



European Integrated Farming Framework

**A European
Definition and Characterisation
of Integrated Farming (IF)
as Guideline for Sustainable
Development of Agriculture**

February 2012

Preface

The European Initiative for Sustainable Development in Agriculture (EISA) is pleased to present the revised version of their **European Integrated Farming Framework** as a definition and in detail description of Integrated Farming (IF) as a guideline to sustainable development in European agriculture.

A first working paper on such a European approach was presented by EISA in a conference in Brussels in July 2003. Since this conference, EISA and their members had regular discussions with a wide range of European experts which then led to a second conference in Brussels in November 2005. This process has proven to be highly effective in terms of fine-tuning the working paper published in September 2006. However, following EISA's understanding of Integrated Farming as an equally holistic and dynamic system, EISA members have decided to review and update the Framework on a regular basis. The updated version was presented during the EISA Farmers Exchange in Austria in September 2009.

The EISA Integrated Farming Framework is a detailed document including guidelines, practices and suggestions for agricultural production, covering a wide range of aspects such as soil management, animal husbandry, landscape, wildlife and biodiversity. Even though the EISA framework is not meant to be a standard or an auditing scheme, demonstration / documentation are recommended for giving evidence of developments on farm.

The Framework should be understood and used as a tool on two different levels:

- For an individual farmer (farm owner, farm manager), the EISA Framework offers a comprehensive management tool which may help to raise further awareness and continually improve everyday practice on farm in order to meet future environmental, economic and social challenges and hence achieve parallel progress in all dimensions of sustainable development.
- The EISA Framework presents a definition and characterisation of Integrated Farming, giving the basis for a common understanding for political credibility and as the foundation of EISA itself. The framework can help influence potential legislative incentives and / or guidelines. It can be applied all over Europe, helping to harmonise agricultural performance through its forward looking and innovative approach.

All in all, the EISA Integrated Farming Framework points out guidelines and potentials for developments in agriculture. These potentials can be taken up by farmers and also at the political level to shape incentives or programmes in the future.

The nature of the EISA framework as forward looking and innovative approach will inevitably lead to further revisions in the future. EISA encourages all interested stakeholders to comment, contribute and join EISA's members in further developing these IF guidelines.

Due to developments in agricultural engineering, in knowledge and experience, and in resulting amendments of the legal framework, items characterised as a "should" in this version will probably be changed to a "must" in the course of time. On the other hand, it can be expected that also new items will have to be added. Therefore, this document again has to be considered as a "temporarily finalised" version – open for discussion and future amendments.

The **European Initiative for Sustainable Development in Agriculture (EISA)** was founded with the common aim of developing and promoting Integrated Farming throughout Europe. Integrated Farming is a sustainable system, which helps farmers improve the way they farm

for the benefit of the environment, the profitability of their business and social responsibility, including all important aspects of sustainable development.

EISA members also help create a better public understanding of agriculture through a network of demonstration farms. EISA brings farmers and consumers together to raise awareness of how farmers are working in harmony with nature to produce good, safe food and renewable resources with environmental and social care.

EISA works in partnership with all stakeholders to achieve shared responsibility and decision making for collective action as well as to promote the benefits and principles of Integrated Farming. Integrated Farming provides a framework to manage priorities. Attention to detail ensures the balance is achieved to create win-win solutions.

As an organisation EISA works closely with the EU Institutions and other stakeholders to contribute to the development of agricultural and environmental policies in the EU.

Thank you for taking the opportunity of ***getting involved with the EISA Integrated Farming Framework***. We would like to thank all stakeholders and experts, who have given their valuable input over the last years. We are looking forward to further sharing and discussing our views and perspectives with you and to commonly bringing forward what all of us are striving for: sustainable development in agriculture.

A handwritten signature in black ink that reads "Tony Worth". The signature is written in a cursive, flowing style.

Tony Worth
EISA chairman

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Executive Summary

Farming is facing changing demands. The challenge for a farmer is to respond to these economic, environmental, social and welfare issues as well as the fundamentals of sustainable agriculture. These changing demands result from the continuously growing world population and the globally increasing demand for food, feed and renewable energy. They also result from climate change, which will increasingly threaten yields in southern countries due to higher temperatures, lower water availability and the invasion of new pests. In addition, environmental issues such as the conservation of biodiversity, the protection of ground and surface water and the conservation of soils are still considered as areas of global concern.

