

Bodegas Montecillo

Eng. Juan Flor

**2005: Project for the realization of the new
vinification area.**

Why Ganymede?

Why?

1° First experience in 2004 vintage with a 75,000 liters Ganimede fermenter;

2° Old vinification room (1975)

3° Inadequate storage capacity

– Organoleptic results are not depending to different working capacity.

Flat or conical bottom.



2004

**trial of n. 1
Ganimede
of 75,000 liters**

A way to increase the fermenter possibilities and other winery's jobs through the use of technical gases.

- CO₂ Cryogenic depot: different fittings (joints) and sizing. Costs.
- Vaporizer: delivery capacity and features.
- Nitrogen panel control.
- Gas delivery network (air - CO₂ – N₂) with outlets for different winery purposes.

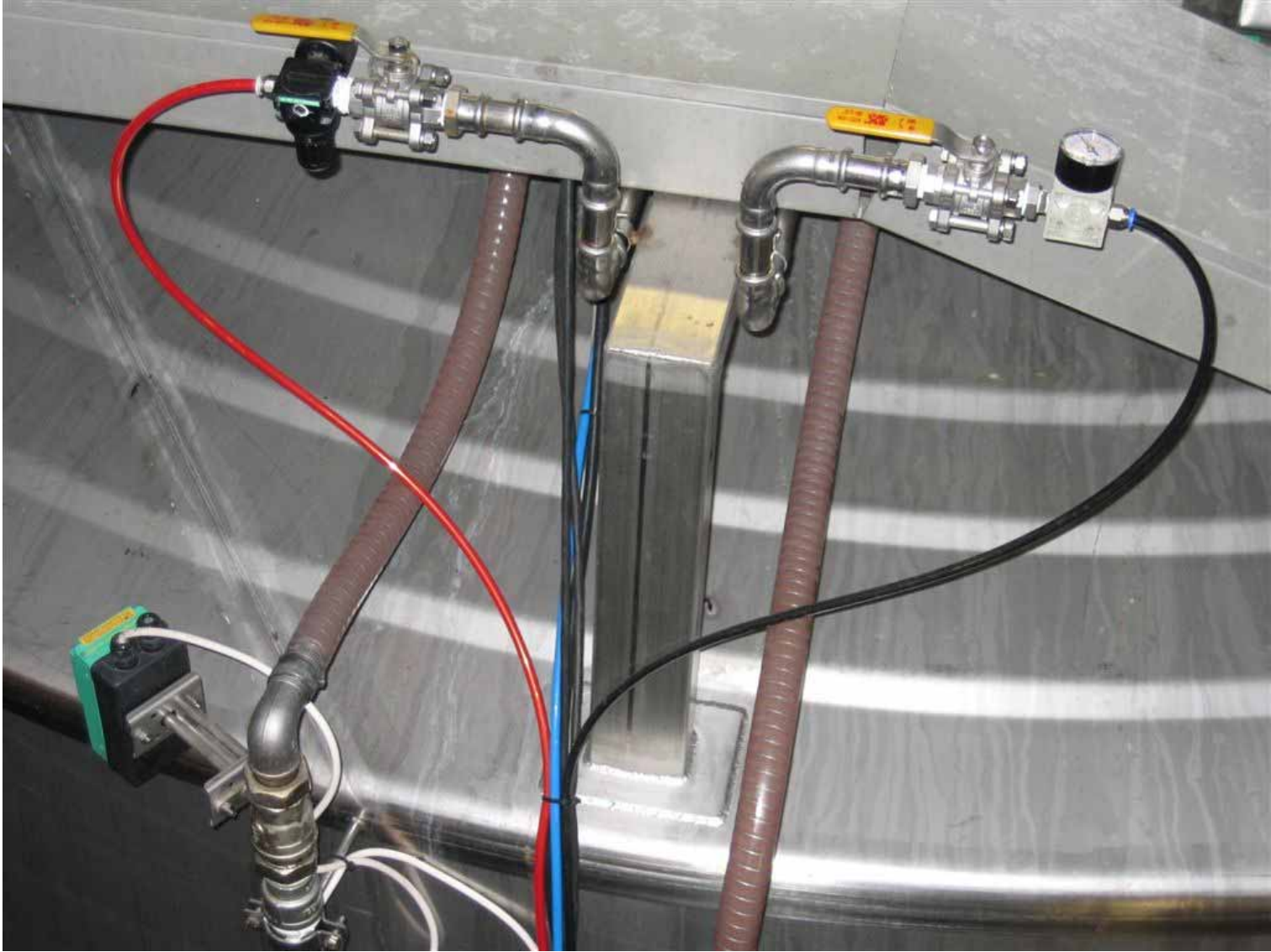
Versatility for the winemaker.









