

## The Culture of Exotic Vegetables

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"Grow more food" is the order of the day and the present food position is such that everybody who can is asked to contribute his share, inclusive of the production of vegetables. Vegetables form an important group of food. They are essential protective foods, whose consumption in greater quantities is recommended, not only for their food value, but also for the important vitamins and mineral matter they contain and which are lacking particularly in the common South Indian staple diet. The use of more vegetables at present has a meaning and a significance: it tends to reduce the consumption of rice and thus make the existing supplies do a greater duty. Further, vegetables could be suitably grown in the backyards of houses with little effort or expense, to meet one's own requirements and possibly a little to spare for neighbours and the needy. Vegetables that combine quantity and quality of produce with an economic return are to be preferred, whether they are indigenous or exotic types, which in popular parlance are referred to as 'English vegetables'. Judged by that standard and from the experience of the cultivation and marketing of exotic vegetables, it could be stated that the exotic vegetables easily score over the indigenous types. Some of the aspects of the production of exotic vegetables that would interest the would-be cultivator are included in this short note.

There is a generally prevalent idea among many people that exotic vegetables can be grown only in very cold climates met with in the hills, and not in the plains. That is not correct, as most of them can be grown in the plains as well. The exotic vegetables, no doubt, require a comparatively cooler climate than the indigenous vegetables. The summer in the plains may be too hot for them; severe winter conditions in the hills are also not suitable. They may therefore be omitted from the scheme of cropping for summer in the plains and winter in the hills. But in places where the temperature ranges between 45° F. and 100° F., the exotic vegetables can be grown all through the year. There are many such localities in the Madras Presidency that can take up the production of exotic vegetables. The climate is therefore not a serious obstacle. Cabbages, carrots, beans and peas have been successfully grown by the writer in the Kurnool District, and other districts in the presidency are not worse off than Kurnool climatically.

The present need of the hour is the production of vegetables quickly and plentifully, to relieve the shortage of food. The duration of the crop selected for planting is therefore an important consideration. The shorter the duration of the crop, the sooner will the produce be ready and the greater the produce that one can manage from the same land in an year. Further,

an amateur, who is now induced to 'grow vegetables', may not have the patience to wait long for the fruits of his labour. Quick results alone can arouse in him a zeal and fervour to grow more. From this point of view the exotic vegetables are ideal, for their average duration is 60 days. Many come to bearing even earlier; radishes are ready for the market in 30 days, lettuce takes the same time after transplanting, peas and beans give the first picking in about six weeks, turnips take the same time, cabbages, cauliflower, beet root and tomatoes are ready in about eight weeks from planting. Carrots, potatoes, marrows, parsnips and bush-lima take a longer time, but many of them are ready in about 90 days. For those who are anxious to accelerate production, exotic vegetables would come in handy and be ideal. There are also the long duration drags and the cold weather pets.

Many people are sceptical about the exotic vegetables, their yield and capacity to give reasonable returns. It must, however, be emphasised that they need not be apprehensive; the yields of most of the exotic vegetables are something phenomenal. The average yield of the various crops is furnished in the appended statement. It is seen that very many of them yield more than 20,000 lb. per acre and enormous profits are thereby assured. At times, the profit may mount up to Rs. 1,000 per acre. The indigenous vegetables are comparatively poor paying crops. This aspect of large returns of the exotic vegetables has so far escaped the notice of the cultivators.

The war situation has brought in to our midst considerable military forces that consist of men from other countries—America, Australia, Great Britain, Italy etc. They require exotic vegetables for their consumption; the present production is not enough and the tendency is for the prices to range on the high side—a viss of peas sells now at one rupee, a viss of beans at 5 annas, carrot at 6 annas a dozen, turnips and beet root at 12 annas a dozen, cabbage at 12 annas and cauliflower at 3 to 4 annas each. These are, no doubt, profiteering prices. Even if the ruling prices run down to half the present level, as a result of increased production, the cultivator can safely expect a decent return and profit by the cultivation of these vegetables.

The cultivation of the exotic vegetables has to be taken up not merely as an expedient measure for the duration of the war, but also as a permanent feature of cultivation. It must be emphasised here that the demand for these vegetables will be there even after the war. For, our people also relish them as well as others and would prefer them to the indigenous vegetables; the demand for them is limited only by the extent of availability. They are not at present produced in quantities large enough to become available for all classes of people. Its use is limited to the richer classes only. The writer has produced large quantities of the exotic vegetables, tons and tons of them, and found that the local people also were eager to purchase them. Of the different types, the peas are in greatest demand from the local people. Tomatoes, cabbages and cauliflower rank next in the order of preference.