Integrated Farming contributes to solving these global challenges. It is a whole farm management system, which enables the farmers to identify opportunities and threats and act accordingly, and, at the same time, consider consumer interests in their business. Traceability is seen as a regular requirement from society, something which IF can address. Similarly, IF offers the flexibility required to refine farming practices in accordance with developing government objectives.

IF is not based on a set of fixed parameters but on informed management processes. This knowledge-based flexibility of IF includes attention to detail and managing all resources available. The whole process is capable of identifying adverse effects such as leaching, soil erosion and damage to habitats and biodiversity – and of identifying the measures to reduce or even avoid them. In animal husbandry, Integrated Farming is an effective tool to maintain health and welfare of livestock on farm, to achieve high quality and good performance and at the same time to reduce environmental impacts.

IF is a widely accepted and practical way forward for the farmers across Europe. It helps to achieve sustainable agriculture, a core objective in the formation of the European Initiative for Sustainable Development in Agriculture, EISA.

The EISA Integrated Farming Framework has been developed as a workable system to address economic, environmental, social and welfare issues. The eleven chapters are as follows:

- Organisation & Planning,
- Human & Social Capital,
- Energy Efficiency,
- Water Use & Protection,
- Climate Change & Air Quality,
- Soil Management,
- Crop Nutrition,
- Crop Health & Protection,
- Animal Husbandry, Health & Welfare,
- Landscape & Nature Conservation and
- Waste Management Pollution Control.

These chapters have been intensively discussed and revised. However, for some chapters the above mentioned revision process is not yet finished.

Each chapter is divided into sections such as “General Considerations”, “Decision Making Process”, “Implementation of Measures on Farm” and “Evaluation”. This structure allows for

detailed planning, thorough implementation and continuous evaluation of results and side effects, leading to improvement in farming practices.

Also, the eleven chapters are divided into the following columns: “Item”, “Guideline”, “Explanation and Suggested Demonstration / Documentation”, “GAP” (Good Agricultural Practice), and “Integrated Farming Perspective”. The EISA Framework has been developed alongside existing standards, indicators and documented scientific research. The National Codes of GAP understood as “agriculture according to the respective national laws”, were taken as the minimum requirements, which have to be fulfilled under all circumstances. At the same time, issues discussed on the political level such as “Good agricultural and environmental condition”, “Cross Compliance” and “National Action Plans” (related to the EU Framework directive) have also been accounted for.

The “Integrated Farming Perspective”, the last column in the individual chapters of the Framework, indicates where farmers are encouraged to work on the implementation of further steps, techniques and developments. The “must issues” are either covered by EU- / national legislation and / or by EISA’s understanding of Integrated Farming, and hence have to be seen as indispensable prerequisites. The “should-issues” are meant as strong recommendations to be taken up by farmers as quickly and effectively as possible. The “consider issues” go one step beyond this continuous process of improvement, offering suggestions for even further potential developments. They might either be too costly or require expertise and / or equipment not readily available at present, but call for farmers’ awareness and interest, pointing out guidelines for future action.

Using the legal requirements as a baseline, it can be demonstrated how IF goes beyond GAP – as a production system of today as well as a guideline for the future. When looking at this Framework it has to be kept in mind that the National Codes of Good Agricultural Practice may vary to a certain degree between individual Member States, hence making it difficult to define a “European GAP”. Items clearly regulated in one Member State may be less or not regulated in others. Owing to this European peculiarity, some items described in this document as guideline for Integrated Farming in Europe may already be part of the National Code of Good Agricultural Practice in individual member states.

Management plans play a key role in the IF Framework. These plans have to be understood as the concepts for the farming and business policy of an individual farmer rather than lengthy documents. Such plans, concepts or policies can be seen as management tools which help farmers to identify targets, strategies and measures in the development of their enterprises in terms of environmental, social and economic advancement. In this context, the “Demonstration / Documentation” measures addressed in the Framework offer double benefits to the farmers: On the one hand, whilst keeping precise track of all inputs in terms of labour, feed-stuff, water, fuel, fertiliser, crop protection products, and other operating resources, the farmer will be able to evaluate the efficiency of the whole enterprise as well as the individual areas, hence allowing for a further development and fine-tuning of strategies and measures. On the other hand, demonstration and documentation can be used in all communication processes with clients, interest groups, authorities, and the general public, and so offers manifold chances to improve understanding, acceptance and trust.

