



Experimentation constructed wetlands with zeolite for wine wastewater treatment : zeofito™

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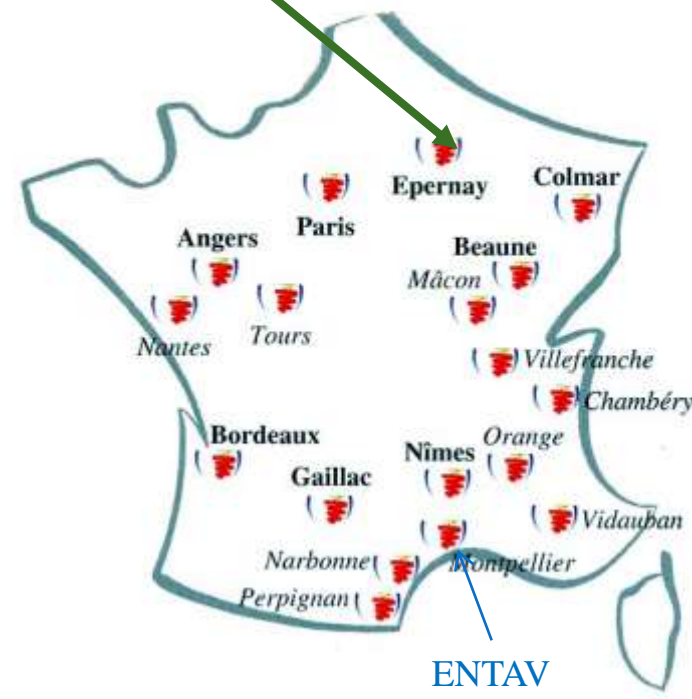




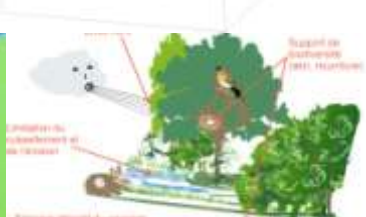
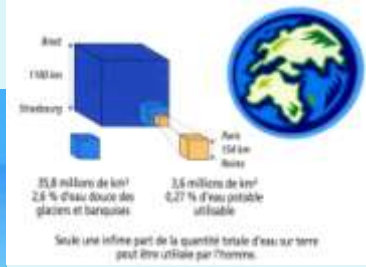
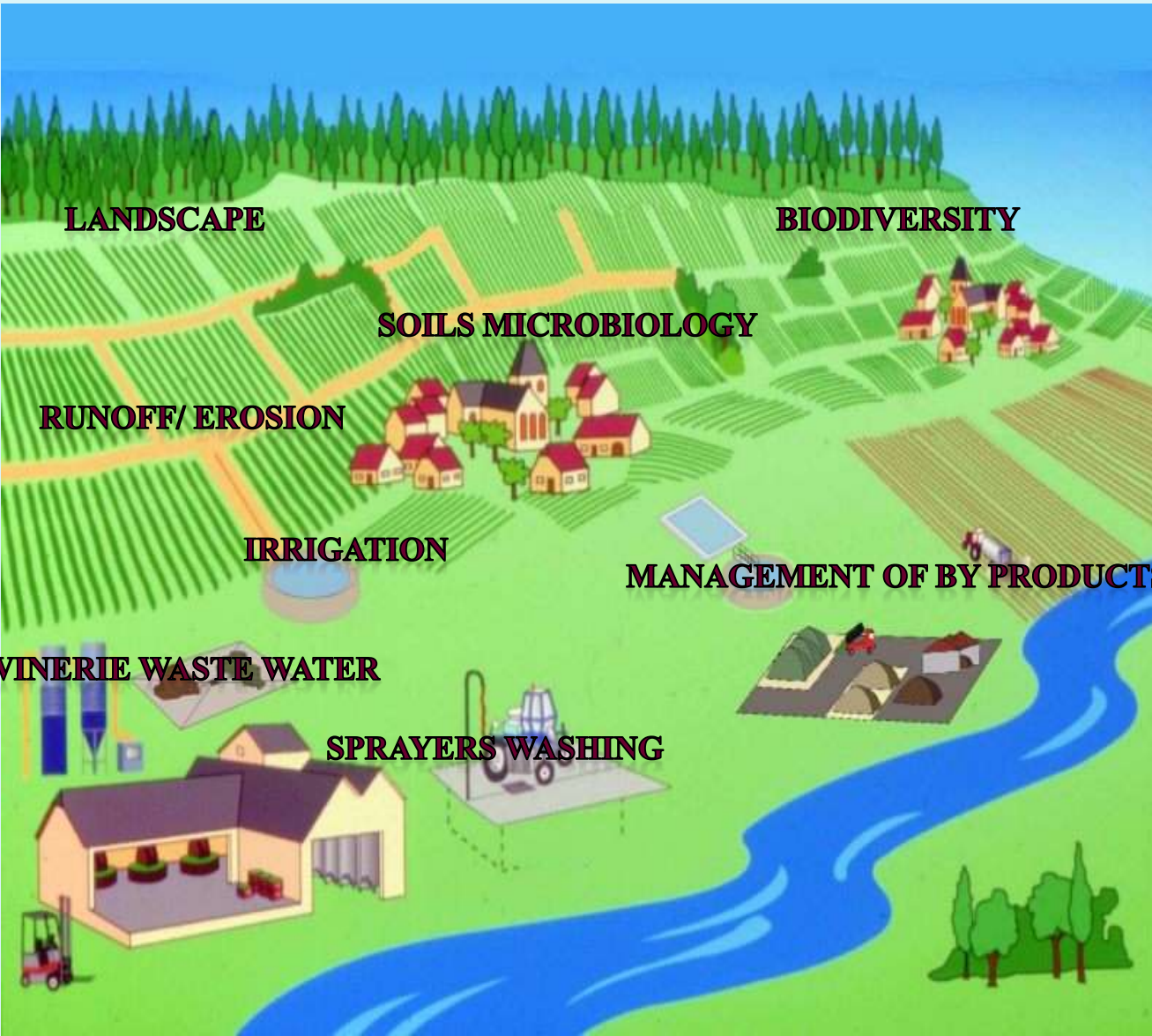
National Department for Sustainable Wine growing
 +Management of effluents and waste
 +Studying viticultural landscapes and biodiversity
 +Viticultural adaptation to climat changes
 +Impact of viticultural managment on greenhouse effect



