




ENVIRONMENTALLY-FRIENDLY GRAPE GROWING AND WINE PRODUCTION

TECHNICAL GOOD PRACTICES

LIFE SYNERGY PROJECT, QUALITY AND RESPECT FOR THE ENVIRONMENT



Proyecto LIFE SINERGIA
LIFE 03 ENV/E/000085



The Autonomous Community of La Rioja is a region situated in northern Spain in the heart of the River Ebro valley. Its desire to protect the environment makes it a pioneering Community in the development of environmental projects, including most notably the projects successfully carried out within the scope of the LIFE programme, and which have become flagship initiatives in the environmental policy of the region.

Aware of the multiple implications that supporting and promoting the wine sector and its environment has for our Autonomous Community, the LIFE Project SYNGERY “Quality and Respect for the Environment” was launched as a clear commitment to the search for integration between quality vitiviniculture and the environment.

Special mention must be made of the intense collaboration between the different authorities and entities of the Autonomous Community Government of La Rioja involved in the project: the Directorate General of Environmental Quality (DGCA), in its capacity as the beneficiary of the project, and the Economic Development Agency of La Rioja (ADER), the La Rioja Quality Institute (ICAR) and the Agrofood Control, Certification and Services Entity (ECCYSA), as partners in same. Noteworthy contributions have also been made by private sector companies such as Viñedos de Aldeanueva, Bodegas El Patrocinio, Juan Alcorta, Viña Ijalba, Dinastía Vivanco and Bodegas Roda, which have contributed their experience and the practical elements necessary to transfer the techniques developed from a theoretical setting to the reality of vineyards and wineries. Lastly, we must also acknowledge the magnificent work of the professionals at the Agricultural Research and Development Centre (CIDA), the Regional Laboratory of La Grajera, the Control Board of the Rioja Qualified Designation of Origin, the University of La Rioja and the Rioja Wine Interprofessional Organisation.



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LIFE 03 ENV/E/000085

The elaboration of the Technical Good Practices in Vitiviniculture has been crucial to the achievement of the final objective, which is none other than the development of an environmentally-friendly quality wine production system that can also be implemented in other sectors and regions within the European Union.

These “good practices” contain the technical keys, initially applied in vineyards and then in the wineries themselves, which will guarantee the achievement of quality wine prepared using environmentally-friendly techniques at all times. A wide range of prestigious professionals from the sector have participated in the preparation of these documents, resulting in a useful tool whose application will produce very positive results in all areas.

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TECHNICAL GOOD PRACTICES IN VITICULTURE



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PRACTICE	Preparation of the soil
OBLIGATORY	<p>Elimination of plant remains and physical preparation of the terrain. Eliminate all roots, particularly if the previous crop was grapevine.</p> <p>Elimination of weeds, pathogens and pests using cropping techniques.</p> <p>This practice must comply with regulatory specifications governing vineyard growing in terms of periods, authorisations, declarations, varieties, etc.</p>
PROHIBITED	
RECOMMENDED	<p>In plantations on terrain previously cultivated with grapevine, the soil must be left for at least 4 years before this crop is cultivated again.</p> <p>In plots on sloping terrain, subsoiling must be performed to facilitate root system development and improve water infiltration, thus preventing erosion and enhancing soil hydric capacity.</p> <p>In plots with gradients over 8%, terraces should be constructed across the slope of the land rather than aggressive levelling with surrounding terrain.</p>



PRACTICE	Ground dressing
OBLIGATORY	Soil analysis in the first year of incorporation in the environmentally-friendly grapevine production programme. Ground dressing will be performed according to the analysis.
PROHIBITED	Doses above the maximums specified in the following section.
RECOMMENDED	<p>Phosphorous, potassium and magnesium fertilisation. Fertilisers must be buried using preparatory techniques. <u>Maximum authorised doses of P₂O₅.</u></p> <p>Poor soils: 250 F.U./ha Average soils: 200 F.U./ha Rich soils: 140 F.U./ha <u>Maximum authorised doses of K₂O.</u></p> <p>Poor soils: 350 F.U./ha Average soils: 300 F.U./ha Rich soils: 260 F.U./ha <u>Maximum authorised doses of MgO.</u></p> <p>Poor soils: 100 F.U./ha Average soils: 80 F.U./ha Rich soils: 50 F.U./ha</p> <p>(See <u>Appendix I</u>)</p> <p>Nitrogenous fertilisation. In <u>organic fertilisation</u>, use mature manure/compost – preferably cow or sheep manure - applied in maximum doses of 30 t/ha. When the recommended organic doses are added, supplementary additions are not necessary. If organic remains are not added, a maximum dose of 40 F.U./ha of N from mineral fertilizers may be applied.</p>



PRACTICE	Planting
OBLIGATORY	<p>Plant material with the required phytosanitary passport issued by officially authorised producers must be used. Own plant material may only be used when the former cannot be obtained through officially authorised producers.</p> <p>All plots availing themselves of the environmentally-friendly grapevine production programme must comply with the provisions contained in regulatory specifications currently in force governing vineyard growing in terms of periods, authorisations, declarations, varieties, etc.</p> <p>Plantation density must comply with the Regulations governing Wine Quality Standard Classifications in force in the Autonomous Community of La Rioja.</p> <p>The rows of vines must be arranged in such a way to minimise soil erosion.</p>
PROHIBITED	<p>Planting vine shoots without root stock.</p> <p>Use of rootstock not authorised by legislation.</p>
RECOMMENDED	<p>Do not plant crops associated with grapevine on the same plot.</p> <p>Do not plant different grapevine varieties on the same plot without clearly establishing limits between them.</p>



PRACTICE	Fertilisation (1/3)
OBLIGATORY	<p>Soil analyses must be performed at least every 5 years.</p> <p>For the production period (from year 3), a fertilisation plan must be established based according to the results of the soil analyses, the composition of irrigation water, yields, harvested crop quality, a visual inspection of the behaviour of the plantation, the handling system and the type of soil.</p> <p>In order to determine plant response to the fertilisation plan and correct any deviations, samples of plant material (leaves, fruits, flowers, etc.) must be collected on a regular basis and at the appropriate time for analysis purposes.</p> <p>Nutrients must be supplied mainly by the soil.</p>
PROHIBITED	<p>Doses above the specified maximums in the following section.</p> <p>Supplement the soil by adding matter with fertilising power obtained from mud released by treatment plants or solid urban waste contaminated by pathogenic microorganisms or which contain non-degradable materials, or heavy metals with values above those established in Order 28 of May 1998 on fertilizers and similar products (BOE (Spanish Official State Gazette) No. 131) and which are listed in <u>Appendix II.</u></p>



PRACTICE	Fertilisation (2/3)
RECOMMENDED	<p>Supply the nutrients preferably in the form of composted organic material.</p> <p>At least one quarter of nitrogenous contributions must consist of organic nitrogen obtained from well-prepared manures or composts.</p> <p>Restrict the use of quick-release fertilizers to reduce contamination.</p> <p>Maintain plant, natural or induced cover to preserve soil fertility.</p> <p>Nitrogenous fertilisation.</p> <p>Distribute the addition of nitrogenous fertilisers throughout the vegetative cycle.</p> <p>During year 1 of plantation, a maximum of 20 F.U./ha of N may be added, preferably on the cover.</p> <p>In year 2, a maximum of 25 F.U./ha of N may be added.</p> <p>During the production period, and depending on the vigour of the plantation and expected crop, the annual maximum will be 40 F.U./ha of N.</p>



