

BY: DR VIGNESHWARA VARMUDDY

# CAULIFLOWER: BRIGHT SCOPE FOR PROMOTING EXPORTS

Cauliflower is considered as one of the valuable vegetable crops in India and contains good amount of vitamins and protein. The scope for export of raw and value-added cauliflower is bright. So, there is the need to overcome the prevailing problems of this sector. As far as the promotion of exports is concerned, India had markets in European Union in the 90s, so it is the right time to regain those markets by exporting value-added products of cauliflower.



good amount of vitamin B and a fair amount of protein in comparison to other vegetables. It is used in vegeta-

Table I  
Nutritive Value of  
Cauliflower Per 100 gm  
of Edible Portion

Description	Value
Moisture	90.8 gm
Protein	2.6 gm
Fat	0.4 gm
Minerals	1.9 gm
Fibre	1.2 gm
Other carbohydrates	4.0 gm
Calories	30.0
Calcium	33.0 mg
Magnesium	20.0 mg
Oxalic acid	19.0 mg
Nicotinic acid	1.0 mg
Phosphorus	57.0 mg
Iron	1.5 mg
Sodium	53.0 mg
Potassium	138.0 mg
Copper	0.05 mg
Sulphur	231.0 mg
Thiamine	0.04 mg
Riboflavin	0.10 mg
Vitamin	51 IU
Vitamin C	56 mg

**C**auliflower is a favourite vegetable in all temperate regions. The name 'cauliflower' has originated from the Latin words '*Caulis*' and '*Floris*' which mean cabbage and flower, respectively. Botanically, it has originated from wild cabbage known as a colewort.

In cauliflower, a short erect stem is produced with an undeveloped inflorescence. The whole inflorescence

forms a large head of abortive flowers on thick hypertropical branches. The leaves are often tied around the mass of flowers to keep them white. Successful cultivation of cauliflower requires great care since it is a delicate crop.

### Nutritive value and health benefits

Cauliflower is rich in vitamins A and C. Cooked cauliflower contains a

ble curries, soups, pickling and in a variety of value-added eatables. The dried cauliflower can be preserved for use in off season.

The following are some health and nutrition benefits of cauliflower:

1. The allicin in cauliflower is known to promote healthy heart and reduce the risk of strokes.
2. It has been associated with the maintenance of a healthy cholesterol level.
3. It strengthens the immune system.
4. The high amount of fibre in cauliflower improves colon health and can even help prevent cancer.
5. Research has suggested that

cauliflower contains certain phytochemicals that might help reduce the risk of some hereditary cancers.

6. The nutritive value of the cauliflower is given in Table I.

### World production

At present, cauliflower is grown in more than 90 countries and its production is more than 20.9 million metric tonnes.

In terms of production, People's Republic of China ranks first followed by India, Spain, Mexico, Italy, France, United States, Poland, Pakistan, Egypt and United Arab Republic, amongst others.

Once India stood first, however, at present India is in the second position in its production.

As far as the share in the world production is concerned, China has 43.26 per cent, India 32.31 per cent and that of Spain is 2.53 per cent. As a whole, more than 75 per cent of the world production is from Asian region itself.

### Cauliflower cultivation in India

Cauliflower is cultivated mostly in northern India. As far as its production is concerned, West Bengal is the

largest producer followed by Bihar, Odisha, Madhya Pradesh, Haryana, Gujarat and Jharkhand, amongst others. As a whole, the total area under this crop during 2012-13 was 408.19 thousand hectares and the production was 7826.54 thousand metric tonnes (see Table II).

### Major growing belts of cauliflower in India

1. Bihar/Jharkhand—Santhal, Paranana, Purnia, Kathilhar, Madhubani, West Champaran, Muzaffarpur, Vaishali, Patna, Nalanda, Sitamarhi, Bhagalpur, Samstipur, Saharsa and Dhanbad
2. Maharashtra—Nasik, Nagpur and Kolhapur
3. Gujarat—Khera, Baroda, Ahmedabad and Mehsana
4. Uttaranchal—Nainital, Pithauragarh and Dehradun
5. Himachal Pradesh—Shimla, Kullu, Sirmour and Solan

### Varieties

In India, two separate groups of cauliflower are grown, namely, Indian or tropical types which originated in India, and the annual temperate types known as 'Erfurt' or 'snowball' types.

The major differences between these two groups are their adaptability to different temperatures for curd formation. The tropical types are resistant to water logging and heat. Almost all of the varieties in India are known by their Hindi names, which are given in Table III.

