

Promoting Agriculture with New Perspective

GOLDEN CROP- SAFFRON

Crocus sativus commonly known as “Saffron / Zaffron” often referred to as “Red Gold” is highly prized “spice” known for its vibrant color and unique flavor with a wide range of medicinal and nutritional values.

Saffron is an annual medicinal flowering (perennial) herb derived from the flower of Crocus sativus and the stigma is used as an edible spice with medicinal history from traditional healing to modern health care.



HEALTH BENEFITS



Antioxidant Boost



Weight Loss



Antidepressant



Promote Libid



Prevent Nervous System Disorder



Cancer Fighting Properties



Reduce Heart Disease Risk factors



Lower Blood Sugar Levels

Saffron Cultivation

Mainly grown in Iran, India, Spain, Greece, Italy, Pakistan, Morocco and Central Asian Countries. In Pakistan, Saffron can be best grown on clay-calcareous soil with high organic content. Traditional raised beds provide good growth medium for saffron cultivation. Saffron is typically grown by planting corms having weights of 10g to 20g in the month of September / October on sunny well drain soil. The crop matures in 70 to 90 days and the flowers once started are regularly collected. Later, stigma is separated from flowers and shade dried. One corm of saffron above 09g can produce 03 to 05 flowers per plant. At least 01 to 02 Kg of saffron dried threads (Stigma) can be obtained from one-acre area. Saffron can fetch 03 to 05 Lac PKR per Kg or even higher price premium quality saffron depending on quality and market demand. It is a labor-intensive intervention creating job opportunities for the rural poor. It is very profitable activity producing dry saffron stigmas valuing Rs. 10,000/- per Tola with additional production of substantial quantity of about 0.100 million bulbs per acre each bulb valuing Rs. 250/-.

Restoration of Degraded Lands- Shift Toward Climate Smart Horticultural Production

Saffron can be cultivated in dry temperate ecological Forest zones of Khyber Pakhtunkhwa like Chitral, Dir, South Waziristan, Khyber and upper regions of Swat and Baluchistan on sunny locations and well-drained soil. The Climate Resilience through Horticulture Intervention in Khyber Pakhtunkhwa (KP) was devised by the Agriculture Department, Government of KP in association with Climate Change, Forest, Environment and Wildlife Department with financial support of the World Bank through National Disaster Risk Management Fund (NDRMF). The main objective of the project was to contribute to climate resilience through introduction of saffron cultivation for efficient utilization of potential arable and cultivable waste land and diversification of livelihood opportunities by establishing demonstration plots of saffron as one of the major intervention for high value product. creating value chain, diversification of livelihood opportunities by establishing demonstration saffron plots in project target areas. These plots are raised on experimental basis in South Waziristan and Khyber tribal districts and results are successful.

Establishment of Demonstration Plot of Saffron ➤ Subsequent Maintenance

Under the project, demonstration plots of Saffron were established on private arable land of progressive farmers over an area of 23 acres and its subsequent maintenance for one year during the project period.

Several key steps are involved in saffron demonstration plots that are usually required for ensuring the optimal growth and desired yield. Farmers are supported for their labor works required for preparation of land and fertilizers from the project cost and through generation of green jobs. Similarly, saffron corms were distributed among the farmers free of costs. Saffron is a delicate and high value spice, which requires dry temperate environment as specific conditions and following steps are involved for plot preparation:

1. Site Selection

Saffron cultivation was planned for the potential dry temperate zones in the province on available arable and waste lands of communities to convert such types of land in cultivation and help improve the socio-economic condition of locals. Similarly, other crops yields have been significantly decreased due to climate change impacts and farmers are facing financial losses. In-order to overcome such situations, existing cultivable lands were selected as alternate source of income and combat climate change. Moreover, saffron cannot be cultivated in all types of soil, and grow well in sandy-loam or clay-loam soil with proper drainage to prevent waterlogging effects. Site shall not be covered with vegetation and shall receive full sunlight for most of the day. As per standard practices of the department, farmers with the lands available (both arable/waste and cultivable) were invited to participate in the project. Sites and farmers were selected through predefined selection criteria in the project proposal and was based on certain technical feasibility assessments

including the environmental and social safeguards aspects. The target of saffron cultivation was distributed in various zones to pilot the activity and demonstrate the outcomes for future planning and extension. Department has signed MoUs with the potential farmers for protection and maintenance of the saffron plots.



2. Leveling of Land/Preparation

Selected sites with required lands were leveled and prepared in furrow type irrigation formation to ensure proper drainage. Land preparation cost was paid to the farmers by the department as it was allocated in the project overall cost to reduce the burden on locals and generate income opportunities.

3. Planting Material

In order to get the desired success rate in germination, quality of saffron corms must be sourced from reputable supplier. It shall be ensured that corms are disease-free and of a suitable size (usually 2 to 4 cm in diameter) For this purpose, department procured healthy and good quality of corms and supplied to the selected farmers.

