# Identification of Appropriate Postharvest Technologies for Improving Market Access and Incomes for Small Horticultural Farmers in Sub-Saharan Africa and South Asia

#### Commodity System Assessment Methodology (CSAM)

#### Cabbage in Uttarakhand (India)

#### Component 01: Relative Importance of Crop

Cabbage var capitata L in an important vegetable crop of the Family Brassicaceae (or Cruciferae) Used as a leafy green vegetable for a variety of purposes such as vegetable, salad and ingredient in many dishes. Cabbage is a good source of Vitamin A, Vitamin C, Vitamin E and Vitamin B along with riboflavin.

It contains high quantities of fiber and iron, which help to keep the digestive tract and colon in a healthy condition.

The major cabbage producing states are Uttar Pradesh, Uttarakhand, Orissa, Bihar, Assam, West Bengal, Maharashtra and Karnataka.

Production statistics of cabbage is as follows:

	Total area under cultivation of cabbage	Production	Productivity (in MT/ HA)
India	265.4	5884.8	22.20
Uttarakhand	4.440	55.317	12.48

## Component 02: Public Sector Policies

There are no specific public sector policies for cabbage.

# Component 03: Relevant Institutions

There are a number of institutions responsible for planning, production system, processing of product, marketing of crop and research. The relevant institutions are-

- a) Indian Institute of Vegetable Research, Varanasi, Uttar Pradesh
- b) National Bureau of Plant G

- e) National Horticulture Research and Development Foundation, New Delhi
- f) State Agriculture Universities

#### Component 04: Facilitating Services

Transport services are easily accessible and the roads are more or less acceptable

For distant transportation, the most favored vehicle is truck.

For local mandi, produce is generally carried on rickshaw, bullock and horse driven carts.

#### Component 05: Producer, Shipper organizations

The National Agriculture Co-operative Marketing Federation of India assists its associate enterprises, mainly in organizing village level agricultural cooperative of farmers and growers in production of export quality vegetable products. The National Horticultural Research and Development Foundation (NHRDF) which is an autonomous enterprise of NAFED has been active in this area but majority of the farmer federations/associations have been promoted by private sector such as IFFCO Foundation throughout the country and Himalayan Action Research Centre in Uttarakashi.

Quality seeds of known varieties are also available from Department of Vegetable Sciences, G B Pant University of Agriculture & Technology

There are number of nurseries in the private and government sector that sell seedlings.

Farmers are preferring use of hybrid seeds obtained from private companies also.

#### Component 10: Pre-harvest treatments

The most common intercultural operations done by farmer are weeding, hoeing and earthing up. The farmers in Uttarakhand do not use any inorganic fertilizers.

### Component 11: Production and Marketing Cost

Seed rate- 240-260 gm/acre Cost of planting material Rs. 12000/kg (Hybrid Seed) Open pollinated seeds cost Rs. 2000-2500/kg

# Component 12: Crop harvest

Farmers harvest cabbage generally at 90-120 days after planting when the heads are firm and fully mature.

For harvesting the head is bent to one side and cut with a knife.

Harvesting is done at early morning or late evening hours

Extra leaves are left on the head to serve as a cushion.

Before packaging,

# Component 13: Selection, Sizing, Grading and Inspection

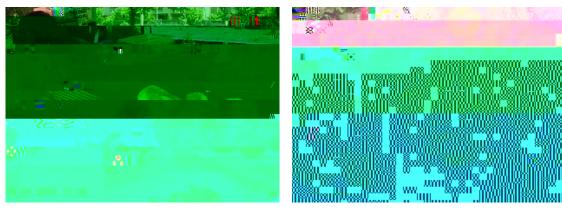
Damaged and diseased wrapper leaves are removed during grading. Heads with insect damage and other defects are discarded. Sorting is done at the farm level visually depending upon size, colour, shape and firmness

#### Component 24: Consumer demand

Consumer demand is for fresh, firm and mature cabbage heads Free from and pest and diseases.

Free from mechanical injury

Round heads with pointed outer most leaves



#### Component 25: Exports

None of the farmers contacted are into export of the produce.

# Component 26: Post harvest and Marketing costs

Famers were not very forthcoming on the post harvest and marketing cost hence, no information was available on this component.

Note: Due to cool dimate of Uttarakhand cabbage is produced in the state when it is not normally available in North off season .