PRACTICE	Fertilisation (3/3)
RECOMMENDED	<p>Phosphorous, potassium and magnesium-based fertilisation.</p> <p>During year 2 of plantation, phosphorous, potassium and magnesium-based fertilisation may be eliminated. If performed, it must not exceed 15 F.U./ha of P₂O₅ , 40 F.U./ha of K₂O and 10 F.U./ha of MgO.</p> <p><u>Maximum authorised doses of P₂O₅ in the production period.</u></p> <p>Poor soils: 30 F.U./ha Average soils: 20 F.U./ha Rich soils: 10 F.U./ha</p> <p><u>Maximum authorised doses of K₂O in the production period.</u></p> <p>Poor soils: 100 F.U./ha Average soils: 80 F.U./ha Rich soils: 60 F.U./ha</p> <p><u>Maximum authorised doses of MgO in the production period.</u></p> <p>Poor soils: 20 F.U./ha Average soils: 15 F.U./ha Rich soils: 10 F.U./ha</p> <p>The use of “Potassium Sulphate” is recommended instead of “Potassium Chloride”, particularly in calcareous soils or soils with noticeably high salinity levels. (See Appendix I)</p> <p>Other additions.</p> <p>Restrict the application of leaf-based fertilizers and only use them when fully justified after analysing the leaves or fruits in question, or in the event of clear deficiencies or problems documented in previous years. Iron chelates may be used to control iron-induced chlorosis.</p>



PRACTICE	Irrigation
OBLIGATORY	<p>Water must be analysed every year in the summer.</p> <p>Use irrigation techniques that ensure the most efficient water consumption and optimise water resources.</p> <p>Follow the instructions established in each campaign by the Wine Quality Standard Control Boards or Coordination Boards existing in the Autonomous Community of La Rioja.</p>
PROHIBITED	<p>Flood irrigation.</p> <p>Use of untreated sewage water.</p> <p>Use of water with unacceptable quality levels for the crop.</p>
RECOMMENDED	<p>Irrigation programmes based on the water balance with ET0 data from nearby weather stations or stations similar to the weather conditions in the area of the plot, local Kc and according to the humidity conditions and soil characteristics in each crop phase; attempt to combine the water stress level and the achievement of maximum quality in the clusters.</p>



PRACTICE	Soil maintenance
OBLIGATORY	Establish a strip of plant cover on the plot perimeter, starting at 2.10 m (width of the farming implement) from the last vine to prevent contaminating run-off.
PROHIBITED	The use of herbicides not indicated in Appendix III.
RECOMMENDED	<p>Do not apply herbicides to the entire (100%) surface area (not crop).</p> <p>In plantations with spontaneous plant cover during the autumn and winter, maintain this cover during that period.</p> <p>In vine rows, use mechanical means (farming techniques), mulching , and/or herbicides when the previous methods do not allow adequate weed control.</p>



PRACTICE	Pruning
OBLIGATORY	<p>Pruning must contribute effectively to the control of vine yield and vigour, the establishment of adequate exposed leaf surface (EFSp)/crop ratio and the maintenance of an optimum microclimate of clusters and leaves, since this will provide qualitative and phytosanitary benefits.</p> <p>In any case, the guidelines established by the Regulations governing Wine Quality Standard Classifications in force in the Autonomous Community of La Rioja must be followed.</p> <p>Pruning techniques should be used that minimise large wounds to prevent the proliferation of wood fungi. If the formation systems are modified in any way (from a head-pruned system to the use of vine arbours, etc.), the wounds must be protected using products developed specifically for this purpose.</p> <p>Cut and remove dead parts from vines at the time of pruning, and then protect wounds using special products. Remove and destroy dead vines in the plot.</p>
PROHIBITED	<p>Leave pruning remains without cutting them up into small pieces or crushing them on the plot.</p> <p>The use of synthesis phytohormones.</p>
RECOMMENDED	<p>The use of cropping techniques that enhance production quality, such as green pruning (weeding and removal of lateral shoots), cluster thinning, leaf stripping, etc.</p>



PRACTICE	Machinery
OBLIGATORY	The machinery used to apply phytosanitary products, herbicides, leaf fertilisers, etc. must be in perfect working order. The producer must check and calibrate the machinery on an annual basis.
PROHIBITED	
RECOMMENDED	Have machinery checked and calibrated at least once every four years at an authorised centre.



PRACTICE	Crop protection (1/2)
<p>OBLIGATORY</p>	<p>In pest and disease control, preference must be given to biological, biotechnical, cultural, physical and genetic methods rather than chemical methods.</p> <p>Chemical treatment must be used in a situation of populational estimate of the confirmed pest or disease, and as the only alternative to control the existing phytosanitary problem. For this purpose, the threshold values recommended in Appendix IV must be used.</p> <p>The different types of active matter indicated in Appendix IV have been selected based on the following criteria: toxicity, effect on auxiliary fauna, environmental impact, efficiency and residue material.</p> <p>Weeds must be controlled by mechanical means whenever possible. However, whenever weeds cannot be controlled using farming machinery, herbicides must be used on a localised basis, preventing the dispersion that may occur if applied using small drop micro-sprinkling techniques.</p> <p>In addition to efficiency and selectivity, it is also very important to take into consideration the herbicide absorption coefficient, which must be high in order to reduce the risks of environmental contamination (Appendix III).</p> <p>In sandy soils, residual herbicides must not be used.</p> <p>Herbicides must be applied at the moment of maximum weed sensitivity, thus allowing minimal doses of active matter to be applied.</p>



PRACTICE	Crop protection (2/2)
PROHIBITED	<p>Use of any product authorised in these technical good practices (Appendices III and IV) that has been removed from the Official Register of Phytosanitary Products.</p> <p>Regular and systematic treatment without technical justification (treatment schedule).</p>
RECOMMENDED	<p>If chemical products are used, treatments must, if possible, be applied locally to the plant or in the plot. Moreover, active matter should be alternated with other different treatment methods.</p> <p>Adopt all possible hygiene measures and cropping practices designed to reduce the impact of phytosanitary problems in the crop.</p> <p>Respect all beneficial autochthonous insects as far as possible and only use selective pesticides when other control techniques are not viable.</p>



PRACTICE	Harvesting
OBLIGATORY	Cropping must be performed in appropriate conditions to ensure grapes reach the winery in perfect condition. Compliance with the harvesting dates and conditions stipulated in the Regulations governing Wine Quality Standard Classifications in force in the Autonomous Community of La Rioja.
PROHIBITED	
RECOMMENDED	The grapes must be whole when they reach the winery and must be delivered the same day in the grape harvest. Wet grapes should not be harvested whenever possible.



