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**Reji Longjam**  
Graduate Students, Lovely  
Professional University, Punjab,  
India

**Kiran Huirongbam**  
Graduate Students, Lovely  
Professional University, Punjab,  
India

**Sanam Kamboj**  
Graduate Students, Lovely  
Professional University, Punjab,  
India

**Ajay Singh Jakhar**  
Graduate Students, Lovely  
Professional University, Punjab,  
India

**Sukhwinder Singh**  
Graduate Students, Lovely  
Professional University, Punjab,  
India

**Corresponding Author**  
**Ajay Singh Jakhar**  
Graduate Students, Lovely  
Professional University, Punjab,  
India

## Post harvesting and value addition in rose

**Reji Longjam, Kiran Huirongbam, Sanam Kamboj, Ajay Singh Jakhar and Sukhwinder Singh**

### Abstract

Rose, in the region called Gulab-Jo-Gul (in Sindhi), belongs to the Rosaceae family. Its botanical name is *Rosa indica* L. Within the order Rosales. Rosaceae is a large circular plant of relatives, with many generations and thousands of species including shrubs, herbs, and trees. Rose is a very important plant from many sources. It is many miles used in some part of the world in times of love, medical activities, used beauty, happy times, celebrations, receptions, decorations and food tonic supplement, to have a value, but at the same time, also grown in a small area in the USA for many purposes. However, they can be well-adapted and weather-resistant. The lack of an improved production period and the realization of almost all agriculture are major problems in all parts of the world. Unfortunately, in the field of agricultural studies, the field of rose cultivation is largely ignored around the world, with very few drawings, and small sales of its cultivars that reduce its availability. Therefore, the advent of a well-tracked production period is important which provides a brief manual for farmers from the range of roses and farming techniques.

**Keywords:** Post harvesting, value addition, rose

### Introduction

Floriculture has maintained a state-of-the-art agricultural field. India is ranked 2nd in flower production after China. India's leading percentage within the international flower market is unimaginable (0.61%) as measured by the Netherlands (58%), Columbia (14%), Ecuador (7%), Kenya (5%), and Israel (2%), Italy (Italy). Italy). 2%), Spain (2%) *et al.* (10%) (Unknown, 2015a). In 2013-14, India is believed to have an area of 255020 hectares under normal flowering with an annual harvest of 1754500 MT and 47942 lakh cut flowers (Manpreet Kaur, 2020). India exports 15695.29 MT costing 57598. Forty lacs within 12 months 2020-2021 (APEDA 2021). The percentage of the area under cultivation of a blanket in the total flower area becomes 0.56 according to the Indian subcontinent (Thippaiah, 2005). Rose is the largest flower sold worldwide. India ranks 16th in rose sales in 2006 with an estimated profit of US \$ 1.4 million, accounting for 1.05 percent of international trade (anonymous, 2008). In India, the rose is grown in an open environment using conventional technology and under greenhouses (hi-tech) use of advanced technology. Within the traditional method of producing roses, free-range plants were often produced to cater to nearby markets. These flowers are arranged according to the time of the stem into the Stem. Harvested plants were provided to traders prior to harvesting at a continuous rate that facilitated cost flexibility for traders (Sivaramane, 1998). Although hello-tech cut plants are grown mainly in the export market, their food has been rising to the top of the domestic market as it provides more marketing power to those hi-tech gadgets. This hello-tech farming method has grown significantly in Bangalore considering that in the 1990s. There is a significant difference in rental income, variable earnings and returns between the two stages of rose production. Therefore, evaluating the funding, fees, benefits, refunds and technical capabilities of conventional systems and hello-tech rose production may help to achieve beneficial conclusions for the construction of cover orders to improve India's financial system.

### Quality enhancement in Rose Floral Quality Parameters

1. Flower (size, condition, maturity, shape, longevity, colour, texture, appearance)
2. Stem (size, shape, strength)
3. Free from defects and disorders. It is important to do proper harvest and care of flowers even after harvesting for the increment of the vase life and to have a high-quality product.

### Harvesting

- Harvesting is done after full four months of planting.
- It should be done in cool early morning hours.
- Should be done with sharp objects like secateurs at tight bud stage when the colour is established fully and before the petals starts unfolding.
- The flower should be cut with 3-4 mature leaves left on the plant for first cutting.
- And for second cutting, 2 mature leaves can be left after the flower has been cut.

