RESOLUTION OIV-VITI 469-2012

OIV GUIDE FOR IMPLEMENTATION OF THE HACCP SYSTEM (HAZARD ANALYSIS AND CRITICAL CONTROL POINTS) TO VITICULTURE

THE GENERAL ASSEMBLY

Following the proposal of Commission I "Viticulture" and taking into account the work of the expert group "Management and Innovation of Viticultural Techniques" of the OIV since 2008,

CONSIDERING the commercial requirements for products with low food risk and the heightened concerns of the member states relative to the harmlessness of the products offered to the consumer,

CONSIDERING the HACCP system is a recognized international method for defining these risks and the provision of the measures to prevent the risks related to them, capable at the same time of demonstrating through documentation or registers that the products contain the fewest risks possible for the consumer,

RECOGNISING that there are other risk management systems that result in the same outcomes as a HACCP system (Good Agricultural Practices, the different national regulations in effect within the member states),

CONSIDERING the HACCP system is widely used for the reduction of food hazards during the wine-making production, but is rarely used for the reduction of hazards during the different viticultural operations,

CONSIDERING the conditions required in advance for applying the HACCP system and its principles are fulfilled,

DECIDES to propose to the member states of the OIV the guide for the implementation of the HACCP system, in order to facilitate its setting up in the production of grapes for different uses (fresh consumption, fermentation, drying or other):

GUIDE FOR THE IMPLEMENTATION OF THE HACCP SYSTEM IN VITICULTURE

Field of application

The guide for the application of the HACCP system applies to Viticulture, for the

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production of wine grapes, table grapes, raisins, grape juice or any other kind of grapes that will be used as the raw material for other vine products. In general, the grape production steps are similar, regardless of their end use; however, the end-use has to be considered before applying the HACCP system, because it may influence the emergence and management of risks: these could include hazards related to the transportation of the harvest to the winery (wine grapes) or to the packing/processing establishments (table grapes or raisins) or during the drying (raisins).

Beyond these steps, we should continue to apply HACCP system to the processes of wine-making. For processing of the fresh grapes/raisins, other exemples will be annexed.

Principles and steps of the procedure

Before going into the details of the application of the procedure, it is worth remembering the 7 general principles, as laid down by the Joint Committee of FAO/WHO of Codex Alimentarius (Table 1) and the 12 subsequent steps (Table 2) of the HACCP process.

A/a	Principle
1.	Carry out a hazard analysis from the production of grapes until their use and final destination
2.	Definition of critical control points (CCP)
3.	Establish the critical limits which guarantee the CCP's control
4.	Establish the monitoring and control procedures for the CCP
5.	Establish the preventive measures to be adopted when the monitoring indicates that a critical point is not controlled
6.	Establish the verification procedures to confirm that the HACCP system functions effectively
7.	Establish the documentation corresponding to all the procedures and registers adapted to these principles and their application

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Table 1: The seven principles of the HACCP

*CCP= Critical Control Point

Stages	Steps	HACCP Procedure
Preliminary Stages	1	Define the field of the study Establishment of the multidisciplinary HACCP team
	2	Compile the data relative to the product
	3	Identification of the use hoped for
	4	Description of the production process
	5	Verification "in situ" of the flow chart
Hazard Analysis	6	Identify the hazards and the preventive measures - *Principle 1*
Characterization of the critical points	7	Identification of the Critical Control Points – (CCP) *Principle 2*
	8	Establishment of the critical limits for each CCP *Principle 3*
Definition of the monitoring system	9	Establishment of the monitoring system of the CCP - *Principle 4*
	10	Establishment of a plan of corrective measures - *Principle 5*
Verification of the operation of the HACCP system	11	Verification procedures' determination- *Principle 6*
	12	Documentation System's determination - *Principle 7*

Table 2: The twelve steps of the HACCP

The 12 subsequent steps are simply the result of the combination of the 5 preliminary stages and the 7 general principles shown in the Table 2.

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The procedure proposed by the OIV is divided into 3 stages (shown also in colour shades in the Table 2):

- The first which corresponds to the step 5 of the preliminary stages of Table 2 and defined in the flow chart,
- The second which corresponds to the principles (1 and 2) of the HACCP and which identify the hazards, the preventive measures and the Critical Control Points of the procedure in question, and
- The third which corresponds to the following principles (3, 4 and 5) of the HACCP and which establish the limits for each Critical Control Point, the monitoring system of the CCP and the corrective actions plan.