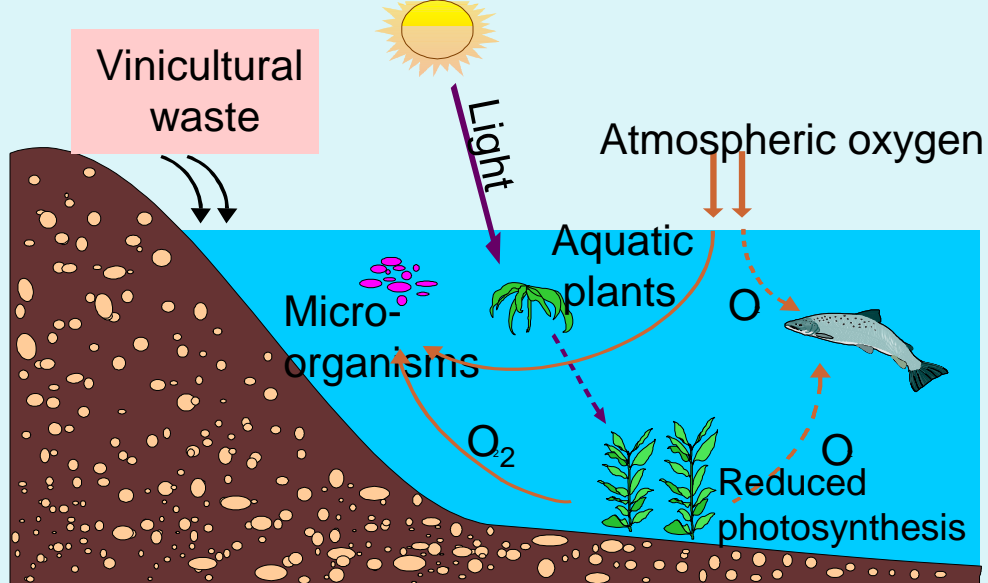
French Institut for Vine and Wine (ENTAV/ITVFrance)
 +National coordination
 +Interface
 Research / Professionals