In spite of the detailed characterisation of IF, however, the EISA Framework provides the flexibility for the farmers to meet the needs specific to their farm, location and situation. It is this dynamic quality of IF to embrace technology that is permanently developing that will make a difference to farmers to meet the challenges of modern farming, improve their performance and move their business forward.

General Introductory Remarks

The very reason for agriculture's existence is to capture solar energy and to convert it into biomass, in order to supply energy to human beings in the form of food, feedstuff for livestock and raw material for industrial use, and increasingly also in form of biomass for the production of renewable energy. However, to power machinery and aid processing, this transformation requires initial energy inputs which mostly come from fossil sources, therefore, requiring much attention for the best use and savings.

Besides being just one element of the food chain (suppliers – farmers – food industry – retailers – consumers), agriculture acts in an open system, using and influencing adjacent environmental compartments such as soil, water and air, as well as fauna and flora. Agriculture is the only production system which leads to a net-capture of carbon. This carbon is fixed in biomass on an annual basis and also stored in soils via roots and organic fertilisers medium to long term, allowing agriculture to function as a carbon sink. On the other hand, agriculture inevitably causes emissions of greenhouse gases such as CO₂, NH₃, N₂O or CH₄, one reason being the dependency on external energy inputs to power machinery and drying harvested goods as well as fertiliser production and manufacturing of machinery and other implements, the latter taking place beyond the farm gates.

When evaluating efficiency of the use of resources, for example, it becomes obvious that the interactions between agriculture and “the environment” are manifold and highly complex, as are the interactions between all management practises on a given farm. As a consequence, changes of one particular management practise such as soil tillage may never be looked at exclusively: Altering soil tillage from conventional to conservation tillage or even no-till for example will inevitably affect fertilisation, cropping sequence and crop protection. Under certain circumstances, energy savings achieved with reduced tillage might well be overcompensated by the subsequent need for additional crop protection measures.

Also, when looking at emissions to air, for example, it is not the mere quantity of emissions alone that matters but also the ratio of “emissions per kg of product”. This efficiency criterion becomes increasingly important for all management practices. Energy needed for tillage, planting and harvesting, water used for irrigation or livestock supply, feed composition, feed take-up and conversion in animal husbandry, fertiliser input per unit of yield, but also yield per unit of land: The environmental impact of agricultural production depends on the efficiency achieved when using all means of production. The input used per kg of output, the output achieved per kg of input and the output achieved per hectare of land – as a limited resource – are therefore decisive figures for evaluating the efficiency and the environmental impact of agricultural systems. Particularly with regard to arable soil as limited resource, the efficiency approach of Integrated Farming makes up for the greatest difference – and advantage – in comparison to low intensity systems such as organic farming.

Last but not least, and beyond striving for a more efficient use of these resources, also strategies for the replacement of fossil energy by renewable energy sources need to be increasingly incorporated in farming practices.

Explaining Integrated Farming

Integrated Farming offers a whole farm policy and whole systems approach to farm management. The farmer seeks to provide efficient and profitable production, which is economically viable and environmentally responsible, and delivers safe, wholesome and high quality food through the efficient management of livestock, forage, fresh produce and arable crops whilst conserving and enhancing the environment.

At the core of IF is the need for profitability. To be sustainable, the system must be profitable. Profits generate support for all the activities outlined in the IF Framework. Financial support for environmental and biodiversity activities varies throughout the European Community but in all cases requires the farmer to commit labour and planning to such activities.

IF goes beyond simple compliance with current farming regulations, reinforces the positive impact of farming practices on the environment and reduces their negative effects, without losing sight of the profitability for the farm.

IF is geared towards the optimal and sustainable use of all farm resources such as farm workers, livestock, soil, energy, water, air, machinery, landscape and wildlife. This is achieved through the integration of natural regulatory processes, on-farm alternatives and management skills, to make the maximum replacement of off-farm inputs, maintain species and landscape diversity, minimise losses and pollution, provide a safe and wholesome food supply and sustain income. If external resources are needed, there is a clear focus on using local resources first.

IF methods involve the implementation of technical expertise in an overall approach to the farming activities. Above and beyond food safety regulations, which are applicable to all systems of production, IF can facilitate the control of health risks and contribute to improving the health and safety of people at work and livestock on the farm.



