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Apiculture Saffron Food

www.clesia.it
info@clesia.it
+39 0583 1797594
+39 3450110057
+39 3921373896
Lucca - Tuscany -

Founders

GIADA PAPUCCI

CEO & PRODUCTION SPECIALIST

15+ years experience in Farm Management

Agriculture Business Management

Apiculture Specialist

Queen Bee / Swarm Production Specialist

Saffron Production Consultant

GAETANO DE FELICE

GENERAL AND PROJECT MANAGEMENT

Master's Degree in Management Engineering

Master in Project Management - London

Master in Finance and Strategy – Rome

10+ years experience in Entrepreneurship

Project Manager and EU Grant Opportunity Management Consultant

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Who We Are

BORN FROM A PASSION

Born in 2010

The two Founders **Giada Papucci** (Expert farmer) and **Gaetano De Felice (managing engineer)** have studied the opportunities and the innovative cultivations on which to build a company exploiting the Know-how over time.

2010: First Saffron Production

2014: Professional selling of Corms and Saffron in Italy

2015: Beekeeping Production Started

2016: Organic Company certified

2017: 200+ Customers in Italy for Corms. Our Production are sold in Germany, Emirate Arabian. Introduction of Scrum and lean production

2018: 700+ Customers in Italy for Corms. Queen Bee Production Started

2019: 100+ Customers In Italy. Forecasts 2000kg Bulbs in Italy and 3000+ Queens bee in Italy.

We offer to our **customers producers** the best raw materials and services for the production,

To our **consumers** simple products at a competitive price.

We always seek innovation

BEEKEEPING AND SAFFRON

OUR MISSION

Index

Video of our company with subtitle (3 minutes)

1- Different technique of cultivation in parts of Italy from South to North. (7 minutes)

2- Our Cultivation (5 minutes)

3- Q&A

Our Company Presentation

WE ARE
ORGANIC
COMPANY

https://youtu.be/Z7vfFwUgizk

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CLIMATIC CHARACTERISTICS. PRODUCTION IN NORTH / CENTER / SOUTH

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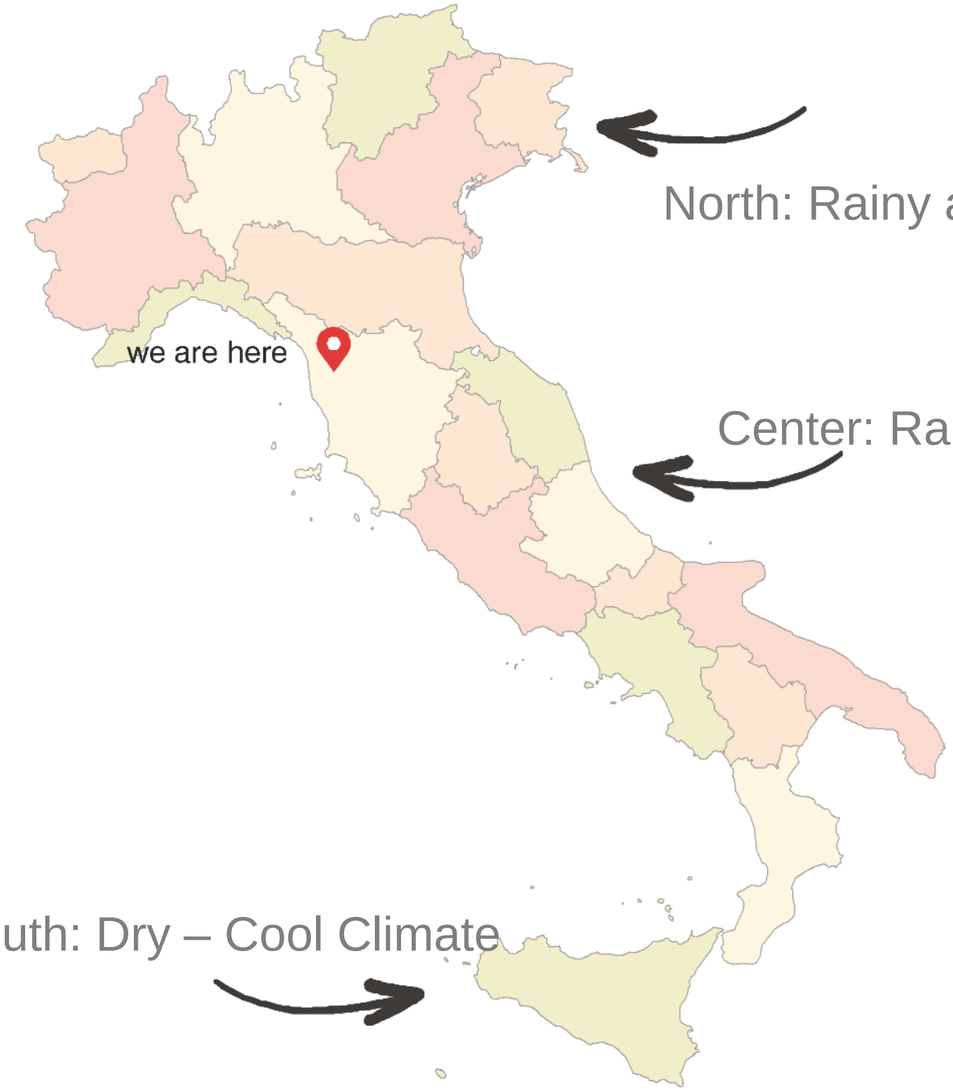
The Italian climatic characteristics affect the cultivation technique. The main factors to keep under control are the humidity due to the amount of rain and the type of soil.

