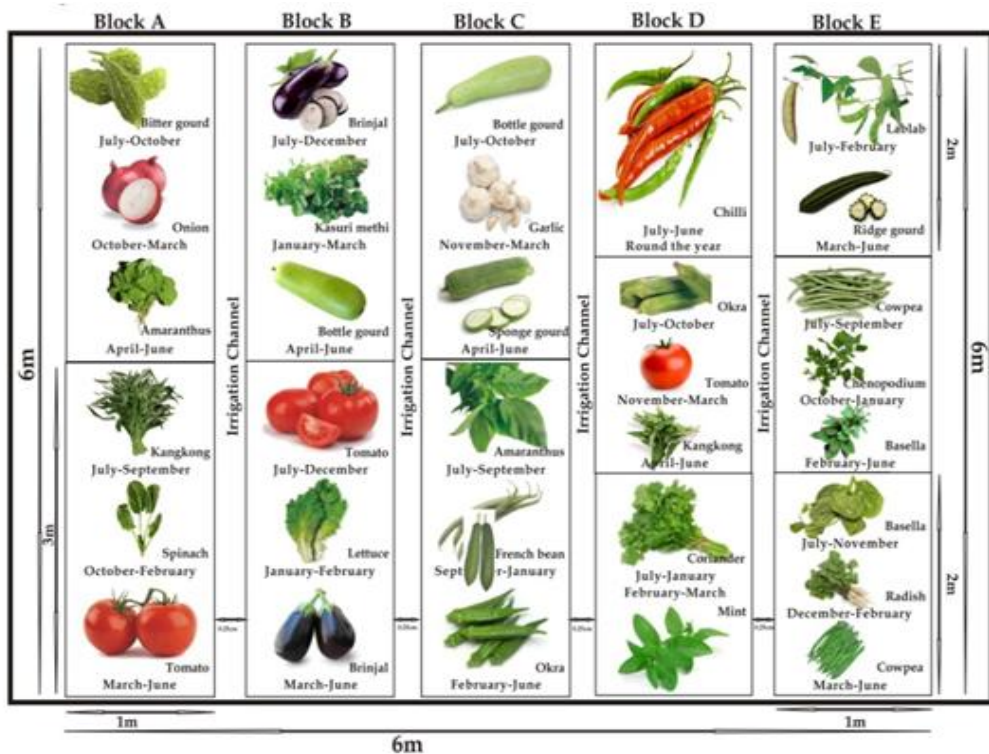
Seasonal vegetable planning for crop rotation in Bhutan

Plot	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	V A C C A T I O N	BEANS				CHILLI						H O L I D A Y
2		GREEN LEAVES		CARROT								
3			TOMATO			PUMPKIN						
4			GREN PEAS			CABBAGE						
5				EGG PLANT				RADDISH				
6				SOYABEAN			BROCCOLI					
7			CUCUMBER			TURNIP						
8			TOMATO			GREEN LEAVES						
9			CARROT			GREN PEAS						


Crop rotation plan




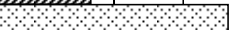



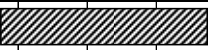
Year-round vegetable planning in a 6 x 6 m plot in warm tropical areas of Bhutan







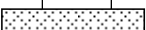

Typical cropping calendar for mountainous country Bhutan

	Sowing & Growing
	Harvesting


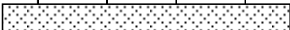

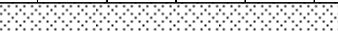


Cauliflower

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												




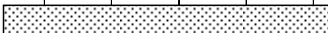


Cabbage

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												







Chilli

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												


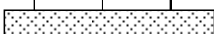


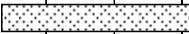

Tomato

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												


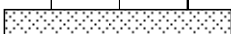


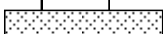

Peas

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												

Beans

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												

Carrots

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												

Radish (Tokinashi for year round cultivation)

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												

Radish (Minowase for late summer and autumn)

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												


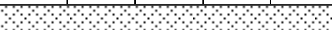

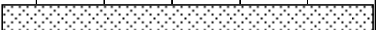
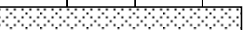