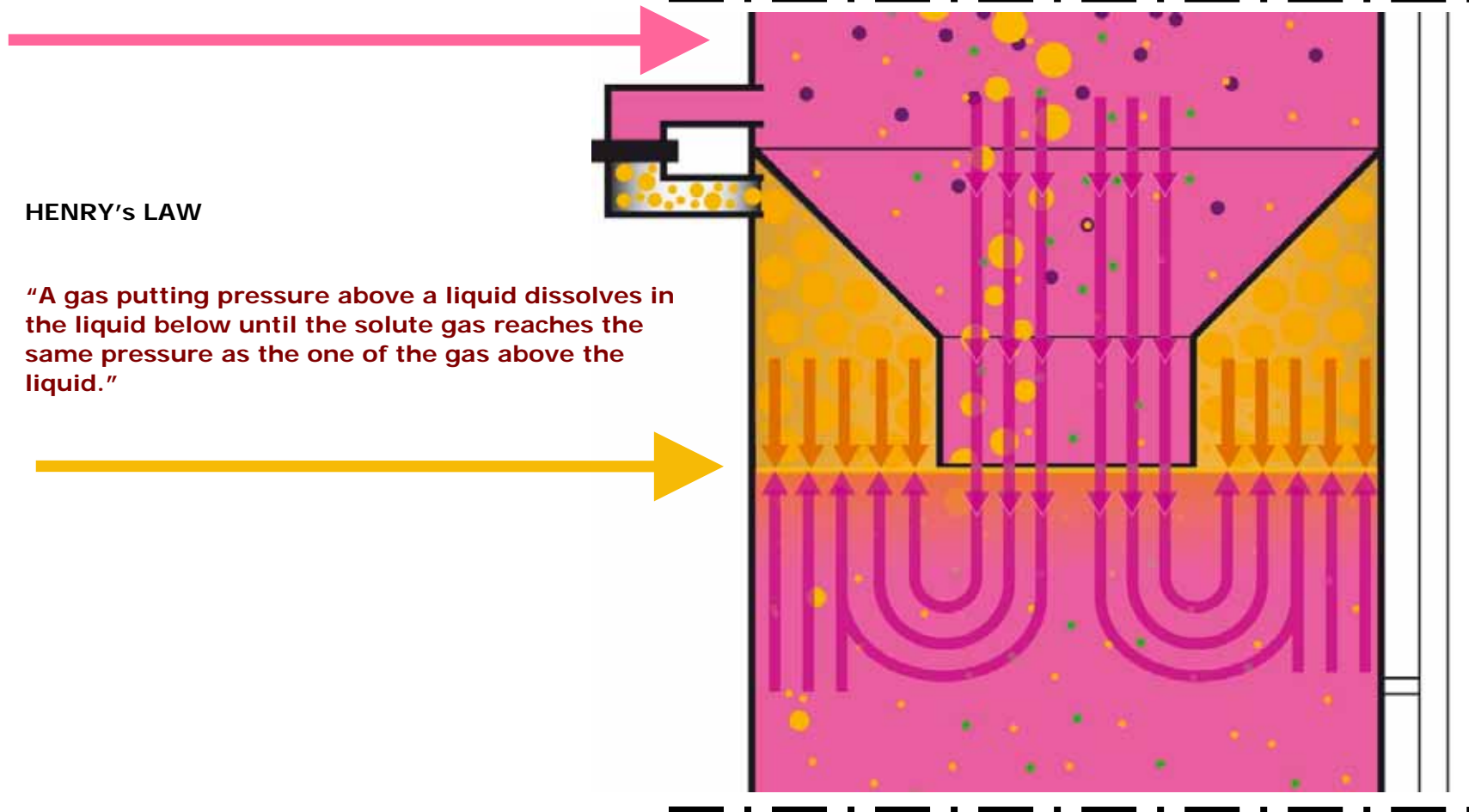


What can we do with all this things?

