

EUREPGAP Protocol for Fresh Fruit and Vegetables

English Version

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0. INTRODUCTION
Scope
This document sets out a framework for Good Agricultural Practice (GAP) on farms which defines essential elements for the development of best-practice for the global production of horticultural products (e.g. fruits, vegetables, potatoes, salads, cut flowers and nursery stock). It defines the minimum standard acceptable to the leading retail groups in Europe, however, standards for some individual retailers and those adopted by some growers may exceed those described. This document does not set out to provide prescriptive guidance on every method of agricultural production.
EUREP members wish to recognise the significant progress already made by many growers, grower groups, grower organisations, local schemes and national schemes in developing and implementing best-practice agricultural systems with the aim of minimising adverse impact on the environment. EUREP members also wish to encourage further work to improve growers capability in this area, and in this respect this GAP framework, which defines the key elements of current agricultural best-practice, should be used as a benchmark to assess current practice, and provide guidance for further development.
GAP is a means of incorporating Integrated Pest Management (IPM) and Integrated Crop Management (ICM) practices within the framework of commercial agricultural production. Adoption of IPM/ICM is regarded by EUREP members as essential for the long-term improvement and sustainability of agricultural production.
EUREP supports the principles of and encourages the use of HACCP (Hazard Analysis Critical Control Points).
It is essential that all organisations involved in the food production chain accept their share of the tasks and responsibilities to ensure that GAP is fully implemented and supported. If consumer confidence in fresh produce is to be maintained, such standards of good agricultural practice must be adopted, and examples of poor practice must be eliminated from the industry.
All growers must demonstrate their compliance with national or international law.
All growers should be able to demonstrate their commitment to: a) maintaining consumer confidence in food quality and safety; b) minimising detrimental impact on the environment, whilst conserving nature and wildlife; c) reducing the use of agrochemicals; d) improving the efficiency of natural resource use; and e) ensuring a responsible attitude towards worker health and safety.
Independent Verification:
The Scheme documents are: <ol style="list-style-type: none"> 1. EUREPGAP Protocol as the normative document e.i. the scheme standard with which the grower must comply. 2. EUREPGAP General Regulations which sets out the rules by which the scheme will be administered. 3. EUREPGAP Control Points and Compliance Criteria which gives specific details on how the grower complies with each of the scheme requirements. 4. EUREPGAP Checklist which form the basis of the grower external audit and which the grower must use to fulfil the annual internal audit requirement.
As described in EUREPGAP General Regulations, this scheme is divided into Major Musts (red background), Minor Musts (yellow background) and Recommendations (green background)
Growers receive their EUREP GAP approval through independent verification from a verification body that is approved by EUREP.

REQUIRED	ENCOURAGED
1. TRACEABILITY	
#1 All the product is traceable to the farm where it has been grown.	
2. RECORD-KEEPING	
2.a. Record Keeping:	
#1 Growers must keep up to date records available to demonstrate that all activities of production comply with GAP as outlined in this document and to help trace the history of products from farm to final consumer. Appropriate records must be kept for a minimum of two years, unless legally required for a longer period. Retrospective records are not required prior to application of EUREPGAP registration.	
3. VARIETIES AND ROOTSTOCKS	
3.a. Choice of Variety or Rootstock:	
	#1 Growers should be aware of the importance of effective crop husbandry in 'mother crops' (e.g. in the production of seed potatoes), which can lead to less intervention in subsequent crops
	#2 Choice of variety or rootstock should meet the specified requirement as agreed between growers and customers with respect to quality standards (e.g. taste, visual appearance, shelf-life, agronomic performance, environmental impact, minimum dependence on agrochemicals).
3.b. Seed Quality:	
	#1 Seed quality should be known before use and a record of the variety name, variety purity, batch number and seed vendor should be kept in a crop diary. Where available, seed certification should be retained.
3.c. Pest and Disease Resistance/Tolerance:	
	#1 Varieties should possess resistance/tolerance to commercially important pests and diseases.
3.d. Seed Treatments and Dressings:	
Seed treatments can be an effective method of controlling pests and diseases, reducing the amount of active ingredients applied to growing crops, and as a strategy for crop protection where foliar sprays are ineffective.	
#1 The use of seed treatments must be justified.	.
3.e. Nursery Stock:	
#1 Purchased nursery stock must be accompanied by officially recognised plant health certification, such as Plant Passports which exist under the EU Plant Health Directive or similar for countries outside the European Union, where available.	#2 Plants should be free of visible signs of pest and disease.
#3 Quality guarantees or certified production guarantees must be kept in the crop diary.	
#4 Plant health quality control systems must be operational for private or in-house nursery propagation.	
#5 Pesticide treatments applied during the plant rearing stage must be recorded.	