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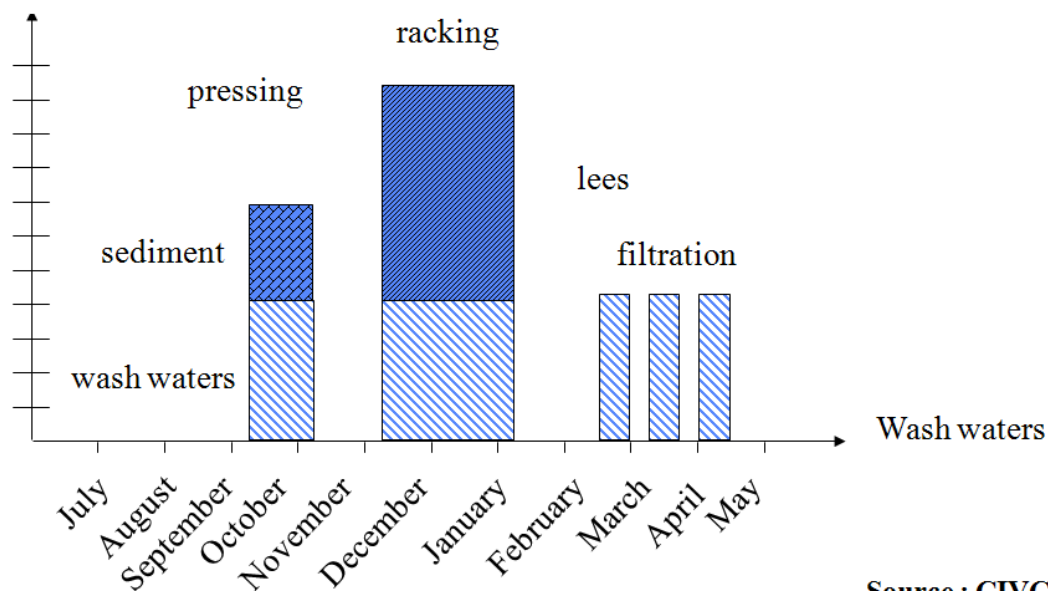


SUSTAINABLE MANAGEMENT OF TERRITORIES and TERROIRS



Pollution récente : imprégnation du milieu par les matières organiques

Pollutant load



Source : CIVC

Example of yearly effluent distribution (Champagne)

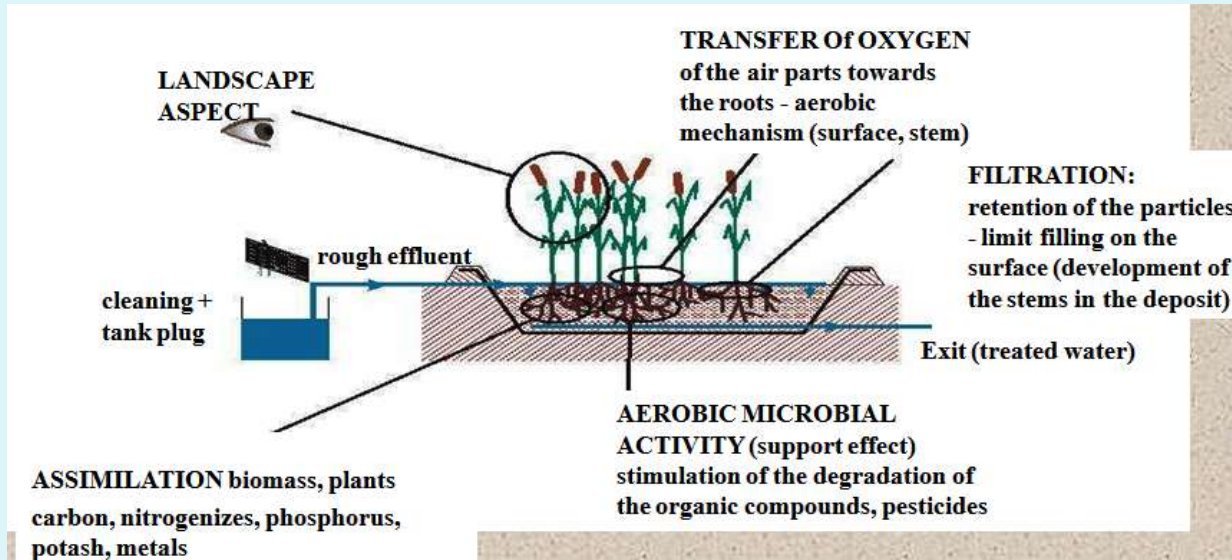
VARIOUS SYSTEMS OF PROCESSING WINERY WASTEWATER