Broccoli

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												



Chinese Cabbage

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												


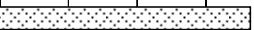


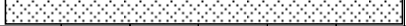
Brinjal/Okra

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												


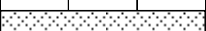

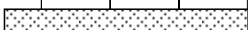

Beet root

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												




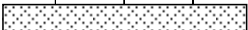

Spinach

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												







Lettuce

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												


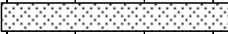




Mustard/Japanese Greens (Sags)

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												







Onion

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												







Pumpkin

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												

Cucumber

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												

Garlic

Altitude (m)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Alt. (Above 2000)												
Mid Alt. (1000-2000)												
Low Alt. (Below 1000)												

NUTRITIONAL INFORMATION: VEGETABLES

	Nutrient in 100 g of vegetable				
	Energy	Protein	Fat	Carbohy drate	Fibre
	kcal	g	g	g	g
Amaranth	36	3	0	5	-
Beans	299	20	2	39	24
Beet	37	2	0	6	2
Broccoli	26	3	0	1	3
Cabbage	25	2	0	3	2
Carrot	35	2	0	5	4
Cauliflower	30	3	0	4	2
Celery	25	1	0	3	3
Chard	19	2	0	4	2
Chili	24	1	0	3	3
Chinese cabbage	18	2	0	2	2
Coriander	27	3	0	2	3
Cowpea	45	4	0	5	4
Cucumber	16	1	0	3	1
Eggplant	22	1	0	3	2
Garlic	51	2	0	10	2
Lettuce	15	1	0	1	2
Mustard green (Sag)	18	2	0	1	2
Okra	31	2	0	6	3
Onion	39	2	1	5	3
Parsley	33	3	1	1	5
Peas	42	3	0	8	3
Pumpkin	44	1	0	8	2
Spring radish	20	1	0	3	1
Tomato	23	1	0	3	1
Turnip	28	1	0	6	2

	Calcium	Potassium	Iron	Vitamin A	Vitamin C
	mg	mg	mg	µg (RE)	mg
Amaranth	221	611	2	292	21
Beans	109	406	7	0	0
Beet	54	369	1	0	8
Broccoli	34	261	1	48	107
Cabbage	51	243	1	8	32
Carrot	80	237	1	724	12
Cauliflower	28	205	1	4	68
Celery	164	329	3	14	21
Chard	51	379	2	612	30
Chili	10	183	1	8	250
Chinese cabbage	60	201	2	244	33
Coriander	127	54	3	432	127
Cowpea	69	96	1	58	29
Cucumber	18	118	0	4	8
Eggplant	15	155	0	2	4
Garlic	25	303	1	0	31
Lettuce	62	190	2	260	23
Mustard green (Sag)	68	319	2	248	63
Okra	44	68	1	28	17
Onion	55	137	2	474	42
Parsley	216	804	60	350	106
Peas	43	200	2	108	60
Pumpkin	31	178	1	170	15
Spring radish	37	113	1	0	25
Tomato	17	151	1	88	29
Turnip	30	191	0	0	21

Note: “-“ data not available

VEGETABLE RECIPES

Sag Ja-joo

Ingredients & quantity

- 5-6 (medium size) of fresh green spinach leaves
- Water (500 ml)
- Salt (1/2 tablespoon)
- Cooking oil (2 tablespoons)
- Chili powder (1/2 teaspoon)
- Milk (500 ml)



Method

- 1) Wash spinach.
- 2) Chop into small pieces.
- 3) Put it into the pan and add water, oil and chili powder.
- 4) Heat it until it boils.
- 5) Add milk.
- 6) Add salt.
- 7) Serve with rice.

Patsag Jajoo (Cane shoot)

Ingredients & quantity

- 1 medium size cane shoot
- Water (500 ml)
- Salt (1/2 tablespoon)
- Cooking oil (2 tablespoons)
- Chili powder (1/2 teaspoon)
- Ground garlic
- Cheese (1/2 ball)
- Coriander



Method

1. Remove the outer hard cover of the cane.
2. Slice it into small pieces and soak it in hot water for 5 minutes (to remove the bitterness).

3. Put it into the pan and add water, oil and chili powder.
4. Heat and boil it properly.
5. Add salt and garlic.
6. Add the cheese.
7. Grind it properly.
8. Add coriander for flavor.
9. Serve with rice.