This is necessary to reduce the **risk of rottenness** and disease and the well **growth of corms**



Le caratteristiche climatiche italiane incidono sulla tecnica di coltivazione.
Il fattore principale da tenere sotto controllo e' l'umidita' dovuta alla quantita' di pioggia e al tipo di terreno.
Questo serve per ridurrre il rischio di marciumi e malattine e alla crescita corretta dei cormi

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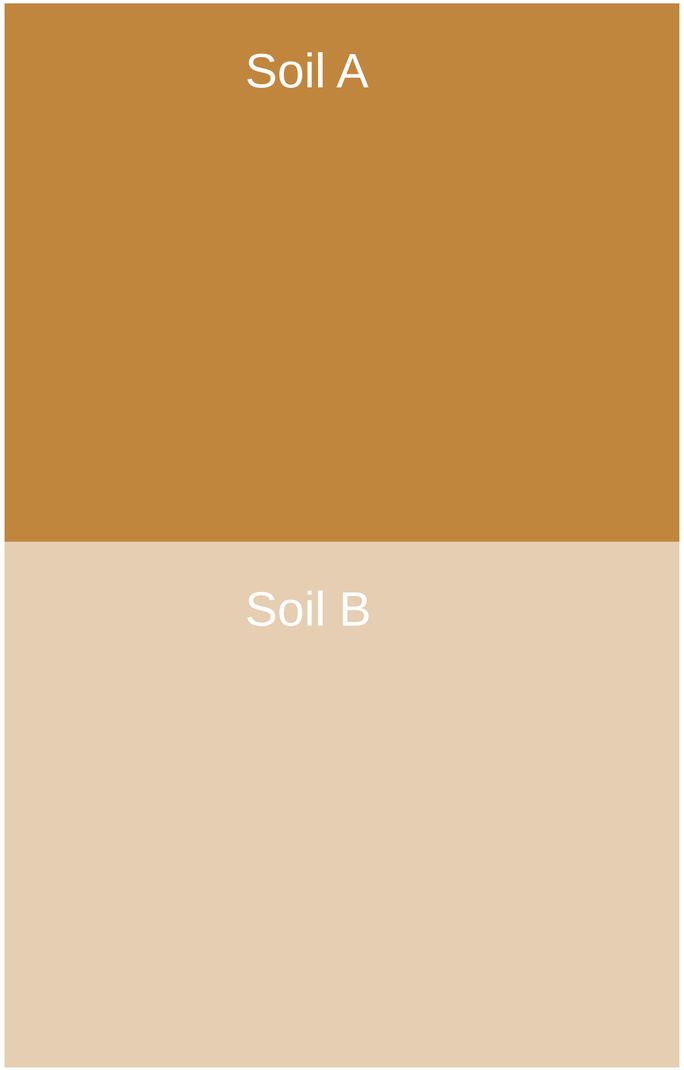
SOILS MANAGEMENT