The EISA “Integrated Farming Wheel”: The holistic all-farm approach

IF requires considered management and a balanced approach of every farm decision. The following eleven chapters cover essential elements of Integrated Farming as a whole farm management approach:



- **Organisation & planning:** This sets the framework, develops a sense of understanding from staff and visitors and ensures attention to details. Important details of farm interventions and farming practices should be recorded and records kept. Planning and evaluation of practices is essential to ensure environmentally responsible production and continuous improvement.



- **Human & Social Capital:** Standards of employment practice, health and safety at work, and occupational training need to embrace EU standards of employment practice as minimum standard. Inputs can be obtained from many sources but the use of local suppliers and local marketing of produce should be favoured where possible. Using local markets will help to maintain both local business and livelihoods and can also improve efficiency. Besides, open and active involvement of the farmer in local community's life can help generate transparency and trust. This can also include hosting farm visits or holding open days for the public.



- **Energy Efficiency:** Awareness of sustainable development and the responsible management of natural resources are central to IF. More careful and selective use of inputs, conservation tillage practices, reducing fossil fuel needs where possible and striving for optimum instead of maximum yields are just some strategies to increase the input-output-ratio and hence energy efficiency.



- **Water Use & Protection:** Use of water resources should be balanced and programmes which determine crop needs should be used. Protecting natural ground and surface water bodies is a key for maintaining and enhancing the environment, wildlife and biodiversity.



- **Climate Change & Air Quality:** By working in the open, using fossil fuels, keeping livestock, storing and spreading manure and by other agricultural practices, the emission of greenhouse gases and other air pollutants is unavoidable. Farmers' decisions may help to keep carbon stocks in soils by allocating land to annual or perennial crops, to grassland, woods or buffer zones (such as hedges, grass strips,...). Some practices on reduced tillage or cover crops or incorporation of crop residues to soil may even increase the C sequestration to a certain extent and also help to improve air quality.



- **Soil Management:** Soil is fundamental to agricultural systems and a rich soil ecosystem contributes to crop and livestock performance: *"The quality of life below ground determines productivity above"*. Good soil husbandry ensures the long-term fertility of soil, aids

yield and profitability and reduces the risk of soil damage such as erosion and compaction and associated environmental concerns.



- **Crop Nutrition:** Knowledge of the soil nutrient status is a decisive tool for ensuring that only the necessary and recommended amount is applied. The decision making process involves crop demands, the supply that is in the soil and available nutrients from farm manure and crop residues. A balanced approach to fertilisation should be adopted, practices should be adapted to local situations, thereby reducing risks of environmental pollution by fertilisation.



- **Crop Health & Protection:** This is the basic strategy for control of pests, disease and weeds. Any intervention must be accounted for. Crop protection practices should be rationalised by using integrated control, applying biological methods whenever available, at the same time combining the selection of more tolerant cultivars (planting material as well as seeds) with a balanced crop rotation as a fundamental element to reduce risk.



- **Animal Husbandry, Health & Welfare:** Health and welfare of farm animals are linked with performance. IF farmers employ and demonstrate techniques directed towards meeting the needs of the livestock and maintaining the animals in good health, comfort and low stress, allowing for natural behaviour to the greatest possible extent. Balanced, healthy feedstuff respecting their physiology is essential. Disease prevention plans and all statutory health controls have to be complied with and all treatments administered have to be documented. National livestock identification systems have to be complied with in order to ensure traceability of origin, age, race and category of all livestock, as well as animal feed and fodder, whether produced on site or purchased elsewhere.



- **Landscape & Nature Conservation:** Protecting and enhancing wildlife and biodiversity of the landscape is of great importance within the concept of Integrated Farming. Management practices should consider biodiversity effects such as the threat to larches during mechanical weeding. The structural diversity of land and landscape features will create floral and faunal abundance and diversity.



- **Waste Management & Pollution control:** Wastes – including farm yard manure, for example – must be seen as a valuable resource in terms of saving money and reducing pollution. Farming effluents should be managed to optimise recycling and re-use, thereby minimising effects on the environment. Also the correct storage of hazardous substances and / or material for off-farm disposal and the subsequent proper disposal are important parts of the IF whole farm approach. Produce on the farm is to be stored separately to avoid contamination and maintain product quality. Recycling of external materials such as sewage sludge should only be considered if there will be no hazard to soil and environment due to critical ingredients such as heavy metals etc.