Nyakhachung Datse

Ingredients & quantity

- 1 bunch of fresh asparagus
- Water (250 ml)
- Salt (1/2 tablespoon)
- Cooking oil (2 tablespoons)
- 3-4 dried/green chilies
- 1 ball of local cheese



Method

- Wash the asparagus spears.
- Cut the lower hard part and select the upper tender part (keep the lower harder part of the asparagus for other vegetable curry/soup).
- Slice the asparagus spear into symmetrical halves.
- Put asparagus in the pot and add water, oil and chili.
- Cook for about 3-5 minutes.
- Add cheese.
- Add salt.
- Boil for about 2-3 minutes.
- Serve it hot and delicious.

Note: Substitute asparagus with broccoli and fern.

Hogay/Salad

Ingredients & quantity

- 1 medium size cucumber
- 2-3 fresh chilies or ½ tablespoon of chili powder
- Salt (1/2 tablespoon)
- 1 ball of fresh local cheese



- 3-5 pieces Sichuan peppercorns, ground
- Few leaves of chopped coriander

Method

- Wash the ingredients thoroughly.
- Peel the cucumber.
- Slice the cucumber into four parts and remove the seeds.
- Slice the fleshy part into thin parts.
- Put the sliced cucumber into the bowl and add all the ingredients together.
- Add salt.
- Add cheese and mix it thoroughly.
- Serve it with meals & drinks.

Note: Substitute cucumber with radish or turnip.

Ema Datshi (Cheese and Chili)

(Serves 2)

Ema datshi is chili either dry or fresh boiled with cheese and butter or oil.

Chili can be substituted with mushroom (fresh/dry) or fresh potatoes slices or capsicum or asparagus.



Ingredients

- 5 pieces fresh chili
- 200 gm cheese
- 2 spoonfuls of cooking oil or one spoonful of butter
- 10 gm table salt
- 3 cloves of ground garlic and 10 gm of ground ginger

Method

- Wash all the cooking materials thoroughly before slicing them into smaller pices.
- Cut chili into 4 equal parts in a long shape.
- Mix all ingredients except cheese, salt and oil in an aluminum pot.
- Put 300 ml/1 drinking glass of water and add oil.

- Boil for 5 minutes.
- Add cheese and cover for another 5 minutes.
- Add salt and serve hot with main meal or rice.

Nya-khag-chung steam (Steamed Asparagus)

Ingredients

- Fresh asparagus
- Fresh butter
- Table salt

Method

- Wash the asparagus and put them in a cooking pot.
- Add sufficient water to cover them and add a little salt.
- Boil for 3 minutes and drain the water out (the liquid can be consumed as soup).
- Add little butter and shake it thoroughly.
- Serve it hot and green.



Soya Nuggets

Ingredients

- Soya chunks - 50 grams
- Warm water to soak and wash the chunks
- Refined wheat flour (Maida) – 150 gram
- Corn flour (tapioca flour) – 2-3 tablespoons (optional)
- Chili powder according to taste (optional)
- Green chili according to taste
- Onion – 1 medium size
- Salt to taste
- Clean water – 500 ml
- Vegetable oil to fry



Method

- Soak the soya chunks in warm water until the chunks become soft and fluffy, drain water and rinse them in clean water once.
- Squeeze excess water from the soya chunks and leave aside.
- In a separate bowl mix all the dry ingredients – refined wheat flour, tapioca/corn flour, chili powder, salt and mix them thoroughly.
- Finley chop the green chili and onion finely and add to the dry ingredients.
- Add clean water to the dry ingredients while stirring it with a ladle to avoid lumps.
- The consistency of mix should be a little runny (use your judgment when adding water).
- Heat the oil in a shallow frying pan. When the oil is sufficiently heated, drop the soaked soya chunks in the mixture and then drop it in the hot oil.
- Fry them lightly. (It is advisable to fry them in small batches to enhance the crispiness). Serve with soya sauce.

Note: The soya chunks can be replaced by tender green beans, eggplants and bell pepper (capsicum).

Pumpkin Soup

(Serves 6)

Ingredients

- Pumpkin – 100 – 150 grams
- Chili powder (green chili) according to taste
- Butter (cooking fat)
- Sichuan pepper (Thengngy/Zhenthoshyllum) 3- 5 pieces
- Milk – 100 ml
- Garlic – 2 cloves
- Ginger – small piece



Method

- Cut the pumpkin in medium-size chunks, place them in a heavy-bottomed pan and cover with enough water.
- Chop the ginger into fine pieces, crush the garlic clove, and add both to the pot.
- Place the pot on high heat, reduce the heat and let it simmer until the pumpkin becomes soft.
- It is advisable to cover the pot while cooking (or use a pressure cooker).
- Mash the soft pumpkin with the back of the ladle, add chili, salt, butter and Sichuan pepper (grind the pepper) boil for around a minute, add milk and let it simmer for half a minute.
- Serve with rice or bread toast.