### Post harvest handling of Rose

- After harvesting, the stem is kept immediately in a bucket of water.
- Required temperature for storage is 5 to 7°C for about 6 to 12 hours in green house.
- Flower should be kept at 90-92% relative humidity to maintain turgidity.
- Should be transported to grading hall within 15-20 minutes.
- After harvesting, the flowers are then graded. The quality cut rose should have a uniform stem length.
- The stem should be strong, straight and are capable of holding the flower in upright position, the flowers should have uniform stem length,
- Flowers, leaves, stem, leaves must be free from pests and diseases.
- For cold storage, roses should be stored in about 5-10cm of flower preservative chemical at 2-4°C for one week.
- Maintenance of temperature is important in storing as the flowers may open if the temperature is not maintained which will eventually lead to price reduction.
- The flowers are then packed. For packing, the flowers are arranged in bunches and are then wrapped in corrugated cardboard sleeves.
- Transportation is done mainly done in reefer van containers. The first arrived flowers from green house must be processed and dispatched first.

Post harvest handling is done mostly to increase the shelf life of the cut flowers. The Shelf to life of cut flowers are usually 7 to 12 days. It helps the flowers to prevent the moisture loss; keeps the flowers cool, and to avoid any physical damages.

### There are several factors that decrease the shelf life of cut flowers:

- Temperature and Humidity
- Diseases
- Excessive water loss
- Short supply of carbohydrate
- Packaging

### Impact of Post-Harvest Management

"At harvest time, the flower suffers from a variety of pressures such as insufficient temperatures, dehydration and physical damage that endanger the quality of beauty and reduce longevity and this can be influenced by ethylene action." - Woltering and Van Doorn 1988; Macnish *et al.* 2010.

According to Fischer 1953; Siegelman, 1952; Halevy and Mayak 1974, cold storage is effective in reducing respiration, preserving carbohydrates and sources and prolonging flower life.

According to Castro 1993, preserving solutions helps the flower maintain quality and make the longevity of the flower shelf longer. Four types of widely used solutions i.e. conditioning solutions, storage solutions, pulsing solutions, flower opening solutions.

### Value addition to rose

Rose is one of the most beautiful natural creatures and is known worldwide as the queen of flowers. Apart from being praised for its beauty, the rose is used in worship, in flowers, in flowers, cut, preserving and decorating, etc. they have gained widespread acceptance.

The life of the cut and blossoming flowers is short. In the event that glut framers do not get paid. Value addition is a way under these conditions. Value addition is any step taken to increase the value of an immature product. Increasing the price of any product by processing it, any product can be considered value added if grown by the farmer and increased in value by operation and creation, consumers are willing to pay more for products with value added compared to green. one. The addition of value to the rose is done in the following ways.

- Flower arrangements like bouquets, wreaths, corsages, garlands and buttonholes
- Dry flowers
- Pot pourris
- Rose oil, water, concrete, absolute, gulkand, and gulroghan etc.
- Rose hip juice, jam, tea, and candy

### Textile Industry

Red rose is one of the most important ornamental plants that grows in the garden and is rich in red and pink. In the present study, pigment pigments present in red rose flowers were extracted using four different solvent extraction methods. Three different moderns are used to set one dye on cotton fabric by making a co-ordination complex. The result was that a variety of pink and yellow dyes were obtained when applied to modern. Thus, dye dyed red rose can be used in dyeing fabrics for cotton, silk, and wool. Essential wards - Natural dye, Red rose, Mordent, cotton fabrics.

From recent years, the use of synthetic dyes has grown significantly in many important industries, such as textiles, pharmaceuticals, food processing, etc. Synthetic dyes are readily available and exhibit higher acceleration properties than natural dyes. However, although synthetic dyes exhibit high-speed properties, they produce many adverse effects on the human body causing allergies. Synthetic dyes are not easily damaged and collected by bio in the natural environment. It is estimated that about 10,000,000 synthetic dyes are used annually. Synthetic dyes may cause contaminants, skin diseases, health risks, and other serious health problems. So the use of ecofriendly and biodegradable dyes is of great concern worldwide. Natural dyes from plants have long been traced back to ancient times. In India 450 plants are found to be a good source of natural dye. To extract the natural dye various parts of the plant are used such as seeds, flowers, leaves and bark. In the present study, another flower-producing dye that produced a red flower was studied to determine its ability to obtain natural dye. Red rose is one of the most attractive and cut flowers, widely used as a decorative flower.

