RED GOLD RUSH

MANAGING QUALITY FOR AFGHAN SAFFRON EXPORTS

AT A GLANCE

International Trade Centre

TRADE IMPACT FOR GOOD

Contents

WHY SAFFRON?

As a priority sector of the national export strategy, the success of Afghan saffron will bring significant economic and social advantages to the country. Saffron is the highest-value spice in the world. The long-term profits generated from quality saffron cultivation are great enough to give farmers an incentive to diversify production towards an industry with genuine export potential and social and economic impact.

In addition, the high labour requirements of saffron production offer significant employment opportunities in both peak and off-peak seasons, especially for women. Moreover, the variety of product uses, combined with economic growth in the global South, has resulted in a rising demand.

Over time, saffron production has shifted away from developed countries due to high labour costs and the labour-intensive nature of production. However, developed countries still capture more than half of the global value by importing saffron in bulk, performing value-added activities such as processing, packaging and branding, and then re-exporting.

International spice connoisseurs have already acknowledged that Afghan producers have the potential to produce high quality, globally competitive saffron. Nonetheless, problems persist and consistency must improve for Afghan saffron to develop a brand identity that is synonymous with high quality.

A national reputation that is unique and tantamount to high quality will help facilitate international market access. For this to happen, saffron stakeholders will need to fully understand, comply and demonstrate compliance with the quality requirements of strategic export markets. Having then taken a portion of the market shares, Afghan exporters can envisage premium pricing and shift the balance of power into the hands of producers.

This short document outlines the key areas of consideration in saffron trade. It complements the full publication developed by the International Trade Centre (ITC), '*Red Gold Rush: Managing quality for Afghan saffron exports*'. This work contributes to the country's national export strategy vision of 'Peace through Prosperity, Prosperity through Trade', the stakeholders' quality management vision 'Quality brings changes and boosts prosperity', and the national sector vision, 'Saffron: spicing up Afghan exports'.

UNDERSTANDING MARKETS AND BUYERS' EXPECTATIONS

A long history of adulteration

Given its high price, saffron has a history of adulteration that is as long as its own history. The imagination of counterfeiters is without limit. Adulteration takes all forms: wetting, mixing with other stigmas and flowers such as safflower or marigold, adding artificial colours to yellow styles, dipping in sugar solutions, and more. It is even more diversified in the case of powder: additions of turmeric, crushed bricks, chalk, sand, mineral salts, sugar, honey, oils, and more have been used.

Both the authorities and consumers in importing countries reject adulteration, as everyone expects that such an expensive product would be of very high quality and perfectly pure. The saffron sector has developed and is continuing to improve upon control techniques that can detect all types of adulteration.

Complying with legal obligations

Saffron producers, processors and exporters need to comply with all legal requirements established by regulatory authorities in their customers' countries. These include:

Food safety

Saffron is susceptible to biological, chemical and physical hazards known as contaminants: pesticide residues, heavy metals, microbiological pathogens and naturally occurring toxic substances such as mycotoxins. Their presence is due to either environmental exposure or poor practices during cultivation, processing, storage and transport. To protect consumers, food safety authorities establish maximum limits on contaminants, based on scientific evidence of negative impacts on human health.

Plant health

Any plant-based food product can introduce pests, weeds or diseases that could harm humans, plants or animals in the importing country.

Some examples: Myzus persicae, also known as the green peach aphid, is a small green aphid that transmits more than 100 plant virus diseases. Lepidium draba is a weed that invades all soil types and is potentially harmful to human and animal health, as it can host plant pathogens.

Packaging and labelling

More frequently than realized, food exports arriving in foreign markets are refused entry because packaging and labelling do not comply with requirements of the importing country. Packaging systems are a vital component of export success. Packaging systems include the materials used to package the product, and all of the packaging-related processes along the supply chain.

Traceability

In general, a food business should not receive any food or food ingredient unless it can identify the name of the food/ingredient and the name and contact information of the supplier. Traceability systems, already mandatory for food businesses operating in certain developed countries, are becoming increasingly common worldwide and expectations are trending toward knowing the entire value chain.

