

# FUCHS GRUPPE

**The Fuchs Gruppe: For the pleasure of good food!**  
Precautions to combat Food Fraud



# Cases of Food Fraud have regularly caused an outcry in the past few years.

## EU uses high-tech methods to hunt food fraudsters



## Food Fraud: These foods are falsified particularly often by fraudsters

Author: Brigitte Rohm | Category: [Food & Drink](#) | 23.06.2019



## FOOD FRAUD

### These foods are falsified particularly often

The first problem: The extent of worldwide Food Fraud is enormous. The second: Neither politicians nor inspectors know much more about the phenomenon

## A BOOK ABOUT FOOD FRAUD

### Adulteration occurs constantly

BY THOMAS WEBER • UPDATED ON 17.06.2020 • 23.21



Gypsum in bread and oregano with weed leaves: in a book well worth reading, the historian Jonathan Rees deals with falsified and imitated foods

## MORE IS EXPORTED THAN IS HARVESTED

### The big oregano mystery: How the spice is adulterated with leaves



## Information:

**Food Fraud** has become the established term to describe intentional foodstuffs falsification to achieve economic advantages.

**Food Fraud** involves an intentional violation to deceive purchasers and to gain an improper advantage (e.g. financial/commercial) thereby (fraud/deception). This is an infringement of the EU provisions of Article 8 (1) of Regulation 178/2002.



Many spices and herbs originate from distant countries and are cultivated and harvested by laborious manual work. This is where fraudsters see their opportunity to falsify and dilute raw materials to gain commercial advantages for themselves. Here we show you a selection of examples of Food Fraud from the world of spices:



#### **Saffron: Adulteration with safflower**

Saffron powder is blended with other plants such as safflower, because these are considerably more economical than saffron. Safflower (also called false saffron) has a strong, deep orange colouring power and a flowery, slightly musky scent, i.e. the same colouring is present, but a different aroma.



#### **Chilli and saffron: Adulteration with Sudan Red and tartrazine**

Sudan Red and tartrazine are synthetic chemical dyes. When blended into spice powder, they simulate a better, more intense colouration.



#### **Oregano: Adulteration with olive, sumac and/or cistus leaves**

When dried, olive, sumac and cistus leaves have a grey/green colour similar to oregano. These leaves have no use of their own in the food industry, or any other commercial/industrial purposes, which is why they are not infrequently used to dilute oregano. In ground form, they are scarcely distinguishable from oregano, or not at all.



**We are Germany's biggest spice manufacturer. Since our company was founded in 1952, we have attached the greatest importance to the purity and naturalness of our products.**