PRACTICE	Field Notebook
OBLIGATORY	<p>The Field Notebook must be used to record all crop work and operations performed by the farmer at least on a weekly basis.</p> <p>By signing the Field Notebook, the producer takes responsibility for the accuracy of the notes recorded in the notebook.</p> <p>The Field Notebook must be available for inspection at all times.</p>
PROHIBITED	
RECOMMENDED	



PRACTICE	Occupational hygiene and safety: application of phytosanitary products
OBLIGATORY	<p>Workers handling or applying phytosanitary products must have the corresponding phytosanitary products handling permit, at the level appropriate for the category of products used.</p> <p>When applying phytosanitary products, workers must use adequate protective equipment and apparel for the work performed and stipulated in the Occupational Hygiene and Safety regulations in force at the time.</p>
PROHIBITED	<p>Eating, smoking, drinking or any other activity that requires hand and mouth contact during the application of phytosanitary products.</p> <p>Persons may not be present on the plot where the products are being applied during and after their application until a reasonable period of time has elapsed to ensure the absence of risk from these products.</p>
RECOMMENDED	<p>Wash hands and face with abundant water before smoking, drinking, eating or any other activity that requires the use of hands and mouth after handling phytosanitary products.</p>



PRACTICE	Environmental conservation
OBLIGATORY	<p>If plastic materials and/or artificial substrates are used, they must be removed and treated in accordance with existing environmental regulations.</p> <p>Phytosanitary product containers must be controlled by an authorised company pursuant to existing legislation (SIGFITO).</p> <p>Specific measures must be adopted to prevent applications from drifting to plots other than those targeted for treatment, regardless of whether these plots belong to the same owner or not.</p> <p>Carry out fertilisation plans to prevent the excessive contribution of nutrients that will not be used by plants and which may contaminate aquifers.</p>
PROHIBITED	<p>Abandoning plastic remains, containers and other waste within plot perimeters.</p> <p>Depositing excess liquid produced by equipment used to apply phytosanitary products in water beds or reservoirs or washing such equipment in these areas.</p> <p>The application of phytosanitary products when weather conditions induce drifting of applied products outside the plot targeted for treatment (wind speed over 5 km/hour).</p>
RECOMMENDED	<p>Set aside areas specifically prepared for filling barrels, washing equipment, depositing remains of unused liquids, etc.</p> <p>Autochthonous species must be used whenever possible to plant windbreaker hedges in order to maintain a diverse structure and composition.</p> <p>Maintain traditional constructions and unique plant groups already present on the plot.</p>



APPENDIX I. FERTILISATION Vineyards

Soil content levels of Phosphorous (P) and Potassium (K).

These will be determined using any quantitative or semi-quantitative method that enables soils to be classified in their respective categories (poor, average and rich) and to establish adequate fertilisation strategies accordingly.

The following interpretative table will be used:

Soils	Phosphorous P (ppm)		Potassium K (ppm)
	Olsen method	Mehlich method	Ammonium Acetate or Mehlich methods
Poor	<15	<30	<167
Average	15-22	30-44	167-250
Rich	>22	>44	>250



APPENDIX II. HEAVY METALS

Products with fertilising power added to the soil must not contain heavy metals above the values stipulated in Order 28 of May 1998 on fertilisers and similar products (B.O.E. (Spanish Official State Gazette) No. 131).

Heavy metals:

HEAVY METALS	VALUES
Cadmium	3 mg/kg dry matter
Copper	450 mg/kg dry matter
Nickel	120 mg/kg dry matter
Lead	150 mg/kg dry matter
Zinc	1,100 mg/kg dry matter
Mercury	5 mg/kg dry matter
Chrome	400 mg/kg dry matter



APPENDIX III

Herbicides Permitted in Environmentally-Friendly Viticulture Production

TYPE OF ACTION	PRODUCTS	RECOMMENDATIONS
POST-EMERGENCY	Aminotriazol Glyphosate Glufosinate ammonium Oxadiazon Sulphosate Specific anti-gramineous products authorised for use in the crop	Local treatments with maximum doses of formulated product of 1 litre/hectare and application, during the growth period, and 4 litres/hectare during winter dormancy. Never apply doses of more than 2 kg of active matter per hectare and year.
PRE-EMERGENCY	Recommended: Diflufenican + Glyphosate Flumioxazin Isoxaben Orizalin Oxyfluorfen Pendimethalin	Treatments on strips without exceeding 50% of the maximum authorised dose per hectare; these applications should be applied before sprouting commences. The age of the plantation must be taken into account and will determine whether each product can be used.

Commercial products containing mixtures of these different types of active matter may also be used in compliance with the maximum application conditions and doses established for each type of matter.



APPENDIX IV

PHYTOSANITARY CONTROL IN ENVIRONMENTALLY-FRIENDLY VITICULTURE PRODUCTION

The numbers in brackets indicate restrictions on the use of specific types of active matter. Consult the list at the end of the Appendix..

PEST/ DISEASE	RECOMMENDED ACTION	CHEMICAL CONTROL ACTIVE MATTER (Restrictions)	BIOLOGICAL CONTROL AUXILLIARY FAUNA	BIOTECHNICAL CONTROL	CULTIVATION METHODS
<u>Acariosis</u> (<i>Calepitrimerus vitis</i> Nal. Sin. <i>Phyllocoptes vitis</i> Nal)	At the start of veraison: sampling of 100 terminal leaves selected randomly in the plot and subsequent preparation in the laboratory for binocular observation. After pruning: Binocular observation of a sample of 100 buds/ha collected randomly on the plot. Threshold tolerance values: At the start of veraison: Treat as from an average of 50 acarids per leaf. After pruning: average of 3 acarids per bud.	Summer oil +phenitroton Sulphur (only dusting) Bromopropilate (1) Dicophol Pyridaphenthion (1)	The presence of the auxiliary fauna <i>Typhlodromus pyri</i> , <i>Typhlodromus phialatus</i> or <i>Kampinodromus</i> <i>aberrans</i> favours pest control.		Do not use vine shoots from the affected plots for grafting. Burn all pruning remains.



PEST/ DISEASE	RECOMMENDED ACTION	CHEMICAL CONTROL ACTIVE MATTER (Restrictions)	BIOLOGICAL CONTROL AUXILLIARY FAUNA	BIOTECHNICAL CONTROL	CULTIVATION METHODS
Vine moth (<i>Lobesia botrana</i>).	<p>In all generations: observe nests and larvae on 100 clusters.</p> <p><u>-In the 1st generation:</u> maximum of one application in attacks exceeding 200 glomerules in 100 clusters.</p> <p><u>-In 2nd and 3rd generations:</u> a maximum of two applications per generation, with attacks exceeding 30 foci or nests in 100 clusters.</p> <p>If the sexual confusion technique is used, in the 2nd and 3rd generations, only one application shall be performed and only if completely necessary. In this case, the applications may be limited to damaged edges or areas rather than to the entire crop.</p>	<p>Bacillus thuringiensis Sexual confusion (*) Chlorpyrifos (2) Phenoxycarb Phenitroton Flufenoxuron (**) Malation (3) Spinosad (start of hatching) Tebufenozide Trichlorphon</p> <p>(*) Use preferably in plots with specific conditions, in accordance with the requirements established on the product label.</p> <p>(**) Not more than 1 application per generation.</p>	<p>The presence of <i>Chrysopa carnea</i>, Coccinellidae, <i>Dybrachys affinis</i> and <i>D. Cavus</i>, favours pest control.</p>	<p>Preferably use sexual pheromone diffusers for control purposes using the sexual confusion technique in plots that comply with the technical conditions specified on the product label.</p> <p>Use sexual traps to control the flight curve.</p>	<p>Green pruning (leaf stripping and removal of secondary shoots) to facilitate cluster ventilation and exposure.</p>