Beans of all kinds, French, broad, and runner beans, are the main vegetables with which the customers fill their basket first. Carrots, knol-khol and beet root are not so well known, but the demand from people who have used them is considerable. Cauliflower is not known to many people and it is easily one of the most delicious vegetables. Radishes and turnips are rather piquant and do not appeal to all palates alike, being rather too strong for some. It is seen that there is an extensive market for the exotic vegetables, whose potentialities have not at all been tapped properly. There is no doubt that in course of time these exotic vegetables will be cultivated widely and will find their place in any scheme of cropping.

From the point of view of nutrition, the exotic vegetables easily score over the indigenous vegetables. Lettuce, parsnip, spinach and carrots are rich in vitamin A and their carotene value is over 2,000 international units. Cauliflower is noted for its content of vitamin A, B and C. Turnips are rich in vitamins B and C. Potatoes are very valuable and the nutrition authorities recommend the inclusion of 4 to 8 oz. in the daily ration of every individual. Artichoke is equal to potato in nutritive value. The peas and beans are rich in protein and mineral matter.

Wherever the soil and climatic conditions permit, the cultivation of the exotic vegetables deserves to be taken up. The writer believes that they are going to play an important part in the post-war dietary of the country. Large number of Indian soldiers, returning from Europe after the war, would have developed a taste for the exotic vegetables and there is bound to be an increased demand for such vegetables. The cultivation of exotic vegetables would then be taken up in a large scale in India and become a permanent feature of the country.

Short notes and a guide for the cultivation of these vegetables are appended.

#### Short notes on the cultivation of exotic vegetables

*Artichoke* Open trenches 9 in. wide and 9 in. deep, 2 ft. apart, fill with the removed soil and cattle manure at 30 cartloads per acre. Plant sets or whole rhizomes. Irrigate once a week. Earth up after 45 days. Pick off flowers as they form and lift the rhizomes for use, when required.

Some people consider this to be delicious and some class it as a useless vegetable; possibly a matter of taste.

*Beans—French* Manure with cattle manure at 30 cls.\* per acre. Earth up the plants after 25 days. Irrigate once in 5 days and oftener at the time of the formation of pods and collect half developed pods once in 3 or 4 days.

The tender pods may be boiled with a little salt, dried and preserved for use, as and when required. When the pods are mature, they may be shelled and the seeds used for cooking.

*Beans—Lima* Dig pits and plant seeds as for the ordinary garden variety of *Dolichos*. Train the climbing varieties on *pandas* or trellis work. Bush Lima is suitable for growing in large areas.

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\* cls.—cartloads

*Beet root* Beet is a hardy plant and comes up well in all classes of soils. Sandy loams are the best. Apply 30 cts. of well-rotted cattle manure. Irrigate once in 6 days; over-irrigating to be avoided.

Prefer the imported seed for sowing. Locally produced seeds tend to run into flowers rather early.

*Chow chow* Allow the plants to trail on *pondals*. The mature fruit containing the bud is planted. This is known as "Bangalore Kathirikaye" in the southern districts.

*Cabbage* Cabbage is a voracious feeder. Apply 50 cts. of cattle manure per acre. Give liquid manure at 5 cts. per acre just before earthing up. Ripe leaves may have to be removed twice or thrice. Plant lice are the worst enemies of cabbage. Spray tobacco decoction and fish oil soap emulsion in the early stages.

*Cauliflower* Apply 50 cts. cattle manure. Irrigate once in 5 days. Earth up the crop 25 days after planting, after applying liquid manure. Snap the leaf next to the flower and cover the flower with it to prevent the curd from breaking and getting discoloured during summer. Sow only imported seed for obtaining quality heads.

*Carrot* Deep sandy soils are the best. Sow the seed in beds and cover just as for onion seed. Potash application is advantageous. Sow the seed on ridges in clayey soils. Keep the crop free of weeds.

This crop has few pests and diseases. Imported seeds do well. Thinning the crop may not be necessary, if sown at the rate of 4 lb. per acre.

*Celery* Plant in trenches 9 in. x 9 in. filled with rotten cattle manure at 50 cts. an acre. Start blanching when the plants are one foot high by embanking earth, as it grows, up to the top leaves, but do not allow the earth to press the stems hard. Remove lateral shoots, as they appear. Irrigate copiously. Used as a seed and as a vegetable.

*Maize* Earth up the plants when they are a foot high, after applying 5 cts. cattle manure. Collect the cobs when they just pass the milk stage. Remove all the bracts, excepting the last whorl before selling.