**We resolutely oppose Food Fraud, and adopt targeted measures along our supply chain.**

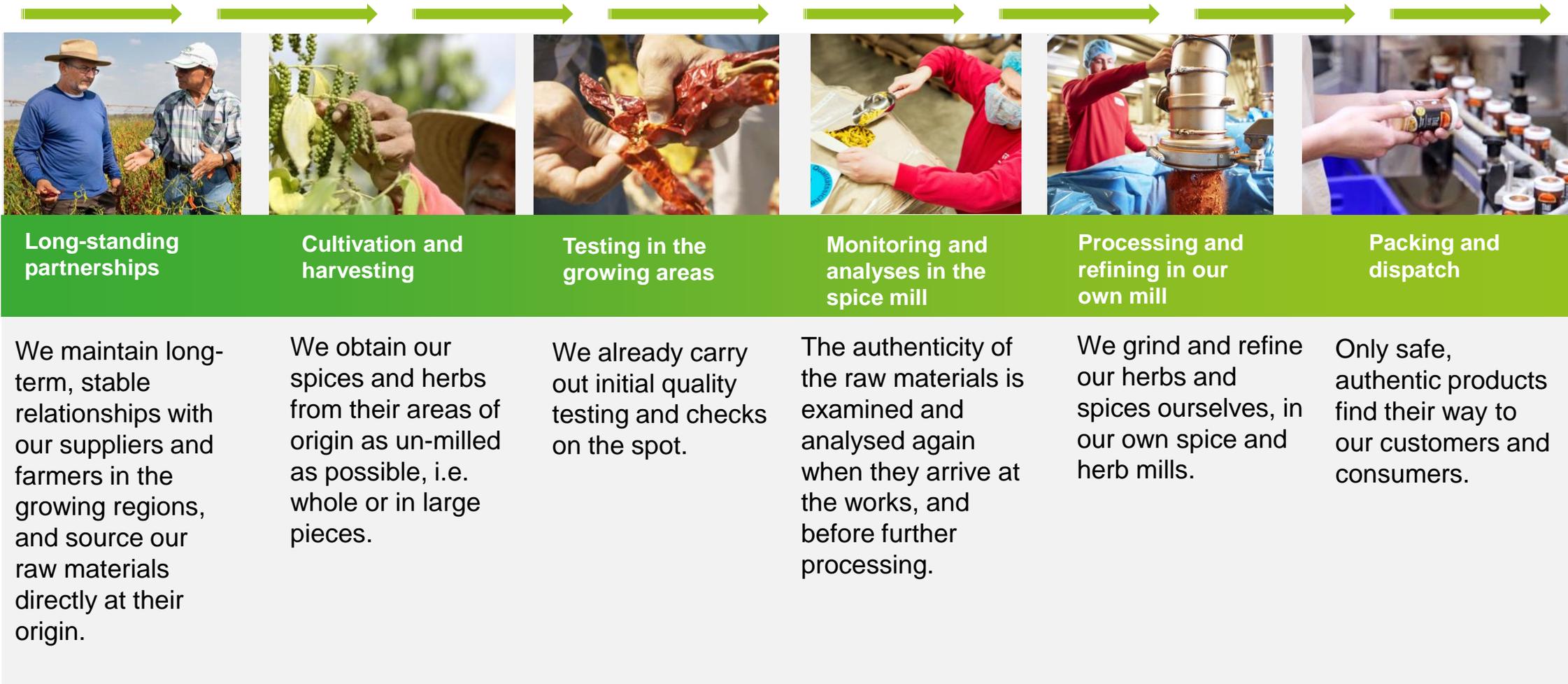


## We adopt active measures against Food Fraud, and follow a strategy aimed at prevention:

To detect possible falsifications and to prevent them being carried forward in the supply chain, we rely on:

- Sourcing raw materials as unprocessed as possible, and directly from the suppliers,
- understanding and controlling the (complex) supply chain,
- internal monitoring processes and close collaboration with specialist laboratories.

**We carry out authenticity and quality testing along our entire value-added chain, and focus on effective prevention strategies and verifications of the goods – beginning with audits of our suppliers at the point of origin, continuing through incoming goods and extending all the way to the packaged end product.**



## Long-standing partnerships

### We work in close collaboration with our farmers and suppliers

We focus on long-term, stable relationships with our suppliers; both in relation to purchase operations at the point of origin and also through contract cultivation, which is supervised by our own employees in the countries of origin.

As a result, we can secure stable raw materials prices for our company, while giving our suppliers fair economic stability at the same time.

We thereby considerably reduce the incentive for falsifications on economic grounds.



*Paprika is one of the most popular spices in Germany. Our paprika comes mainly from Brazil, from one of the 23 farmers with whom we collaborate directly and closely.*

*The photo shows the farmer Valter Mendes and our own employee Osvaldo (r.) from Fuchs Agro Brasil. The collaboration has existed for nine years. Osvaldo regularly visits the paprika farmer, and advises him about cultivation and harvesting, and checks the cultivation conditions in the field. Here they are discussing the ideal time for harvesting, and the forecasts for the current season.*

*There are also further insights into the collaboration here:  
<https://www.youtube.com/watch?v=UyrDD54QbEw>*



## Cultivation and harvesting

**We source our raw materials directly from their place of origin, and as unprocessed as possible**

The risk of falsification is greater

- the later the access to the raw materials takes place in the multi-step supply chain,
- the higher the degree of processing.