## Food Industry

The use of flowers as food is reported in various cultures around the world as part of traditional cuisine or alternative medicine, in addition to their widespread use as ornaments. However, many edible flower species can be considered more than just delicacies or ornaments because of their nutritional value as a source of essential proteins and amino acids. In this context, flowers represent an important part of expanding the food market, due to their proper neurological and nutritional properties, as well as the presence of bioactive compounds that are beneficial to human health. Consumer research into consumer behaviour and the purpose of purchasing have been the opening methods for exploring different aspects of edible flowers, in order to overcome this promising market in the coming decades. The social and cultural factors involved in the use of edible flowers have been subjected to extensive research aimed at informing and expanding this growing industry and promoting local use of traditional flowers is essential to preserving endangered cultures. On the other hand, nutritional properties, pharmaceutical benefits, chemical composition and types of dietary supplements have been increasingly researched by the growing search for natural and healthy foods. Modern and effective methods of extracting bioactive compounds from flowers also contribute to the testing of their components, allowing the development of active ingredients in the food industry. Other important information such as the appropriate taxonomy and toxicological profile are still needed to promote the consumption of edible flowers, as well as the development of a good practice manual for proper handling (planting, handling and preparation) of flowers for commercialization. Scientific and technical information on the nutritional, medicinal and chemical properties of edible flowers is reviewed and discussed, aimed at enhancing knowledge, and, as a result, dietary habits and research on their benefits to human diet.

## Veterinary sector

Over the past decade, both comprehensive and natural health care have increased dramatically. Recently, pet owners have begun to pay more attention and treat their dogs in a more natural and complete way. However, researching the full care of your pet can be difficult and it is not always clear what ideas can be trusted. When it comes to the safe remedies for dogs, many have found the benefits of roses.

Yes, those beautiful flowers that we love to give and receive are actually a wonderful source of healing for many ailments and conditions. Rose petals, stems, leaves, and bark all have healing properties and if used properly can heal your dog emotionally and / or physically.

The secret behind the rose is beneficial for its polyphenols. Polyphenols are a naturally occurring antioxidant, and like green berries, roses are full. It is also a natural source of Vitamin C, which contributes to keeping your immune system growing and healthy.

While rose petals and leaves are the most commonly used, the bark and stems of roses can also be used. The bark is "strong" in all parts of the rose, which means it is the most concentrated. Pet owners are advised to consult a veterinarian before inserting rose petals. In fact, it is always a good idea to talk to your veterinarian about natural products of any kind before using them on your canine companion. There are many ways to apply the health benefits of your dog's roses to your daily lifestyle and program, including rose tea, enriched

vinegar, and aromatherapy.

## Pharmaceutical/Medicinal Industry

It is not uncommon for people to hand out roses of rose petals to loved ones. In addition, to represent love, roses have high medicinal properties. Rose petals have sedative, antiseptic, anti-inflammatory and anti-parasitic properties, so rose petals are used by your body. The antiseptic nature of rose petals makes them effective in treatments such as wounds, abrasions, abrasions, and cuts. The anti-inflammatory properties of rose petals are used to treat sore throat and ulcers. Rose petals will rejuvenate the liver and increase appetite and circulation. Rose petals can lower your body temperature and help you reduce your fever in the summer.

Roses have medicinal properties, so they can be called a medicinal herb. The leaves, rose hip, stem, leaves and roots of the rose plant contain secondary metabolites and nutrients in the form of vitamins and minerals. Excerpts from various parts of the rose plant have been reported to show antimicrobial and fungal activity. There are three main types grown for commercial use, especially the production of essential oils of rose and rose water. These are *Rosa gallica*, *Rosa centifolia* and *Rosa damascene*. *Rosa canina* is used to produce rosehip oil. Rose petals and rose hips contain vitamins A, B1, B2, B3, B6, C, E and K, folic acid, potassium, Calcium, Iron, tannin and a wide range of enzymes. Rose flowers are Anti-depressant, anti-spasmodic, aphrodisiac, and astringent, increasing bile production, cleansing, and anti-bacterial and antiseptic. Rose hips tea is used to treat diarrhea. Rose petals contain sedative, antiseptic, anti-inflammatory, and antiparasite. They are also a mild laxative, a good tonic that supports the heart, and are helpful in lowering cholesterol. The antiseptic nature of rose petals makes them an amazing treatment for ulcers, abrasions, rashes and cuts, their anti-inflammatory properties make them an amazing treatment for sore throat or ulcers. It can rejuvenate the liver and increase appetite and blood circulation. The extract of the rose petals is used as e-drops or to cleanse the eye from burning eye sensations. *Rosa indica* is used to treat diarrhea, asthma, leukoderma and inflammation of the mouth. Creams from essential rose oil are used to treat dry skin. Extracted rose or oil is widely used in the cosmetics industry as a soap ingredient, body wash, perfume, body spray etc. Some studies suggest that certain compounds in roses may play a role in reducing anxiety and promoting relaxation.