REQUIRED	ENCOURAGED
3.f. Genetically Modified Organisms (GMO):	
#1 Planting of any GMO must comply with all existing regulations in the country of production and all existing regulations in the country of the final consumer.	
#2 The use of GMO cultivars must be agreed with individual customers prior to planting.	
#3 Suppliers must inform all customers of any developments relating to the use or production of products derived from genetic modification before engagement.	
4. SITE HISTORY AND SITE MANAGEMENT	
4.a. Site History:	
#1 A recording system must be established for each field, orchard or greenhouse to provide a permanent record of the crops and agronomic activities undertaken at those locations.	
#2 A visual identification or reference system for each field, orchard or greenhouse must be established.	
#3 For all new agricultural sites, a risk assessment must be undertaken, taking into account the prior use of the land and all potential impacts of the production on adjacent crops and other areas.	
#4. The results of the risk assessment analysis must be recorded and used to justify that the site in question is suitable for agricultural production.	
#5 A corrective action plan must be developed setting out strategies to minimise all identified risks in new agricultural sites, such as spray drift or water table contamination.	
4.b. Rotations:	
#1 To maintain soil condition, reduce reliance on agrochemicals and to maximise plant health, growers must recognise the value of crop rotations and seek to employ these whenever practicable.	
#2 Where rotations are not employed, growers must be able to provide adequate justification.	
5. SOIL AND SUBSTRATE MANAGEMENT	
5.a. Soil Type Mapping:	
	#1 Soil maps should be prepared for the farm, which can then be used to plan rotations, planting programmes and growing programmes.
5.b. Cultivation:	
	#1 Mechanical cultivation should be used where proven to improve or maintain soil structure, and to avoid soil compaction.
5.c. Soil Erosion:	
#1 Field cultivation techniques that minimise soil erosion must be adopted.	

REQUIRED	ENCOURAGED
5.d. Soil Fumigation:	
#1 Chemical fumigation of soils must be justified.	#2. Alternatives such as crop rotation, planting of break crops, use of disease resistant cultivars, thermal or solar sterilisation, conversion to soil-free cultivation, and similar techniques must be explored before resorting to use of chemical fumigants
5.e. Substrates:	
#1 For substrates that are not inert, documents must demonstrate its suitability.	#2 For inert substrates (PUR, rockwool, etc.), growers should participate in substrate recycling programs where available.
#3 Where chemicals are used to sterilise substrates for reuse, records of location must be kept.	
#4 Where chemicals are used to sterilise substrates for reuse, date, type of chemical used, method of sterilisation and operator must be kept.	#5 For substrates reuse, steaming should be the preferred option.
6. FERTILISER USAGE	
6.a. Nutrient Requirement:	
	#1 A cropping or soil care plan should be developed to ensure that nutrient loss is minimised.
	#2 The application of fertilisers should be based on nutrient requirements of the crop and on appropriate routine analysis of nutrient levels in the soil, the crop or the nutrient solution.
#3 Fertiliser application, using either mineral or organic fertilisers, must meet the needs of the crops as well as maintaining soil fertility.	
6.b. Advice on Quantity and Type of Fertiliser:	
#1 Growers or their advisers must be able to demonstrate competence and knowledge.	#2 Recommendations for application of fertilisers should be given by competent, qualified advisers holding appropriate and recognised national certification. Where such advisers are unavailable, adequate training in fertiliser usage and application should be undertaken.
6.c. Records of Application:	
#1 All applications of soil and foliar fertilisers must be recorded in a crop diary or equivalent. Records must include: location, date of application, type and quantity of fertiliser applied, the method of application, and operator.	
6.d. Timing and Frequency of Application:	
	#1 The quantity of fertiliser applied and timing of fertiliser application should be carefully considered so as to maximise benefits and minimise losses of fertiliser.
#2 Any application of nitrogen in excess of national or international limits must be avoided.	#3 Quantities of nitrogen to be applied should be calculated from a nitrogen management plan.
6.e. Application Machinery:	
#1 Fertiliser application machinery must be kept in good condition, with annual calibration to ensure accurate delivery of the required quantity of fertiliser.	