*Knol-khol* Apply 50 cartloads cattle manure initially and liquid manure once a month. Irrigate once in 4 days. Two weedings may be necessary. Control plant lice, as it appears, even in the early stages.

This is a favourite vegetable with Indians. Harvest before the tubers turn woody or too big.

*Leek* Plant the seedlings 4 in. below ground level in trenches dug 9 in. wide and 10 in. deep and filled with well rotten cattle manure (50 cts. per acre). Irrigate copiously. As the plant grows, earth up to ensure proper blanching.

The white underground well blanched fleshy stem, is a good flavouring for soups and sauce.

*Lettuce* Heavy manuring and frequent watering are essential for promoting good growth and retarding flowering. Heading varieties should be assisted by drawing the leaves together and tying. If the leaves are coarse, it is a result of over-manuring.

Lettuce is a perfect salad vegetable. The cabbage lettuce may be planted in cold weather and cos lettuce at other times.

*Onions* Apply 30 cts. of cattle manure. Use a slightly higher seed rate, if you are sowing straight in beds. Irrigate once in 5 days. Pull out the bulbs when mature, indicated by the withering of the leaves. The maturing could be hastened by snapping the tops without breaking them and leaving the crop thus for a few days.

*Parsnip* Dig deep for good results and when large areas are to be planted, use a large plough, dibble the seeds straight in the field and irrigate once a week. Manuring may be done at 30 cts. per acre. The seeds lose their viability soon, and fresh imported seeds should therefore be preferred.

*Peas* Stake with brushwood when the plants are 15 days old, after lightly earthing up the plants, so that irrigation water may not touch the stem. The success of the crop depends on keeping off mildew and aphids.

*Potato* Dig up the soil well to facilitate weathering. Select good seed material and cut it to pieces with at least two eyes in each piece. Irrigations should be light by splashing till the crop comes up well over the ground.

*Radish* Radish is a quick growing crop, easy to grow. Good manuring and copious irrigation help immensely.

*Spinach* (New Zealand) tends to rot if water stagnates in the field. Prefer a well drained soil, especially in the rainy season. Sow in beds.

*Spinach beet* Thin the crop when sown straight in the field and remove the leaves often whether required or not to prevent flowering.

*Soya beans* Can be sown as a dry crop during the N. E. monsoon. The tender pods are used as vegetable. Use just like Peas.

*Sweet potato* Plant vines with about 3 nodes. Manure with 20 cts. cattle manure per acre and irrigate profusely. Turn the vines to prevent the formation of adventitious roots.

*Tomato* Open trenches 9 in. by 9 in. and fill up with cattle manure at 50 cts. Drive in stakes six feet long and plant one seedling to each stake. Rub off the side shoots or branches and allow the main shoot alone to grow. Top the plant at about 5½ feet. Liquid manuring definitely improves the yield. Collect when the colour is turning lightly especially for the market.

*Turnip* Turnip prefers a soil with good lime content. Good tilth and heavy manuring tend to give good results. Plant seeds straight in beds and irrigate once in 4 days.

*Vegetable marrow* Dig pits 3 ft. x 3 ft. x 2 ft. Fill with well rotten manure and dug-up soil. Sow six seeds in each pit and finally thin out to three plants per pit. Hand water in the beginning, earth up after 30 days and irrigate copiously later, particularly in summer. There are distinct summer and winter varieties.

## GUIDE FOR EXOTIC VEGETABLE GROWERS

1	2	3	4	5	6	7	8	9	10
Name	Season for sowing	Seed rate per acre	Nursery area sq. ft. per oz. of seed	Duration in the nursery in days	Planting Distance	Time taken to yield	Average yield lb.	Highest yield recorded by the writer lb.	Varieties which have given good performance
Artichoke "Jerusalem" ( <i>Helianthus tuberosus</i> )	All the year round	150 lb. of rhizomes	...	...	2' x 1' - 6"	120 days	15,000	25,000	Jerusalem
Beans 'Dwarf French', 'Kidney beans', ( <i>Phaseolus vulgaris</i> )	Avoid cold season and rainy months	40 lb.	...	...	1' - 6" x 9"	45 days	6,000	12,000	Local variety
Beans 'Lima', 'Double', 'Buller', ( <i>Phaseolus limensis</i> )	June—July	6 lb.	...	...	Pits 10' apart;	4 months for Bush Limas and 6 months for tall growing varieties	6,000	...	Improved Florid, butter speckled, and Large white
Beet root. ( <i>Beta vulgaris</i> )	All the year round	2 lb. for direct sowing and 1 lb. 8 oz. for nursery sowings	100	25	1' - 6" x 1'	75 days after direct sowing and 60 days after transplanting	10,000	20,000 with Crimson Globe and 30,000 lb. with Mangel Ursei	Early Wonder and Crimson Globe
Chow-chow ( <i>Sesuvium esula</i> )	All the year round	300 pits with one fruit planted in each pit	...	...	12' x 12'	100 days after planting	15,000	...	Local variety