Source : Nicolas F

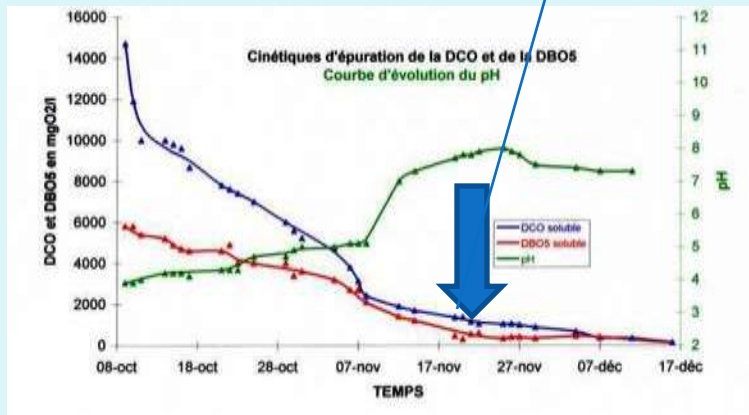
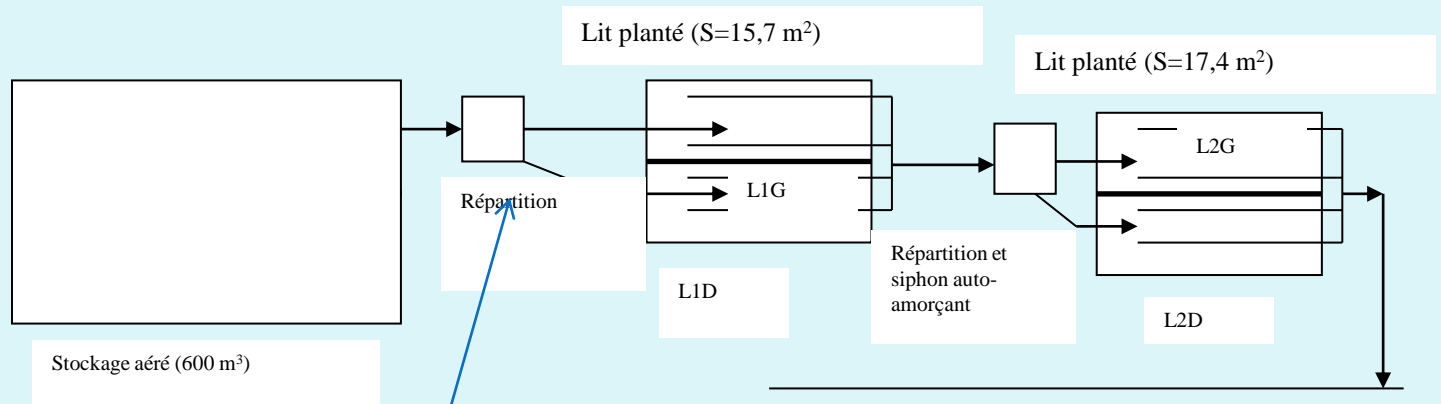