4. Planting of Saffron Corms

Generally, saffron are cultivated in late spring or early summer with requirements of about 10 to 15 cm deep with spacing of 10 to 15 cm between the corms. Cultivation requires skills to place corms with the pointed side up to germinate. Proper mulching of soil is required to retain moisture.

Harvesting of Saffron

Propagation of Saffron is carried out with the help of its bulb. A Saffron bulb during a growing season reproduces up to 5 - 10 bulbs vegetative which can further grow into new plants in the next season. Planting of bulbs is mostly carried out in September / October on sunny and well-drained sites. A Corm up to 9 gram produces 3 to 5 flowers per plant yielding up to 2.5 Kg dry stigmas per acre. Collection of 1 kilogram of dry stigma requires picking stigmas of 150000 flowers with 40 hours' manual labor.

Saffron is generally grown by planting corms in the month of September and October on sunny well drain soil and matures in 70-90 days, the flowers once started are regularly collected and stigma is separated carefully from the flower and shed dried.

1. Provision of Saffron Bulb

Saffron bulbs were distributed among the selected farmers from the zonal offices of NTFP section of forest department free of cost. Sites were prepared in the farm of furrow land which helps distribute the irrigation water equally and protect the bulb from damage due to excessive water. Cultivation was supervised by the technical teams of the respective zones.

2. Harvesting

Saffron flowers usually bloom in fall and the bright red part known as "stigma" or simple words saffron threads are carefully plucked in the morning when the flowers have fully developed and opened.

3. Post-Harvest Techniques

Post-harvest techniques are important for saffron crops to be applied with skills and care for the purpose of preservation, quality control, packing, storing, distribution, marketing and utilization to meet the nutritional values. As mentioned earlier department ensured all such technical requirements through capacity building sessions and farmers have been briefed on accessing the best market places. Packing materials and information templates have been developed by the project team for marketing the organically procured saffron and benefit the farmers for income generation.

4. Irrigation

Irrigation of saffron plots requires balanced watering schedule and keep the soil moist constantly to ensure full growth in the season. As mentioned in the land preparation, site need proper drainage to avoid waterlogging which is harmful for saffron plants and roots.

5. Use of Fertilizer

During site preparation, soil nutrients tests are conducted to apply balance fertilizers before cultivation and during growing seasons. During capacity building sessions farmers are oriented on the use of integrated use of organic fertilizers to avoid the adverse impacts on the environment.

6. Weed Control

Unwanted weeds compete for nutrients and water in saffron plots and needs to be controlled through biological methods. The most important method for this purpose is to remove weeds manually with care to avoid damaging of saffron plants and delicate flowers which contains the precious stigma.

7. Pest and Diseases Management

Diseases and pests are the main reasons for low production of saffron. Farmers are oriented and trained on monitoring their saffron crops for pests and diseases on regular basis and use biological methods for treating plants.

Cultivation of Saffron will bring new vistas of development for the rural communities of the project area. The establishment and maintenance of demonstration plots will disseminate technical know-how and hands-on training to the farmers' community for emulation and further replication to promote Saffron cultivation in the province.

Project Target Areas

Saffron cultivation was undertaken on commercial basis in different parts of the province for the first time to diversify livelihood of farmers and fetch premium price for their locally grown saffron product.

The demonstration plots for saffron cultivation were established over 23 acres in 9 Forest Divisions of Khyber Pakhtunkhwa in collaboration with Directorate of NTFP, Climate Change, Forestry, Environment and Wildlife Department as joint pilot project

Saffron has been grown by planting corms in the month of September and October on sunny well drain soil. Usually saffron crop matures in 70-90 days, the flowers once started are regularly collected and stigma is separated carefully from the flower and shed dried.



Distribution Plan of Saffron Bulb/Corm in Khyber Pakhtunkhwa

<p>Forest Division Chitral</p> <p>Bulbs (Numbers) 64,800</p> <p>Acre 03</p>	<p>Forest Division Dir (Lower / upper)</p> <p>Bulbs (Numbers) 43,200</p> <p>Acre 02</p>	<p>Forest Division Kalam</p> <p>Bulbs (Numbers) 43,200</p> <p>Acre 02</p>	<p>Forest Division Swat (Lower / upper)</p> <p>Bulbs (Numbers) 21,600</p> <p>Acre 01</p>	<p>Forest Division South Waziristan</p> <p>Bulbs (Numbers) 129,600</p> <p>Acre 06</p>
<p>Forest Division Bajaur</p> <p>Bulbs (Numbers) 43,200</p> <p>Acre 02</p>	<p>Forest Division Khyber</p> <p>Bulbs (Numbers) 64,800</p> <p>Acre 03</p>	<p>Forest Division Orakzai</p> <p>Bulbs (Numbers) 43,200</p> <p>Acre 02</p>	<p>Forest Division Kurram</p> <p>Bulbs (Numbers) 43,200</p> <p>Acre 02</p>	



Cultivation Targets & Expected Results

Saffron has been cultivated on 23 acres of land across the province with planting of 496,800 bulbs, zone wise detail for the target in acres and bulb is mentioned in the table below. Saffron production varies from site to site and low in first flowering season and upon maturity Saffron production can reach at least one to two kilograms from one acre of land.

