

## ***In-situ* plantation and moisture conservation techniques for replantation of old orchards of stone fruits under rainfed conditions of Himachal Pradesh”**

### **Situation and Background:**

**Importance:** Growing of stone fruits in mid hills is a promising enterprise and remains the first choice of the farming community of the undulating terrains and rain-fed ecosystems in Himachal. Stone fruits are first to reach market among temperate fruits when there is no fresh fruit available. Nectarine a fuzzless peach is a new upcoming stone fruit which ripens even earlier than apricot. Secondly, stone fruits have shorter pre-bearing period, require less maintenance and orchardist can get early return. Growing of stone fruits in mid hills is a promising enterprise and remains the first choice of the farming community of the undulating terrains and rain-fed ecosystems in Himachal. Stone fruits are first to reach market among temperate fruits, when there is no fresh fruit available. Nectarine a fuzzless peach is a new upcoming stone fruit which ripens even earlier than apricot. Secondly, stone fruits have shorter pre-bearing period, require less maintenance and orchardist can get early return compared to apple. Among the stone fruits, plum, peach and apricot rank first, second and third, respectively in H.P.

Orchards more than 20-years of age (stone fruits) have shown much more unfruitfulness than the young orchards and do not produce adequate annual extension growth quality fruits owing to gradual decline of stone fruits. As per survey conducted by the Department of Horticulture, Himachal Pradesh an area of 46,829 ha under fruits was estimated under old plantations, which had completed their economic life due to gradual orchard decline and need to be rejuvenated or replanted with present day commercial varieties of suitable fruits as per agro-climatic requirements.

Keeping all these things in view project on ***in-situ* plantation and moisture conservation techniques for replantation of old orchards of stone fruits under rainfed conditions of Himachal Pradesh**” was got sanctioned on 18<sup>th</sup> June, 2013 under RKVY, Stream –I with total out lay of **₹71.14 Lakh** for a period of one year

**Objectives:**

- I. To improve field survival rate of replanted orchards
- II. Development of orchard management strategies against replant problems
- III. Development of *in situ* plantation techniques for replantation of stone fruits
- IV. To conserve soil moisture and control erosion
- V. To develop and integrate innovative orchard management strategies

**Programme Activities:**

17 numbers low cost polyline tanks of 1,00,000 lakh litres capacity (each) were constructed to harvest scarcely available water for use during critical periods of plant growth and development during summer. old and senile plants of plum, apricot and pomegranate were uprooted, 2500 pits were dug out for *in-situ* plantation, 1725 m long solar electric fence was installed



**Replanted area of 24.0 ha being developed in phased manner**



Various high tech farm tools to ease farm operation such as rotavator, cultivator, disc plough, water lifting pump, power tiller, power sprayer, power operated knapsack sprayers, power operated soil augurs have been purchased. *In-situ* moisture conservation techniques such as use of organic and inorganic mulches were demonstrated. In addition, drip irrigation system was installed in the entire area for efficient use of available scarce water resource.



**Uprooting of old declining plants of plum at Nando block**



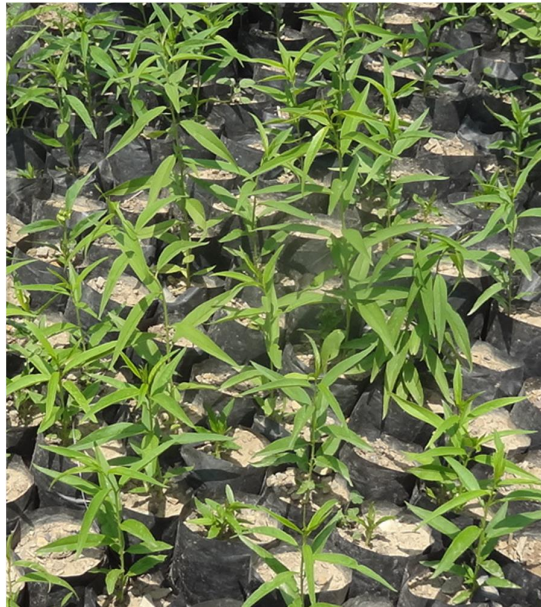


**Solar power fencing highly effective to evade monkeys' and stray animals' menaces**



**Cost effective “Geomembrane Polyline” (1000GSM) Water Storage Tank of 100000 Liters Capacity (₹ 0.70/liter)**





Raising *in-situ* seedlings of wild Peach

Raising *in-situ* seedlings of wild Apricot



**Transplanting of poly bag raised *insitu* seedlings of wild apricot and wild peach in the field**





**Luxuriant growth of *in-situ* seedlings of wild peach and apricot after 4-months**



***In-situ* moisture conservation using inorganic mulching materials  
(Showing distant view of solar power fencing around 1715 m periphery of orchard)**

**Outcome of the Project:**

Under this project, biggest *in-situ* replanted stone fruit orchard has been established at UHF Solan under rainfed conditions of Himachal Pradesh. The *in-situ* replantation and moisture conservation techniques, installation of drip irrigation and solar power fencing and use of modern farm management tools jointly proved a successful demonstration and an eye opener to farming community of state. The solar power fencing has proved very effective and economic in evading monkeys' and stray animals'. Use of low cost polyline water storage tanks to store off-season over flowing water or rain water and its use during critical periods have proved helpful to ease out the problem of availability of irrigation water during critical stages of fruit growth/development and under severe drought conditions. It is an ideal demonstration for rehabilitation of declining stone fruit industry in the state.