PEST/ DISEASE	RECOMMENDED ACTION	CHEMICAL CONTROL ACTIVE MATTER (Restrictions)	BIOLOGICAL CONTROL AUXILLIARY FAUNA	BIOTECHNICAL CONTROL	CULTIVATION METHODS
Scale insects (<i>Pseudococcus citri</i> and <i>Eulecanium corni</i>).	Observe external symptoms and presence of the pest in wood during the winter and the presence of ants in vegetation. During winter dormancy: treatment applied to plants with symptoms. In vegetation: - treatment during sprouting if not treated in winter. - treatment during flowering/setting to control larvae. - do not treat during the rest of the growth period, except in the event of severe attacks. If treated, focus on the clusters.	Mineral oil Chlorpyrifos (2) Phenitroton <i>During veraison, chemical products may be applied to clusters attacked by the pest.</i>	The presence of <i>Criptolaemus montrouzieri</i> , <i>Leptomastix dactilopii</i> and <i>Anagyrus pseudococci</i> favours pest control. For a more efficient biological control, the ant population present in the crop must be controlled efficiently.		Debarking of trunks and branches in winter to facilitate the penetration of the products applied to combat the pest.
Hornbeam mite (<i>Eotetranychus carpini</i>). Two-spotted spider mite (<i>Tetranychus urticae</i>).	Look for presence of larvae and adults on leaves between May and July. Treat locally when the first foci are observed. In the case of a widespread attack, treat the entire plot.	Mineral oil Dicophol Dicophol + Hexitiazox Fenbutestan Fenpyroximate Hexitiazox Pyridaben Propargite	The presence of <i>Stethorus punctillum</i> , <i>Amblyseius sp.</i> and <i>Crisopidea</i> favours pest control.		Elimination of weeds in the crop before sprouting starts.



PEST/ DISEASE	RECOMMENDED ACTION	CHEMICAL CONTROL ACTIVE MATTER (Restrictions)	BIOLOGICAL CONTROL AUXILLIARY FAUNA	BIOTECHNICAL CONTROL	CULTIVATION METHODS
European red mite (<i>Panonychus ulmi</i>).	<p>During winter dormancy, observation of nests on buds and vine shoots.</p> <p>During sprouting, presence of larvae on leaves.</p> <p>In winter, treat in the presence of eggs as close to egg hatching as possible.</p> <p>During sprouting ,treat after 80% of winter eggs have hatched (buds with 3-4 leaves).</p> <p>At the start of winter laying (September), treat to reduce egg populations.</p>	<p>Mineral oil</p> <p>Dicophol</p> <p>Dicophol + Hexitiazox</p> <p>Fenbutestan</p> <p>Hexitiazox</p>	<p>The presence of <i>Phytoseiulus persimilis</i> and other phytoseiidae favours pest control.</p>		<p>Destruction of pruning wood outside the cropping plot.</p>
Aphids (<i>Aphis gossypii</i>).	<p>5% of clusters occupied by at least 2 or more aphids, from the start of flowering to pea size.</p>	<p>Phosalon (acts against aphids)</p>	<p>The presence of <i>Crysoperla carnea</i>, <i>C. Formosa</i>, <i>Aphidius spp.</i>, <i>Lysiphlebus sp.</i> and Coccinellidae favours pest control.</p>	<p>Yellow chromotropic slides may be used to identify the population and its behaviour in the crop.</p>	<p>Green pruning to aerate and expose the clusters to facilitate the action of phytosanitary products.</p>
Leaf-hopper (<i>Empoasca vitis</i>).	<p>0.5 larvae and nymphs/leaf. Detection of presence of adults during the sensitive crop stage (from June to September) with yellow plaques.</p>	<p>Chlorpyrifos (2)</p> <p>Phenitrothion</p> <p>Flufenoxuron</p> <p>Phosalon</p> <p>Malathion</p>	<p>The presence of <i>Anagirus atomus</i> may help pest control.</p>	<p>Use yellow chromotropic traps to determine the volume of population and its behaviour in the crop.</p>	<p>Control of the pest in nearby crops.</p>



PEST/ DISEASE	RECOMMENDED ACTION	CHEMICAL CONTROL ACTIVE MATTER (Restrictions)	BIOLOGICAL CONTROL AUXILLIARY FAUNA	BIOTECHNICAL CONTROL	CULTIVATION METHODS
Thripidae (<i>Frankliniella occidentalis</i>).	0.5 mobile forms per cluster, from the start of flowering until the end of flowering. In favourable conditions for the pest, apply 0.3 m.f./cluster.	Phenitroton Malathion (3) Methiocarb (4) Spinosad	The presence of <i>Orius sp.</i> and <i>Chrysopa sp.</i> helps control of this pest.	Use blue chromotropic slides to determine the volume of the population and its behaviour in the crop.	Elimination of weeds in the crop before sprouting starts.
Leaf-rolling tortrix (<i>Sparganothis pillieriana</i>).	Observation of egg batches in July and larvae from the wintering generation in spring, on 4% of vines. Act when buds burst if the threshold level exceeds an average of one egg batch per vine in those observed.	Chlorpyriphos (2) Phenitroton Flufenoxuron Lufenuron Tebufenozide Trichlorphon	The presence of <i>Agathis spp.</i> and <i>Isoplectis maculator</i> may help to control this pest.	Sexual traps may be used to capture adults in order to determine the volume of the pest and its behaviour.	
Cutworms (<i>Agrotis spp.</i>).	Control of adult flights and observation of first damage during sprouting (C state).	Chlorpyriphos (2) Trichlorphon	The presence of <i>Apanteles ruflorus</i> and <i>Ichneumon sarcitorius</i> may help pest control.	Use sexual traps to identify the presence of adults and population volumes.	Eliminate weeds from the crop during the summer and prevent soil around the trunk from loosening.
Vine leaf beetle <i>Haltica ampelophaga</i>	Detection of first adults on leaves in the initial growth stages of the vine.	Phenitroton			May be controlled using special leaf-rolling tortrix prevention treatments.



PEST/ DISEASE	RECOMMENDED ACTION	CHEMICAL CONTROL ACTIVE MATTER (Restrictions)	BIOLOGICAL CONTROL AUXILLIARY FAUNA	BIOTECHNICAL CONTROL	CULTIVATION METHODS
Longhorn beetle (<i>Vesperus xatarti</i>).	Localise foci or stands of damage to act on them in the soil.	Chlorpyriphos (2)		Traps baited with pheromone against adults. Egg traps.	Eliminate vines severely attacked by the pest.
Grapevine downy mildew (<i>Plasmopara viticola</i>).	Detection of initial contamination (oil stains) once the critical crop period has been reached. Detection of secondary contamination. Always as a preventive measure at the start of flowering.	Contact, penetrating or systemic products may be used according to the time of year and phenological state of the crop. Consult the list of active matter at the end of this Appendix.		Specific meteorological data gathering and control equipment may be used to predict risk situations automatically, provided that they are adjusted to the conditions in the area.	Green pruning to foster aeration. Destruction of dead leaves from the previous crop using crystallised urea instead of burying them in the soil.
Powdery mildew (<i>Uncinula necator</i>).	Detection of initial symptoms on leaves and clusters. Observation of damage to wood during winter dormancy. Treatment strategies: - Shoots 8-10 cm. - Start of flowering. - Pea-sized grain. - Start of ripening.	Contact, penetrating or systemic products may be used according to the time of year and phenological state of the crop. Consult the list of active matter at the end of this Appendix.		Automatic equipment may be used that determines the moments of maximum risk or contamination of the fungus or predictive models based on temperature and phenology controls in the plot, provided they are adapted to the area, district or region.	Green pruning and leaf stripping to facilitate vine ventilation and penetration of the phytosanitary products used.