Capacity Building of Community & Staff

Technical Assistance

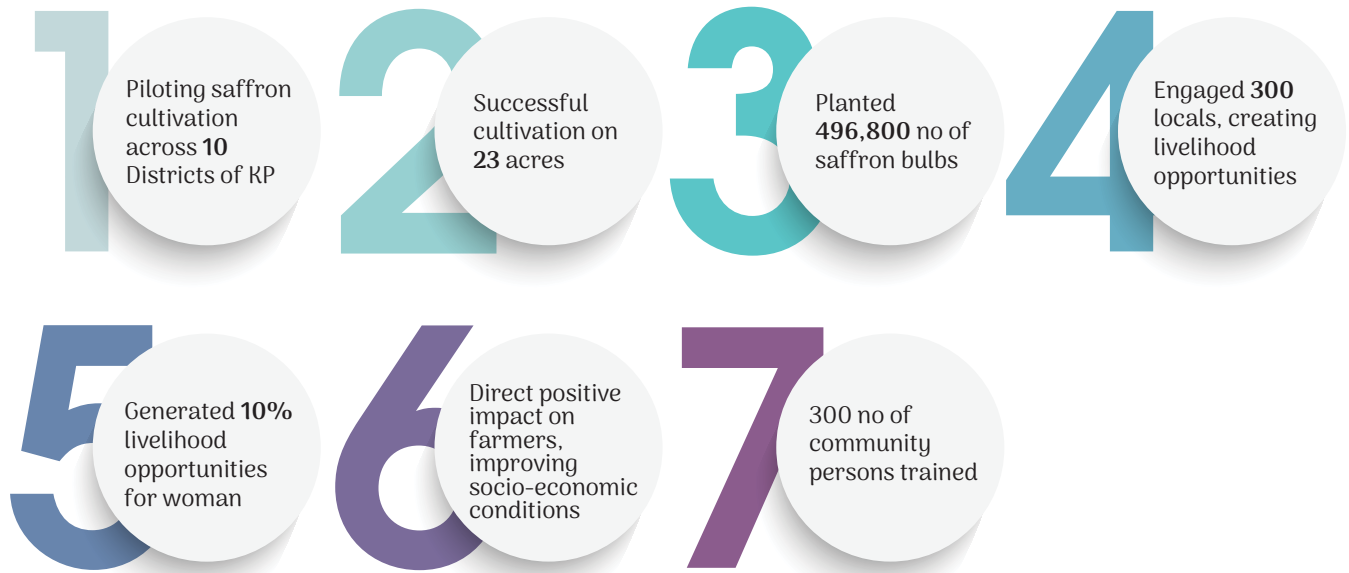
Saffron cultivation requires technical knowledge and skills for achieving the desired yields. Requisite funds have been allocated under the project for the Community Development Extension Gender & Development (CDE & GAD) directorate to undertake mobilization of existing village development committees (VDCs), women organizations (WOs) for promoting saffron cultivation in the project areas.

Trainings were conducted for communities, farmers and forest staff through I&HRD Directorate of Forest Department extended their role through capacity building sessions with the selected farmers. These sessions were participatory in nature where farmer's indigenous knowledge and experiences were coupled with latest techniques keeping in view the climate change aspects. These sessions not only oriented the local farmers on the land preparation, cultivation but also on climate change impacts and coping techniques for crops. Participants were briefed on the biological methods to deal with pests and avoiding the hazardous chemicals along with promoting preparation and use natural fertilizers.

The most important step is to manage the post-harvest damages of saffron products and farmers were oriented and trained on such techniques of collection of stigma (known as saffron), drying, grading, packing and accessing the high value markets.

Transforming Landscapes, Empowering Local Farmers, Fostering Sustainability

Project Highlights:



Cultivating a Greener Nature Simple-Organic-Healthy

The project is expected to considerably increase the yield of major horticultural commodities and will have not only positive impact on the climate but export commodities will be enhanced. Resultantly this will have direct positive impact on farmer's income and their living standard will be improved which will further lead to upscale their socio-economic condition.

Saffron price in market varies from Rs 300,000 to Rs 500,000 per kilogram and at least one to two kilograms dried threads (stigma) can be obtained from one acre of land. Due to high demand and price value saffron cultivation can help boost the economy of the country through better sources of income and job creation.

NDRMF intends to create income generating opportunities in the target areas/communities to utilize the arable and wastelands for saffron cultivation and reduce the pressure on local ecological services for their domestic needs and ensure conservation. This pilot phase project of saffron cultivation is successful as the first crop has started yield and will be extended to other areas for larger public interest and conservation of local environment and ecosystem.



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