Saffron Operation Manual

Danish Committee for Aid to Afghan Refugees, Kabul - Afghanistan
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Development of Operation Manual

Background:

“Supporting Female Saffron Producers’ in Value Addition Activities in Herat Province” funded by the World Bank.

The saffron operation manual is a step-wise illustration on saffron harvesting and processing to ensure the quality of saffron and develop national and international market for Afghan saffron.

The manual has been developed in a participatory manner in a workshop by the Saffron Value Chain stakeholders’ forum in Herat. The forum consists of key NGOs working on saffron, saffron producers’ association (men and women), government departments, research institutes and small saffron traders. The operation manual is a living document and will be adopted, modified or expanded from the learning during implementation. However, this will be done in a participatory manner and will be agreed by the forum.

The operation manual is developed for saffron producers’ associations and other saffron producers that might be interested in this subject.

1. Objective:

The objective of the project is to improve women’s livelihoods through supporting women saffron producers in Herat by increasing capacity of women in producing better quality saffron and improving their position in value chain.

The project also aimed at improving the coordination between the Government departments and all value chain actors in saffron and creating linkage between producers, especially women Saffron producers, to enable them to do bulk marketing for their products.

The project will come up with recommendations for value chain improvement and interventions in saffron production.

2. Topics Covered in the Manual

Chapter 1. Harvesting and post harvest
- Saffron harvesting method
- Transportation of saffron flower from field to processing center
- Processing center criteria and necessary equipment and tools

Chapter 2. Processing
- Spice separation method
- Sorting and grading
- Product quality test (factors under consideration for saffron quality)
- Use of dryers
- Packaging

Chapter 3. Marketing
- Product
- Pricing
Chapter 4. Management (by associations)

- Branding
- Placement
- Promotion
- Monitoring
- Supervision
Chapter 1

3. Harvesting and Post Harvest

4. Saffron Harvesting:

Saffron is one of the products that price is highly related to its quality. For production of saffron with super quality in all stages from harvesting till packaging, enough care should be considered to apply correct and recommended methods.

Factors affecting quality and preciousness of saffron are:

- Harvesting method
- Spice separation
- Drying

5. Harvesting Method:

- Picking flowers early morning before sunrise.
- Putting collected flowers in plastic baskets or other clean pots and transport them within shortest possible time to a separation or processing center.
- Dirty plastic bags or containers should not be used for collection of flowers.
- Try not to contact your hands with soil during picking of flowers.
- Picking of small blossom which are not open yet should be avoided.
- Flowers should be stored in a cold and closed area and during separation of stigma should not be exposed to sun light.
- Separation of stigma should start immediately after picking of flowers.

6. Transportation:

Method of transportation and storage of flowers is another stage that has significant effect on the quality of saffron before separation of stigma from flower. The following should be considered during transportation.

- For transportation of collected flowers to processing center, bags of chemical fertilizer or dirty cloths should not be used. Clean plastic or wooden baskets which allow aeration is recommended.
- Collection of flowers on any dusty surface is strictly ruinous.
- In case of need to store flowers before processing for a few days the flowers can be stored under shade and layers of less then 10cm.
- If there is big distance from field to processing center, flowers should be put in plastic or wooden baskets and transported in a closed cabinet of a vehicle to processing center.
- Storage or place for keeping of flowers should be sterilized and closed for unconcerned people.
- People who are working in the storages should consider all hygienic requirements.
- People who are walking inside storage or processing center should change their cloths and shoes prior entering the center and handling flowers.
7. Processing Center Criteria and Tools:

As a general recommended standard, the processing center should have the requirements listed below.

If it’s not possible to establish a processing center, which meets these requirements, then the association in consultation with MAIL in the province or any other technical person can decide on any changes to the requirements of the processing center.