Mushroom Datshi (Cheese mushroom)

(Serves 2)

Ingredients

- Fresh mushroom of any variety
- Fresh green chili
- Cheese (datshi – Bhutanese) or processed cheese
- Oil – 10 – 15 ml
- Onion (optional)
- Garlic – one clove (optional)
- Salt to taste



Method

- Clean the mushrooms (if using forest mushrooms, look for worms, twigs, soil and other debris).
- Wash the mushrooms and gently squeeze.
- Prepare the fresh green chilies by slicing lengthwise into 4, slice the onion as well.
- Place the washed mushrooms in pan; add the sliced chilies and onion/garlic.
- Add some water (use your judgment to add water, washed mushrooms will hold enough water, so add only 3 -5 tablespoons of water) and place it on heat.

- Once the mushrooms start boiling (different mushrooms have different cooking times, but most cultured mushrooms cook fast) add cheese, oil and salt, close the pot and cook further for three to five minutes (watch to avoid burning).
- Once the cheese has melted stir well and serve with rice or roti.

Note: The mushroom can be replaced by sweet gourd (owala-chutto), tender green beans, tender peas, chayote, pumpkins, radish or carrot.

Stir fry Fat Hen

Ingredients

- Fat hen greens one bundle
- Garlic clove – 2 to 3
- Green chilies – three pieces (or as required depending on taste)
- Cumin seed (Zeera seed) – optional
- Oil
- Salt to taste
- Roasted crushed peanuts – 2 tablespoon (optional)



Methods

- Wash the fat hen green thoroughly, removing any grit or foreign materials.
- Remove the leaves from the stem, tender parts of the stem are also edible. Drain the leaves well by placing in a sieve.
- Chop the green chilies and crush and chop the garlic.
- Heat oil in a frying pan, when the oil is heated enough add cumin seeds (Zeera seed) and let it crackle.
- Simultaneously add chopped green chili, garlic and salt. Once the chili and garlic give off a roasted aroma add the washed fat hen greens (frying should happen on high heat so that the greens are scalded).
- Stir-fry for 2 –3 minutes or until all the greens wilt.
- Add the roasted peanuts and serve with rice.

Note: The fat hen greens can be replaced by amaranths greens, chayote plant shoots, pumpkin plant shoots, mustard greens, shoots of bitter and sweet gourds.

Beetroot Curry

(Serves 2)

Ingredients

- Beetroot – one medium size
- Garlic – 2 cloves
- Green chills – 2-3 pieces
- Cumin seeds
- Roasted crushed pea nuts or roasted sesame seeds
- Salt to taste
- Oil
- Water



Methods

- Peel the beetroots and chop into cubes of half-inch size.
- Cut green chilies, and crush the garlic cloves. In frying pan, heat oil, crackle cumin seeds, add green chili, crushed garlic clove and fry until roasted.
- Add the chopped beetroot and fry for some time. Add a little water, cover with lid and cook until tender.
- Add salt and roasted peanuts and stir. Serve with rice or roti.

Note: Some people may not like the rustic taste of beetroot. To remove the taste, the beet may be boiled for a few minutes before chopping and stir frying using the above method.

Yellow Lentil Soup with Moringa Leaves

(Serves 2)

Ingredients

- Yellow lentils (split yellow dhal) – 150 grams
- Moringa leaves – 2 handfuls, leaves only
- Onion – one medium size
- Ginger – small piece
- Cumin seed
- Tomato – one medium size



- Turmeric powder
- Garlic – 2 clove
- Dry /green chili – two pieces
- Water – 2 cups

Method

- Wash the yellow lentils and moringa leaves separately and keep aside.
- Chop the onion, tomatoes and crush the garlic and remove from its cover. In a pressure cooker, heat oil, crackle cumin seed, add onion, add chili and ginger, and fry until the onion becomes translucent.
- Add the chopped tomatoes and turmeric powder. Add the washed lentils and fry for a few minutes, add water and bring to a boil.
- Fix the lid. Let it whistle twice and remove from heat.
- Once the pressure from the cooker is released, add the washed Moringa leaves and boil for 3 - 5 minutes. Add salt accordingly and serve with rice or roti.