REQUIRED	ENCOURAGED
6.f. Fertiliser Storage:	
#1 There are stock records kept up to date and available.	#2 Fertilisers should not be stored in the same room with pesticides. If that is not possible, then the fertilisers and the pesticides must be physically separated and labelled accordingly.
#3 Fertilisers must be stored covered in a clean, dry location where there is no risk of contamination of water sources.	
#4 Fertilisers must not be stored with nursery stock.	
#5 Fertilisers must not be stored with fresh produce	
#6 All hazard and risk areas must be clearly indicated.	
6.g. Organic Manure:	
Organic manure or compost can help improve soil fertility by increasing organic matter content, improve nutrient and water retention and reduce erosion.	
	#1 Organic manure should be stored in an appropriate manner to reduce the risk of contamination of the environment.
#2 The use of raw untreated human sewage sludge is prohibited. Any use of treated human sewage sludge on land destined for agricultural production must be supported by data and/or recognised codes of practice which demonstrate that any carry-over of pathogenic organisms and other components which may have an adverse effect on human health, the quality of the soil, the groundwater or the wildlife are controlled to maintain risks at the lowest possible level.	#3 To avoid pollution by heavy metals or by nitrate leaching, analysis of levels of nutrients, heavy metals and other potential pollutants in the manure, should be completed before application. Proper account must also be taken of the nutrient contribution of manures.
	#4 Manuring in open field cultivation should be based on nutrient management plans.
7. IRRIGATION	
7.a. Predicting Irrigation Requirement:	
	#1 Incorrect usage of water can have a detrimental effect on product quality. To avoid excessive or insufficient water usage, methods of systematically predicting the crop requirement for water should be utilised. Where possible irrigation should be adjusted based on predicted rainfall, plant water use and evaporation. Daily rainfall records for outdoor production may be used to assist in planning irrigation requirements. Growers are recommended to obtain access to regular meteorological forecasts to aid irrigation planning.

REQUIRED	ENCOURAGED
7.b. Irrigation Method:	
	#1 The most efficient and commercially practical water delivery system should be used to ensure the best utilisation of water resources. Flood irrigation systems are discouraged due to excessive wastage of water.
	#2 Consideration should be given to a water management plan to optimise water usage and reduce waste (e.g. systems for re-use, irrigation at night, maintenance of irrigation equipment to reduce leakage, winter storage, collection of rainwater from glasshouses, etc).
	#3 All growers should maintain records of irrigation water usage.
7.c. Quality of Irrigation Water:	
#1 Untreated sewage water must never be used for irrigation.	#2 Based upon risk assessments, irrigation water sources should be analysed at least once a year for microbial, chemical and mineral pollutants by a suitable laboratory. The analysis results should be compared against accepted standards and adverse results acted upon.
7.d. Supply of Irrigation Water:	
	#1 To protect the environment, water should not be abstracted from unsustainable sources. Advice on abstraction should be sought from water authorities.
8. CROP PROTECTION	
8.a. Basic Elements of Crop Protection:	
#1 Protection of crops against pests, diseases and weeds must be achieved with the appropriate minimum pesticide input	
#2 Wherever possible growers must apply recognised IPM techniques on a preventive basis. Non chemical pest treatments are preferred over chemical treatments	#3 Growers are encouraged to understand and adopt IPM systems to control and preserve their productivity and minimise the potential impact of pest control on the environment. Assistance with implementation of such systems should be obtained through training, or advice through advice obtained from grower organisations, research organisations, qualified extension officers, consultants or chemical distributors.