Following are the requirements for the processing center:

- Place (room) with the dimension of 540sqm (30*180), with marble floor and tiled walls, for storing/sorting flowers and separation of spices, arranged with 60m length table (2x4m) and 100 chairs.
- Drying and sterilization room for saffron spices with an area of 25sqm.
- Storage for dried saffron with the area of 30sqm and arranged with scaffolding.
- Laboratory room for physical, chemical, sterile and microbiological tests with the area of 50sqm and with the following equipments:
  1. Exhaust laboratory fans
  2. Infrared moisture measuring scale
  3. 0.0001gr sensitive scale
  4. 0.01gr sensitive scale
  5. KAJDAAL (Instrument for protein content digestion & distillation)
  6. SUKSA (Instrument for chemical analysis)
  7. Spectrophotometer
  8. Microscope
  9. Binocular
  10. Administrative office around 200sqm

Chapter 2

8. Processing:

9. Spice Separation Method:

Before starting of separation of stigma from the flower. The following hygiene recommendations should be considered:

1. Cut your nails
2. Cover your hair
3. Wash your hands with water and soap
4. If possible, use gloves and mask

There are three stigmas (strings) in the middle of the saffron flower with 2-3 cm long and red color called saffron. The deep red stigmas are attached to the flowers by pale filaments called styles. These, as well as the yellow stamens, are worthless as spice. To separate stigma from the flower, hold flower in one hand and take out the stigma with the fingers of the other hand and keep them in a safe place already arranged for.
While the flowers are being collected, the stigmas are separated from the flowers. Careful separation of stigmas from flowers and styles is needed.

- Separate stigmas from flowers in a clean environment.
- Ensure that the place where stigmas are separated from flowers is as free from dust as possible.
- Ensure that the people who do this work keep their hands clean at all times, washing thoroughly with antibacterial soap or, if water is scarce, using antiseptic gel, or hand wash liquid or soap.
- When there is a need to store saffron flowers, the stored flowers' layer thickness should not be more then 10cm and storage temperature must be 0°C. in this condition, we can keep saffron flowers for 7 days.
- Separate the stigmas from the styles, unless buyers do not want this. There are some wholesalers and retailers who prefer the styles (2mm) to be included when they are not well mixed with the stigmas and are easy to separate. Because saffron is so expensive some suppliers are tempted to adulterate it with cheaper material and dye it all red to pass as pure. If buyers can see the styles they know this is unlikely to have happened. They can then separate the styles from the stigmas themselves and sell the saffron under their own labels knowing that it is pure saffron.

For the sorting and grading of Afghan saffron, the Ministry of Agriculture might facilitate/provide standards, facilities and trainings with the help of related sectors/ministries and other possible resources.
At present there is no practical system nor world standard business practices have been adopted in Afghanistan. Producers are using local packaging system after drying without considering market demand and accepted standards of sorting and grading. This kind of practice reduces the chances to enter to the international market and compete with other saffron producers of the world.

10. Sorting and Grading:

Following factors affect the grading and sorting of saffron:

- Drying is best done with artificial heat as soon as flowers harvested. Air drying of saffron spice takes days. Artificial drying takes minutes rather than days and makes it easier to control the moisture level (10-14%) of the saffron. Higher and lower moisture content will affect quality.
- The styles (2mm) must be included with the stigmas.
- Saffron should not be dried in sun light.
- Saffron spices should be put separately inside the dryer.
- After drying, all other materials like sepal, petiole, leaves, hair, etc, should be cleaned up from saffron.

Other materials categorized under following two categories should also be removed:

- Related to the saffron plant (Petals, Sepals, Stamens, Pollens, etc. related to other parts of the saffron plant)
- Related to the environment (human hair, debris, sand, insects or some parts of their body)

Primary sorting of saffron in producing countries is related to color, odor and length of stigma and style. For example saffron produced in Spain has the following 6 grades:

1. Very select
   Length of style is more than 3.0mm with stigma of 23-24 mm and with shiny color and strong odor.

2. Select
   Length of style is 3.0mm with stigma of 23mm, thick stings, dark and shiny color and good.

3. Superior
   Length of style is 2.8mm with stigma of 22mm, strong strings and dark red color.

4. Medium
   Length of style is 2.5mm with stigma of 21 mm, with odor, color and good appearance.

5. Ordinary
   Length of styles is usually 2.0-2.4mm, with similar length of stigma and desired odor.

6. Slack
   Broken styles, with dark color and length of less than 20 mm and including saffron flower
Ministry of Agriculture, Irrigation and Livestock with cooperation of other relevant sectoral ministries and World Community should be providing required trainings and facilities for proper sorting in Afghanistan.