PEST/ DISEASE	RECOMMENDED ACTION	CHEMICAL CONTROL ACTIVE MATTER (Restrictions)	BIOLOGICAL CONTROL AUXILLIARY FAUNA	BIOTECHNICAL CONTROL	CULTIVATION METHODS
Gray rot (<i>Botrytis cinerea</i>).	Determination of fungal contamination risk conditions. Preventive action at moments of greatest crop sensitivity, particularly at the start of veraison.	Carbendazime Cyprodinil+fludioxinil Fenhexamid Folpet Folpet+carbendazime Iprodione Mepanypirim Thiophanate-methyl Procymidone Pyrimethanil Tolyfluanid Vinclozolin		Automatic equipment may be used that gathers meteorological data and predicts the maximum risk conditions for the crop, provided that this equipment is adapted to the conditions of the area or district where they are used.	Avoid highly vigorous crops, flooding and insufficient ventilation whenever possible. Do not handle clusters recently affected by rot.
Wood fungi (<i>Sphaeropsis malorum</i> , <i>Cylindrocarpon destructans</i> , <i>Phaeoacremonium aleophilum</i> , <i>Phaeomoniella chlamidospora</i> , <i>Fomitiporia punctata</i> , <i>Stereum hirsutum</i> , <i>Eutipa lata</i> and other fungi).	Observation of damage during sprouting and in vine shoots, leaves and clusters during the growth period. Marking of plants to act specifically on them during vegetative dormancy. Special monitoring of materials during transplanting, in the case of new plantations.	Flusilazol + Carbendazime (when brush pruning) Hydroxyquinoline sulphate (when pruning with sparying) Tebuconazol + synthetic resins (when brush pruning) Cubiet (when pruning with spraying)		Use pruning tools that incorporate mechanisms for direct application of a scarring product to pruning wounds at the same time as cutting.	Severe pruning until healthy wood is reached to force reshooting of the vine. Destroy these remains in a fire. Cut the vine branches at the crosspoint of the trunk and branch and introduce a wedge to keep the wound open to aerate this area. Scarring treatments applied to pruning wounds to prevent fungi penetration. Delayed pruning.



PEST/ DISEASE	RECOMMENDED ACTION	CHEMICAL CONTROL ACTIVE MATTER (Restrictions)	BIOLOGICAL CONTROL AUXILLIARY FAUNA	BIOTECHNICAL CONTROL	CULTIVATION METHODS
<i>Phomopsis viticola</i>	Observation of symptoms during sprouting and pruning to detect damage to the bases of shoots and clusters. Apply treatments during bud bursting (State C-D).	Folpet Mancozeb Metiram			Eliminate wood with symptoms during pruning. Burn pruning remains. Do not use material from infected plants for grafting.
Bunch rot <i>Yeasts and bacteria.</i>	Observe damage to clusters at the start of ripening.				Reduce vigour. Prevent the appearance of wounds in berries for different causes. Do not handle clusters until harvesting.
Secondary rot (<i>Aspergillus niger, Alternaria sp., Rhizopus nigricans, Cladosporium herbarum, Penicillium sp.</i>).	Look for damage to clusters from the start of ripening.	Products prepared with talc or non-fungicidal drying matter may be used provided that they are authorised for use in the crop.			Avoid wounds in clusters. Reduce crop vigour. Do not handle clusters until harvesting.
Grapevine fanleaf virus (GFV) <i>Nepovirus group virus.</i>	Detection of symptoms in shoots, leaves and clusters.				Avoid growing in plots affected by vector nematodes. Use virus-free plant material in both the vine shoot and the variety.



PEST/ DISEASE	RECOMMENDED ACTION	CHEMICAL CONTROL ACTIVE MATTER (Restrictions)	BIOLOGICAL CONTROL AUXILLIARY FAUNA	BIOTECHNICAL CONTROL	CULTIVATION METHODS
Grapevine leafroll- associated virus (GLRaV) <i>Closterovirus group virus.</i>	Detection of symptoms in clusters, vine shoots, leaves and roots.				Use virus-free plant material.
Rugose wood complex (RW) <i>Closterovirus group virus and filamentous viruses from the Vitivirus group.</i>	Detection of symptoms in wood in the graft area.				Use virus-free plant material.
Root rot (<i>Armillaria mellea</i> , <i>Rosellinia necatrix</i>).	Detection of damage and determination of causal agents during cultivation and planting.		If the meteorological and edaphological conditions are favourable, the antagonist fungus <i>Trichoderma viride</i> may be used to control <i>Armillaria</i> .	The use of microwave equipment, if available on an operational basis, may be effective for sterilising soils contaminated by <i>Armillaria</i> .	Do not choose flooding- prone areas to sow a crop. Avoid planting on soils where woody crops affected by these fungi have been grown previously. Eliminate all plant remains corresponding to the previous crop. Use healthy rootstock.



PRODUCTS AGAINST POWDERY MILDEW

<p>Sulphur (only in dusting) Azoxystrobin Cyproconazole Cyproconazole + Sulphur Diniconazol Dinocap Fenarimol Fenarimol + Quinoxifen</p>	<p>Fenbuconazole + Dinocap Flusilazole Fluquinconazole Kresoxim-methyl Hexaconazole Myclobutanil</p>	<p>Myclobutanil + Sulphur Myclobutanil + Dinocap Penconazole Quinoxifen</p>	<p>Potassium permanganate Tebuconazole Tebuconazole + Tolyfluanid Tetraconazole Triadimenol Trifloxystrobin</p>
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PRODUCTS AGAINST DOWNY MILDEW

<p><u>Contact products:</u></p> <p>Captan Cyazofamid Folpet Cupric hydroxide Mancozeb Maneb Metiram Cuprous oxide Copper oxide + Folpet Copper oxide + Mancozeb Copper oxide + Cuprocalcic sulphate Cuprocalcium sulphate Cuprocalcium sulphate + Folpet Cuprocalcium sulphate + Mancozeb Tolyfluanid Zoxamide + Mancozeb</p>	<p><u>Synthetic products:</u></p> <p>Benalaxyl + Copper Benalaxyl + Folpet Benalaxyl + Mancozeb Benalaxyl + Cymoxanil + Folpet Benalaxyl + Cymoxanil + Mancozeb Phosthyl-Al Phosthyl-Al + Cymoxanil + Folpet Phosthyl-Al + Famoxadone Phosthyl-Al + Iprovalicarb Phosthyl-Al + Mancozeb Iprovalicarb + Folpet Metalaxyl + Folpet Metalaxyl + Mancozeb Metalaxyl + Copper oxychloride Metalaxyl + Copper oxychloride + Folpet Metalaxyl + Copper oxychloride + Folpet + Cuprocalcium sulphate Metalaxyl M (Mefenoxam) + Folpet Metalaxyl M (Mefenoxam) + Mancozeb Metalaxyl M (Mefenoxam) + Copper oxychloride</p>	<p><u>Penetrating products:</u></p> <p>Azoxistrobin Azoxistrobin + Cymoxanil Cymoxanil + Folpet Cymoxanil + Folpet + Mancozeb Cymoxanil + Folpet + Copper oxychloride Cymoxanil + Mancozeb Cymoxanil + Metiram Cymoxanil + Copper oxychloride + Mancozeb Cymoxanil + Cuprocalcium oxychloride + Propineb Cymoxanil + Propineb Cymoxanil + Cuprocalcium sulphate Cymoxanil + Cuprocalcium sulphate + Copper oxychloride Cymoxanil + Cuprocalcium sulphate + Copper oxychloride + mancozeb Dimetomorph Dimetomorph + Mancozeb Famoxadone + Cymoxanil</p>
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RESTRICTIONS ON THE USE OF ACTIVE MATTER AUTHORISED FOR ENVIRONMENTALLY FRIENDLY GRAPEVINE PRODUCTION

- 1 Essential use in grapevines until June 2007, according to Regulation EC 2076.
- 2 Only authorised formulations 25WP, 3DP, 75WG and 1GB.
 - 3 Dusting.
- 4 Maximum 1 application per year.

