VEGETABLE CLASSIFICATION

Quite a large number of vegetable crops are grown in the country either on a commercial scale or limited to backyards of homesteads. A few crops have similarity while others have dissimilarity in their climatic and soil requirements, parts, used, method of cultivation etc. While describing individual vegetables, there is possibility of repetition in many aspects. In order to avoid repetition, it is essential to classify or group into different classes/groups. Different methods of classification followed in vegetables are described below:

Botanical classification

Botanical classification is based on taxonomical relationship among different vegetables. Plant kingdom is divided into four viz. Thallophyta, Bryophyta, Pteriodophyta and Spermatophyte. All vegetables belong to division Angiospermae of Spermatophyta. It is further divided into two classes viz., Monocotyledoneae and dicotyledoneae.

The family wise distribution of vegetables under the classes is as follows:

Monocotyledoneae

Family -	Alliaceae	
	Allium cepa	Onion
	Allium cepa var. *Aggregatum*	Multiplier onion
	Allium cepa var. *Viviparum*	Top onion
	Allium porrum	Leek
	Allium sativum	Garlic
	Allium fistulosum	Welsh onion
	Allium ascalonicum	Shallot
	Allium schoenoprasum	Chive
Family -	Liliaceae	
	Asparagus officinalis	Asparagus
Family -	Araceae	
	Dioscorea alata	Larger yam
	Dioscorea esculenta	Lesser yam
	Colocasia esculenta	Taro
Family -	Poaceae (Graminae)	
	Zea mays	Sweet corn

Dicotyledoneae

Family -	Aizoaceae	
	Tetragonia expansa	New Zealand spinach

Family -	Chenopodiaceae	
	Beta vulgaris	Beetroot and Palak
	Beta vulgaris var. *cicla*	Swiss chard
	Spinacia oleracea	Spinach
	Artiplex hortensis	Chakwat / orach
	Chenopodium album	Bathua
Family -	Asteraceae (Compositae)	
	Cichorium intybus	Chicory
	Cichorium endivia	Endive
	Lactuca sativa	Lettuce
	Cynara scolimus	Artichoke
Family -	Convolvulaceae	
	Ipomoea batatas	Sweet potato
Family -	Brassicaceae (Cruciferae)	
	Brassica oleracea var. a*cephala*	Kale
	Brassica oleracea var. *gemmifera*	Brussels sprouts
	Brassica oleracea var. *capitata*	Cabbage
	Brassica oleracea var. *botrytis*	Cauliflower
	Brassica oleracea var. *italica*	Sprouting broccoli
	Brassica caulorapa	Kohlrabi or knol khol
	Brassica napus var. *napobrassica*	Rutabaga
	Brassica campestris var. *rapa*	Turnip
	Brassica juncea	Leaf mustard
	Brassica chinensis, B. pekinensis	Chinese cabbage
	Armoracia rusticana	Horse-radish
	Raphanus sativus	Radish
Family -	Cucurbitaceae	
	Cucurbita peop	Summer squash
	Cucurbita moschata	Pumpkin
	Cucurbita maxima	Winter squash
	Cucurbita lanatus	Water melon
	Cucumis melo	Musk melon
	Cucumis melo var. *momordica*	Snap melon
	Cucumis melo var. *utilissimus*	Long melon

	Cucumis melo var. *conomon*	Oriental picking melon
	Cucumis sativus	Cucumber
	Praecitrullus fistulosus	Tinda
	Sechium edule	Chow-Chow
	Luffa acutangula	Ridge gourd
	Luffa cylindrica	Sponge gourd
	Lagenaria siceraria	Bottle gourd
	Trichosanthes dioica	Pointed gourd / Parwal
	Trichosanthes anguina	Snake gourd
	Momordica charantia	Bitter gourd
	Benincasa hispida	Ash gourd
Family -	Euphorbiaceae	
	Manihot esculenta	Tapioca
Family -	Fabaceae (Leguminosae)	
	Pisum sativum	Peas
	Phaseolus vulgaris	French bean
	Phaseolus lunatus	Lima bean
	Vicia faba	Broad bean
	Vigna unguiculata	Cowpea
	Cyamopsis tetragonoloba	Cluster bean
	Vigna unguiculta var. *sesquipedalis*	Asparagus bean
	Lablab purpureas	Lablab bean
	Glycine max	Soybean
	Psophocarpus tetragonolobus	Winged bean
	Tigonella foenum graecum	Methi / fenugreek
	Tigonella corniculata	Kasuri methi
Family -	Malvaceae	
	Abelmoschus esculentus	Okra / Bhendi
Family -	Solanaceae	
	Solanum tuberosum	Potato
	Solanum melongena	Brinjal
	Solanum lycopersicum	Tomato
	Capsicum annuum	Chilli
Family -	Apiaceae (Umbelliferae)	

Daucus carota	Carrot
Petroselinum crispum	Parsley
Apium graveolens	Celery
Pastinaca sativa	Parsnip

Cultural and climatic requirements of crops belonging to a family are not always similar. Cultural requirement of radish is entirely different from that of cabbage. Similarly climatic requirement of peas are different from that of cowpea.