Month	Soil A	Soil B
YY 01 Jan	Set Aside	No Work
YY 01 Feb	Set Aside	Corms Cleaning Soil
YY 01 Mar	Green Fertilisation	Corms Diseases Control
YY 01 Apr	No Work	Corms Cleaning Soil
YY 01 May	Green Fertilisation: Shredding	Corms Shredding Dead leaves
YY 01 Jun	Green Fertilisation Tillage	Corms Harvesting /Selection
YY 01 Jul	Tillage Pre-Sowing	Corms Harvesting /Selection
YY 01 Aug	Corms Sowing	Set Aside
YY 01 Sep	Sowing Sowing – Cleaning Soil / Diseases Control	Set Aside
YY 01 Oct	Harvesting Flowers	Ploughing / Dung Fertilisation
YY 01 Nov	Harvesting Flowers	Set Aside
YY 01 Dec	No work	Set Aside
YY 02 Jan	Corms Cleaning Soil	Set Aside
YY 02 Feb	Corms Diseases Control	Set Aside
YY 02 Mar	Corms Cleaning Soil	Green Fertilisation
YY 02 Apr	Corms Shredding Dead leaves	No Work
YY 02 May	Corms Harvesting /Selection	Green Fertilisation: Shredding
YY 02 Jun	Corms Harvesting /Selection	Green Fertilisation Tillage
YY 02 Jul	Corms Harvesting /Selection	Tillage Pre-Sowing
YY 02 Aug	Set Aside	Corms Sowing
YY 02 Sep	Set Aside	Sowing Sowing – Cleaning Soil / Diseases Control
YY 02 Oct	Ploughing / Dung Fertilisation	Harvesting Flowers
YY 02 Nov	Set Aside	Harvesting Flowers
YY 02 Dec	Set Aside	No work

Production in Italy

HOW WE CULTIVATE CORMS

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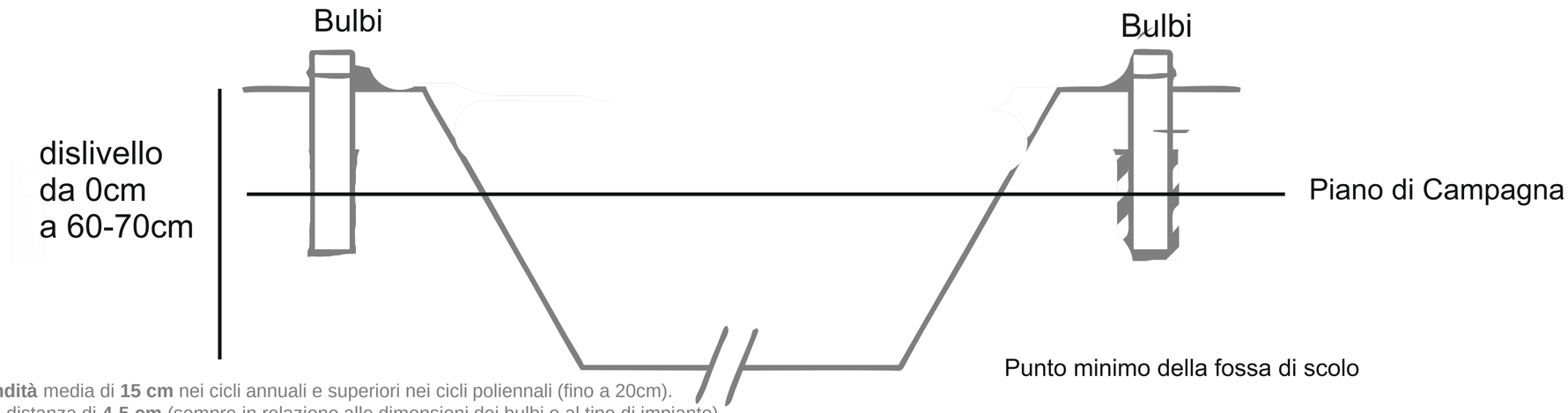
The technique adopted throughout Italy is the "a prode" technique.