Note: in the case of other pests or diseases, intervention with active matter expressly authorised for use in the crop will depend on technical requirements. Localised intervention on initial foci is preferred.

In exceptional circumstances or situations not envisaged in this Appendix, after prior written authorisation has been obtained from La Rioja Quality Institute (ICR), other active matter expressly authorised for use with the crop may be used.

In any case, the technical expert responsible for the vineyard will check the validity of the authorisations and usage conditions of the formulated products recommended to the vineyard owner in order to prevent inappropriate use of same.



TECHNICAL GOOD PRACTICES IN VINICULTURE



Proyecto LIFE SINERGIA
LIFE 03 ENV/E/000085

PRACTICE	TRANSPORT
OBLIGATORY	<ul style="list-style-type: none"> - Grapes from La Rioja produced using environmentally-friendly techniques must be transported duly identified and documented so that they cannot be confused with other types of grapes from other origins. - When grapes produced using environmentally-friendly techniques are transported in bulk in trailers or lorries, they can not share the vehicle with grapes from other origins. - When grapes produced using environmentally-friendly techniques are transported in boxes in the same vehicle as grapes from other origins, the former must be perfectly identified, ensuring that they do not mix with the latter at any time.
RECOMMENDED	<ul style="list-style-type: none"> - When grapes are transported in bulk in both trailers and lorries, the height of the stored grape mass must not exceed 1 metre in order to avoid high pressures that may break grape skins and cause the must to flow out.
PROHIBITED	



PRACTICE	RECEPTION
OBLIGATORY	<ul style="list-style-type: none"> - Sufficient guarantees of the origin of environmentally-friendly production are required, for which purpose: <ul style="list-style-type: none"> • The origin guarantee systems determined by the control authority shall be applied when this authority controls the producer and processor/retailer; • The environmentally-friendly production guarantee certificate shall be requested. - A record must be kept of received items corresponding to grapes from La Rioja produced using environmentally-friendly techniques. - After unloading, any solid waste adhered to the interior of the vehicle or the boxes (e.g. clusters) must be placed in adequate containers. - The vehicle or boxes must be left in an area ready for washing and dirty water must be collected. - The trailer and tarpaulin or grape boxes must be washed after each unloading operation. - If a selection table is used, waste must be deposited in a special container.
RECOMMENDED	<ul style="list-style-type: none"> - A selection table should be used to remove herbaceous debris or grapes in poor condition.
PROHIBITED	<ul style="list-style-type: none"> - These grapes must not be mixed with La Rioja grapes not produced using environmentally-friendly techniques.



PRACTICE	DESTEMMING
OBLIGATORY	- Stemss must be collected and stored directly in a watertight container to prevent run-off of liquid effluents, and controlled accordingly.
RECOMMENDED	- Destemming machinery should be cleaned every day. - Solid waste should be compacted or crushed for direct application in the field or for improving composting.
PROHIBITED	



PRACTICE	ALCOHOLIC FERMENTATION AND MACERATION
OBLIGATORY	<ul style="list-style-type: none"> - The use of SO₂ must be restricted to the minimum technologically necessary, taking into consideration the limit established in Appendix I.
RECOMMENDED	<ul style="list-style-type: none"> - Use preferably autochthonous yeasts and, when technologically appropriate, use the selected yeasts. - Use natural additives whenever possible. - Work with thermostats. If these are not used, place the cutting keys in accessible places. - Leave a security space at the top of the deposit to prevent overflows during fermentation. - Once fermentation has concluded, maintain the top part of the deposit protected against inert gases during maceration. - Collect as much pomace as possible from the bottom of the deposit.
PROHIBITED	<ul style="list-style-type: none"> - Use yeasts with GMOs (genetically-modified organisms). - Use open cycle methods for refrigeration without reusing water. - Use cooling equipment with unauthorised gases.



PRACTICE	PRESSING
OBLIGATORY	<ul style="list-style-type: none"> - Deposit the dry pomace in closed containers that prevent overflows and control them accordingly for evaluation purposes.
RECOMMENDED	<ul style="list-style-type: none"> - If the pomace is expelled through a recipient, make sure it is correctly positioned beforehand to prevent any type of overflow. - If the pomace is transported to the press by a paste pump, check all the connections beforehand to prevent wine spillages. - Empty the paste contained in the hoses into a recipient or deposit to prevent it from overflowing when the connections are disconnected. - Place trays or recipients to collect leaking wine released during pressing. - Empty the dry pomace and remove any solid residue from the press. - Wash the press at least once per day with pressurised hot water.
PROHIBITED	



PRACTICE	MALOLACTIC FERMENTATION
OBLIGATORY	- Limit the use of SO ₂ after completion of malolactic fermentation to the minimum technologically necessary, taking into account the limit established in Appendix I.
RECOMMENDED	<ul style="list-style-type: none"> - Use autochthonous lactic bacteria and, when technologically necessary, use selected bacteria. - If necessary, increase the temperature of the wine, preferably heating the deposits using a closed cycle system. - Isolate the warehouse where malolactic fermentation is performed to prevent heat losses that may undermine this process.
PROHIBITED	- Use lactic bacteria with GMOs (genetically-modified organisms)



PRACTICE	RACKING
OBLIGATORY	<ul style="list-style-type: none"> - Clean and hygienise the piping at the end of each day.
RECOMMENDED	<ul style="list-style-type: none"> - When racking wine, check all the connections to prevent overflows. - Monitor racking for early detection of possible leaks. - Perform gravity racking whenever possible - Empty wine contained in the piping into a recipient or deposit to prevent it from spilling out when the connections are removed.
PROHIBITED	



PRACTICE	STORAGE
OBLIGATORY	<ul style="list-style-type: none"> - Clean and hygienise the deposits after every operation. - Store in watertight containers and deal with lees and solid remains still on the bottom of the deposit after emptying.
RECOMMENDED	<ul style="list-style-type: none"> - During storage, protect the top space of the deposit using inert gases. - In cold temperature conditions, refill the deposits to leave the minimum space possible at the top of the deposit. - In hot temperature conditions, leave a safety space to prevent overflows.
PROHIBITED	



PRACTICE	AGEING IN BARRELS
OBLIGATORY	<ul style="list-style-type: none"> - Restrict the use of SO₂ to the necessary minimum established in Appendix I. - Use semi-automatic or automatic barrel washing systems. - Clean and disinfect the barrels after each racking procedure.
RECOMMENDED	<ul style="list-style-type: none"> - In the case of barrel fermentation, avoid filling the barrel completely to prevent spillage caused by the production of carbonic gas. - Use filling control devices in the barrels to prevent overflows. - Fill the barrels to 100% of their capacity to ensure oxygen is not present. - Use hermetic stoppers to avoid the entry of oxygen. - Refill the barrels regularly to compensate for wood absorption or evaporation losses, keeping them filled to 100% of their capacity. - Check the barrels and maintain them accordingly to avoid leaks, replacing them whenever they show signs of deterioration. - Always keep the temperature in the barrel storage warehouse below 16°C.
PROHIBITED	<ul style="list-style-type: none"> - Use detergents to clean the barrels.