Soya Chunk Jumma (Soya Chunk Sausage) (Serves 2)

Ingredients

- Soya chunks – 50 grams
- Ginger – 10 - 15 grams (thumb size)
- Sichuan pepper (Thengye/Zhenthozhylum) 3 - 5 pieces crushed to a powder
- Maida (wheat flour) 10 - 15 grams
- Chili powder according to taste
- Salt
- Food wrapping plastic
- Steamer



Methods

- Soak the soya chunks in warm water until soft and floppy. Squeeze the excess water and chop the soya chunks into fine pieces.

- Grate the ginger. Add the grated ginger, chili powder, salt, Sichuan pepper (Thengye) powder and mix thoroughly. Add the wheat flour to the mixture little at a time and knead the mixture.
- Since the mixture already has enough water, addition of extra water should be done cautiously.
- Once all the mixture is combined, the consistency should be soft like a chapatti dough.
- Place the dough in food packing plastic and roll into a sausage shape.
- Steam the packed sausage for 20 – 30 minutes in a steamer or momo, making container in the same way you make momo.
- Remove from heat and cool the sausage.
- Once the sausage is cooked, cut into regular sausage slices and deep fry.
- Season with salt and chili powder according to your taste.

Dal Zamara (Lentil Sprouts)

Ingredients

- Green gram or chickpeas (whole grains that can germinate)

Method

- Wash your hands with soap and clean water.
- Wash the green gram/peas thoroughly with clean water (2 times).
- Soak with clean drinking water just to cover the materials. Cover the container properly to avoid dirt and insects. Soak the grains for 10-12 hours (overnight).
- Drain the water and rinse the soaked seeds thoroughly.
- Pack the soaked seeds in a clean cloth and hang them in a dark place. Dip the seed pack in clean water every day for 2 to 3 minutes, until desired length of sprouts is obtained.
- Soaked seed starts sprouting after 24 hours and consumption can start in 2 days (48 hours), depending on temperature.
- Once the desired length of sprouts is obtained, the sprouts should be stored in airtight containers and kept in a cool place (refrigerator).



In-School Preparation of Lentil Sprouts

Prepare every week end and complete consumption accordingly. Do not store for long periods, as the sprouts can be contaminated.

- Use 1 kg of green gram to produce a minimum of 4 kg of sprouts.
- 1 kg sprouts can feed 100 students @ 10 gm (15-20 sprouts per tablespoonful) per child per day (minimum requirement).
- For 100 students you require a minimum of (10 gm x 1 day x 100 students=1000 gm or 1 kg).
- If you serve 4 times in a week, you just require 1 kg of green gram.
- Cost of green gram is about 150/kg per week.
- Supplement the requirement of feeding meat and eggs to meet daily requirement of 2400 kcl.
- *Caution:* Clean sprouts thoroughly with clean water before every serving to protect from contamination by *E. coli* and other harmful bacteria. Do not store more than 1 week.
- Sprouts can be mixed in Salad or Azays or just eaten raw. If someone does not like the raw taste, sprouts can be lightly steamed/cooked.

PROMOTION

SCHOOL PROMOTIONAL EVENTS

School is one of the best environments for students to learn about the benefits of growing vegetables, healthy eating and basic sanitation practices. With these hands-on and fun activities, students can apply what they have learned in practical ways and be rewarded.

Choose any of these events for your school to fully engage and stimulate your students' interests in the topic of gardening and health. A certificate can be awarded to students who participate in the events.

Take the Healthy Pledge

Students will learn to take responsibility for their health and reflect on their achievements in committing to their pledge

At the beginning of the school year or semester, teachers distribute index-sized pledge cards to students: "I promise to eat more vegetables and wash my hands before I eat."

Students sign and date their cards, and post them on a board or wall in the classroom. The pledge board is a reminder of the commitment each student has made. The teacher can refer to the pledge board during lessons on nutrition and health.

Each student takes five (or more) pledge cards to distribute to their family members and neighbors, asking them to also sign the pledge.

At the end of the year, each student interviews one of the people they gave a pledge card to, and asks them if they were able to follow the pledge and what changes they made to their daily routine as a result of taking the pledge. In the classroom, students discuss their own achievements and challenges on committing to the pledge and the responses they have collected from their family and friends.