REQUIRED	ENCOURAGED
8.b. Choice of Chemicals:	
#1 The crop protection product utilised must be appropriate for the control required.	#2 Selective products that are specific to the target pest, weed or disease and which have minimal effect on populations of beneficial organisms, aquatic life, workers and consumers and are not detrimental to the ozone layer should be used wherever possible.
	#3 An anti-resistance strategy should be adopted to avoid reliance on any one chemical.
#4 Growers must only use chemicals that are officially registered in the country of use and are registered for use on the crop that is to be protected where such official registration scheme exists, or, in its absence, complies with the specific legislation of the country of destination	
#5. A current list of all products that are used and approved for use on crops being grown must be kept. This list must take account of any changes in pesticide legislation.	
#6. Chemicals that are banned in the European Union must not be used on crops destined for sale in the European Union.	
#7. Growers must be aware of restrictions on certain chemicals in individual countries.	#8 Growers should consult their customers to determine if any additional commercial restrictions exist.
	#9 The label instructions should be followed to ensure successful application, avoid risks to operators, consumers and the environment. Where appropriate, growers may reduce the application frequency specified in the label instructions.
8.c. Advice on Quantity and Type of Pesticide:	
#1 Recommendations for application of pesticides must be given by competent, qualified advisers holding a recognised national certificate or similar.	
#2 Where such advisers are unavailable, growers must be able to demonstrate their competence and knowledge (e.g. through adequate training in pesticide usage and pesticide application).	
#3 The quantity of spray mix calculation must consider: velocity of application, surface area to be covered, pressure of application system.	
8.d. Records of Application:	
#1 All applications of pesticides must always include: crop name, location, date of application, trade name and name of operator.	
#2 Pesticide application records must also include: reason for application, technical authorisation, quantity of pesticide used, application machinery used and pre-harvest interval.	
8.e. Safety, Training and Instructions:	
#1 Workers who handle and apply pesticides must be trained.	#2 Each application should be accompanied by clear instructions or symbols detailing the location of application, chemical dosage and required application technique.

REQUIRED	ENCOURAGED
8.f. Protective Clothing/Equipment:	
#1 Workers must be equipped with suitable protective clothing in accordance with label instructions and appropriate to the posed health and safety risks.	
#2 Growers must be able to demonstrate that they follow label instructions with regard to protective clothing and equipment.	
#3 Protective clothing and equipment must be stored separately from pesticides.	
8.g. Pre-harvest Interval:	
#1 Pre-Harvest intervals must be observed and under no circumstances should the registered pre-harvest interval be ignored.	
8.h. Spray Equipment:	
#1 Spray equipment must be suitable for use on the land in question and be kept in good condition, with annual calibration to ensure accurate delivery of the required quantity of spray.	#2 Participation in an independent sprayer calibration certification scheme is encouraged.
#3 When mixing chemicals, the correct handling and filling procedures, as stated on label instructions, must be followed. The correct quantity of spray mix for the crop to be treated and the proposed treatment type must be calculated, accurately prepared and recorded.	
8.i. Disposal of Surplus Spray Mix:	
	#1 If surplus spray mix does occur, or if there are tank washings, these should be sprayed over an untreated part of the crop, as long as the recommended dose is not exceeded, or sprayed onto designated fallow land, where legally allowed, and records kept for future reference.
8.j. Pesticide Residue Analysis:	
	#1 The frequency of pesticide residue analysis should be based on risk assessment, however, in many cases, pre-harvest sampling and analysis is most effective.
	#2 Residue test results should be traceable to the grower and to the product's production location.
#3 Growers and/or suppliers must be able to provide evidence of residue testing.	
#4 The laboratories used for residue testing are accredited by a competent national authority to good laboratory standard (e.i.: GLP or ISO 17025)	#5 An action plan should be in place in the event of an maximum residue level (MRL) being exceeded.

