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# International Conference on Organic Cotton

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# International Conference on Organic Cotton

An International Conference on Organic Cotton was held in Cairo, Egypt from September 23-25, 1993. The Conference was held under the auspices of the International Federation of Organic Agriculture Movements, Germany, and supported by the IMO Institute of Marketecology, Switzerland, and the Bio-Foundation of Switzerland. In Egypt, the Conference was hosted by SEKEM Farms - a private enterprise engaged in farming in general and organic cotton in particular. The Conference was attended by over 60 participants from outside Egypt and a similar number of local participants. The Food and Agriculture Organization of the United Nations and the International Cotton Advisory Committee were also represented at the Conference as observers.

The International Federation of Organic Agriculture Movements (IFOAM) is an association of over 500 organizations and individuals engaged in biologically, economically and socially sustainable agriculture. The IFOAM, which is 20 years old, has members in 80 countries. The members include

producers, processors, traders and consultants as well as institutions involved in research, training and information about organic farming. The IFOAM's Technical Committee has formulated "Basic Standards of Organic Agriculture" for the guidance of producers. The standards are a general framework applicable to all farming and include inspection and certification guidelines. These guidelines are continuously updated to harmonize with international demands. Individual companies and associations are permitted to develop their own more precise standards and certification rules.

The International Conference on Organic Cotton discussed all important aspects of organic cotton production, consumption and marketing. While organic cotton has emerged from the pioneering stage to a sizable production, there are still many aspects of organic cotton which demand immediate attention of researchers. Organic cotton is available at a comparably higher price. The ways and means to produce organic cotton at a comparably lower price should be found so that raw material is available to the industry at a reasonable price. Now there is a need to develop international cooperation among producers and consumers of organic cotton so that organic cotton can be promoted under uniform standards and labels. In this

report, important aspects of the papers presented and discussion held are discussed.

## Organic Cotton Programs in Some Countries

Cotton is an important strategic crop in Egypt. It is attacked by crickets, aphids, jassids, thrips and mites at the seedling stage and by *Spodoptera littoralis* (Egyptian cotton leafworm), *Earias insulana* (spiny bollworm) and whiteflies at the vegetative stage. At peak fruit formation stage, the crop is attacked by *Pectinophora gossypiella* (pink bollworm) and *Heliothis armigera* (American bollworm) in addition to Egyptian cotton leafworm and whitefly. Aphids also appear at the mature boll stage in addition to Egyptian cotton leafworm and whitefly. Aphids also appear at the mature boll stage in addition to bollworms. A complete biological control program has been established in Egypt.

Early stage insects such as aphids and whiteflies are kept under control by adopting various non-chemical measures including yellow sticks and traps. Egyptian cotton leafworm and American bollworm are controlled by collect-

ing egg masses and pheromone traps in addition to chemical control. Pink bollworm is controlled by confusion technique. Whiteflies, which appeared in 1988 for the first time, have spread very rapidly. 1991 was the first year that it became necessary to use insecticides for the control of whiteflies. However, various Integrated Pest Management (IPM) techniques, including egg collection of Egyptian bollworm, keep the average number of sprays at 3-4 per season. Even then, cotton consumes more than 50% of the total pesticides used in Egypt. Vast use of pheromone traps, egg collection and built-in genetic resistance to fusarium wilt, coupled with various agronomic IPM components, enabled farmers to grow 46,000 acres without the use of any insecticides during 1993. This makes organic cotton production much easier than with the heavy pressure of insects and diseases. Still SEKEM Farms is the only large set-up undertaking organic cotton production in Egypt, though there is a lot of promise for it.

In Turkey, 65 acres of organic cotton were grown during 1993 in the Rapunzel Organic Cotton Project in Izmir. Local certification procedures do not exist so it was certified by the IMO Institute of Marketecology in Switzerland. Careful water management in the absence of a regular supply of irrigation water and insect control, especially against *Heliothis*, is very impor-

tant for growing organic cotton in Turkey. Similar reports narrating organic cotton producing conditions were also presented from Argentina, Greece, India and Brazil.

On September 24, 1993, the participants of the Conference were taken to one of the locations of SEKEM Farms where organic cotton had been grown. First picking was in progress with about 70% of the bolls open. Total estimated yield would be around half of the full potential of a variety under conventional cultivation.