In loamy soils we tend to make "Prode" smaller because the soil must be worked several times between the rows to facilitate oxygenation.

The planting has an average depth of 15 cm in the annual and higher cycles in the multi-year cycles (up to 20cm).
On the row a distance of 4-5 cm is maintained (always in relation to the dimensions of the bulbs and the type of implant).
Many plant techniques exist.
Mainly they are based on the creation of parallel rows interspersed with corridors for harvesting or less large depending on the climatic and soil characteristics..

- milling measurements refers the width of the processing means. We recommend not to exceed 80-100cm in width
- The height of the “Prode” can range from a minimum of 0cm to a maximum difference in height of 60-70cm. It depends on the water supply of the ground
- Usually the implant has an average depth of 15cm in the annual and higher cycles in the multi-year cycles. But it often depends on the equipment and the productivity requirements and the goal of the farmer



L’impianto ha una **profondità** media di **15 cm** nei cicli annuali e superiori nei cicli poliennali (fino a 20cm).
Sulla fila si mantiene una distanza di **4-5 cm** (sempre in relazione alle dimensioni dei bulbi e al tipo di impianto).
Esitono molte tecniche d’impianto.
Principalmente si basano sulla creazione di **file parallele intervallate da corridoi per la raccolta + o meno larghi a seconda delle caratteristiche climatiche e del terreno.**
Solitamente nei terreni *pesanti si tende a fare «Prode» di misura minore in quanto il terreno deve essere lavorato più volte tra le file per favorire l’ossigenazione*.

- Nelle misure per **fresa** si intende la larghezza dei mezzi di lavorazione.
  Si consiglia di non superare gli 80-100cm di larghezza
- **L’altezza** delle **prode** può andare da un minimo di 0cm a un massimo di dislivello di 60-70cm – dipende dalla regimazione idrica del terreno
- Di solito l’impianto ha una **profondità** media di **15cm** nei cicli annuali e superiori nei cicli poliennali. Ma spesso dipende dalle attrezzature e i requisiti di produttività e l’obiettivo dell’agricoltore

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SINGLE ROW CULTIVATING

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Advantages:

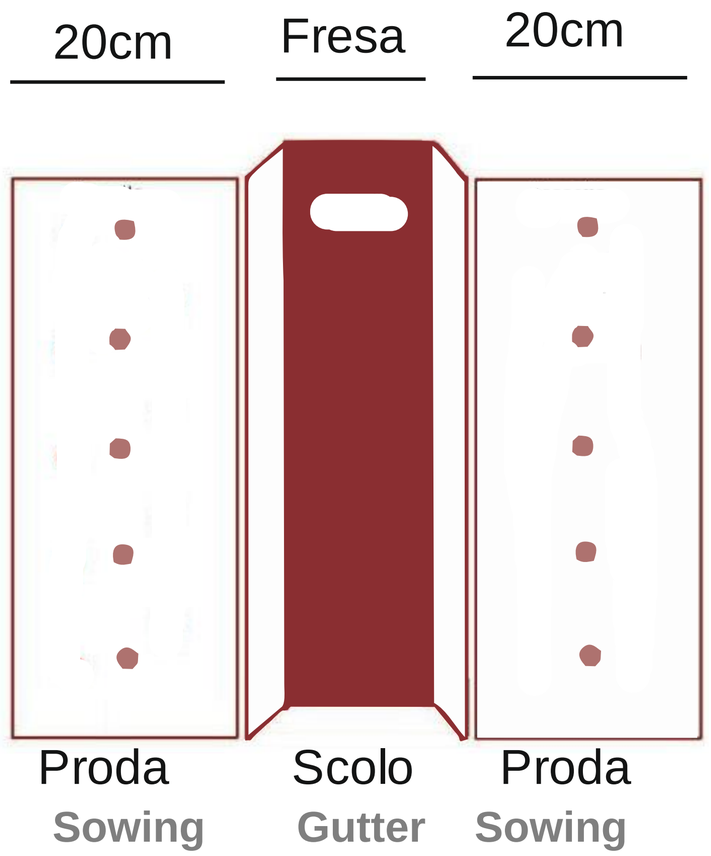
- Excellent drainage and water control
- Excellent weed control
- Low disease spread
- Better performance and low competition bulbs
- Easy extraction of bulbs
- Easy working for small vehicles