PRACTICE	FINING AND FILTERING
OBLIGATORY	<ul style="list-style-type: none"> - Collect and control the residue and by-products of the fining agent accordingly, without pouring down drains. - Collect and control the filtering residue and by-products (diatomaceous earth, cellulose layers...), without pouring down drains.
RECOMMENDED	<ul style="list-style-type: none"> - Use natural fining agents whenever possible - Whenever possible, use the most environmentally-friendly filtering system possible, avoiding the use of diatomaceous earth filters.
PROHIBITED	



PRACTICE	COLD STABILISATION
OBLIGATORY	<ul style="list-style-type: none"> - After thermal stabilisation, collect the crystals deposited on the walls of the deposit and control them accordingly. - Collect the solutions used to clean the deposits and deal with them accordingly.
RECOMMENDED	<ul style="list-style-type: none"> - Remove the initial salt extract adhered to deposit walls using physical methods (brushes, scrapers..) - If a solution is used, apply repeatedly until it is neutralised and ceases to be effective.
PROHIBITED	<ul style="list-style-type: none"> - Use of unauthorised gas cooling equipment



PRACTICE	BOTTLING AND LABELLING
OBLIGATORY	<ul style="list-style-type: none"> - Restrict the use of SO₂ to the minimum technologically necessary specified in Appendix I. - Control each by-product and waste product produced during these operations (broken glass, cork, pallets, cardboard, capsules, plastics, rolls, broken labels...) accordingly and separately. - Use labels authorised beforehand by the Institute of Agrofood Quality of the Department of Agriculture and Economic Development.
RECOMMENDED	<ul style="list-style-type: none"> - Clean the bottles preferably by blowing or using the minimum amount of water necessary to ensure efficient cleaning. - Use recycled glass material. - Use recycled or recyclable material in final packaging.
PROHIBITED	<ul style="list-style-type: none"> - Use of capsules with lead content above 100 ppm.



PRACTICE	USE OF ENOLOGICAL PRODUCTS
OBLIGATORY	<ul style="list-style-type: none"> - Restrict their usage to the recommended doses and never exceed the maximum doses established by applicable legislation or regulations, as indicated in Appendix II. - Store enological products in the most suitable place and form according to their characteristics. - Store all products with their original labels - Keep dangerous products separate from safe products. - Deposit and control used enological product containers accordingly.
RECOMMENDED	<ul style="list-style-type: none"> - Avoid spillage during the process of adding the prepared product to the must-wine - Avoid excessive consumption of enological products; perform tests to determine necessary doses.
PROHIBITED	



PRACTICE	TRACEABILITY SYSTEM
OBLIGATORY	<ul style="list-style-type: none"> - Implement a traceability system in the winery as specified in Regulation EC 178/2002 of the European Parliament and Council. - The features of this system, at least for wine prepared using environmentally-friendly production techniques in La Rioja, shall include the following: <ul style="list-style-type: none"> - It shall enable identification of the origin and specific position of any grape, must or wine batch in the winery. - Trace the steps of each wine batch, from the grape reception to dispatch. - It shall enable identification of the enological products and amounts added to each grape, must or wine batch. - The system data must always be available for examination. - The batch number shall be specified on the label of each bottle.
RECOMMENDED	<ul style="list-style-type: none"> - The batches must not include large volumes.
PROHIBITED	<ul style="list-style-type: none"> - The mixture in any processing phase of grapes, must or wine from La Rioja produced using environmentally-friendly techniques with other similar products that do not have this classification.



PRACTICE	HAZARD ANALYSIS CRITICAL CONTROL POINTS SYSTEM (HACCP)
OBLIGATORY	<ul style="list-style-type: none"> - Implement an Hazard Analysis Critical Control Points System (HACCP) in the winery as specified in Royal Decree 2207/95. - The characteristics of this system, at least for La Rioja wine produced using environmentally-friendly techniques, shall include the following: <ul style="list-style-type: none"> - the chlorine content of supply water must be checked at least once per week. - supply water must undergo at least one physical-chemical analysis and one bacteriological analysis per quarter. - Batch-by-batch analyses must be performed before bottling to ensure that the threshold values specified in Appendix III are never reached. - Guarantee certificates must be requested for the equipment and raw materials used that come into contact with the wine.
RECOMMENDED	
PROHIBITED	



PRACTICE	CLIMATISATION
OBLIGATORY	
RECOMMENDED	<ul style="list-style-type: none"> - Isolate buildings adequately. - Take advantage of the insulating conditions of the floor for parts of the winery that require stable conditions. - Take advantage of dominant winds and insolation in the design of the winery. - Install automatic door closing systems to prevent air currents in the winery.
PROHIBITED	<ul style="list-style-type: none"> - The refrigeration of buildings with open cycle systems is prohibited.



PRACTICE	MACHINERY
OBLIGATORY	<ul style="list-style-type: none"> - Maintain and inspect equipment, machinery, deposits, etc. in accordance with the specific conditions to ensure they work correctly and to avoid spillages, breaks, etc. - Keep a maintenance register of the bottling train. - Ensure adequate control of all residue produced in maintenance processes.
RECOMMENDED	<ul style="list-style-type: none"> - In installations, deposits and machinery, use inert materials that do not produce or cause contamination - When purchasing new machinery, choose non-porous materials with smooth surfaces that are easy to clean. - Clean machinery after usage at least at the end of each working day.
PROHIBITED	<ul style="list-style-type: none"> - Use of machinery for non-enological products.



PRACTICE	CLEANING
OBLIGATORY	<ul style="list-style-type: none"> - Ensure adequate control of all residue produced during the cleaning processes. - Keep a record of the cleaning, disinfection, fumigation and rat extermination plan.
RECOMMENDED	<ul style="list-style-type: none"> - After emptying, and whenever possible, dry clean the equipment, deposits, etc. to eliminate and control residue (grapes, stems, lees, pomace). - Clean machinery, deposits, piping and equipment using pressurised hot water. - First clean the deposit with only a little water in order to collect it and use as a by-product if possible. - Then clean the deposit thoroughly with a large amount of water for subsequent use. - When cleaning sets of deposits, transfer the dilution from one deposit to another until the solution is no longer effective and then check the deposits. - When cleaning floors, dry clean before cleaning with water, and then collect any solids and deposit them in a container. - Clean common asphalted areas using mechanical sweepers or pressure systems with a closing or locking device on the nozzle. - If cleaning products are used, use the most suitable product according to the type of dirt and the recommended doses. - Change to ecological or environmentally-friendly cleaning products
PROHIBITED	<ul style="list-style-type: none"> - Use of unauthorised products



PRACTICE	SANITATION AND PURIFICATION
OBLIGATORY	<ul style="list-style-type: none"> - Use impermeable materials on the floor surface to prevent infiltration of dirty water on the floor. - Purify dirty water according to its contamination characteristics before discharging. - Reach the necessary purification level to not exceed the discharge threshold parameters applicable according to the environment where this takes place.
RECOMMENDED	<ul style="list-style-type: none"> - Use grilles to retain thick solid residue. - Install a water separation network: dirty water (processing water and sewage) and rainwater.
PROHIBITED	<ul style="list-style-type: none"> - Use the dilution as a means for achieving the discharge threshold parameters.