Cabbage ( <i>Brassica oleracea</i> var. <i>capitata</i> )	August to December in plains and February to May in hills	2 to 4 oz.	100	20 to 30	2' x 1' - 6"	75 days after planting	10,000	20,000	Pride of Asia, early and late Drum head and Copenhagen Market
Cauliflower ( <i>Brassica oleracea</i> var. <i>botrytis</i> )	do	2 to 4 oz.	100	25	2' x 1' - 6" for late and 1' - 6" for early and x 1' - 6" for late varieties respectively	45 & 90 days for early and late varieties	5,000	...	Early Snowball, Earliest of All and Pasali
Carrot ( <i>Daucus carota</i> )	Avoid rainy season	4 to 6 lb.	...	...	6" either way	90 days for full development	10,000	16,000	Chantenay Imperator America and Early Nantes
Celery ( <i>Apium graveolens</i> )	Cold weather	2 to 3 oz.	200	45	2' x 1' - 6"	90 days after planting	8,000	...	White Plume
Indian corn ( <i>Zea mays</i> )	June—October	16 lb.	...	...	1' - 6" x 1'	75 to 90 days	6,000	...	Golden bantam
Knol-khol or Severe sum-Khol-Rabi ( <i>Brassica oleracea</i> var. months not fit for planting)	Severe summer and heavy rainy months not fit for planting	4 to 6 oz.	100	20 to 25	1' - 6" x 1'	45 to 60 days after planting	12,000	20,000	Early white, Vienna and Khol-khol Green
Leek ( <i>Allium porrum</i> )	June—December	1 lb.	100	40	1' - 6" x 9"	90 days after planting	8,000	...	American Flag and Improved Musselburgh
Lettuce ( <i>Lactuca sativa</i> )	January—June	2 to 4 oz.	400	25	1' x 1'	30 days after planting	10,000	18,000	Cos lettuce and Perfection
Onions (Bellary) ( <i>Allium cepa</i> )	May—December	2 lb.	100	40	1' x 6"	90 to 120 days	8,000	14,000	Bellary onion
Parsnip ( <i>Pastinaca sativa</i> )	Cold weather	1½ to 2 lb.	...	...	1' - 3" x 9"	90 days	12,000	...	Hollow Crown

Peas ( <i>Pisum sativum</i> )	June— December	20 lb.	...	...	3' x 3"	45 to 60 days	800	1,000	Local Dwarf Early
Potato ( <i>Solanum tuberosum</i> )	May— December	750 lb.	...	...	1' - 6" x 9"	75 to 90 days	6,000	14,000	Rangoon ricket
Radish ( <i>Raphanus sativus</i> )	All the year round	3 to 4 lb.	..	..	9" apart for country varie- ties; 6" apart for Table Radish	30 to 45 days	15,000	25,000	Local White Long. Table var- ieties are Scarlet Globe and French Icicle
Spinach (New Zealand) ( <i>Tetragonia expansa</i> )	do.	12 lb.	...	...	1' - 6" x 1'	6 weeks	10,000	...	...
Spinach Beet ( <i>Beta alba</i> )	do.	2 lb.	100	20	1' - 6" x 1'	6 weeks	15,000	...	Acclimated seeds
Soya beans ( <i>Glycine soja</i> )	August— September	15 lb.	...	...	1' - 6" x 9"	100 days	4,500 (green pods)	...	Burmese
Sweet potato ( <i>Ipomoea batatas</i> )	All the year round	1,000 to 1,200 lb. of haulms	...	...	1' - 6" x 1'	120 to 150 days	10,000	15,000	Local Red
Tomato ( <i>Lycopersicon esculentum</i> )	May— December	2 to 3 oz.	200	25 to 30	3' - 2'	2 months after planting	15,000	25,000	Carters Fruit. Break a day. Early Market and Ox heart
Turnips ( <i>Brassica rapa</i> )	January— June	6 to 9 oz.	...	...	1' x 9"	45 to 60 days	14,000	24,000	Red Turnip, Bronze Top, Purple Top and White Globe
Vegetable Marrow ( <i>Cucurbita pepo C. maxima</i> )	All the year round	2 lb.	...	...	Pits 12" apart and three plants in a pit	60 days	15,000	30,000	White Long