Sample Pledge Card



Take the Healthy Pledge!

I promise to eat more **vegetables** and
wash my hands before I eat!

Signed by: _____

Date: _____

Veggie Spokesperson

Students will be encouraged by their peers to participate in school events

Each school or class choose 2-3 student veggie spokespeople who will help promote school events and raise awareness on topics related to vegetables, gardening, nutrition and health to the students. Veggie spokespeople will wear a special pin or hat for students to recognize them. Teachers and spokespeople will meet to plan fun and engaging events that will promote growing and eating vegetables in the school and community. They will announce school events, competitions and distribute promotional materials. Leading by example, the spokespeople will eagerly participate in the events and encourage active student participation.



Vegetable of the Month

Students will learn about a vegetable every month

Every month, feature one vegetable in the school and incorporate this vegetable in the lesson plans and school events. If schools have feeding programs, include the vegetable in the meals. This promotion is designed to expose students to the vegetable many times in the whole month. The goal is to increase students' knowledge and excitement in the vegetable, which will help encourage eating more vegetables.



Ideas of promoting the Vegetable of the Month include:

- An announcement to present the monthly vegetable
- Teach students on the nutritional value of the vegetable
- Tell stories that mention the vegetable
- Distribute newsletters about the vegetable with fun facts, recipes, and activities for students and their families to enjoy
- Include at least one meal with the vegetable in the lunch program
- Hold a vegetable tasting session

Cook and Taste the Veggies

Students will learn how to cook vegetables from the garden and share a meal with their classmates

After harvesting vegetables from the garden, it is a good time to teach students how to cook these vegetables. Find a simple recipe using local and available ingredients. Show them how to clean and wash the vegetables, chop, cook, and season the dish. Ask student volunteers to help throughout the cooking process and to distribute the dish to the class.



For younger students, cooking and cutting could be handled by the teacher or an adult community volunteer. For older students, the class could be divided into groups of 5-10 students and each group can cook a vegetable dish.

The students will be able to make a vegetable dish and taste the vegetables they have harvested. Have the students discuss about what they learned in the cooking session, how they like/dislike the taste of the vegetable, and the nutritional benefits of the dish. Finally, encourage the students to cook the same recipe at home with the family.

For schools with lunch programs, at least once a week, cook and serve students vegetables harvested from the garden. Whenever vegetables are served, announce or write the vegetable names and their nutritional benefits on a board in the lunch room. Make it fun and exciting for students to eat vegetables.

Veggie Chefs

Students will use creative ways to cook delicious vegetable dishes

Hold a cooking contest in the school! Depending on your school, the contest could be between classrooms, groups of 3-4 students, or participated by individual students.



Choose a theme vegetable for the cooking contest. Ideas for theme could be:

- Vegetables from the Garden
- Vegetable of the Month
- Vegetables in Season (for example, in Autumn use vegetables harvested in this season)

The school can provide simple ingredients, such as the main vegetables, salt, sugar, and oil. Each participating group will create a dish that is both appealing and tasty. Encourage students to decorate the dishes in fun and creative ways.

The dishes will be judged by a panel of 3-5 judges, which could be the school principal, teachers, staffs, parents, or important community members. Also, students who are not participating can taste the dishes and vote on their favorite dishes.

The dishes will be awarded based on:

- Taste
- Appearance
- Creativity
- Use of Themed Vegetable
- Popularity of the Dish

Students who win the top places in the contest will be named, “Veggie Chef of the Year”.

Veggie Art Gallery

Students will use art to create their vegetable masterpieces and display lively art in the school

Using drawing, painting or collage, ask students to create a picture of any of the following topics:

- Their favorite vegetable
- A vegetable they learned about
- School vegetable garden scene

Students are free to explore different art medium and use any materials to create the pictures. Each picture should have the student’s name, class, and title of his/her work. The pictures will be hung in the classrooms and hallways to create a beautiful art gallery.

The school can have an art gallery day where parents and the local community are invited to visit the school and see the masterpieces created by the students.



Each student can introduce the vegetable and their inspiration for the picture to the guests.

Make it a Competition! Visitors and students can vote on their favorite pictures. At the end of the day, students with the highest votes will be awarded a special prize for the top pictures.