## Production of Organic Cotton

Organic cotton production means not only the absence of inorganic synthetic fertilizers, pesticides and the elimination of growth regulators and defoliants, but it involves very careful planning of the whole farming system. Though presently commercially grown varieties are used in organic cultivation, there is a need to develop varieties which could better tolerate heavy pest pressure in the absence of insecticide use. Such varieties should be developed and tested under organic conditions. Similarly, there is a need to perfect the agronomic requirements of a crop to be grown without syn-

thetic fertilizers and pesticides. There is also a need to identify suitable crop rotations so that the fertility level of the soil can be maintained for the lowest reduction in yield under organic conditions. Organic conditions will certainly result in a reduction in yield, but this loss can be minimized through various production practices including suitable varieties. Growth regulators will automatically be eliminated when the crop is grown on comparatively less fertile soil and no synthetic fertilizers are applied. Varieties having the ability to shed leaves automatically at maturity have been identified. The character is inheritable and can be inducted into the new varieties developed for organic production. If cotton is to be picked by machines, the use of defoliants will be eliminated. Trash contents are also expected to be lower in such genotypes.

Among all the pesticides used, roughly 65% of the chemicals are used against insects, 20% are herbicides, 14% are defoliants and growth regulators while fungicides and others comprise only 1% of the total toxic chemicals used on cotton. The use of synthetic pyrethroids has brought various disadvantages to producers, the most significant being resistance to insecticides which has become very serious in China (Mainland). Every year, 150,000 to 250,000 tons of active ingredients are applied to cotton so there

is a need not only to check any further increase in the use of pesticides but also to reduce the use of such chemicals for a better environment for coming generations. It was observed that, ultimately, ecological preservation and sustainability are going to attain high priority. According to one optimistic viewpoint, by the year 2000, organic cotton will comprise 10% of the total production in the world.

## Organic Cotton in Use

In Europe, there is an ever increasing number of people viewing textiles from an ecological standpoint. Normally, a cotton fiber is 92% cellulose in nature while natural impurities comprise 8%, including natural oils and waxes which are useful and must remain on the fiber for easy spinning and weaving. There is a need to find alternate methods of finishing so that natural oils and waxes are not taken away along with the undesirable compounds. One of the approaches used in textiles is washing cotton fiber with water. There is a need to find better finishing methods which could also meet an international standard of 1% shrinkage. It was also emphasized that there is a need to use only certified dyes and other chemicals in the processing of organic cotton. Self-certification is also very important in

maintaining high confidence among consumers of organic products. Consumers rely on the label of the textile producer, and it is for him to guarantee that the organic raw material has been processed in a way that it can still be called an organic product.

## Colored Organic Cotton

Naturally-colored cotton grown under organic conditions is also available on the market for spinning. Breeding objectives in colored cotton include improving color range, fiber quality and yield potential. Presently, only brown in various shades and green colors are available on a commercial scale. Yellow is expected to be available in the next few years. Blue color is reported to exist in Uzbekistan and other Central Asian countries, although it is in a very light shade and can hardly be marketed as blue color on commercial scale. A colored organic cotton breeding program in the USA is said to have been undertaken under organic conditions.

Colored cotton is more desirable for organic processing but has a number of disadvantages. It is often mixed with white and spoils the seed production system if grown with white cotton on the same farm. Colored cotton

also has to be ginned separately in different gins. Colored cotton varieties are said to be at least 10% lower yielding compared with commercially grown white varieties. Moreover, colored cottons are also at a disadvantage in offering a limited color choice and do not always meet the minimum requirements for spinning. Colored lint brings a premium price, but there are also problems associated with the marketing of colored cotton because of an uncertain market demand. Most of the colored cotton work is done in the private sector so many countries do not have access to seeds of improved colored cotton varieties. Such a situation will continue to prevail unless improved varieties become available to the growers as in the use of white varieties. It will not be desirable to depend on foreign companies engaged in colored cotton as their varieties may not be suitable for growing everywhere.

Whether it is colored organic cotton or white organic cotton, there is a need to have uniform standards and verification procedures. Some manufacturing standards are being developed, but most of the working groups work in isolation. The creation of an International Standards Committee to frame uniform standards for the industry was emphasized by the participants.

# Biodynamic Cotton

The idea of a biodynamic agricultural method or biodynamic farming was also presented at the Conference. Biodynamic farming is a special form of ecological agriculture in which specialized preparations are applied to the soil and plant in very small quantities. Such preparations are substances which do not normally occur in the plant environment. The biodynamic preparations are made from plant and animal materials and, in one case, from a mineral. The animal and plant materials are exposed to natural actions under specific conditions. Presently, two preparations of biodynamically active substances are available. One is called Horn-manure (also called Preparation 500) which is prepared from animal manure and applied (dissolved in water) to soil at the rate of 200 gms/ha at the time of seed bed preparation. The second preparation, Horn-silca (also called Preparation 501), is prepared from animal manure and finely ground quartz and is sprayed on green leaves. Both preparations are said to boost plant growth and ultimately enhance productivity of the crop.