APPENDIX I:

MAXIMUM SULPHUR CONTENT

TOTAL SULPHUR CONTENT IN BOTTLING (mg/l)

Types of wines	Total SO₂ mg/l
Young red wines	90
“Crianza” and “Reserva” red wines	110
“Gran Reserva” red wines	130
White and Rosé wines: dry (< 5 g/l sugar)	140
Sweet White and Rosé wines (> 5g/l sugar)	200
Liquorous wines	120
Sparkling wines	120



APPENDIX II:

LIST OF ENOLOGICAL PRODUCTS

AUTHORISED AND LIMITED DOSE PRODUCTS

<i>TREATMENTS</i>	<i>USE</i>	<i>MAXIMUM PERMITTED DOSES</i>
<i>METATARTARIC ACID</i>	Tartrate stabiliser	Not permitted
<i>ASCORBIC ACID (Vitamin C)</i>	Antioxidant	25 g/Hl
<i>CITRIC ACID</i>	Acidifying	natural + added < 1 g/l
<i>ACTIVE CARBON</i>	Decolourizer. Deodorant	100 g/Hl
<i>DIMETHYL DICARBONATE</i>	Antiferment	? IWO
<i>CALCIUM PHYTATE</i>	Iron stabiliser.	Not permitted
<i>BIAMONIC PHOSPHATE</i>	Nutrient	30 g/Hl
<i>ARABIC GUM (Pure)</i>	Colouring matter stabiliser	20 g/Hl
<i>LYSOZYME</i>	Antibacterian	Not permitted
<i>POLIVINYL POLYPYRROLIDONE</i>	For reducing polyphenols	80 g/Hl
<i>POTASSIUM SORBATE</i>	Antiferment (yeasts)	20 g/Hl (in Sorbic Acid)
<i>AMMONIUM SULPHATE</i>	Nutrient	30 g/Hl
<i>COPPER SULPHATE (5H20)</i>	For eliminating reduction flavour	1 g/Hl
<i>ZINC SULPHATE</i>	Fermentation activator	1 g/Hl
<i>NEUTRAL LIME TARTRATE</i>	Acidity reducer. Potassium and Calcium Stabiliser.	200 g/Hl
<i>THIAMINE (Vit. B₁)</i>	Nutrient	60 mg/Hl
<i>UREASE</i>	For eliminating urea	80 mg/l



APPENDIX III:

TABLE OF MAXIMUM ACCEPTED VALUES IN WINES

SUBSTANCE	MAXIMUM PERMITTED VALUES
<i>ETHYL ACETATE</i>	120 mg/l
<i>MAXIMUM VOLATILE ACIDITY</i>	“Cavas”: 0.65 g/l Red wines: 1.2 g/l White wines: 1.08 g/l
<i>ASCORBIC ACID</i>	Ascorbic + Dehydroascorbic acid 300 mg/l
<i>CITRIC ACID</i>	1 g/l
<i>METATARTARIC ACID</i>	Negative
<i>TOTAL SULPHUR DIOXIDE</i>	Appendix I
<i>ARSENIC</i>	0.2 mg/l
<i>BORON</i>	35 mg/l in Boric Acid.
<i>ORGANIC BROMINE</i>	5 µg/l
<i>TOTAL BROMINE</i>	1 mg/l
<i>CADMIUM</i>	10 µg/l
<i>ASH</i>	Min. 1 g/l Cavas: Min. 0.7 g/l ; Max. 2.0 g/l
<i>CYANIDE</i>	0.10 mg/l
<i>COBALT</i>	20 µg/l
<i>ORGANIC CHLORINE</i>	5 µg/l
<i>CHLORIDE</i>	0.5 g/l in Cl Na
<i>COPPER</i>	1 mg/l
<i>DIETHYLENEGLYCOL</i>	Less than 10 mg/l
<i>MALVIDOL DIGLUCOSIDE</i>	Less than 5 mg/l



SUBSTANCE	MAXIMUM PERMITTED VALUES
ETHYL CARBAMATE (URETHANE)	Dry wines: 30 µg/l Sweet wines: 100 µg/l Fortified wines: 60 µg/l Brandies and other alcoholic beverages: 150 µg/l
FERROCYANIDE (in sol. and susp.)	Negative
FLUORINE	1.0 mg/l
HISTAMINE	10 mg/l
<i>D (±) MALATE</i>	100 mg/l
MERCURY	10 µg/l
METANOL	White wines: 100 mg/l Red wines: 250 mg/l
MONOETHYLENGLYCOL	10 mg/l
OCHRATOXIN A	1.5 µg/l
LEAD	150 µg/l
PROPYLENGLYCOL	Wines: less than 150 mg/l Sparkling wines: less than 300 mg/l
POTASSIUM SORBATE	200 mg/l (in Sorbic Acid)
SURPLUS SODIUM	Negative
SULPHATES	In potassium sulphate less than 1.0 g/l Less than 1.5 g/l for wines aged in wooden barrels for more than 2 years, for sweetened wines, special wines supplemented with must, alcohol or distilled products. Less than 2.0 g/l for wines supplemented with concentrated must and natural sweet wines.
ZINC	5 mg/l



TECHNICAL GOOD PRACTICES IN THE DISTRIBUTION AND RETAILING OF ENVIRONMENTALLY-FRIENDLY WINE PRODUCTS



Proyecto LIFE SINERGIA
LIFE 03 ENV/E/000085

PRACTICE	Storage conditions
OBLIGATORY	The product obtained by applying the Technical Good Practices in Vitiviniculture must be clearly identifiable and separated appropriately from other products.
PROHIBITED	
RECOMMENDED	<p>Adequate storage conditions (humidity, temperature and light) will be maintained to ensure the maximum quality level of the product is maintained.</p> <p>The storage parameters will be recorded; parameters reaching unacceptable values will be eliminated.</p> <p>The bottles must be arranged accordingly to prevent them from breaking and spilling wine.</p>



PRACTICE	Management of orders
OBLIGATORY	
PROHIBITED	
RECOMMENDED	<p>Advice to customers on the placement of orders in order to optimise human and material resources.</p> <p>Improve the choice of logistical distribution centres through ideal geographical locations and good connection with the different communication routes.</p> <p>The product will be packed in accordance with the dual concept of commercial identification and maximum saving and efficiency in terms of the materials used.</p>



PRACTICE	Transport
OBLIGATORY	Transportation vehicles must comply with existing legislation governing environmental emissions and impacts.
PROHIBITED	
RECOMMENDED	<p>Transport routes will be managed efficiently, using as few resources as possible and ensuring the product is maintained in the best possible condition during transportation.</p> <p>Bottles must be handled accordingly to prevent them from breaking and spilling wine.</p> <p>Transport vehicles will be adapted accordingly for transportation of the product in question and must be in optimum condition. Vehicles will be serviced whenever necessary to ensure compliance with this objective.</p> <p>The use of transport vehicles adapted to run on alternative fuels with low environmental impact (biodiesel, hydrogen, electricity, etc...) will be promoted.</p>



PRACTICE	Display and sale
OBLIGATORY	Products obtained using environmentally-friendly production techniques will be clearly identified and encoded accordingly so that they can be easily traced.
PROHIBITED	
RECOMMENDED	<p>Ideal display parameters (temperature, light and humidity) will be maintained to keep the product in good condition, ensuring that none of the previous steps yield poor quality products.</p> <p>Conditions that may facilitate bottle breakage will be reduced to a minimum.</p> <p>Product packaging will be controlled accordingly.</p>



PRACTICE	End consumers
OBLIGATORY	
PROHIBITED	
RECOMMENDED	<p>The storage and service conditions at the end consumer's premises will be ideal for guaranteeing product quality and optimum tasting.</p> <p>Empty bottles (glass bottles) will be transferred to the nearest recycling point for subsequent processing.</p>



PRACTICE	Others
OBLIGATORY	
PROHIBITED	
RECOMMENDED	All personnel involved in the life cycle of the product will receive training and information, particularly on aspects relating to quality, customer service and satisfaction, and protection of the environment.





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Gobierno
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Turismo, Medio Ambiente
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Agencia de
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