European Integrated Farming Framework – Key Points

This section specifies in detail the IF Framework and the principle differences between IF and Codes of Good Agricultural Practice.

1. The IF Framework is about continuous development whereby farmers are committed to continuously improving the efficiency and value of managed resources.
2. IF embraces social and human capital issues and puts a focus on using local resources first. This includes employee involvement, training and strict adherence to health and safety aspects as well as the role of the individual farmer in the local community.
3. The IF Framework is a tool to enhance the farm business. A complete documentation of all quality systems and potential whole farm audits is suggested. Farm environmental plans and other records are recommended as they allow for monitoring and benchmarking for performance.
4. The IF Framework seeks to improve the efficiency of both water and energy use and to minimise wastage. Renewable resources should be produced and used wherever possible. The Framework recommends resources are re-used or recycled where possible, and their use is reduced where re-use or recycling is not possible.
5. The use of crop nutrients, from both organic and mineral sources, is targeted to crop needs and requires the farmer / grower to be aware of and regularly use soil indices and nutrient balances. However, when recycling off-farm material such as slurries, potential pollution due to critical components are avoided. Protection of the soil and the environment ranks higher than recycling nutrients from external sources.
6. Crop protection relies principally on cultural, biological and mechanical control mechanisms as a first resort, together with a considerate use of registered crop protection products. These are used with regard to environmental and economic considerations, keeping in mind and using strategies to avoid potential resistance build-up.
7. The IF Framework ensures livestock are managed to reflect proper care and concern to their welfare and minimise damage to the environment.
8. Protection and enhancement of the environment, surrounding ecosystems and natural resources, including soil, water, and air, are essential elements to improve biodiversity and minimise the impact of farm practices.
9. IF fulfils the requirements of the farmer in the food chain including national quality assurance scheme requirements.
10. IF is about attention to detail and adopting innovative practices to move farm businesses towards better delivering sustainable agriculture.

EUROPEAN INTEGRATED FARMING FRAMEWORK



Chapter I: Organisation & Planning

Good organisation and planning are the keys to a successful Integrated Farming (IF) approach. Setting objectives and monitoring the results provide the means by which the performance can be constantly improved and the benefits of IF can be quantified and demonstrated. This approach points out the short and long term objectives of the farm business and covers areas such as: crop performance, livestock performance and welfare, market outlets, environmental commitment and performance, finance and profitability, family considerations, staff training and motivation, and local communication.

IF and GAP key difference: IF encourages the farmer to look at the whole farm with a considerate management and planning approach, which combines the best of traditional practice with the best of modern technology and uses regular internal benchmarking for continuous improvement.

Part I.1: General considerations

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
I.1.1: Auditing	A whole farm audit should be used on a regular basis to gain information on results of all farming and management practices.	<p>Explanation: As Integrated Farming (IF) is a whole farm approach, a whole farm audit is a useful basis for a holistic management approach, which helps to identify where the farmer is getting it right, potential weak spots as well as identifying strategies and actions for improvement.</p> <p>Demonstration / Documentation: Results of and recommendations derived from whole farm audit.</p>	NR		✓	

R = Measures included (**NR** = not included) in an EU legal text for general enforcement or regional enforcement through related national action plans.