Building brands

Building a positive brand reputation takes considerable time and investment. The destruction of a brand reputation can occur much more rapidly. Quality deviations and food safety violations are widely and rapidly disseminated not only within the saffron industry, but also by the media. In this environment, no company can afford to put a defective or unacceptable product on the market.

Need for differentiation: Specific buyer requirements

The competition is increasingly difficult and everyone tries to differentiate, either by offering better products for the same price or by offering additional guarantees or labels. Buyers' requirements often go beyond the conditions outlined in regulations. Meeting and exceeding the quality specified by a buyer is of paramount importance and should always be the top priority.

Quality requirements can vary substantially depending on the market, the buyer and the intended use of the product. Most buyers have established quality parameters communicated to potential suppliers in a technical sheet or technical specification sheet.

SAFFRON CHARACTERISTICS AND STANDARDS

Saffron characteristics

Depending on the market, requirements concerning product characteristics and performance may be outlined within regulations or contained within standards referenced by regulations.

Product-specific standards

The most commonly requested standard for saffron and saffron powder worldwide is ISO 3632-1:2011, which establishes three grades (I, II and III) based on a collection of quality characteristics, many of which are shown in the table below. Sensory characteristics are the major parameters to achieve a better grade; however, all other features must also be examined carefully.

The complementary standard, ISO 3632-2:2010, specifies the test methods and procedures used to determine physical and chemical specifications of dried saffron in both its stigma and powder form.

There are also Codex Alimentarius standards that apply to all food products, including saffron. These include general standards on contaminants and toxins, food additives, packaging and labelling. Various Codex codes of practice explain production, processing, manufacturing, transport and storage practices for different foods and help to ensure the safety and suitability of food.

Saffron quality characteristics

Characteristic	Description
Sensory characteristics	
Picrocrocin	Measuring the unique bitter flavour of saffron.
Safranal	Measuring the unique aroma of saffron.
Crocin	Measuring the colouring power of saffron.
Other chemical and physical parameters	
Moisture content	Measuring risk of mould development and spoilage.
Ash & Acid Insoluble Ash (AIA)	Ash can be defined as the measure of mineral matter. AIA is nearly exclusively sand.
Water activity (Aw)	Measuring potential microbiological growth.
Solubility in cold water	Detecting some forms of adulteration.
Nitrogen content	Measures nitrogen fertilizers potentially used during cultivation.
Crude fibre	Measures typical fibre content, detecting deviations.
Product purity	
Foreign or extraneous matter	Sand, soil, gravel, hair, wood, pollen, leaves or other debris, dead insects, glass, hair and metal etc.
Floral waste	Floral petals, stamens, sepals, pollen, etc.
Infestation	Living or dead insects or fragments of insects and other impurities of animal origin.
Adulteration/artificial colouring	Many possibilities, as added safflower or marigold, colouring styles with tartrazine, yellows, or reds.
Contaminants/residues	
Microbiology	Microbiological contamination such as salmonella, E. coli, enterococcus and other pathogens that harm humans.
Pesticides	MRLs (maximum residue levels) differ based on national regulations.
Heavy metals	Traces of heavy metals such as cadmium, lead, arsenic, tin and mercury.
Mycotoxins (aflatoxin)	Mycotoxins such as aflatoxin or ochratoxins.
Visual characteristics	
Stigma length	The longer the stigma, the higher the quality.
Style length	Styles are generally an unwelcome inclusion unless requested by buyers.

Results from laboratory testing of saffron from the most recent harvest in Afghanistan, seen in the table below, illustrates its potential as high quality saffron. Getting the word out on the sector's potential and gaining the confidence of buyers and consumers remains a priority.

Specification categories							
No	Description	I	II	III	Results	Results	Normal range
1	Moisture and Volatile Matter	10	12	12	8	Grade A+	Grade A
2	Picrocrocin	80	70	70	98	Grade A+	Grade A
3	Safranal	20-50	20-50	20-50	42	Grade A+	Grade A
4	Crocin	200	180	150	270	Grade A+	Grade A