Still there is no any practical and acceptable world trading marketing system followed in Afghanistan. Producers without any awareness regarding the importance of sorting and grading are supplying saffron after drying. Therefore, for the above mentioned reason, entrance of Afghanistan saffron to world market and to compete with other saffron producers remains as a challenge.

11. Product Quality Test:

Saffron price is most likely related to quality of Saffron. Saffron quality can be certified by laboratory tests and according to ISO standards. Therefore it is necessary to send a sample from each 1-10kg of dried saffron to laboratory for quality test.

12. Using of Available Dryers:

All members of women association have the right to use the dryers available in the processing centers, under the following conditions;

- Paying one Afs. for drying of each gram of saffron
- Using the dryers inside the center.
- Bring the saffron themselves to the centers

<table>
<thead>
<tr>
<th>S.No</th>
<th>Particular</th>
<th>No of Dryers</th>
<th>Drying cost per kg</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; year</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; year</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; year</th>
<th>Total income in 3 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Drying of Saffron</td>
<td>2</td>
<td>1,000</td>
<td>12kg</td>
<td>16kg</td>
<td>18kg</td>
<td>46,000</td>
</tr>
</tbody>
</table>

According to decision made by members of saffron growers in the Anjeman<sup>2</sup> after 3 years they will have enough money to purchase another dryer for the center.

13. Packaging of Saffron:

Ideally, saffron should be packed in air-tight and light protected containers like tins, cans and dark glass. However, some buyers prefer saffron to be packed in a clear glass so that they can make the quality assessment easily without necessary removing the saffron from the container. If saffron is packed in a clear glass, it must be stored in a dark place until it is sold in order to prevent deterioration and loss of quality.

Most plastic bags and solid plastic containers are not recommended for packing saffron. Although it can also be sealed, the aroma of saffron can still escape and the quality of spice becomes lower.

After certification of saffron quality by a credible laboratory, saffron should be packed in a suitable can and stored in a dry, cool and dark place till it is sold or used.

Saffron quality can be kept up to 2 years if proper storage conditions are met.

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<sup>1</sup> Estimate of 1<sup>st</sup> year and 30% annual increase after that.

<sup>2</sup> Associations are register by the name of Anjeman with the MoJ&L.
Generally containers to keep saffron in bulk should have the following specifications:

1. Not be poisonous for food material
2. Attractive to consumer
3. Resistant to light, moisture, oil and gas
4. Low cost
5. Resistant to physical pressure or shock
6. Wastage should have least damage to environment.

14. Cans for Packing of Saffron for Consumers:

These include the following:

- Glass cans
- Metal cans
- Plastic cans
- Simple or complex plastic films

Saffron comes under dry food products, therefore; producers should try to keep it away from moisture, temperature, air (oxygen), light and pollutions.

15. Goods Recovery:

Terms for the use of Saffron packaging equipment:

- Members of Saffron Women Association to ensure maintaining of invested capital and sustainability of activities agreed on the following procedure:

- Women, who use the association’s packaging equipment, have to pay the cost after selling of their saffron product, according to the prices mentioned in the goods recovery schedule.

- Association will distribute the containers (packaging equipment) to their members, and the members should agree to pay for the cost of these equipment. Association will purchase equipment for the next year and it can continue for the following years.

- This working procedure might bring the opportunity to run these women activities for the long term, and capital to remain within the associations.

- Goods recovery for dryers is agreed and already mentioned in using of dryer section.
Chapter 3

Marketing:

16. Saffron Markets, Marketing Strategies and Pricing:

To increase saffron sales, the following markets and marketing strategies need to be considered:

i. Local market needs to be addressed through a Home Business Marketing strategy, which creating linkages with society and businesses through seminars, exhibitions, symposiums as well as the creation of saffron sales representatives

Other activities:
Networking and organizing of local market through coordination with industrial, food and home consumers
Creativity on packaging according to consumers interests
Raising awareness of families about significance of saffron and methods of using saffron - at home

Local market (Home business marketing) promotion:

- Public relations.
- Market research (feasibility study)
- Positioning (Competitive local market)
- Brand name / trade mark
- Improve distribution system in national markets

ii. International Market

<table>
<thead>
<tr>
<th>S. No</th>
<th>Particulars</th>
<th>Number</th>
<th>Unit price Afs.</th>
<th>First Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>1</td>
<td>½ gram oval design container</td>
<td>1,620</td>
<td>12</td>
<td>1,620</td>
</tr>
<tr>
<td>2</td>
<td>One gram pardes model container</td>
<td>1,500</td>
<td>15</td>
<td>1,500</td>
</tr>
<tr>
<td>3</td>
<td>2 grams pardes model container</td>
<td>400</td>
<td>18</td>
<td>400</td>
</tr>
<tr>
<td>4</td>
<td>3 grams pardes model container</td>
<td>300</td>
<td>20</td>
<td>300</td>
</tr>
<tr>
<td>5</td>
<td>One gram Minatori model container</td>
<td>500</td>
<td>17</td>
<td>500</td>
</tr>
<tr>
<td>6</td>
<td>2 grams Minatori model container</td>
<td>200</td>
<td>21</td>
<td>200</td>
</tr>
<tr>
<td>7</td>
<td>3 grams Minatori model container</td>
<td>300</td>
<td>23</td>
<td>300</td>
</tr>
<tr>
<td>8</td>
<td>One gram Atlas model container</td>
<td>700</td>
<td>17</td>
<td>700</td>
</tr>
<tr>
<td>9</td>
<td>2 grams Atlas model container</td>
<td>240</td>
<td>17</td>
<td>240</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>90,724</strong></td>
</tr>
</tbody>
</table>

Goods Recovery Agreed for Packing Equipment
17. Entering to International Market:

To enter into the international market, the followings considerations should be followed:

- Establishment of processing & packaging industries (centers) according to international standards and norms
- Establishment of a committee including experts, traders and exporters on marketing and international relations for saffron
- Raising awareness through media (saffron use and quality production)
- Enhancing the capacity of saffron producers and traders/exporters through trainings and workshops/seminars
- Branding and getting ISO Certification for Afghan Saffron

Cooperation could be sought from the Government of Afghanistan, which include relevant ministries and departments i.e. the Ministry of Economy, Ministry of Business and Trade, Afghan Chamber of Commerce and Industries (ACCI) as well as the Ministry of Agriculture Irrigation and Livestock (MAIL) with the financial support of international community/organizations.

18. Promotion:

- Advertisement (media coverage)
- Raise awareness about saffron usage
- Surveys and research on consumer preferences for Afghan saffron

19. Pricing

Since saffron is an export item, its price follows the world market according to its quality and demand.

For setting up of real price of saffron the followings should be considered:

- Ministry of trade to assess the world market price and confirm to producers.
- Producers assessing local market and setting up unit price according to saffron quality.

Although Saffron price in Afghanistan is influenced by saffron price in Iran and to set up an independent price of saffron in Afghanistan the following steps are to be considered:

- Afghan Government with the help of world community to establish a quality control centers and issuing of certificates acceptable to international markets.
- Saffron producers establish saffron producers associations can control prices and avoid middle men.
- Saffron industrial involvement establishing of saffron industrial exporter association can affect on setting up of saffron price.
Chapter 4

20. Monitoring and Supervision:

Monitoring:

What is monitoring?

Monitoring is the systematic collection and analysis of information as a project progresses. It is aimed at improving the efficiency and effectiveness of a project. It is based on targets set and activities planned during the planning phases of work. It helps to keep the work on track, and the association management committees will have timely information if things are going wrong.

What to monitor?

The Saffron Value Chain forum decided that the following should be monitored:

a) Saffron quality
b) Marketing

Who will monitor?

Select a number of supervisors, depending on the size of the village, who will be responsible for monitoring and supervision of saffron activities. The associations would have to find a way of paying for the work of the supervisors for example through savings from the income from their saffron processing. Another possibility would be to use volunteers from the villages.

