PROJECT SUMMARY – August 2013

Winetech
Wine Industry Network of Expertise and Technology
Netwerk van Kundigheid en Tegnologie vir die Wynbedryf

Project	ZYG 001 - An investigation into the occurrence of *Zygosaccharomyces* spp. during winemaking. Improving detection, quality control and hygiene with grape concentrate producers

OVERVIEW

This WINETECH funded project focussed on the problems relating to re-fermentations of the spoilage yeast species *Zygosaccharomyces* in wines containing residual sugar levels. Since the restriction on the use of natamycin was implemented the consequence thereof was considered by many industry role players as the primary cause for these re-fermentation problems where grape concentrate is involved. It became ever so important to assess the industry situation to find alternative solutions, formulate recommendations and improve the current action plans at wineries. Several wineries, including grape concentrate and sweet must producers agreed to participate to this project in attempt to improve the risks around these contamination issues. A detailed report regarding this project was submitted to Winetech and feedback and recommendations to industry will be made in future.

Following extensive investigations that consisted of Audits, Consultations, Quality Control (QC) evaluations and Analysis of participating wineries, several significant findings have been made. These findings have highlighted the incidences of *Zygosaccharomyces* yeast contamination in certain wine products and indicated significant shortfalls at wineries that require attention.

FINDINGS

During the QC evaluation of the participant wineries that submitted problematic samples the presence of different *Zygosaccharomyces* spp. were detected in predominantly sweet must and grape concentrate but seldom in grape juice. In many cases of spoiled wines, several other spoilage wine yeasts were isolated together with *Zygosaccharomyces*. In swollen bags and products with re-fermentations *Saccharomyces* spp. were commonly also found and indicated that the problems relevant for *Zygosaccharomyces* spp. also pertain to other yeasts in many cases. This questioned certain winemaking practices such as quality control, cellar hygiene and filtration.

This was supported by the fact that there were bottlers who experienced no significant contamination problems at all. Also, changes in the production processes of one of the major concentrate producers increased the quality of their concentrates significantly with lower incidences of microbial contaminations.

The main findings derived from the results from different participants where shortfalls existed include:

- QUALITY CONTROL PROCEDURES
- CELLAR HYGIENE RACTICES
- FILTRATION PRACTICES
- WINE PRESERVATION
- TANKER HYGIENE PRACTICES
- PASTEURIZATION OF CONCENTRATE
- HEAD-SPACE MANAGEMENT OF CONCENTRATE

ACTION PLAN:

- *Several recommendations regarding the improvement of cellar hygiene protocols, practices and products have been implemented and are in process with the support of Thales Wine Cellar Services.*
- *Specific improvements for overall winery quality control and microbial tests have been identified following the work done at the Institute for Wine Biotechnology. These will be communicated to the relevant QC laboratories.*
- *Wineries must revise their filtration systems and adhere strictly to manufacturer specifications and critically revise enforcement of hygiene protocols of filtration systems. Recommendations in this regard will be communicated and wineries must critically review the financial implications against the quality risk.*
- *Specific concentrate producers have initiated action plans and made considerable improvements to lower the microbial risk and will continue within their financial limitations.*

Winetech will provide communications to industry during the next months to inform producers how the can improve their overall risk around *Zygosaccharomyces* spoilage.