Disadvantages:

- Low density of plant <20 bulbs / square meters
- Increased of vehicles
- High fertilization needs
- Slow picking of flowers

Notes

- It is an excellent system for multi-year cultivations
- Perfect for the Corms production



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Advantages:

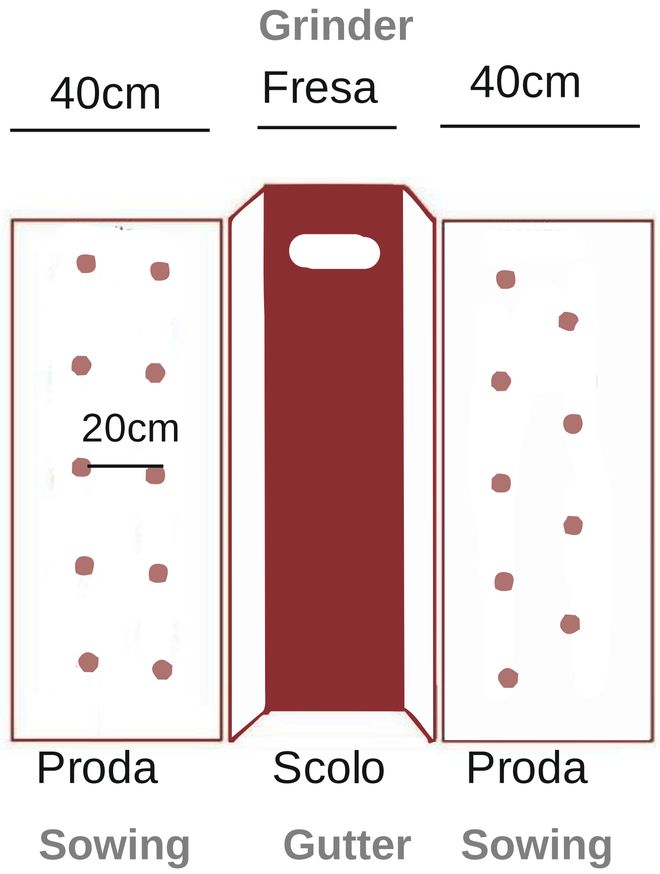
- Excellent drainage and water control
- Good weed control in the Interfile
- Low disease propagation
- Good bulb yield
- Easy to extract and plant the bulbs with a means of adequate width
- Excellent Flower collection Efficiency

Disadvantages:

- Low plant density < 30 bulbs/MQ
- If you lose weed control it becomes difficult to retrieve the field
- Needs manpower in weeding
- Fair fertilization compared to the needs
- Slow collection

Notes

- It is an excellent system for multi-year cultivations
- Perfect for the Corms production



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CULTIVATION

The height of the brave increases as you go to the north.
The rainfall of the place is taken in consideration.
In general it is planted with a vertical drop of 45-50 cm in the north and 10cm in the south