Saffron Quality

Indicators

- Number of saffron producers using operation manual correctly
- Number of relevant trainings received

21. Tools and Methods for Data Collection

Tools:

- Participatory Monitoring Chart (filled on a quarterly basis by the association members)
- Checklist format to be filled by supervisors

Monitoring Checklist for the Supervisors

<table>
<thead>
<tr>
<th>Activities</th>
<th>Good</th>
<th>Medium</th>
<th>Poor</th>
<th>Supervisor’s comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harvesting time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hygiene</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harvesting equipments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harvested flowers, storing place condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spice separation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Methods:

- Conduct random spot visits and supervisors and fill the checklist from % of women in each village
- Share the findings with the association committee members
- Record the number of trainings received in the participatory monitoring chart on a quarterly basis

22. Reporting

At the end of the year, analyze the formats and minutes with a forum member and share with the associations and other stakeholders.

Marketing (Pricing)

Indicators

Percentage increase in the saffron price

Tools and methods for data collection

Tools:

- Market and price monitoring format

Saffron market and price monitoring format

<table>
<thead>
<tr>
<th>No</th>
<th>Date</th>
<th>Association Name</th>
<th>Market**</th>
<th>Price in gram</th>
<th>Quantity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
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<td>4</td>
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<tr>
<td>5</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

* Add rows as needed
** Market: 1) Local 2) District 3) Provincial 4) Other province 5) Exhibitions (national) 6) Exhibitions (International) 7) Expats/donors 8) PRT 9) Other

Methods:

Fill the price and markets monitoring format during association meeting on an annual basis.
Reporting

At the end of the year, analyze the format with a forum member and share it with the associations and other stakeholders.

23. Monitoring and Evaluation Framework

<table>
<thead>
<tr>
<th>What</th>
<th>Indicators</th>
<th>Tools for data collection</th>
<th>Who will collect/analyze</th>
<th>Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td># of members using operation manual correctly</td>
<td>• Monitoring and supervision checklist</td>
<td>Supervisor, Management committee, Forum member</td>
<td>Annual</td>
</tr>
<tr>
<td>Quality</td>
<td># of relevant trainings received by members</td>
<td>• Participatory monitoring chart</td>
<td>Management Committee</td>
<td></td>
</tr>
<tr>
<td>Marketing</td>
<td>% increase in saffron price</td>
<td>• Price monitoring format</td>
<td>Management committee</td>
<td>Annual</td>
</tr>
</tbody>
</table>

24. Supervision:

What is supervision?

Supervision means the act of watching over the work or tasks of another who may lack full knowledge of the project. The role of the supervisor is to guide others in the project. The supervisor works continuously during the project to ensure that the project is being implemented correctly.

Who will Supervise?

It is necessary to appoint some women from each village for the role of supervisors. The number of supervisors depends on several factors including the number of producers/users in the association. However, it's recommended based on DACAAR's experience that during the harvesting season each 20 producers/users in each association appoint one supervisor. The associations would have to find a way of hiring and paying for the work of the supervisors for example through savings from the income from their saffron processing. Another possibility would be to use volunteers from the villages.

The number of supervisors from each village should depend on the size of the village.

The supervisors should be recommended by the management committee based on following criteria

a) Able to read and write  
   b) Who can spare time to assist others on operation manual.  
   The supervisor should receive a thorough training on the operation manual by DACAAR. DACAAR should test the knowledge of the supervisor before she resumes the job as a supervisor.
25. The role of Supervisor

- She will conduct household visits and provides time at saffron centers to guide and explain the operation manual
- She will provide necessary trainings and guidance
- She will fill the monitoring and supervision checklist of % of women in each village
- She will participate in monthly meetings and discuss progress and challenges

26. Management by the Associations

The operation manual to be fully managed by the management committee of associations. The MC facilitates the correct use of operation manual as well monitor the progress and outcome. The MC has the following role

- Appoint necessary number of supervisors
- Conduct monthly meetings
- Record the minutes of the meetings
- Record the Learning and shortcomings of the operational manual
- At the end of the year, hold a meeting and share the learning/shortcomings with the wider group
- Document the suggestions and comments during the annual meeting
- Share it with the saffron forum and find the modality to revise the operation manual as per need