REQUIRED	ENCOURAGED
8.k. Pesticide Storage:	
#1 Pesticides must be stored in accordance with local regulations and include the following minimum standards:	
#2 Pesticides must be stored in a sound, secure, frost resistant, fire-resistant, well ventilated (in case of walk-in storage) and well lit location which is located away from other materials.	#3 All shelving should be of non-absorbent material.
#4 The pesticide store must be able to retain spillage (e.g. to prevent contamination of water courses).	
#5 There must be adequate facilities for measuring and mixing pesticides.	
#6 There must be emergency facilities (e.g. eye wash, plenty of clean water, a bucket of sand) to deal with operator contamination and accidental spillage.	
#7 Keys and access to the store must be limited to workers with adequate training in the handling of pesticides.	
#8 An accident procedure, a list of contact telephone numbers and the location of the nearest telephone must be available within the immediate vicinity of in the store and next to the nearest telephone.	
#9 Inventory must be kept and readily available.	
#10 All pesticides must be stored in their original package.	
#11 Only chemicals approved for use on the crops produced in the crop rotation must be stored on the farm.	
#12 Powders must be stored on shelves above liquids.	
#13 Signs warning of potential dangers must be placed on access doors.	
8.l. Empty Pesticide Containers:	
#1 Empty pesticide containers must not be re-used and disposal of empty pesticide containers must be in a manner that avoids exposure to humans, and contamination of the environment.	#2 Official collection and disposal systems should be used if available.
#3 Empty containers must be rinsed via the use of an integrated pressure rinsing device on the sprayer, or at least three times with water, and the rinsate returned to the spray tank.	
#4 When rinsed, containers must be pierced to prevent re-use and be adequately labelled according to the rules of a collection system.	
#5 Empty containers must be kept secure until disposal is possible.	
#6 All local regulations regarding disposal or destruction of containers must be observed.	

REQUIRED	ENCOURAGED
8.m. Obsolete Pesticides:	
#1 Obsolete pesticides must only be disposed of through a certified or approved chemical waste contractor or supplying company.	
9. HARVESTING	
9.a. Hygiene:	
	#1 A hygiene protocol based on a risk analysis should be used to establish hygiene regulations for personnel to prevent physical, microbiological and chemical contamination of produce.
#2 Workers must have access to clean toilet and washing facilities in the vicinity of their work.	
#3 Workers must receive basic instructions in hygiene before handling fresh produce. Workers must also be made aware of the requirement to notify management of any transferable disease which may render them unfit to work in the vicinity of products destined for human consumption.	
9.b. Packaging on Farm:	
#1 Packaging must be stored so as to avoid contamination by rodent, pest, birds, physical and chemical hazards. Where products are field packed, packaging must be removed from the field overnight where a risk of contamination exists.	
#2 Reusable crates must be clean and re-cleaned where necessary to ensure they are free from foreign material which may be detrimental to the product and/or consumers health.	
10. POST-HARVEST TREATMENTS	
10.a. Post-harvest Chemicals:	
	#1 Use of post-harvest treatments should be minimised.
#2 Post-harvest chemicals must only be used in accordance with product label.	
#3 Growers must only use chemicals that are officially registered in the country of use, and for use on the crop being protected. Chemicals that are banned in the European Union must not be used on crops destined for sale in the European Union.	
#4 A current list of all products that are used and approved for use on crops being grown must be kept. This list must take account of any changes in pesticide legislation. In addition, growers must be aware of restrictions on certain chemicals in individual countries. Growers must consult their customers to determine if any additional commercial restrictions exist.	
#5 Growers must be able to demonstrate their competence and knowledge with regard to the application of post-harvest chemicals.	
#6 All applications of post-harvest treatments must be recorded in a crop diary or equivalent and include: crop or product, location, date of application, trade name, type and quantity of treatment used and name of operator.	