Apart from these varieties, several others are also marketed by the private seeds companies under different names. As a whole, the early varieties are similar in size and have a yellowish tinge; mid-season varieties produce the largest curds but are mostly in dirty-white colour; the late varieties are compact and milky white.

Table II  
**Area and Production of Cauliflower in Top Ten States During 2012-13\***

States	Area ('000 ha)	Production ('000 MT)
West Bengal	73.00	1863.00
Bihar	63.11	1193.73
Odisha	44.70	675.47
Madhya Pradesh	33.48	634.40
Haryana	30.82	545.67
Gujarat	28.62	532.28
Jharkhand	24.72	381.21
Assam	21.71	449.25
Chhattisgarh	19.57	341.99
Maharashtra	11.00	238.00
<b>Total (including others)</b>	<b>408.19</b>	<b>7826.54</b>

\*Third advance estimates  
Source: Ministry of Agriculture, Government of India

Table III  
**Varieties of Cauliflowers Grown in India**

Group	Varieties
September Maturity	Early Kunwari, Panth Gobi 3, Pusa Early Synthetic
October Maturity	Pusa Deepali, Pusa Katki
November Maturity	Improved Japanese, Hissar 1, ITHRIOI, IIHR 105, Panth Gobi 2, PG 26, PG 35, Pusa Hybrid 2
December Maturity	Pusa Himjyoti, Pusa Shubra, Pusa Synthetic, Snowball-1, Pusa Snowball K-1, Snowball-16

Source: National Horticulture Board (NHB)

### Harvesting

Harvesting of cauliflower takes place when the curd reaches a proper size with an attractive colour. Normally, harvesting is done as and when the curds develop. So as to overcome the problem of damage while harvesting, care is taken to harvest it either in the evening or early in the morning.

The harvesting period depends upon the transplanting; usually early varieties are harvested in between 60 and 70 days, mid-season varieties in between 80 and 90 days and the late varieties in 120-140 days.

### Marketing

For marketing, cauliflower is graded according to the size, colour, quality and variety. For the purpose of packing, the growers as well as traders use big nets and transport through trucks.

There are two important channels for cauliflower marketing. The growers sell it to the commission agents, which constitutes a major portion. Or the growers sell the whole crop prior to the harvest to the pre-harvest contractors.

In general, the commission agents or the intermediaries play a dominant role in the marketing of cauliflowers in India.

Table IV  
**Export of Cauliflowers and Headed Broccoli, Fresh/Chilled to Top 5 Countries During 2012-13**

Country	Volume (MT)	Value (₹)
Maldives	151.09	1,137,000
United Arab Emirates	102.00	707000
Nepal	94.01	444,000
Pakistan	7.42	166,000
United Kingdom	0.25	42,000
<b>Total (including others)</b>	<b>356.47</b>	<b>2,504,000</b>

Source: DGCIS Annual Export

### Exports

India exports cauliflowers and headed broccoli (fresh/chilled) to Maldives, UAE, Nepal, Pakistan and UK, amongst others. During 2012-13, about 356.47 metric tonnes valued at ₹ 2.5 million only was exported. However, during 2011-12 the volume was 763.34 metric tonnes valued at ₹ 7.5 million.

Table IV provides data on the export of cauliflowers and headed broccoli to top five countries during 2012-13.

India is also exporting cauliflower seeds to more than 20 countries. The main importers are Pakistan, Bangladesh, Brazil and Japan. During 2012-13, the total volume of exports was 32.17 metric tonnes valued at

₹ 17.5 million.

Pakistan alone imported 31.59 metric tonnes in 2012-13 which is about 62 per cent of the total exports of India followed by 21 per cent by Bangladesh, 8.34 per cent by Brazil and 7.46 per cent by Japan.

### Problems

1. The productivity of cauliflower in India is much lower due to:

- (i) lack of improved varieties of seeds;
  - (ii) lack of awareness amongst the growers about the latest varieties and
  - (iii) lack of agro techniques
2. Non-availability of proper education and training for the farmers about pre- and post-harvest aspects
3. Major diseases such as damping off, black rot, soft rot and club-root.
4. Problem of storage facilities.

### Prospects

Cauliflower is considered as one of the valuable vegetable crops in India and contains good amount of vitamins and protein. The scope for export of raw and value-added cauliflower is bright. So, there is the need to overcome the prevailing problems of this sector.

As far as the promotion of exports is concerned, India had markets in European Union in the 90s, so it is the right time to regain those markets by exporting value-added products of cauliflower. Domestically also the demand for value-added cauliflower is raising in recent years. So proper planned strategy to upgrade this sector is required.



Different varieties of cauliflower

*The author is an associate professor in economics, Vivekananda College, Puttur, Karnataka*