CONSTRUCTED WETLAND SYSTEM

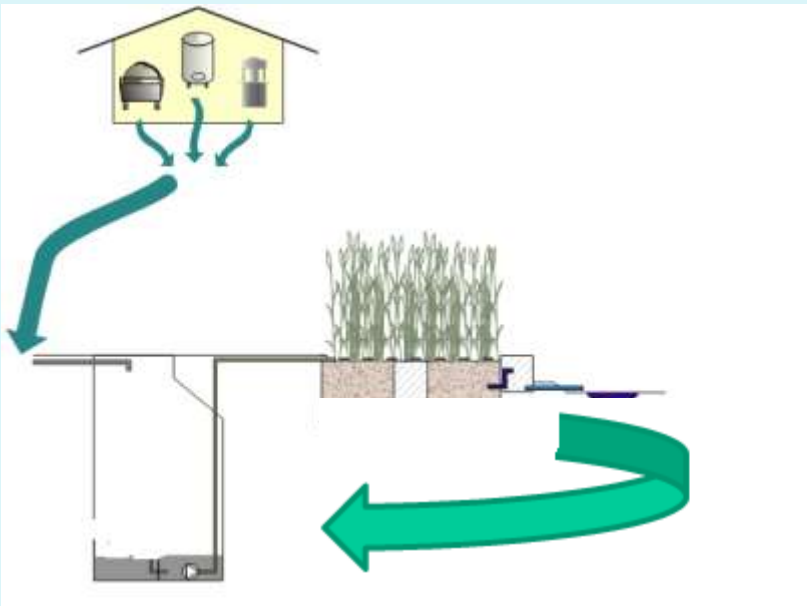


WINERY EFFLUENT TREATMENT

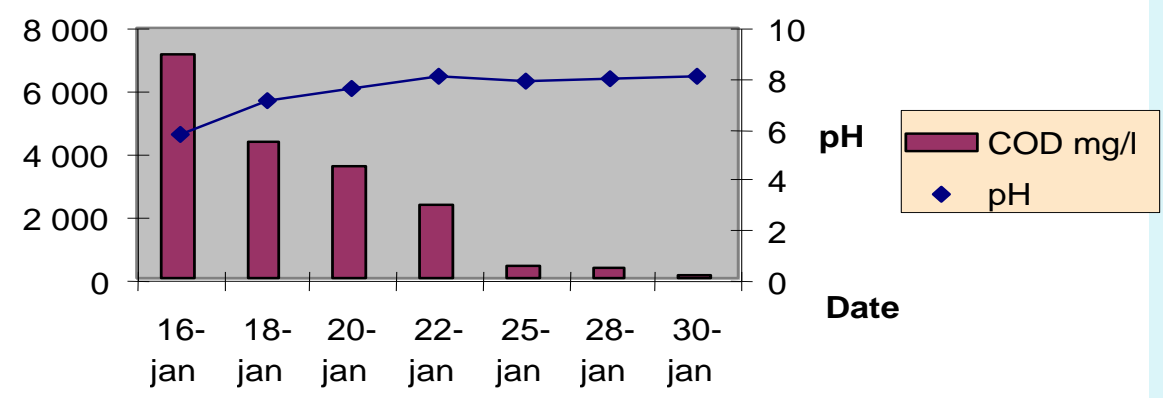
Finishing after AEROBIC BASIN



RECIRCULATION

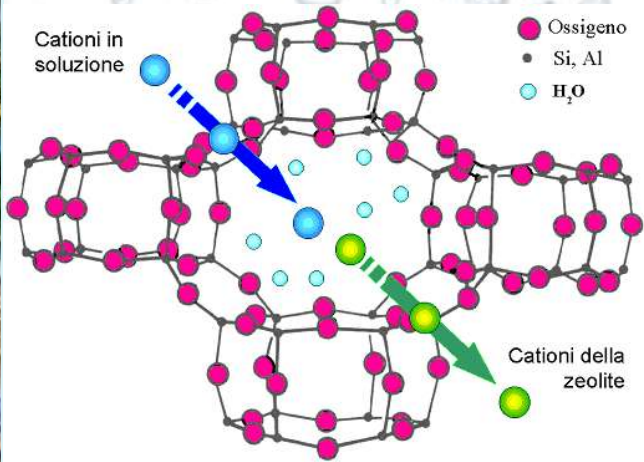


COD in mg/L





“Zeolitite”



- Volcanic Pyroclastic rock containing from 20% to 90% of zeolitic mineral
- A network of tetrahedrons whose primary units share the 4 apex with the same number of tetrahedrons through 4 atoms of oxygen
- Cationic exchanges
- Partial and reversible dehydration
- Gas absorption
- Molecular sieve



Podere Ruggeri Corsini in Piedmont, Italy.