L’ altezza delle prode aumenta man mano che si va verso nord.
Si tiene conto anche della piovosita’ del luogo.
In generale si pianta con un dislivello di 45-50 cm al nord e 10cm al sud

Planting Video 2:00mins
https://www.youtube.com/watch?v=PHBnrCa-lJQ

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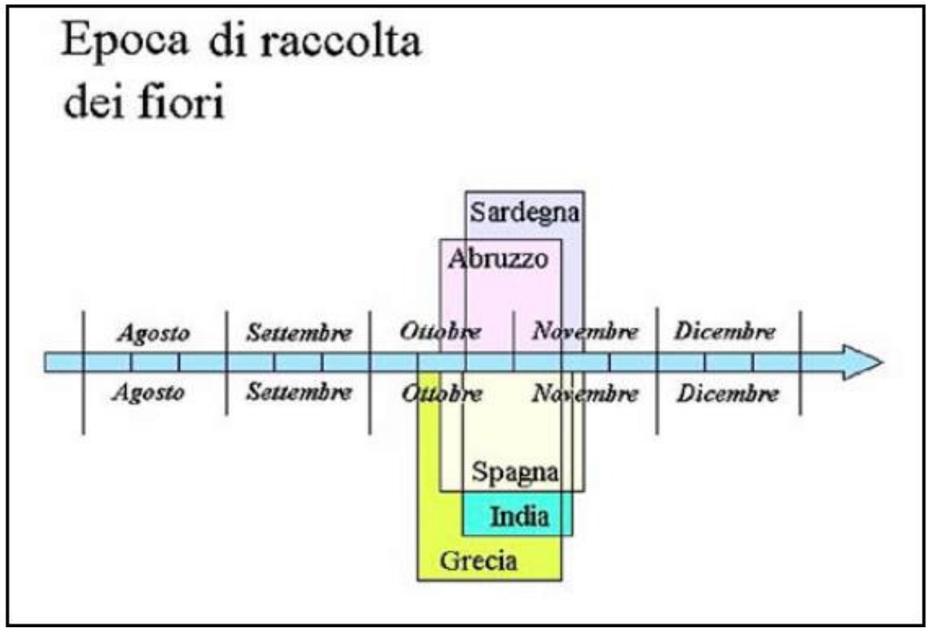
HOW WE WORK



Between the end of October and the end of November.
The epoch and flowering production is very variable in relation to several factors:
The thermo-pluviometric trend; Age of planting;
The origin and size of the bulbs.

1. **Moderate rainfall** in late summer or early autumn encourages early flowering;
2. **Frost, snow** hinder the flowering, which can be prolonged by many days compared to the average duration (which can be estimated at about 20 days).
3. **During the time of the harvest** a period is observed where
    1. More intense and concentrated is the production of flowers.
    In fact, it can be said that the graphic pattern of flowering is certainly Gaussian, and therefore the harvest begins and continues respectively before and well beyond this period.
    2. In This period you need a high manpower.
    3. Even the age of planting has its influence on flowering: generally the more you delays the planting of the bulb-tubers, the more retarded is the harvesting of flower
    Therefore in environments where autumn is very cold, it is preferable to anticipate the installation of the Saffron Planting (mid-August)

Production in Italy

OUR EXPERIENCE AND WHAT WE SAW

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- **Dimensions and origins of bulb-tubers:**: larger dimensions are early in the flowering, while it has been noticed, from a comparison between bulbs coming from cold and warm environments, the delay of cold bulbs occurs in warmer soils.
- **Bulbs of different origin:** have a much lower yield (up to <40%) of bulbs grown in the same micro zone.

1. The flowers **are harvested** in the early hours of the morning before the flower opens due to the action of the sun:

2. The **closed-flower collection is quicker**, it allows more easily to proceed with the subsequent operation of separating of stigma tepals and stamens and ensures greater resistance to degenerative processes of the flower organs.
3. The collection of flowers and the separation of the stigma from the flower is a delicate process and time-consuming operation.
   1000 flowers require 45-55 minutes and another 100-130 for the cleaning.