In Egypt, biodynamic cotton is intercropped with onions, clover or garlic. For example, if cotton has been planted in a standing crop of onions,

Preparation 500 will be applied after the onions have been harvested. Plant protection measures are taken as in the case of organic cotton. Biodynamic cotton is claimed to give higher yield than conventional growing. Many questions were posed by participants to understand the mechanism of work of these preparations, but most remained unsatisfied. Detailed information on biodynamic farming can be had from Mr. Georg Merckens, Forschungsring fur biologisch-dynamische Wirtschaftweise, Horvelinger Weg 27, D-89081 Ulm, Germany (Fax: 49-731-6020199).

## Social Aspect of Organic Cotton

It was emphasized that the social component of organic cotton should not be overlooked. Organic products must have truthful labeling and meet the minimum standards set for processing. The need for a general global standards to protect the environment from chemical pollution was recognized. Material processing and treatment must not release chemicals into the environment which can be traced in the products consumed and which disrupt ecological systems. These goals can only be accomplished if producers establish long term environmental objectives and fix targets to achieve them. Secondly, chemicals and products released into the environ-

ment must be biodegradable and must not accumulate in the environment or food chains. They must not be teratogenic, mutagenic, carcinogenic or acutely toxic to humans in the concentrations occurring under field conditions. Such products must not also produce organisms which disrupt the ecological system. In the end, there must be an ecologically should solution for the disposal of unmarketable products. Energy consumption should be at the minimum and renewable energy resources should be preferred.

The need to carry out life-cycle assessment studies of all the products and by-products of cotton production, processing and the textile industry was stressed. A new Parking Lot Concept was put forward to replace the current practice of dumping waste in a manner which allows it to leach quickly into the environment. The idea of the Parking Lot Concept includes the storage of waste in such a way that will not allow spontaneous combustion or the release of gases or liquids into the ground. More details of the life-cycle assessment and the Parking Lot Concept can be acquired from the Environmental Protection Encouragement Agency, Hamburg, Germany.

# Resolutions

On September 25, 1993, sufficient time was devoted to draw conclusions from the Conference. The participants of the Conference agreed on the following resolutions.

## Resolution No.1

Cotton cultivation all over the world is associated with the heavy use of chemical fertilizers and pesticides. The negative impacts of these practices on human health, natural balance and our environment are clearly documented.

As a consequence, organic agricultural methods have been developed which are defined in the internationally recognized IFOAM Standards. Control and certification schemes have been put into place with the result that certified organic raw cotton is currently available on the market.

Despite the successful results of organic and biodynamic cotton growing in different parts of the world, further research in organic cotton is still needed. It is therefore proposed that an institution which might serve as an

international platform for information exchange and coordinated research be formed.

The Center of Organic Agriculture in Egypt is ready to accommodate such an institution and will request such a mandate from IFOAM.

## Resolution No. 2

The existing criteria for the manufacture of raw cotton are not yet complete and sufficient. It is therefore deemed necessary to work on the development of sound ecological standards for all processing procedures of cotton, such as ginning, spinning, knitting, weaving and including all finishing methods until the final garment is produced.

Putting into account organic cotton cultivation, the criteria of the German "Arbeitskreis Naturtextile," among others, might serve as a starting point for further discussion and implementation.

It is proposed that an International Organic Textile Manufacture Standards Committee as a platform for development of standards be formed. Experts in the field of cotton cultivation and research, textile manufacturing, inspec-

tion and certification, as well as persons from environmental and consumer movements, are invited to join the committee as active members. The objectives of such a committee will be

- to develop standards for manufacturing organic textiles
- to include maximum criteria for ecological sustainability and means for life-cycle-analysis of all certified products
- to minimize all health hazards in the final product as well as for all people involved in handling these products.

## Resolution No. 3

The First International IFOAM Conference on Organic Cotton herewith promotes the development of a consumer information label scheme for organic textile products.

It was recommended that convergence should be found between different existing schemes in development as to have one, worldwide-accepted label for organic textile products.

The Conference also recommended that such a label scheme should be based on independent certification according to international norms, taking into account the requirements of newly industrialized and developing economies.