

**Success stories/ case studies**  
**Spur cultivars a boon to apple orchard**

**1. Technology/ process which was intervened for its success:**

In the changing climatic scenario, apple cultivation is only profitable above 6000<sup>1</sup> elevations due to cultivation of Delicious cultivars. Different apple growing areas face problems like low spur formation, poor coloration at lower elevation and valley area and delayed maturity at higher elevation (Fig.1). With the availability of large biodiversity in apple cultivars various self fruitful, spur type and other coloured strains are available which needed to be adopted according to the problem faced by the farmers in a particular area. The technological intervention of the KVK was in the form of diagnostic visit of KVK scientists to the different mid, low and valley area to solve the problem of low productivity and colour of fruits, which was hampering the market, giving fewer return to the farmers. The farmers were trained in all packages and motivated to change the varieties with coloured strains/ spur types. The farmers were also supplied the spur type cultivars of apple from own KVK farm as well as from the university, research stations and state Horticulture department for plantation in a closer spacing in comparison to the Delicious cultivars of apple.



**Fig1. Royal Delicious plant with poor colouration fruit**

## 2. Back ground about case or problem:

The climate of the district Shimla varies from sub- temperate and temperate depending on altitude of the area. In the district apple is an important fruit crop covering an area of approximately 32,000 ha with the production of 349262 MT. With the cultivation of Delicious cultivars of apple with less proportion of pollinizing cultivars the production of apple started declining continuously for the last many years, in spite of increase in area. Keeping in view the decline in production as well as fruit quality in the mid and lower area of Shimla district the intervention was undertaken to diversify the variety with coloured / spur strain with the aim to increase the production of quality fruit.

## 3. Effect of the technology/ process on:

### a) Production:

With the introduction of suitable varieties in the mid and lower area of the district, which were regular in bearing having less chilling requirements, the production of apple increased tremendously. Presently more than 25 % area, which comes around 8000 ha, has been shifted to spur type orchard with the intervention and continuous help from Krishi Vigyan Kendra, Shimla in collaboration with university and state Horticulture department. The average yield of apple in Delicious variety, which was around 15 –16 t /ha has increased to 35- 40 t / ha due to diversification of varieties as per their suitability in different area of the district.

### b) Economic gains:

Management of producer cost is important for economic sustainability of fruit farming. Overtime marketing cost has increased significantly in their absolute terms. The perishable nature of fruits, seasonality in supply and distant travelling of the produce are some of major factors which define the magnitude of various types of cost and margin. The cost component include labour charges, watch and ward, cost of packing material, transportation charges, commission, loading, unloading, marketing fee, octroi, state tax and orchard management during the year. Since, the average yield of Delicious variety of apple is 15-16 t / ha, which is very low. With the diversification in variety in low and mid hill area of the district the average yield has now enhanced to approximately 35- 40 t / ha.

Variety	No. of plant / ha	Yield (t/ha)	Expenditure incurred (Rs)	Gross return ( Rs)	Net return (Rs)	C : B Ratio
Starking Delicious	180	15- 16	2,00,000	4,80,000	2,80,000	1 : 2.4
Spur type	400	35- 40	5,00,000	18,00,000	13,00,000	1 : 3.6

Yield is calculated on the basis of 20 Kg apple box

Average sale price of Delicious variety of apple

Rs 600/- per box

Average sale price of Spur variety of apple (due to early maturity)	Rs 900/-per box
Expenditure incurred (including management to marketing)	Rs 250/-per box

**c) Suitability in existing farming / cropping system:**

In spite of the fact that there is recommendation of apple varieties for different zones of Himachal Pradesh, only a few varieties were adopted for cultivation. With the intervention of Krishi Vigyan Kendra, the new spur type varieties were recommended and supplied depending upon the aspect and elevation (Fig.2). These varieties introduced in lower elevations were found suitable in this area and fitted well with the existing farming system. The area is now having apple with spur type of varieties in higher densities accommodating more number of plants per unit area, giving much higher yield in comparison to varieties previously grown (fig.3).



