Organic Cotton Crop Management: Harvesting & Quality Control

About the Farmer Toolkit

The OE Farmer Toolkit is a compilation of best practices - scientific research and farmers’ experiences - collected to provide crucial information on core organic cotton agricultural practices.

The information was compiled by the OE Farm Development team, and a list of sources and other publications on organic farming are available from Organic Exchange at www.organicexchange.org.

This material may be reproduced freely for non-profit purposes.

We are thankful for the support of the ComMark Trust, ICCO, Nordstrom, C&A and Shell Foundation in the production of the Farmer Toolkit.
Protecting and preserving the quality of cotton lint throughout the growing, harvesting, ginning and manufacturing processes is a critical element of textile production. Small, but strategic investments in quality management at the farm and manufacturing levels can help protect the quality of the fiber and result in the production of high quality products that command good prices in the retail market.

Manufacturers are typically looking for clean, white lint with good staple length and strength, no stickiness, low amounts of short fibers and minimal trash and leaf content.

If the buyers know that they can obtain quality lint from a known farmer they will be more ready to pay a higher price for the seed cotton. On the other hand, if producers supply poor quality cotton, they are likely to get a lower price for their cotton. Poor quality cotton can also reduce the quality of the end product, resulting in lower economic returns for all parties in the value chain.

**Key Steps for Managing and Improving Quality**

**Step 1. Implement Quality Management Practices at the Farm Level**
Quality lint starts with excellent management at farm level. The farmer can to a very large extent determine the quality of the lint by producing quality cotton at his or her farm. A cotton plant that is continuously growing well during the growing season will more likely have longer and stronger fibers, be free of Neps (knots in the lint), and have a fineness in appearance. A plant will grow well if it is weed free and has sufficient nutrients. Addressing soil fertility and crop nutrition like good compost and manure teas at the correct time will help the farmer attain a quality seed cotton and lint.

<table>
<thead>
<tr>
<th>Quality Procedure</th>
<th>Quality Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timely and correct land preparation.</td>
<td></td>
</tr>
<tr>
<td>Timely and correct application of manure/compost.</td>
<td></td>
</tr>
<tr>
<td>Achieving a good plant population of between 63,000-74,000 plants per ha.</td>
<td>Early and continuous weeding when necessary.</td>
</tr>
<tr>
<td>Correctly times planting of interplants throughout the growing season.</td>
<td>Early gapping and thinning to ensure correct plant population</td>
</tr>
<tr>
<td>Correctly times application of liquid feeds, top dressing.</td>
<td></td>
</tr>
<tr>
<td>Adequate pest and disease control during growing season.</td>
<td></td>
</tr>
<tr>
<td>Harvesting as soon as 4-5 bolls per plant have opened and continue to harvest as soon as cotton is ready.</td>
<td>Physical or chemical (natural pesticide) control of pests if a threshold level is reached in a part of the field.</td>
</tr>
<tr>
<td>Grade cotton at harvest time by using two picking bags.</td>
<td></td>
</tr>
<tr>
<td>Clean and secure storage of cotton on farm to avoid contamination from non organic products. As this could cause the cotton to lose its organic status.</td>
<td>Check grades again when packing bales. Should be no mixing of grades in bales.</td>
</tr>
<tr>
<td>Comply with the organic regulations at all stages of the growing, harvesting, storing and transporting processes.</td>
<td></td>
</tr>
</tbody>
</table>
Step 2. Maintain a Strong Focus on Quality During Harvest and Post-Harvest Operations – Hand Harvesting

The quality of the cotton harvest depends on the length of the fibre (staple length), on the degree of contamination with non-fiber material such as leaves or dust, and on the portion of fiber damaged by pest or disease infestation.

Good-quality raw material helps to produce yarns and garments of high quality, and thus eventually contributes to the market success of the organic cotton project. When cotton buyers fix prices, they usually take into consideration the quality of the seed cotton. Measures taken to improve the quality of the harvest therefore directly pay off for the farmers.

Some key quality measures include:

- Allow the cotton bolls to fully ripen and open. It is important that no unripe cotton is picked, as it will not absorb the dye well enough and thus is priced lower.
- Pick the cotton after the morning dews have dried up, so that the cotton is dry and less prone to fungus when being stored.
- Pick the cotton into cotton bags or polythene bags supplied by the cotton company, never into nylon or polypropylene sacks (old mealie-meal sacks)
- Remove leaves, capsules and damaged bolls from the cotton harvest.

Picking delays can cause reduction of fiber quality, as the opened bolls are exposed to dew, dust and honeydew from insects longer. For cotton being hand harvested, here are some steps farmers can take to help improve the efficiency of picking include:

- Use a long sack so that the weight rests on the ground.
- Keep the sack permanently open with a ring of flexible wood.
- Pick two rows at a time.
- Use two bags and keep cotton of lesser quality separate with the help of a second, smaller picking bag.

Step 3. Store and Pack Cotton Properly to Prevent Contamination

The cotton should be packed into the bales provide by the cotton company, grades should not be mixed in the bale. A bale should weigh approximately 75-80kg when correctly packed. Once the bale is full it should be stitched up and the farmer should mark it so that it can be easily identified as originating from his farm and to which grade it contains.

If farmers store the harvested cotton before selling it, they should take care to prevent contamination from dust or chemicals, especially fertilizers, pesticides, and petroleum. Items or containers that have been utilized for pest control should never be utilized for storing harvested cotton! The storage place needs to be clean and dry. Damp conditions can lead to the growth of fungus, with significant loss of cotton quality. When organic harvest is stored in the same facilities with conventional cotton (e.g. in ginneries), care must be taken to clearly separate the organic, in-conversion and non-organic produce, and to avoid any mixing.

Resources

Contamination: Meaning, Causes, Impacts and Solutions. Maral Overseas Limited & M&S. Organic Exchange. Africa Regional Meeting 2007. Cape Town, South Africa. This power point presentation describes the vulnerability of organic cotton to contamination in farming, picking and ginning and storing, and provides examples of preventative practices than can be followed.

Additional Resources:

Visit Organic Exchange (www.organicexchange.org) for more information including PowerPoints and Posters for farmer development and education.