- Pre-fermentative macerations (with/without cold temperature, no use of pumps)
- Controlled and homogeneous macro/micro oxygenation.
- Chance to work in absence of O₂.
- Total cap soaking.
- Worry-free "batonnage" technique. Contact with noble lies.
- Variable capacity tank for storage
- Maintenance of natural CO₂ for whites and rosés (petillant)

HENRY'S LAW and Metodo Ganimede®

The liquid puts a certain pressure on the gas.



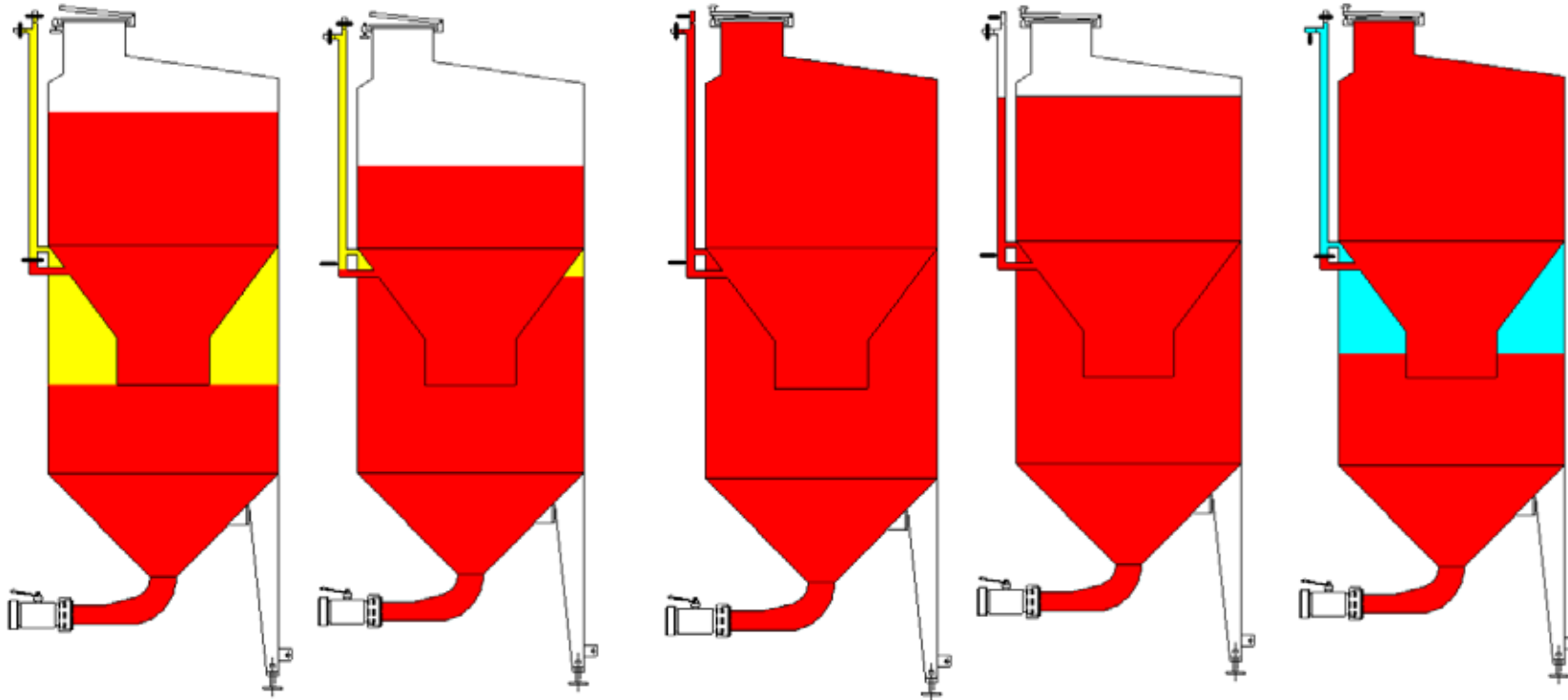
HENRY'S LAW

"A gas putting pressure above a liquid dissolves in the liquid below until the solute gas reaches the same pressure as the one of the gas above the liquid."