Veggie Stories

Students will write about and share their experiences growing and eating vegetables, or practicing WASH

Ask the students to write about their experience, what they have learned from the school garden, the nutrition and WASH lessons, and participating in the school promotional events. Challenge the students to come up with solutions to help encourage people to eat more vegetables and apply WASH in the school and community. Once a week, a couple of students will present their stories to the class. Students can ask questions and respond to each student's story. The best personal stories will receive an award.

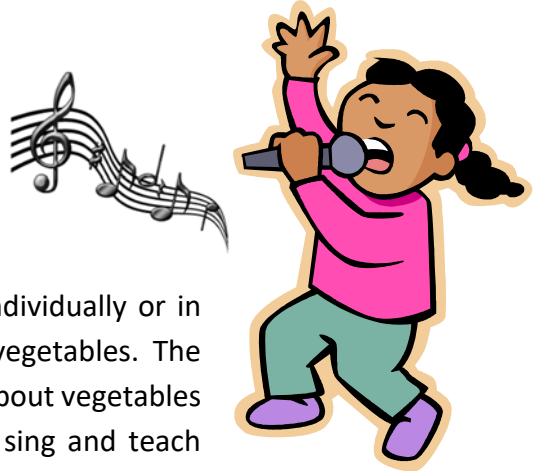


Voice it Out! From each class, select a couple of students with the best stories. During the school assemblies, have the students share their stories to the whole school.

Sing the Veggie Song

Students will write songs to teach others about vegetables

Singing to a tune is one of the best ways to remember nutrition messages. Ask the students, either individually or in groups of 4-5 to make song about vegetables. The song should help people know more about vegetables and their benefits. The students will sing and teach their song to the class.



Make it a Motto Song! Students can vote on their favorite songs. The song with the highest vote can be named the school “Veggie Song”. The whole school will learn the song and sing it during school assemblies and events for the year.

FAMILY PROMOTIONAL EVENTS

Students can continue their learning at home and encourage their family to grow and eat vegetables. Sharing what they have learned at school can benefit the whole family.

Here is a list of ideas of family-oriented activities for everyone to enjoy!

Plant Your Own Home Garden

Students will guide and help their family establish a home garden

In class, distribute small packets of vegetable seeds to each student to bring home. Ask the students to plan and grow a home garden with their family. Using the gardening skills and knowledge learned in class, students can guide their family through the process.



If there is no space for a garden, vegetables can be grown in pots and containers as long as there is sufficient sunlight and water.

Each week, record the progress of the home garden and post the progress on a “My Home Garden” board in the classroom. The students are encouraged to share about their home garden in the class.

Home Veggie Meals

Students will learn to cook vegetables with their family

Students can ask their parents to help them cook a meal with vegetables. The vegetables could be harvested from the school garden, home garden, or bought from the market. The parents could teach them how to cook a local vegetable dish. Students can also share recipes they have learned in school.



During the cooking process, the students can write down the ingredients and cooking instructions to share with the class.

During dinner time, students can share with their family the nutritional benefits of these vegetables.

Family Day – Show and Tell

Students will show their family the vegetables in the school garden

On School Garden Day, students invite their family to the school garden. Students will act as a guide and show their family the vegetables in the garden. Students will also describe their experience tending to the garden and teach about the nutritional benefits of the vegetables.

During the garden day, the school can organize some fun family activities for parents and children to join. Ideas include:

- Vegetable tasting sessions
- Vegetable quizzes and trivia
- Transplant seedlings to the garden
- Vegetable arts and crafts – make a decoration for the home
- Relay or obstacle course races around the garden

COMMUNITY PROMOTIONAL EVENTS

Involving the community in school programs can help the students raise awareness on growing and eating vegetables. The school interaction with the community is important for establishing a friendly and long-lasting mutual support for learning and sharing resources. Students will be able to apply what they learn in the classrooms to promoting real change in the community.

Poster Promotion

Students will design attractive posters to promote vegetables in the community

From the lessons learned at school, students can design and make posters to promote vegetables in the community. The posters will have key promotional messages and images to raise awareness on the benefits of eating and growing vegetables. Each class can discuss about the importance of vegetables and the messages they would like the public to know. The posters should be attractive and easy to understand.



The posters can be posted in announcement boards or public locations where people from the community gather. In some locations, permission from responsible local authorities must be obtained before putting up the posters.

Drama Promotion

Students will perform skits in community events to promote vegetables

Each class performs a skit to promote growing and eating vegetables to the public. As a class, the students will write their own script and make their own props. The skits could include acting, dance, and music. Encourage the students to be creative and interact with audience.