The application of the HACCP in Viticulture in 3 stages:

1st stage: Define the diagram of the operations (flow chart)

The flow chart is defined according to the final product desired: type of wine, table grapes or raisins, grape juice.

It is based primarily on the operations defining the vineyard's potential and which define the average level of the maintenance operations: selection of the site of the vineyard, of its vine-training system, of its soil cultivation and of the plant material (grape varieties and rootstocks); also, the operations of the site preparation and the establishment of the vineyard, to the management of the soil, of the foliage, of the form pruning and the annual pruning.

It is, then, defined by the series of operations that are dictated by the potential of the vineyard and the environmental conditions, which vary depending on the year. In the APPENDIX I, Figure 1, it is indicated an example of a flow chart.

2nd stage: Identification of the risks, preventive measures and establishment of the critical points (Principles 1 and 2)

The identification of the risks is done by evaluating the method of each viticultural operation. The preventive measures must also be defined at this stage. Lastly, the grape producers must respond if there is a critical control point or not for each of them. All this information is included in an example (Appendix I, Table 3).

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The OIV Sustainable Guide for Vitiviniculture (CST 1/2008) is the most important element amongst the programmes prior to the implementation of a HACCP system. They must be observed/examined before starting the analysis of the risks and the definition of the preventive measures which will be associated with these risks. The OIV Guide must be broached from the angle of preventive measures to be taken to avoid that a risk associated with it arises.

In this way, the critical points can be identified (six CCPs were identified in the example of Table 3 and they are shown in red in the same table). To define a critical control point, it is worth using the decision tree in Figure 2 (in Appendix II).

3rd phase: Critical limits, monitoring systems and corrective measures for each CCP* (Principles 3, 4 and 5)

The objective of this phase is to define the critical limits for each of the critical points identified, as well as the monitoring procedures and corrective measures (Appendix I, Table 4).

Verification and documentation

In order to successfully complete the process of risk management, it is necessary to apply the 6th principle that is the verification that the HACCP is functioning properly, by reviewing all the documentation obtained throughout the process. This documentation constitutes, besides, the completion of the 7th and last principle of the HACCP system.

Appendix I: Figures and tables of an example in the production of wine grapes

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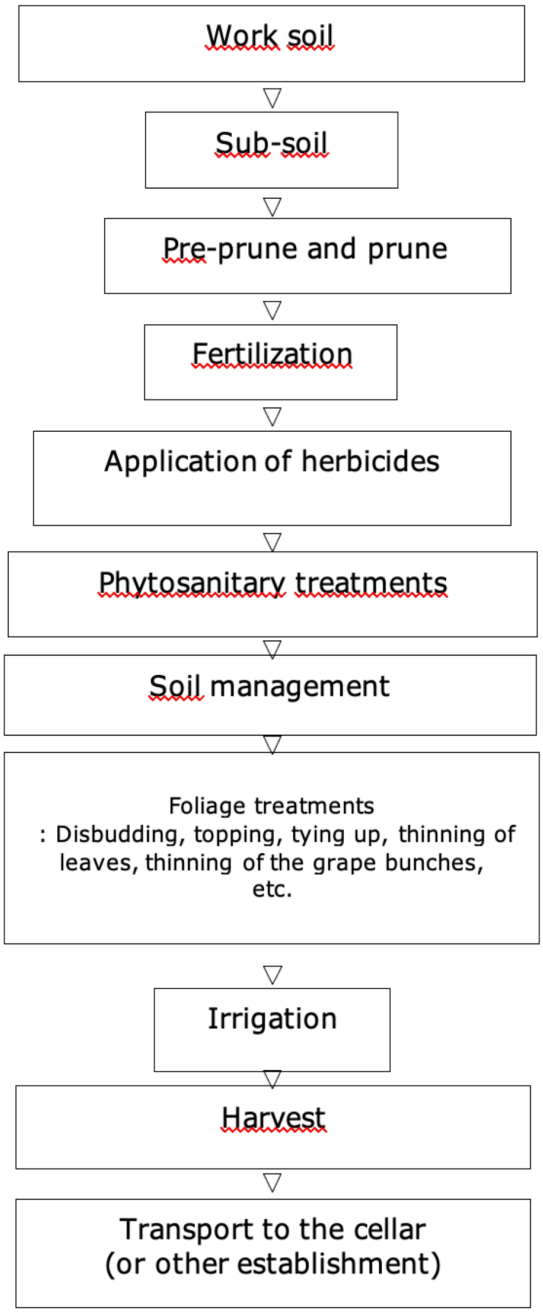