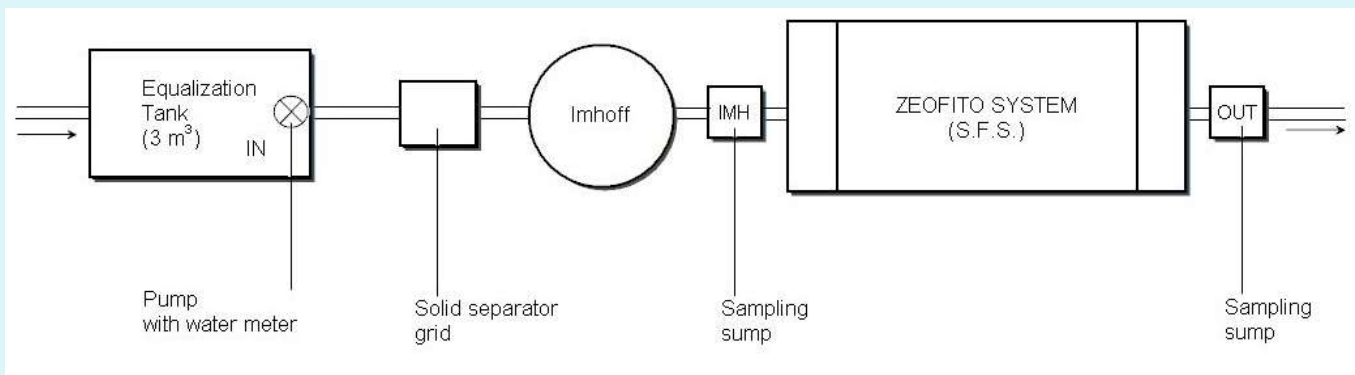
-No civil home wastewater were fed into the system.

-Production forecast is about 40 000 liters of red wine.

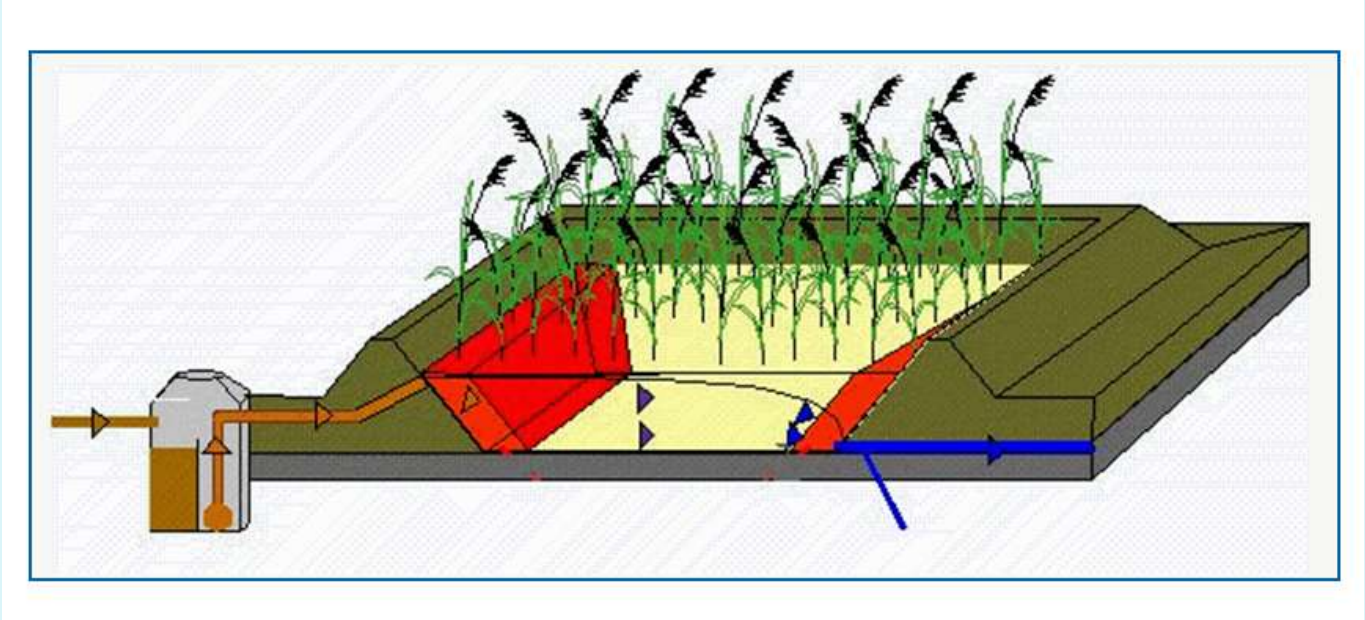
-During the wine making season the maximum forecast daily wastewater production is about $1.2 \text{ m}^3 \cdot \text{d}^{-1}$.