Separating Video (4min During explaination)

https://www.youtube.com/watch?v=Xi7PPUY8dxk

- **Dimensioni** e **provenienze** dei bulbo-tuberi: dimensioni maggiori sono precoci nell'antesi, mentre si è notato, da un confronto tra bulbi provenienti da ambienti freddi e caldi si verifica, il ritardo di bulbi freddi in terreni più caldi.
- Bulbi di **provenienza diversa** hanno un rendimento molto più basso (fino a <40%) di bulbi coltivati nella stessa microzona.

La **raccolta dei fiori** viene effettuata alle prime ore del mattino prima che il fiore si apra per effetto dell'azione del sole:
La **raccolta a fiore chiuso** è più rapida, consente più agevolmente di procedere alla successiva operazione di "mondatura" dello stigma dai tepali e stami ed assicura una maggiore resistenza nei confronti dei processi degenerativi degli organi fiorali. La **raccolta dei fiori e la separazione dello stigma** dal fiore è un'operazione delicata che richiede tempo.
1000 fiori richiedono 45-55 minuti e altri 100-130 per la mondatura.

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PERFOMANCE

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- As for **the production of flowers**, each bulb-tuber with a diameter of more than 2.5 cm can produce up to 5 flowers;
- flower production depends on **numerous factors**
- Generally, from **one hectare** of saffron, 4-5 t of fresh flowers are collected, from which **50 kg of stigmas** to be dried are obtained.
- The maximum yield is in the first and second year (second and third flowering); from the third year the yield begins to decrease.
- The **harvest of dry saffron can range from 1.5 to 15.0 kg / ha,** depending on the seeding density, the plantation age and the climatic conditions during the harvest season

- Per quanto riguarda la **produzione fiorale**, ogni bulbo-tubero di diametro superiore ai 2,5 cm può produrre fino a 5 fiori;
- la produzione fiorale dipende da numerosissimi **fattori**
- Generalmente, da un **ettaro di zafferaneto si raccolgono** 4-5 t di fiori freschi, da cui si ricavano 50 kg di stigmi da essiccare.
- La **resa massima** si ha nel **primo** e nel **secondo** anno (ossia la seconda e la terza fioritura); a partire dal terzo anno la resa comincia a diminuire.
- Il raccolto dello zafferano **secco** può variare da **1,5 a 15,0 kg/ettaro**, in base alla densità di semina, all'età della piantagione ed alle condizioni climatiche durante la stagione del raccolto

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IN CAMPO

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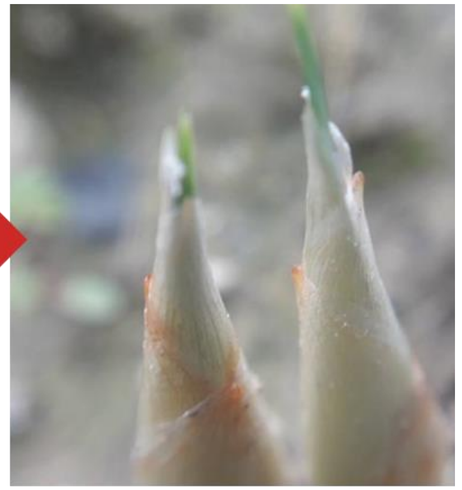
May - Aug