Figure 1. Flow chart of the production of grapes

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Operation	Risk	Preventive Measures	CCP*
Work of soil in winter	Not detected	Application of OIV Sustainable Guide for Vitiviniculture (CST 1/2008)	No
Sub-soil	Not detected	Application of OIV Sustainable Guide for Vitiviniculture (CST 1/2008)	No
Pre-prune and prune	Not detected	Application of OIV Sustainable Guide for Vitiviniculture (CST 1/2008)	No
Fertilization	Presence of biogenic amines in the must Presence of ethyl carbamate Excess vigour which promotes the development of moulds producing mycotoxins Presence of OTA in must and wine Presence of heavy metals	Application of OIV Sustainable Guide for Vitiviniculture (CST 1/2008) Application of OIV Code of sound vitivinicultural practices in order to minimise levels of ochratoxin A in vine-based products (CST 1/2005) Fertilisation Control Do not use grape marc brandy contaminated with Ochratoxin producing moulds Control of the distribution material of the fertilizer for a correct application of the doses Certification	YES
Soil management by application of herbicides	Presence of residue	Application of OIV Sustainable Guide for Vitiviniculture (CST 1/2008) Compliance with the dosage recommended on the label Review the hygiene of the application equipment Adequate preparation of the mixture	YES
Phytosanitary treatments	Presence of residue	Treat depending on atmospheric conditions and real needs. Comply with the doses and the timelines of safety before harvest Adequate preparation of the mixture Maintenance and adjustment of the equipment Application of OIV Code of sound vitivinicultural practices in order to minimise levels of ochratoxin A in vine-based products (CST 1/2005) Self-declaration by the producer for the correct application of the technical specifications	YES

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Work of soil in spring	Not detected	Application of OIV Sustainable Guide for Vitiviniculture (CST 1/2008)	No
Work in foliage (see flow chart)	Not detected	Application of OIV Sustainable Guide for Vitiviniculture (CST 1/2008)	No
Thinning of grape bunches	Not detected	Application of OIV Sustainable Guide for Vitiviniculture (CST 1/2008)	No
Thinning of leaves, and other work in foliage	Development of moulds producing mycotoxins, due to lack of ventilation of the grape bunches and due to their piling	Application of OIV Sustainable Guide for Vitiviniculture (CST 1/2008) Application of OIV Code of sound vitivinicultural practices in order to minimise levels of ochratoxin A in vine-based products (CST 1/2005) Avoid damage to fruit Control irrigation Control thinning of leaves and other green parts	No
Irrigation	Presence of contaminants in the water Breakage of the fruit and cracks in the thin skin	Analysis of the irrigation water Reasonable irrigation according to the vines' needs	YES
Manual and mechanical harvest	Physical contamination: Presence of foreign bodies, soil, etc. Chemical contamination by the harvesting machines: Heavy metals, hydrocarbons, remnants of cleaning and disinfecting products Microbiological contamination due to lack of hygiene Low hygiene control of the staff involved in the harvest, possible bacterial contamination.	Application of OIV Sustainable Guide for Vitiviniculture (CST 1/2008) Correct application of the cleaning and disinfecting products Awareness campaign for cleanliness and disinfection of accidental wounds: use of the gloves.	YES

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Transport to cellar (or other establishment)	Physical contamination: Presence of foreign bodies, soil, etc. Crushing of the grape bunches Grape bunch insects Residue from cleaning of the trailers Microbiological contamination of the trailers	Application of OIV Sustainable Guide for Vitiviniculture (CST 1/2008) Avoid pressure from excess weight Reduce transport time Adequate cleaning of the trailers, containers and tarpaulins Correct application of the products authorized for cleaning and disinfecting Utilization of drinking water Application of Good Hygiene Practices	No

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Table 3 Identification of the critical points

Operation	CCP	Critical Limit	Monitoring/Frequency	Corrective measures	Registers
Fertilization	YES	Depending on the needs of the crop Maximum limit of OTA in the musts and wines	Control of nitrogen : Soil and leaf (blade) analyses during the period from of fruit setting untill veraison	Control fertilization Avoid utilization of grape marc which contains Ochratoxin moulds	Fertilizer registers by parcel Control register of the grape bunches entering the cellar (assimilable nitrogen analyses)
Soil management by application of herbicides	YES	Accepted products and maximum limits of residue of grapes (MLR)	----------	In case of excess LMR, make wine from the lot separately	Maintenance and adjustment file of the application equipment Analyses (as soon as there is any)
Phytosanitary treatments	YES	Accepted products and limits established by legislation for each active ingredient	Control of the crop Control of the health of the grapes Control of the residue authorized for the final product	In case of excess LMR, make wine from the lot separately Measure the concentration in active ingredients and their metabolites, after the first filtration. Decide the destination of the wine, depending on the results of analyses	Application of phytosanitary products by parcel Analysis of maintenance and adjustment file of the application equipment (as soon as there is any)