BAROLO





Wetland of about 24 m² (6.6 m x 3.6 m)



MEASURE VOLUME



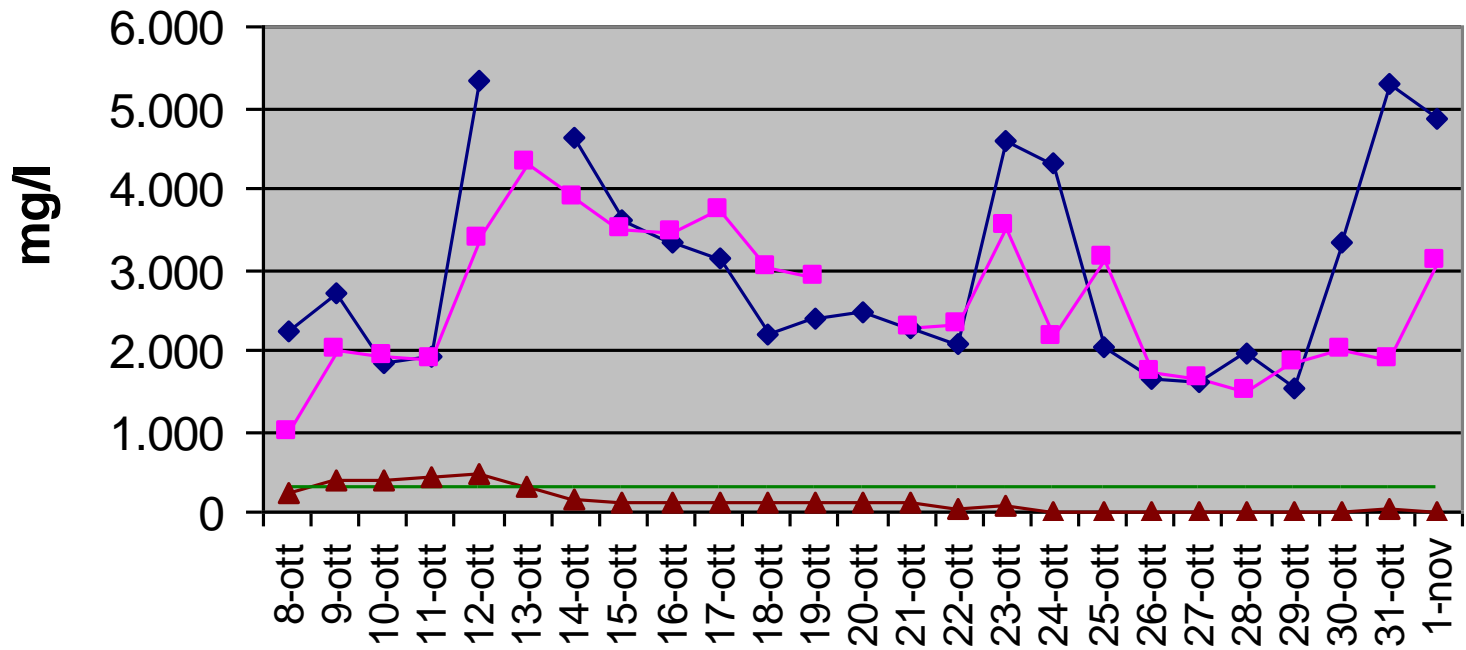
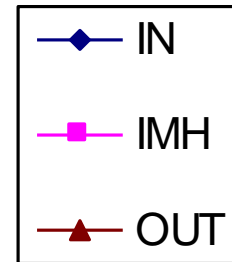