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
I.1.2: Certification and assurance	On the basis of the whole farm audit, a certification of the farming enterprise should be considered.	<p>Explanation: For certain produce, certification is mandatory. However, if not mandatory, certification may help to generate new marketing opportunities. Certification / assurance of the different enterprises on a farm allows for continuous improvement, demonstrates the business commitment to food safety standards and helps to gain consumer confidence and trust.</p> <p>Demonstration / Documentation: Certificates / membership registers.</p>	NR			✓
I.1.3: Business Management Mission Statement	Based on the whole farm audit where available, the Business Management Mission Statement should be defined.	<p>Explanation: The Business Management Mission Statement should encompass economic, environmental and social objectives as well as strategies and measures to be taken. Design and complexity of the concept and of subsequent management plans can be handled according to individual preferences, but the mission statement is to set out the underlying principles of the farm business.</p> <p>Demonstration / Documentation: Awareness of strategic objectives and measures to be taken, including the identification of market outlets for farm produce prior to production.</p>	NR		✓	
I.1.4: Whole Farm Management Plan	The Whole Farm Management Plan should be understood as holistic frame for all management decisions (see following items I.2.1 – I.2.17).	<p>Explanation: Awareness of interdependencies of all measures taken on farm allows for qualified management decisions. All individual management concepts should be understood and used as parts of an all-farm approach. This planning tool should cover items such as production, processing, storage, marketing, environment, finances and training schedules.</p>	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
I.1.5: Diversification	Within the Whole Farm Management Plan, options for a diversification of the enterprise should be considered and evaluated.	<p>Explanation: If knowledge, skills, machinery / buildings, capability to invest and marketing opportunities are available, diversification may help to broaden and secure the income base of the enterprise and to overcome market volatility.</p> <p>Demonstration / Documentation: Farm branches, concepts / plans for further business development.</p>	NR		✓	
I.1.6: Operating Resources Plan	As general rule, operating resources should only be used according to site and situation (damage threshold, soil sampling, photometer etc.). Crop protection products should not be bought and stored in advance but only according to actual requirements.	<p>Explanation: Integrated Farming does not follow standard procedures but acts / reacts according to specific situations. Whereas fertilisers and fuels can be bought and stored when prices are low and where adequate storage facilities are available, crop protection products should not be bought and stored as routine measure. If adequate storage for crop protection products is available, (compare item VIII.4.1) quantities in store should not exceed probable needs of the current growing season.</p> <p>Demonstration / Documentation: Visual inspection, Crop Nutrient Management Plan and Crop Protection Management Plan.</p>	NR		✓	
I.1.7: Whole Farm Technology Concept	Cooperation between several neighbouring farming enterprises should be considered. They offer chances to invest in modern technology which would be too expensive for individual farms.	<p>Explanation: New technologies are often more environmentally friendly than those previously used. However, the costs for adapting these new technologies (for instance reduced / no-tillage) often exceed the financial capability of individual enterprises. Farming cooperation may offer economically viable solutions.</p> <p>Demonstration / Documentation: Cooperation models and contracts in place.</p>	NR			✓

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
I.1.8: Whole Farm Communication Concept	Consider regular invitations of colleagues, local politicians, environmentalists, customers and the general public with a focus on issues such as soil, water and nature conservation, animal husbandry etc. (compare item I.3)	<p>Explanation: Open dialogue helps create understanding and acceptance.</p> <p>Demonstration / Documentation: Invitations, visitors book etc.</p>	NR			✓

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I.2: Implementation on farm

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
I.2.1: Employee Training and Management Plan	See chapter II					
I.2.2: Whole Farm Management Plan for Energy Use	See chapter III					
I.2.3: Water Management Plan	See chapter IV					
I.2.4: Management Concept to avoid Emissions	See chapter V					
I.2.5: Long Term Crop Rotation Plan	See chapter VI					
I.2.6: Soil Management Plan	See chapter VI					
I.2.7: Crop Nutrient Management Plan and Organic Based Fertiliser Management Plan	See chapter VII					

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
I.2.8: Crop Protection Management Plan	See chapter VIII					
I.2.9: Herd Health plan	See chapter IX					
I.2.10: Whole Farm Conservation Plan	See chapter X					
I.2.11: Farm Environmental Policy	<p>A Farm Environmental Policy should be set up outlining objectives, targets and measures for continuous improvement of environmental features and activities, including biodiversity, soil, water and air quality. These environmental issues are addressed in the different chapters of this IF Framework.</p> <p>It should be ensured that all staff have been informed, have understood and are involved in the Farm Environmental Policy.</p>	<p>Explanation: The policy should be part of the Whole Farm Conservation Plan and set out short term and long term (1-5 yrs) environmental objectives including non-food enterprises on the farm. This plan should include targets on:</p> <ul style="list-style-type: none"> • reducing waste and raw material consumption; • minimising all polluting releases to environment i.e. to air, water, soil; • optimising energy and water efficiency and use; • recycling and use of renewable resources; • minimising adverse environmental effects. <p>Successful implementation of environmental policies and measures depends on staff understanding and acceptance. Staff should be involved in the planning process as well as in the implementation of the Farm Environmental Policy.</p> <p>Demonstration / Documentation: Notes on information / advice kept with staff training records, awareness, concepts / plans etc.</p>	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
1.2.12: Farm Waste Management Plan	See chapter XI					
1.2.13: Manure Management Plan	See chapter XI					
1.2.14: Awareness of technology developments	Technical / technological information updates should be obtained on a regular basis.	<p>Explanation: Subscription to technical farming publications, relevant government guidelines and using the internet or technical consulting services are important to ensure that up-to-date technical information and guidance are available. Attending field days and farm walks will also provide valuable information.</p> <p>Demonstration / Documentation: Subscription receipts, fact sheets, magazines etc.</p>	NR		✓	
1.2.15: Rental and purchase of land	Historic information and records should be consulted where available.	<p>Explanation: Outlining identified / potential risks e.g. previous cropping, disease potential, spray drift etc. helps to select appropriate cultivation strategies and measures. Local records and good working relationships with neighbours are helpful.</p> <p>Demonstration / Documentation: Local records etc. where available.</p>	NR			✓