**OREGON SPUR**

**Fig.2. A new spur variety (Oregon Spur II) plant bearing fruits**



**Fig.3. A high density apple orchard**

**d) Acceptance of technology / process in terms of views of farmers and horizontal spread:**

The Delicious varieties of apple are successful only in the higher elevation due to high chilling requirements. In Delicious varieties of apple there is also problem like alternate bearing and poor coloration especially in lower and mid hill area. With the intervention of KVK through survey of area for the suitability of varieties, the farmers showed a keen interest in the cultivation of spur type of varieties. The impact of training and demonstration was such that the movement which was started by about ten farmers has now increased in thousands. For more horizontal spread of these varieties KVK has developed bud wood bank for all spur type and coloured strains. This bud wood bank is helping the farmers in changing their existing varieties through top working as well as by planting new plants. Through exposure visit of farmers to KVK farm and location specific training camps, the farmers were advised and motivated to develop their own mother plants of desired varieties. In addition to the supply of planting material by the KVK, university and state Horticulture department this motivation helped the farmers in availability of more planting material, which ultimately resulted in wide spread of these varieties in almost all the lower and mid hill areas of the Shimla district.

**e) Social impact:**

The farmers showed a keen interest in cultivation of spur varieties of apple in the low and mid hill areas. The impact of success of varieties was such that these varieties are also spreading to the higher hills of the district. For this purpose, farmers have formed groups / associations. One of the registered societies is Fruit Grower Association for district as well as for the state and the chairperson of the association is from Shimla district. One another farmers association is Apple Grower Association of India at the National level and the president of the association is from Kotkhai tehsil of Shimla district. There are also many other registered societies like Kisan Sangh, Farmers Advisory Committee at block level, working for the upliftment of apple industries in the district as well as in the state.

**f) Marketing Channels:**

A marketing channel comprises of various marketing functionaries that are engaged in distribution of produce from producer to the consumers. Some of the channels through which apples are dispatched to various markets from different producing areas are given below:

- i) Orchardists - Preharvest contractors – Commission agents/ Wholesaler – Retailer - Consumers
- ii) Orchardists - Preharvest contractors – Primary Commission agents/ Wholesaler – Secondary wholesaler - Retailer - Consumers
- iii) Orchardists - Forwarding agent – Commission agents - Wholesaler - Retailer - Consumers
- iv) Orchardists – Producer cooperatives - Wholesaler - Retailer - Consumers
- v) Orchardists – Commission agent - Wholesaler - Retailer - Consumers
- vi) Orchardists – Government agencies - Wholesaler - Retailer - Consumers
- vii) Orchardists – Government agencies – Processing unit - Wholesaler - Retailer - Consumers
- viii) Orchardists – Processing unit – Consumer

Important market of apples are out side the state like Delhi, Agra, Chandigargh, Ambala, Ludhiana, Mumbai, Chennai, Calcutta and Banglore.

**g) Linkages with technology/ development organization:**

The apple orchardists of apple growing area are in constant contact with the scientists of the KVK regarding different problems faced by them in their orchards and suggestions thereof. They are also linked with Dr YSP University of Horticulture & Forestry Nauni , research stations and Department of Horticulture .

**h) Models /CDs developed, if any**

NA

**i) Places and addresses of concerned farmers or persons who could be contacted**

<b>S. No.</b>	<b>Name of the farmer</b>	<b>Address</b>
1	Shiv Singh	Vill. Pangla, PO SarswatiNagar, Jubbal, Distt. Shimla
2	Shiv Pratap Bhimta	Vill. & PO Kiari, Kotkhai, Distt. Shimla
3	Budhi Slgh	Vill Gita Nagar, PO Narain, Rampur, Distt. Shimla

**j) Publications / papers printed  
Nil**