## Marketing of Rose

Rose is the most important long-lived flowering plant grown in India. Rose planting provides additional benefits to Indian farmers. In the marketing field the rose flower is very much needed and sought after in hotels, the perfume industry, housing, public works, weddings and especially on the day of the rose. For packaging purposes, at the local market rose flowers are picked up by people in bags of guns, newspapers and bamboo baskets. By 2021-22, India has a 64,700-hectare area covered with flowering plants, and annual production is 300,000 tons of lost metric flowers, which is the highest production rate in 2/3 of India. In one hectare near about 1,50,000 Roses are planted on 5,000 plants. Varieties are commonly grown in India by local varieties. Growers can provide flowers through the local mundi transport process. Like buses, trucks, tractor-trolley, small trucks depending on the number of flowers, and the distance of mandi.

### Marketing patterns and value addition

Marketing plays an important role in the loss of rose crops. The Yamuna Nagar district in Haryana has no 'local mandi flower' for flower marketing. Farmers need to go to Delhi mandi near 400 km, this distance is too great for the market view. Farmers often sell their produce in a customer market. If you are a seller, selling large flowers to a customer that is less profitable than smaller flowers, like a flower that is not open well is more important than open flowers. These flowers are usually easy to grow and are able to adapt to the environment. It is used as a cut flower and for making perfumes, cosmetics, etc.

### Producers

Rose growers sell their flowers in 'delhi mandi' when a large area is planted. If a small area is under cultivation then choose local vendors. Farmers make up 2-3% of their own produce. To get better prices, farmers carry their produce and sell it themselves. To avoid market fraud, small producers sell their products in yamunanagar hotels, and restaurants.

### Retailers

Speaking of channels the rose producers sell their product. In Channel 1, a producer sells his product to customers directly. Although, in Channel 2, the product reaches consumers through retailers. In channel 3, the manufacturer sells its product to the seller, then the seller sells it to the sellers, and the sellers sell it to the buyer.

In the 3rd channel the low-income producer and the buyer pays the most in purchasing the product, the seller and the seller get the best profit in the 3rd channel.

### Vendors

The main task of the sellers is to buy the rose flowers from the farmers and distribute them at the market for sale. In the market rose flowers were bought by many perfumes, cosmetics companies, hotels, car decorators, wedding party hall decoratorsetc. Vendors buy the rose flower again with 'mandi' and direct it to the producers.

### Rose's need

Rose flower is used to make perfumes, cosmetics, gulag gels, and many other face wash products that increase the demand and price of flowers.

Rose flowers are used to decorate cars for weddings, to decorate hotels in the workplace, and are used in many other reduced items such as hotels, party halls, mandirs, houses in family activities leading to the demand for flowers and prices. Prices for flowers are also rising in festivals, such as in Deepawali and Navratras.

### Expenses and reimbursement of income

Area adjustment = ₹ 10,000  
 Investment materials = ₹ 5,000  
 Machine costs = ₹ 5,500  
 Fertilizer and fertilizer = ₹ 9,500  
 Plant protection = ₹ 5,000  
 Irrigation = ₹ 3,500  
 Cost of work = ₹ 1,00,000  
 Different costs = ₹ 10,000  
 Marketing costs = ₹ 8,000  
 Total cost = ₹ 156,500

### Net worth

Harvest price (per flower) = ₹ 8 depending on the haryana jagadhri market on 15 May 2022.

The income per hectare is (1,50,000) for Rose. =  $1,50,000 \times 8 = 1,200,000$  which is a huge profit in the agricultural sector.

### Profit and compensation

Profit = income - total cost

= 1200000 -156500

The Profit is therefore 10,43,500

### Conclusion

Rose is a versatile plant. Rose is one of the most advanced cut flowers in the flower business on the basis of scale, production, and use. Rose is an ornamental plant that is widely used for its beauty and has become one of the most common and beneficial flowering plants. Rose flowers are available in different sizes, shapes and colors.

Budding is a great way to propagate a rose plant. Treating cut flowers like roses after harvest is important as they extend their shelf life as they rot more. As a result, all aspects of post-harvest management should be maintained. Growing the rose is beneficial for many farmers as the rose is widely used in various industries. In addition to its beauty, the rose is used in making essential oils, perfumes, cut flowers, natural plants and even in food processing industries. Rose is one of the best-selling flowers on the international market.

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