FERMENTATION

STORAGE

FLEXIBLE STORAGE



Fermentation with bypass closed. Once the fermentation status (or by injecting external technical gas) the gap under the diaphragm is completely full of gas. The gas in excess will escape towards the top surface producing big bubbles.

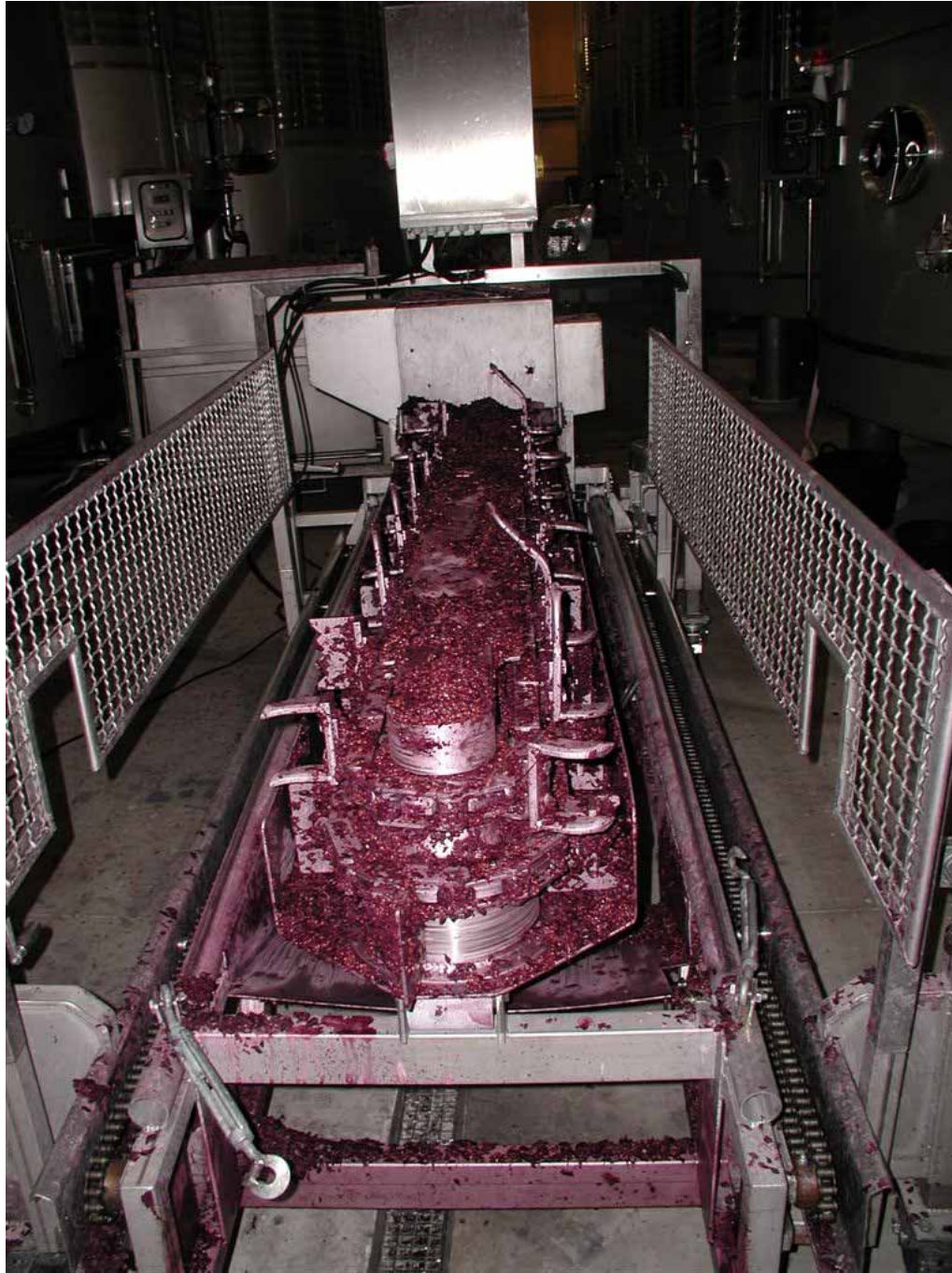
By opening the bypasses almost the gas accumulated escapes through the valve. Anyway a small area of gas remains to protect the bypasses.