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Irrigation	YES	Water supply Regulated limit on the presence of contaminants in the grape and the final product	Annual analysis of the irrigation water Control of the concentration of the contaminants authorized in the final product Monitoring soil and water status relative to the stage of vine development and water demand	Filtration before the use of the irrigation water	Water analyses performed
Manual and mechanical harvest	YES	Check of the presence of foreign bodies and oher contaminants	Visual, during the harvesting operations	Winemaking separated from the other lots	Lots' register for the traceability

Table 4: Establishment of the critical limits, the monitoring procedures and the corrective measures

Appendix II: Decision tree of the critical control points

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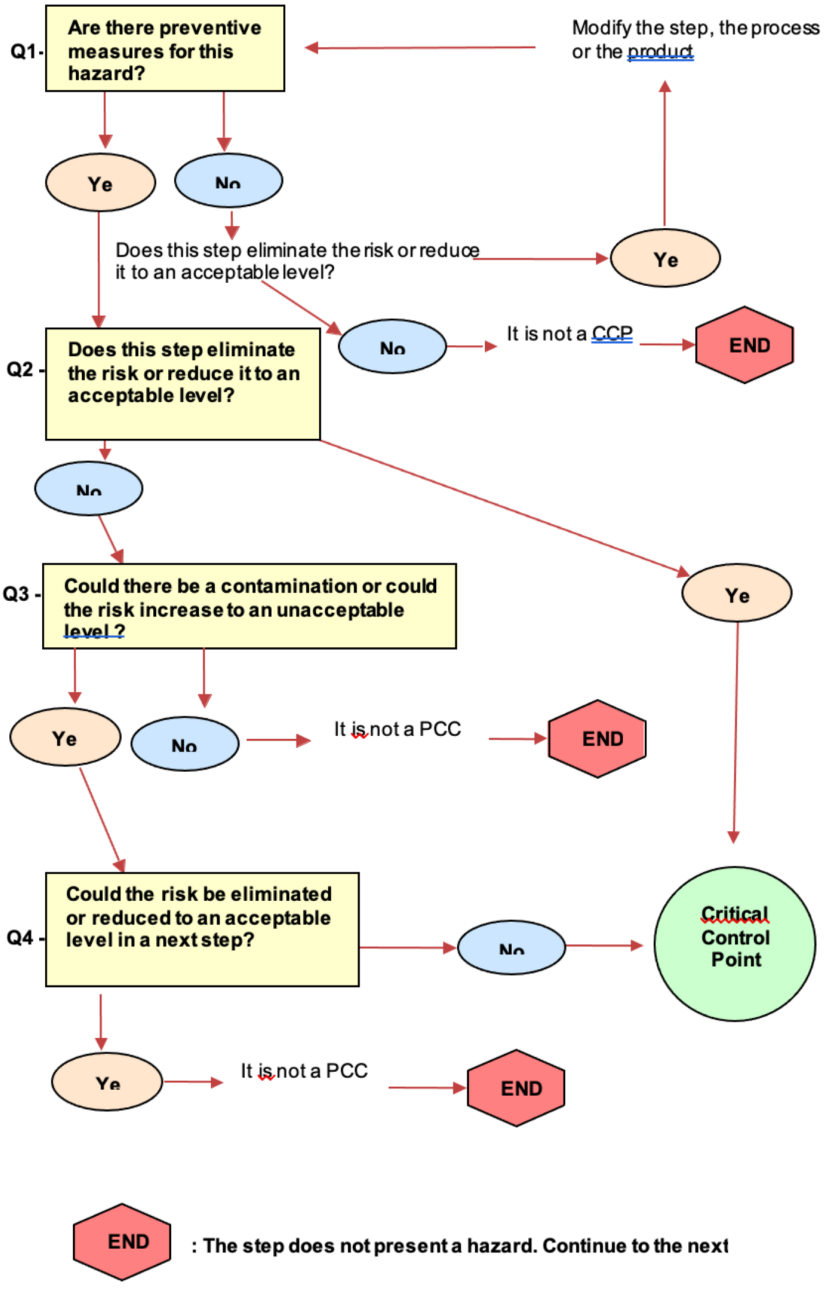

Figure 2. Decision tree of the critical control points (PCC)

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