As far as possible, we access our raw materials directly at their point of origin, and we procure them whole or in the form of large pieces wherever possible. The advantages of this:

- We create transparency and traceability in our supply chain,
- we avoid trading stages that are to some extent non-transparent, and
- we reduce the risk of falsification.



*Pepper, along with paprika, nutmeg, onions, cinnamon, garlic & oregano, is one of the strategically most important raw materials of the Fuchs Gruppe. We source these herbs and spices exclusively dried and un-milled.*

*In Brazil, for example, we collaborate with more than 600 farmers who grow pepper for us in the Pará region, where we are present on the spot with our own Tropoc subsidiary company. Our own employees assess the pepper freshly in the field and judge that it is suitable, after which it is delivered in whole form for further cleaning and inspection in the Tropoc factory.*

*There are also further insights into pepper growing by the Fuchs Gruppe here: <https://www.youtube.com/watch?v=plzXVTwNQHc>*



## On-site inspection

We already check the properties of the raw material while it is being grown

In the case of raw materials in large pieces, their properties and possible falsifications are already recognisable with the naked eye.

The properties and qualities of our strategically important raw materials are checked directly where they are grown. This involves carrying out sensory testing as well as initial laboratory analyses in the growing regions, in which we are present with our own factories and contract farmers.



*All the senses are activated when examining raw materials in the growing regions. The photo on the right shows our contract pepper farmer Francisco Chagas together with Fernando Ferreira (r.), our cultivation adviser and agricultural expert in Tropoc. The collaboration has existed for 17 years. Together they are appraising sun-dried black pepper. They carry out visual examination to detect possible foreign substances, and make an odour and flavour test. After this initial sensory testing, the pepper from Brazil goes off to the next analysis station: into our company's own laboratory in Tropoc, where the pepper is analysed for its purity and genuineness, among other things.*

*There are also further insights into quality testing in the growing regions in this video: <https://www.youtube.com/watch?v=7W-vuzoM5Qc>*



## Checks and analyses in the spice mill

### Visual, physical and chemical analyses

After previously testing the raw materials at their origin and issuing an approval, they now make their way to us and into the Dissen factory for further processing and refining:

- Upon delivery, the goods are visually inspected. For this purpose, trained employees take statistically standardised representative random samples from each batch of raw materials and check their purity – initially with the naked eye. This already allows initial soundly-based statements about possible falsification of the raw materials.
- After this, microscopic and chemical/physical methods confirm the visual assessment in suspicious cases.



**i** *The upper photo on the right shows a situation in the incoming goods control laboratory, taking as an example turmeric, which we also source in large pieces.*

*In addition, examinations under a microscope allow the recognition of the tiniest tissue structures from foreign species.*

*By using physical and chemical examination methods – as can be seen in the lower right photo – we determine whether the raw material is authentic, and whether internationally recognised standards together with purity and quality requirements are fulfilled.*

## Examples: How do we recognise adulterations ... ... in the case of aniseed?

For what do we examine?	What can we determine as a result?
For falsifications recognisable with the naked eye	Evidence of falsification / adulteration (in this respect, see also the images on the right)
For essential oil content	If the essential oil content falls below a minimum value, this can indicate dilution with extraneous, value-reducing components. Exceeding normal maximum values can also point to admixtures to raise the level.
For ash content	Exceeding maximum ash contents can indicate the addition of value-reducing adulterants of organic and inorganic origin. This is further specified by determining the sand contents.



Adulterated aniseed with a high proportion of foreign seeds; they are recognisable, for example, by their different shape and pale colour.



Photo of authentic aniseed. Egg-shaped seeds with a longitudinal rib, 3 – 5 mm long and 2 – 2.5 mm wide. The colour can vary between yellowish-green and light brown.