To use Ganimede as storage tank it's sufficient to leave the bypasses open and also open the top venting tube during filling. Only this way the gap under the diaphragm will be completely filled. Once the filling is completed the top venting tube must be closed.

If there's no sufficient quantity of wine to completely fill the tank, the system offers a useful possibility. During filling the bypasses are open. At this point the bypasses and the top venting tube must be closed. Through the injection valve on the control panel a neutral gas will be introduced since the level in the upper area reach the very high point on the top manhole. Then the injection valve must be closed. When the tank will be discharged the gas under the cone has to be released by opening the venting valve first and then, once the gas has completely escaped, the bypasses can also be opened.

RESULTS-EXPERIENCES

- Optimal extractions of the polyphenolic substances.
- Less duration of the fermentation.
- More percentage of static draining (free-run juice)
- Seeds: easy to separate and manage.
- Great simplicity. Less manpower and electricity (only 2 persons for 5,000 ton)
- It's very easy to discharge the marc (which are much more soft, not compacted)
- In our winery we give the precedence to Ganimede on other traditional fermenters.











Bodegas Montecillo and Ganimede

Introduction and contents of the presentation: Why Bodegas Montecillo decided to adopt the Ganimede Technology – Necessary structures to optimize all the possibilities related to this technology; results and experiences obtained during the last 2 years.

In 2004 vintage Ganimede offers us the possibility to do an experimental job with a 75,000 liters Ganimede fermenter. In those days we didn't have any investment project already planned, but we had heard about the characteristics of this fermenter especially about its potential on mixing the cap in a natural way. We were curious to verify that theory corresponded to practical, real results.

Even though there wasn't the ideal conditions to test the tank (the tank was placed outside with big temperature differences between night and day) the results obtained were sufficiently good. Even the opening of the bypasses was difficult to see (no catwalks, we used a forklift to go on top). We attracted the interest of many people around the Ganimede.

The situation at Bodega Montecillo was this: we had two vinification buildings, one of self-emptying fermenters of 40 ton made of iron coat with a ceramic glaze with a certain external corrosion degree but perfect inside.

Bodega Montecillo had already ask the possibility to renew this vinification area.

In 2005 we had the chance to exploit a certain amount of money which was initially destined to another company of our Group. Moreover the winery had a storage problem. We had thus the necessity to enlarge the storage capacity in this area and we planned to install large capacity vats (more than 100,000 liters each).

This storage need was in contrast with the traditional winemaking rules about quality (ratio between cap surface and the volume of liquid)

Ganimede Method permitted us to have no differences in terms of organoleptic quality compare to the volume of the mass fermented (though the investment was higher)

We took the decision towards Ganimede and we installed the technical gases in the winery

Apart the evident advantages of Ganimede, for us was important to install other devices we thought were indispensable to enhance the Ganimede performances and other winemaking uses in the winery.

We decided to install a criogenic tank with liquid CO₂, a battery vaporiser and nitrogen with a control panel. Both lines are incorporated to a general gas line which feed the Ganimedes and other points in the winery.

The CO₂ installation has also an outlet for carbonic snow (dried ice) and another one for the connection to a pellets generator. With Ganimede we can do, in this way, cold pre-fermentative macerations, inerting and cooling the destemmed grapes transported by trucks, move the wine from a tank to another one in absence of oxygen, use it as variable capacity tank (within the the volume under the cone)

The chief winemakers were not favorable to discharge all the liquid mixed with skins directly into the press so, having experience with a traditional discharge of the pomace with a special mechanical machine, we went for a flat bottom with a extra benefit to all said represented by the larger storage capacity of the entire building.

Even if the Ganimedes hadn't do their job, we could use them as traditional fermenters, leaving the bypasses open and use the pump over tube with the irrorators on top. **So we decided to went for 20 Ganimedes of 105,000 liters and 1 of 25,000 to do experiments.**

We think this installation is a weapon in the hands of the winemaker capable to eliminate the usual limits of other equipments and able to really contribute in obtaining a better quality.