Aug - Sep

Sep

Sep

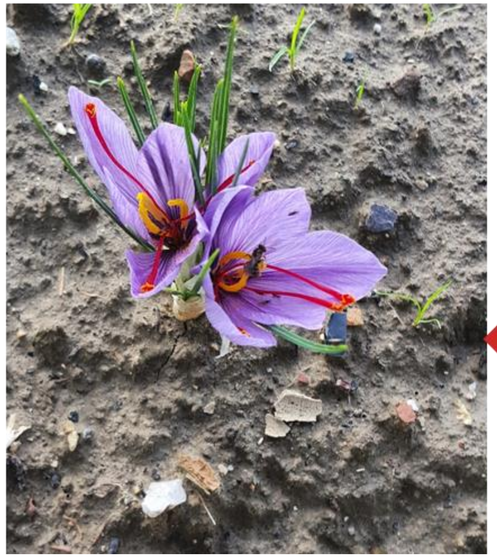


Sep - Oct

Oct - Nov

Oct - Nov

Oct - Nov



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DRYING

- Determines the quality of the final product. Once the stigmas are dried, they lose more than 80% of their initial weight. It can take place in 2 ways,
- **Natural** is typical of warm areas such as the Middle East and Northern Africa. The stigmas are placed on linen sheets and exposed to the open air left to dry under the sun.
- **Artificial** typical of Italy and the Mediterranean countries is made using heat sources created by man such as fire, gas ovens, electric resistance ovens, wood-fired ovens, embers, or temperature controlled ventilated dryers

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Determina la qualità del prodotto finale.
Gli stimmi una volta essiccati, perdono più dell'80% del loro peso iniziale.
Può avvenire in 2 modi,

- **Naturale** è tipica delle zone calde come nel Medioriente e l'Africa settentrionale. Gli stimmi vengono messi su dei teli di lino ed esposti all'aria aperta lasciati essiccare sotto il sole.
- **Artificiale** tipica dell'Italia e dei paesi del Mediterraneo avviene utilizzando fonti di calore create dall'uomo come il fuoco, forni a gas, forni a resistenze elettriche, forni a legna, brace, o essiccatori ventilati a temperatura controllata

Production in Italy

DRYING

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- In the artificial process it is very important to keep a temperature that is always controlled, not excessive, in order to avoid burning the stigmas.
- The dried dried stigmas are placed in a sieve and placed near the embers, mixing several times for a uniform drying.
- In gas or resistance ovens, the stigmas are placed on grids with a fan-assisted oven and with the door slightly open to let the moisture escape.
- With temperature-controlled dryers, the stigmas are distributed on looms and dried at controlled temperatures.

Nel processo artificiale è molto importante tenere una **temperatura** sempre **controllata**, **non eccessiva** per non andare incontro alla **bruciatura** gli stimmi.

- Gli stimmi essiccati a **fuoco** vengono messi in un **setaccio** e posti vicino alla **brace mescolando** diverse volte per una omogenea essiccazione.
- In **forni** a **gas** o con **resistenza** vengono gli stimmi sono posti su **griglie** con **forno modalità ventilata** e con lo sportello leggermente aperto per far fuoriuscire l'umidità.
- Con gli **essiccatori** a **temperatura** controllata, gli stimmi vengono distribuiti su telai e fatti essiccare a temperature controllate.

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DRYING

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- At the end of the saffron drying must be less than 10% of its initial weight. If the humidity is too high it can cause mold formation during storage. The dried saffron is highly hygroscopic (being in contact with the air it absorbs humidity), so it is a good idea to keep it in glass jars with an airtight seal without rubber gaskets which could infuse bad smells. The jars are stored in dry places and in the dark avoiding contact with light.
- Saffron is divided into small batches so that you do not lose all the production in case of problems

Al termine dell'essiccazione dello zafferano deve essere inferiore al 10% del suo peso iniziale.
Se l' umidità è troppo elevata può provocare delle formazioni di muffe durante la conservazione.
Lo zafferano essiccato è altamente igroscopico (essendo a contatto con l'aria assorbe umidità), quindi è buona norma conservarlo in barattoli di vetro con chiusura ermetica privi di guarnizioni di gomma che potrebbero infondere cattivi odori. I barattoli vengono riposti luoghi asciutti e al buio evitando il contatto della luce.
Lo zafferano viene diviso in lotti piccoli cosi' da non perdere tutta la produzione in caso di problemi

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+39 0583 1797594
+39 3450110057

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