## Examples: How do we recognise adulterations in the case of ... ... chilli peppers?

For what do we examine?	What can we determine as a result?
For illegal synthetic colouring agents (examples: Sudan I-IV, Sudan Orange G, Sudan Red B, G and 7B, Sudan Black B, Butter Yellow, Rhodamine B, Orange II, Para Red, Bixin, Toluidine Red, Aminoazotoluene, p-Nitroaniline)	Evidence of falsification / adulteration with red synthetic dyestuffs (in this respect, see also the images on the right)
For the content of the natural pungent substance capsaicin	If the capsaicin content falls below a minimum value, this can indicate dilution with extraneous, value-reducing components. Exceeding normal maximum values can also point to admixtures to raise the level.
For the ash content	Exceeding maximum ash contents can indicate the addition of value-reducing adulterants of organic and inorganic origin. This is further specified by determining the sand contents.



Authentic ground chilli is shown on the left, and on the right is chilli dyed with Sudan Red. Sudan Red is one of the synthetically-produced azo dyestuffs. When added to chilli, it achieves a more intense colouration, or compensates for losses of colour due to light and/or ageing.

## Examples: How do we recognise adulterations in the case of ... ... saffron?

For what do we examine?	What can we determine as a result?
For the synthetic yellow dyestuff tartrazine (an azo dyestuff)	Evidence of falsification / adulteration (in this respect, see also the images on the right)
For the content of safranal, crocin and picrocrocin	If the contents fall below minimum values, this can indicate dilution with extraneous, value-reducing components, e.g. safflower.
For extraneous tissue structures	Suspicious cases can be cleared up by examination under a microscope.



In the case of saffron, its colour counts as a mark of quality. Expensive saffron can be diluted or replaced with safflower. Safflower is also called false saffron. The pipette contains safflower concentrate, which can be used to naturally simulate safflower colour. Marigold petals, arnica and dyewoods are also used to adulterate saffron. Saffron can also be coloured by using synthetic dyestuffs, e.g. tartrazine (E102). This synthetic, water-soluble azo dye food colourant (lemon yellow to orange colour) is not permissible for colouring herbs and spices.

## Examples: How do we recognise adulterations in the case of ... ... oregano?

For what do we examine?	What can we determine as a result?
For falsifications recognisable with the naked eye	Evidence of adulteration / Addition of plants (in this respect, see also the images on the right)
For content of essential oil and the ash content	If the essential oil content falls below a minimum value, this can indicate dilution with extraneous, value-reducing components. Exceeding the ash content can also be evidence of increasing admixtures.
Examinations under a microscope and analyses for foreign DNA	Suspicious cases can be clarified by using these methods.



Photo of myrtle (upper) and of an authentic oregano (lower). The size of the leaves is identical, and the leaf structure is similar to that of oregano. If a proportion of it is blended in (e.g. at a level of 10 - 40%), its differentiation in the end product is scarcely possible with the naked eye. In this case, it is necessary to use additional analytical methods to reveal the adulteration.

## Monitoring and analyses in the spice mill

### Manpower and investments



**31 employees** working full time take care of the monitoring and internal analyses of raw materials in Germany alone.



In 2020 alone, we carried out a total of **38,000 chemical / physical analyses and over 73,000 microbiological analyses** in the factory's own central laboratory.



Furthermore, we collaborate with a total of **21 external accredited laboratories**.



We invested more than **EUR 3 million\*** in safeguarding quality in Germany in 2020 alone.



As a result, we had no customer complaints due to Food Fraud in relation to more than 10,000 articles in 2020. There were two official complaints in which our proof of compliance with the normative chemical parameters was officially recognised.

\* Total amount of investments for internal and external analyses together with personnel expenses.

## Processing and refining in our own mill Packing and shipping safe, authentic products

On average, the authenticity of the spices is checked three times before they finally go into the grinding process in our own mill.

The spices are processed and refined using state-of-the-art technology in our own spice mill, which is the biggest in Europe. The mill tower provides nine levels for cleaning, gentle steam sterilisation and grinding.



*We process approx. 40,000 tonnes of spices and dried herbs in our mill-tower in Dissen every year.*

*Grinding whole raw materials at the latest possible time ensures that we preserve valuable constituents of the herbs and spices, such as antioxidants, aromas and oils in the best possible way, and actively guide the flavour profile of our products.*

*With our safe, authentic products, we offer people in Germany the best possible flavour and pleasure when eating good food.*

# FUCHS GRUPPE

For the pleasure of good food!