On School Garden Day or in community events, the students will perform their skits for the public and teach them about the importance of vegetables.



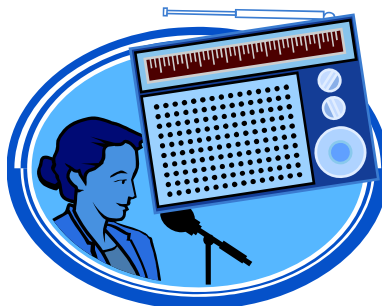
Radio Promotion

Students will take part in a local radio program to promote vegetables in the community

Connect with a local radio promotion Brief the radio announcer on the topic of vegetables and nutrition, and the importance of growing and eating vegetables. Ask students from the school to promote the program date and time to their family, friends and neighbors, so they will listen to the program.

If possible, ask the radio staff if students from the school can promote vegetables on the radio. Choose 2-3 student representatives to join in the radio program to tell their experiences growing vegetables and their importance in health.

The next day, ask students if they have listened to the program with their family and their responses.



Open School Garden Day

Students will act as guides to the community in introducing vegetables grown in the school garden

Choose a day as the School Garden Day to open the school garden to the community. This day could also be combined with the Family Day. Before this day, students will prepare invitation cards to distribute in public areas and encourage people to participate in the event. Students can shout a slogan, perform a skit or sing a song to promote the event. Students can also invite their family, friends and neighbors.

On the School Garden Day, students will act as guides and show the public the school garden, simple gardening activities, and explain the nutritional benefits of eating vegetables.

The event could also include other fun activities for the community to participate in. Ideas include:

- Vegetable tasting sessions
- Vegetable tasting sessions
- Vegetable quizzes and trivia
- Transplant seedlings to the garden
- Vegetable arts and crafts – make a decoration for the home
- Veggie Art Gallery (see School Promotional Events)
- Drama, songs and dance to promote vegetables



REFERENCES

1. FAOSTAT. (2014) Food Balance Sheets. Food and Agriculture Organization of the United Nations. Retrieved on July 20, 2014.
<http://faostat.fao.org/site/354/default.aspx>
2. Harvard. (2014) Healthy Eating Plate & Healthy Eating Pyramid. Harvard School of Public Health. Retrieved on July 10, 2014.
<http://www.hsph.harvard.edu/nutritionsource/healthy-eating-plate/>
3. Institute of Nutrition, Mahidol University. (2014) ASEAN Food Composition Database. Electronic version 1, February 2014, Thailand,
http://www.inmu.mahidol.ac.th/aseanfoods/composition_data.html
4. King, Felicity Savage, and Ann Burgess. (1993) Nutrition for Developing Countries. Oxford University Press: New York.
5. NLI.S. (2014) Nutrition Landscape Information System. World Health Organization. Retrieved on August 5, 2014. <http://apps.who.int/nutrition/landscape/report.aspx>
6. U.S. Department of Agriculture, Agricultural Research Service. (2012) USDA National Nutrient Database for Standard Reference, Release 25. Nutrient Data Laboratory Home Page, <http://www.ars.usda.gov/ba/bhnrc/ndl>
7. WHO. (2008) worldwide prevalence of anaemia 1993–2005. WHO Global Database on Anaemia. World Health Organization: Geneva
8. WHO. (2009) Global prevalence of vitamin A deficiency in populations at risk 1995–2005. WHO Global Database on Vitamin A Deficiency. World Health Organization: Geneva.
9. Agriculture Technical book (2002) for School Agriculture Programme, CoRRB MoAF Bhutan.
10. Vegetable Production Guide book (2014), DoA MoAF Bhutan
11. Institute of Nutrition, Mahidol University. (2014) *ASEAN Food Composition Database*. Electronic version 1, February 2014, Thailand,
http://www.inmu.mahidol.ac.th/aseanfoods/composition_data.html
12. U.S. Department of Agriculture, Agricultural Research Service. (2012) *USDA National Nutrient Database for Standard Reference*, Release 25. Nutrient Data Laboratory Home Page, <http://www.ars.usda.gov/ba/bhnrc/ndl>
13. Druk Seed (2012). Vegetable catalogue growers guide book, Paro Bhutan.
14. Bhutan 2011 Food Based Dietary Guidelines, MoH, Bhutan.



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