REQUIRED	ENCOURAGED
#7 All applications of post-harvest treatments must be recorded in a crop diary or equivalent and include the reason for application and machinery used.	
10.b. Post-harvest washing:	
#1 The source of water used for product washing must be potable, and must be filtered if recycled.	#2 Based upon risk assessments, sources of water for post-harvest washing should be analysed by a laboratory (currently accredited to EN 45001 or GLP or its national equivalent or that can demonstrate via documentation that it is in the process of gaining accreditation) for microbial, chemical and mineral pollutants at least once a year. Results of the analysis should be compared to accepted standards and adverse results acted upon.
11. WASTE AND POLLUTION MANAGEMENT, RECYCLING AND RE-USE	
11.a. Identification of Waste and Pollutants:	
	#1 All the possible waste products should be identified in all areas of the farm business (e.g. paper, cardboard, plastic, crop debris, oil, rock wool and other substrates).
	#2 All possible sources of pollution should be identified (e.g. chemicals, oil, fuel, noise, light, debris, pack-house effluent, etc.).
11.b. Waste and Pollution Action Plan:	
	#1 Having identified waste and pollutants, a plan should be developed and implemented, to avoid or reduce wastage and pollution, and whenever possible, avoid the use of land-fill or burning, by recycling the waste. Organic crop debris can be composted on the farm and, where there is no risk of disease carry-over, reused for soil conditioning.

12. WORKER HEALTH, SAFETY AND WELFARE	
12.a. Risk Assessment:	
	#1 A risk assessment should be used to develop an action plan to promote safe and healthy working conditions.
12.b. Training:	
#1 Formal training must be given to all appropriate workers operating dangerous or complex equipment.	#2 Records of training for each employee should be kept in the interests of operator safety.
	#3 Workers trained in First Aid should be present in both field and pack-house.
#4 Accident and emergency procedures must exist and instructions must be clearly understood by all workers.	#5 Accident procedures should be visually displayed and in the appropriate language of the workforce.
12.c. Facilities and Equipment:	
#1 First Aid boxes must be present at all permanent sites and in the vicinity of field work.	#2 Hazards should be clearly identified by warning signs where appropriate.
12.d. Pesticide Handling:	
	#1 Workers undertaking pesticide applications on the farm should receive annual health checks in line with guidelines laid down in local codes of practice.
12.e. Hygiene:	
#1 All permanent product packing and storage sites must have adequate pest (including rodent) control measures, particularly in areas for food handling, storage of packaging, storage of pesticides and storage of fertilisers.	#2 Workers should receive basic training in hygiene requirements for the handling of fresh produce. The training should outline the need for: hand cleaning, the covering of skin cuts, and the confinement of smoking, eating and drinking to permitted areas, etc.
	#3 To avoid establishing a breeding ground for pests and disease, premises should be clear of litter and waste, and have adequate provisions for waste disposal.
12.f. Welfare:	
#1 All employment conditions must comply with local and national regulations with regard to wages, workers age, working hours, working conditions, job security, unions, pensions and all other legal and health requirements.	
#2 Growers and packers must consult with their customers to ensure compliance with specific company policies regarding worker welfare.	
#3 On site living quarters must be habitable and have the basic services and facilities.	

13. ENVIRONMENTAL ISSUES	
13.a. Impact of Farming on the Environment:	
	#1 In the light of consumer concern, growers should understand and assess the impact their farming activities have on the environment, and consider how they can enhance the environment for the benefit of the local community and flora and fauna.
13.b. Wildlife and Conservation Policy:	
#1 A key aim must be the enhancement of environmental biodiversity on the farm through a conservation management plan. This could be a regional activity rather than an individual one.	
	#2 Each grower should have a management of wildlife and conservation policy plan on their property. This Policy should be compatible with sustainable commercial agricultural production and minimise environmental impact of the agricultural activity. Key elements of this plan should be to: <ul style="list-style-type: none"> • Conduct a baseline audit to understand existing animal and plant diversity on the farm. Conservation organisations can help conduct surveys to measure biodiversity and identify areas of concern. • Take action to avoid damage and deterioration of habitats. • Create an action plan to enhance habitats and increase biodiversity on the farm
13.c. Unproductive Sites:	
	#1 Consideration should be given to the conversion of unproductive sites (e.g. low lying wet areas, woodlands, headland strip or areas of impoverished soil) to conservation areas for the encouragement of natural flora and fauna.
14. COMPLAINT FORM	
# 1 There must be on the site a record available on request of all complaints made known to the supplier relating to all products compliance with requirements of this protocol. There are documents of the actions taken with respect to such complaints and any deficiencies found in products or services.	
15. INTERNAL AUDIT	
# 1. The grower must undertake a minimum of one internal audit per annum against the EUREPGAP Standard, this audit must be documented and corrective actions documented and implemented.	