Classification based on hardiness

This classification is based on ability to withstand frost and low temperature and it will be useful to know season of cultivation of a crop. Here the vegetable crops are classified into hardy, semi hardy and tender. Hardy vegetables tolerate frost and low temperature and are basically winter or cool season or temperate vegetables. Warm season or subtropical or tropical vegetables are considered as tender since they cannot withstand frost. Temperate vegetables, in general, can be stored for long periods under low temperature. Tropical vegetables are bulky and more perishable compared to temperate vegetables.

Hardy	Semi hardy	Tender
Asparagus	Carrot	Amaranth
Crucifers	Celery	Okra
Garlic	Beet root	Brinjal
Leek	Globe artichoke	Chilli
Onion	Lettuce	Cluster bean
Parsley	Palak	Cucurbits
Peas	Parsnip	Tomato
Radish	Potato	Colocasia
Rhubarb		Amorphophallus
Spinach		Yams
		Sweet potato

Classification based on parts used

In this system, crops are classified based on their parts used for vegetable purpose.

Tender stem and leaves	:	Cabbage, Chinese cabbage, knolkhol. Amaranth, palak etc.
Fruits	:	Tomato, brinjal, chilli, cowpea etc.
Flower parts	:	Sprouting broccoli

Under ground portion : Carrot, radish, beet root, potato etc.

The cultural requirements of crops in each group may not be same. For eg., cultural requirement of cowpea is different for that of tomato. Same is that of cabbage and palak.

Classification based on cultural requirement

This is the most convenient and widely used system of classification of vegetables. Vegetables having similar cultural requirements are grouped together and placed in one group. For eg., crops belonging to group Cucurbits are seed propagated, direct sown, trailing and vigorous growing, cross pollinated and the cultural practice are almost same.

1. Solanaceous fruit vegetables
2. Cucurbits
3. Peas and beans
4. Cole crops
5. Bulb crops
6. Root crops
7. Potato
8. Tuber crops
9. Okra
10. Pot herbs / greens
11. Salad crops
12. Perennial vegetables

Classification based on season of cultivation

This is one of the most important classifications from the grower's point of view since majority of vegetables are season bound and specific to particular seasons. Vegetables are classified into summer season crops, rainy season crops and winter season crops based on growth and production during particular seasons.

Spring / summer season prevails from February to June / July under North Indian plains and from January to May / June in South Indian plains. October to January is winter season, experiencing chilling temperature, in most parts of the country. However, in high rain warm humid climatic condition of Kerala, a distinct winter season is lacking and rainy season starts from June and extents up to September. Here vegetable crops can be grouped as rainy season, mild winter season, and summer season crops.

A few typical vegetables suited to each group are :

Winter season crops - Cruciferous vegetables, carrot, radish, beetroot, onion, garlic, peas etc.

Mild winter - Hyacinth bean, winged bean, tomato

Summer season - All gourds, amaranth

Rainy season crops - Bhendi, chilli, brinjal, cluster been, cowpea etc.

However, depending on receipts of rain, slight variation is noticed in different parts of country. Usually early rains are received in Kerala where monsoon starts during last week of May or first week of June.

Vegetable crops can also be classified based on duration of crop growth and flowering (annual / biennial / perennial), ability to grow and set seeds under a particular climate (temperate / tropical / sub tropical), mode of pollination (Self pollinated (<5% cross pollination) / cross pollinated (>12% cross pollination) / often pollinated (5-12% cross pollination). pH requirement of soil etc.

None of above classifications, except botanical classification, is hard and fast since one and the same crop fall in different groups or can be accommodated in more than one class. For example, crops like brinjal and chilli are treated as rainy season crops and bitter gourd, snake gourd and cucumber as summer season crops. These vegetables can be successfully cultivated in other seasons as well, by taking adequate care. Varieties within a crop also exhibit variations in their response to season of cultivation, temperature requirement etc. In crops like cowpea, there are specific varieties suited to rainy season, summer season and winter season.

Each method of classification has its own relevance under specific situations and will be helpful to know the crop requirements by professionals, farmers and students.

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1. Scientific method of classification
2. Hardy vegetables can tolerate
   a. low temperature b. high temperature
   c. drought d. high rainfall
3. Flowers as economical part in
   a. sprouting broccoli b. cabbage c. palak d. knol khol
4. Vegetables classification based on cultural requirement
5. Taro is
   a. *Colocasia* b. *Dioscorea*
   c. *Amarphophallus* d. *Xanthosoma*