

New technologies in the olive factory



Classic processing steps

1. Cleaning-washing
2. Crushing / depitting
3. Malaxing
4. Extraction
5. Separation
6. Filtration

New steps

Olives drying

Thermal conditioning of paste with heat exchanger

Continuous malaxing

Ultrasound to facilitate extraction «in experimentation»

New extractors



Cleaning – Washing - Drying

Deleafing is the first real processing phase in the mill. Usually the olives arrive with many leaves, about 10%, and we think that to have a perfect defoliation at least two aspiration points and a branch remover are needed.

Washing olives is very important since they carry bacteria, which need to be removed. The washing process, even if carefully carried out, is not sufficient For a complete bacteria removal; a perfect drying is also necessary.

After a few years of experimentation, nowadays drying gives an excellent result.



Crushing / Depitting

Crushing is the most important phase of processing; it determines the phenolic and aromatic quantity of the product, triggers the definitive Lipoxygenase for the creation of perfumes.

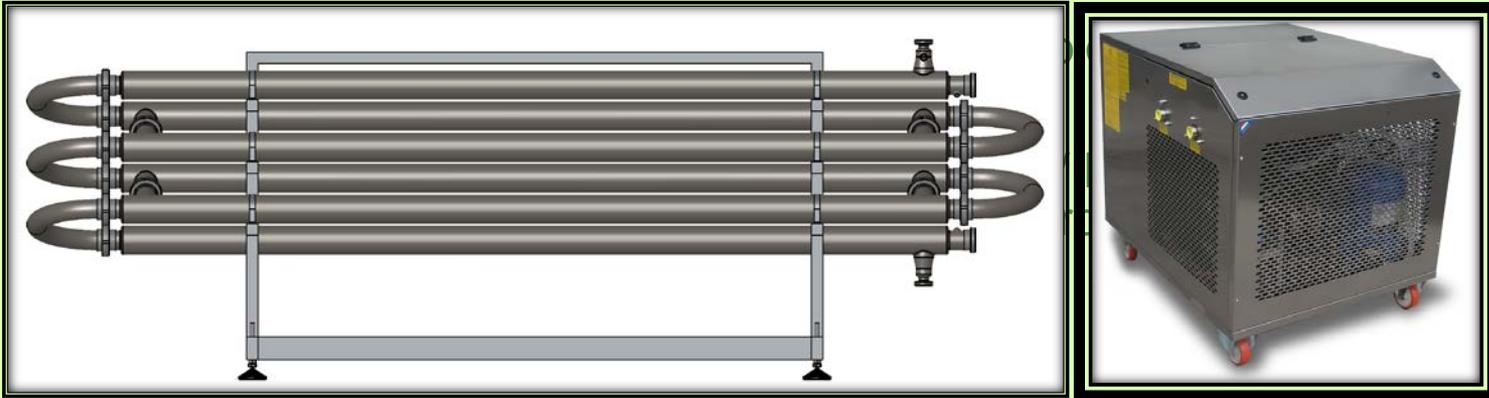
- The variables are many, the most important are certainly the crushing peripheral speed, the grid hole and the shape of the impeller. For each type of crusher, a personalized calibration is required. The oxygen that enters into the crusher is the most important factor determining the quality of the product.

The depitting is still little known (but it will be more in the future) has both advantages and disadvantages; certainly the product is always more elegant and perfumed, but the processing is more difficult.

With the inclusion in the oil factory of the new paste conditioning machinery it will be much easier.



Thermal conditioning of paste with heat exchanger



The hot/cold generator allows to reach the temperature set within the flow from crushing to mixing whether it should be cooled or heated.

At the end of the process the exchanger must be carefully cleaned in all parts, only in this way you can have a great EVO.

Conventional and continuous malaxing

Mixing until today has been based on the time and the temperature without thinking that these two factors could negatively affect the final product.

Now, with the exchanger the malaxing effect becomes less important and safer.

- This is why our Sintesi and Cultivar models are built with the Linear System that allows to carry out direct processing or with 20 minutes temporary storage and the flowing time of
- the paste without stationing before entering the decanter, a
- really short time that allows to avoid any kind of problem coming from the malaxation.

By using Linear System you can save up to 30% power consumption.

Ultrasound to facilitate extraction

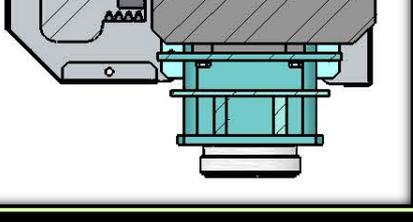
The paste before going through the decanter where the extraction takes place, goes in a pipe equipped with ultrasonic transducers.

Sound waves work on the «Vuacolo» fragmenting it, separating the water from the oil cell.

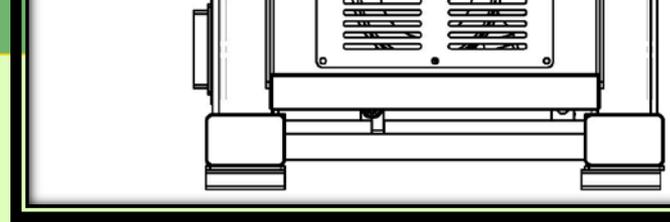


This operation does not cause, as we might think, excessive temperature increase; however everything has to be still verified through continuous processes in the factory.

From the tests carried out, this step will lead to increase the yield maintaining the high quality; in the coming years we will see if all this is confirmed.



Extraction



Today the new decanters have been built to avoid this problem.

Extraction is the phase of separating the oil from the paste. This phase often and especially on large and closed machines causes a temperature increase of at least 5 degrees which is very negative for the oil quality.

The two-stage system certainly allows you to extract more phenolic and aromatic quantities, naturally also this system has some problem as the stagnation of vegetation water in the relative part at the entrance of the paste in the decanter up to the oil outlet.

Separation

Separation, especially in the 3 phases extraction system, is essential but it certainly takes away something from the product because of the oxidation that is caused.

It is good to remember that separation does not replace filtration, as the amount of residual water always remains high and without filtration it cannot be removed.



Filtration

Nowadays this phase is not an option, but a necessity.



If the oil is extracted without going through the separator it has to be immediately filtered on the exit from the decanter. In case it is passed through the separator you can filter it also after some days. Filtration has to be done just in one step to avoid possible oxidation.

Conclusions

We build the EVO during crushing phase, in the other phasis we have to maintain what we have built.

Filtration is necessary.

Raw material is essential to produce a great EVO but also the tools and the human factors are very important.

Everyone thinks that during 7-8 hours the machines can remain dirty for the next process: we tell you that the machines must always be properly cleaned, as almost all the problems which we find in the EVO comes from an improper cleaning.



Thank you