SAMPLES AND ANALYZES



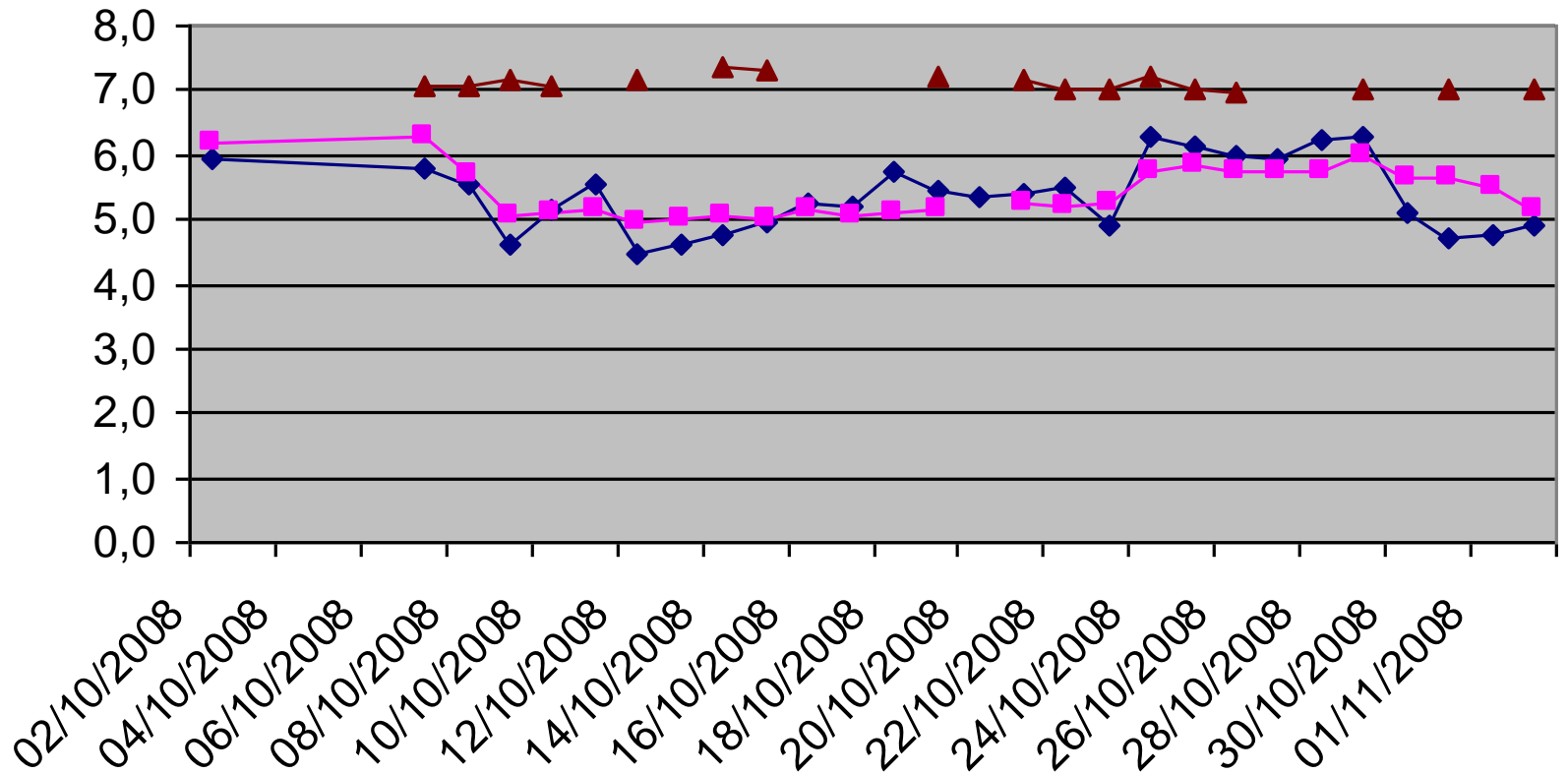
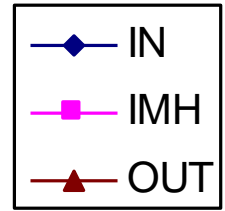


COD





PH





CAVE GAJA (BAROLLO Italie)





CONCLUSION

- + An experiment will be conducted during **next harvest** in a large cellar (1 million bottles) with a COD of about 7 to 10 grams / liter.
- + Project research some on bacterial seeding to increase COD elimination to the beginning of the harvest
- + Constructed wetland interesting for a **cellar eco-design**
 - Low energy
 - sludge management

Thank you for your attention