The variables which interact in the fermenting process are many, and it's a question of time for the winemaker (with trials and researches) to obtain the best possible product.

What are the possibilities of the ensemble Ganimede-technical gases? What can we do with that?

Pre-fermentative macerations and mixing of the cap without mechanical contact with the product (no pumps)

Possibility to make cold pre-fermentative macerations using technologies such as Boreal, heat exchanger Abelló or pellets (self-produced or rented).

In this way the extraction of anthocyanins is accelerated and their precipitation avoided; moreover since there's no sufficient alcohol yet, we also avoid to extract tannins. Then we introduce the yeasts and also filtered air to ease the fermentation.

Possibility to work in a free-oxygen environment or to specifically measure it as requested. We can prepare trucks with carbonic snow, or add CO₂ on the bottom of the tank or to saturate the surface of the tank during discharging of it. We can introduce CO₂ into the piping system when must/wine is passing.

This means less use of SO₂.

Possibility for micro-macro oxygenations in much more homogeneous and scientific way. There's a relation between the partial pressure of the oxygen in the gap under the cone and the concentration of the gas dissolved. Thanks to the controlled injection of the oxygen under the diaphragm it is possible to rise the partial pressure and the concentration dissolved.

Possibility to maintain the cap under the diaphragm (total soaking) drawing off the liquid and then fill the tank again. We did a test last vintage at the end of the fermentation but we didn't find variations in the polyphenolic's content. The extraction was already done. It would be interesting to see what kind of results we can obtain with the bypasses open (once the cap is formed discharge part of the liquid inside of the tank in order to leave the cap just under the diaphragm and then fill again the tank with the same wine.

It's very easy to do the « battonage » even with large capacities both on the wine or on the fresh lies.

Possibility to use the Ganimede as variable capacity tank, thanks to nitrogen injection under the cone during storage.

It's easy to maintain the whites with most of their CO₂ dissolved during fermentation, creating a small volume of carbonic gas in the gap under the cone. Same thing for rosé

RESULTS

At the early stages of the 2005 vintage, with Rioja Baja 's grapes, we used 7 Ganimede fermenters modifying the working variables. With and without maceration and pre-fermentative cap mixing, with and without automatic adding of CO₂, different timing in opening the bypasses, tests on injection of oxygen during different phases of fermentation (for yeasts and polymerization). Finally we decided to adopt a specific protocol.

We did a pre-fermentative maceration (though without cooling the product), we mixed the cap using external CO₂ from the main gas network until the natural fermentation vigorously started. When the alcohol percentage reached 6° we injected small quantities of CO₂ till the end of fermentation, to ease the polymerization of tannins and anthocyanins and to continue developing the yeast. We also added CO₂ in the final phases when the fermentation was practically finished, this was for facilitate the static drainage of liquid during discharging.

We're very satisfied about the following points:

- **Optimal extraction of the polyphenolic substances** (the proof is on seeing the skins) there's a great difference between results obtained with traditional fermenters of 83,000 liters and the Ganimedes of 103,000 liters.
- **The time of fermentation is reduced.** Practically the extraction is already finished in 3 days from the beginning of the fermentation.
- **More percentage of static drainage** (free-run juice). The ratio wine drained/Kilos of grapes is very high while the wine coming out of the press is very low. The time for pressing is half reduced. From a Ganimede of 90,000 kilos of product we obtained (by gravity) about 45,000 liters of wine; after a few hours, with the help of a pump we're able to extract up to 60,000 liters of liquid. The wine obtained from the press is only about 5% of the original grapes
- **We extracted the seeds (with just a few skins)** at the end of the drainage phase. It's very easy to eliminate them cause they're not compacted. In this way we avoided to charge them into the press.
- **Great simplicity, with minimum manpower and electricity involved** (2 guys for 5,000 ton of grapes processed). The cost of the CO₂ for all the vintage has been less than 4,000 euros
- Great easiness in extracting the marc (skins are very soft) with our special mechanical arm.

As a result we obtained red wines with more colour, fruitiness, with analytic polyphenolic extraction ideal for aging in barriques. White wines much more less oxydated (the colour was not so yellow) and much more aromatic.