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
I.2.16: Fire Prevention and Emergency Plan	Rules / measures for fire, accident and emergency prevention must be in place.	<p>Explanation: All staff / people living and working on the farm must be informed about fire precautions, safety regulations and emergency / accident procedures. Buildings and storage should have procedures in place to avoid fire. These should include electric measures such as earth-leakage circuit-breakers which should be installed for every farm building with a separate electrical circuit.</p> <p>Demonstration / Documentation: Visual inspection of farm buildings.</p>	NR	✓		

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I.3: External use and communication of management practices

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
I.3.1: Communication and participation with local community initiatives	Arrange open days, farm walks or participate with local community initiatives.	<p>Explanation: It is important to promote on-farm activities and encourage feedback on how the business is perceived. This can be beneficial to the business and provides excellent PR for the industry.</p> <p>Demonstration / Documentation: Farm walks or conservation work, evidence of feedback from stakeholders.</p>	NR			✓
I.3.2: Policy statement of responsibility to end customer / consumer and / or food industry contacts	Communication with customers, understanding for their requirements in terms of quality and quantity and environmental considerations, should be established and maintained.	<p>Explanation: Communication on responsibility with regard to food safety, the environment, wildlife and animal welfare helps to inform customers and business contacts of what farmers are doing, demonstrates that they are aware of consumers' concerns and build trust.</p> <p>Demonstration / Documentation: Willingness to address and communicate with customers and the public.</p>	NR		✓	
I.3.3: Transparent food chain	Open relations and communication within the food chain should be developed and maintained.	<p>Explanation: Communication throughout the food chain helps identify the market requirements and potentially offers new opportunities to the business.</p> <p>Demonstration / Documentation: Involvement of suppliers and buyers along the food chain in open days and other PR activities where applicable.</p>	NR			✓

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I.4: Evaluation

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
I.4.1: Evaluation of Business Management Mission Statement and Whole Farm Management Plan and underlying concepts	Results should be benchmarked against the targets set.	<p>Explanation: The Business Management Mission Statement, the Whole Farm Management Plan and further underlying concepts / plans should be thoroughly evaluated and discussed with a qualified agronomist and / or advisor. This helps to check whether planning and measures taken have been effective.</p> <p>Demonstration / Documentation: Awareness of evaluation results and conclusions for future planning.</p>	NR		✓	
I.4.2: Revision of Business Management Mission Statement and Whole Farm Management Plan and underlying concepts	Following the evaluation, the Business Management Mission Statement, the Whole Farm Management Plan and underlying concepts / plans should be revised if necessary.	<p>Explanation: To ensure that policy and planning are relevant and up to date, regular reviewing is necessary. Amendments should be highlighted. Annual meetings with all people involved in the business (i.e. staff, agronomists, advisors etc.) will enable farmers to review previous experiences, highlights, opportunities and concerns, and to plan the forthcoming year setting targets and actions.</p> <p>Demonstration / Documentation: Awareness of necessary changes of strategies and / or measures, amended Business Management Mission Statement, Whole Farm Management Plan and further underlying concepts / plans.</p>	NR		✓	

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Chapter II: Human & Social Capital

Education and training are important prerequisites for sustainable development and help to build on social capital. Farm staff, contractors, and farmers themselves stand for the quality of the produce and for environmental protection. Relations between staff on farm, between farmers and business partners as well as with the public are important elements of the holistic concept of Integrated Farming and at the same time essential for the public perception of the industry.

IF and GAP key difference: Making staff training, information and involvement, responsible and fair partnership, public image and community involvement important elements of the business helps to create acceptance and bridge the gap between farmers and consumers.

II.1: General considerations

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
II.1.1: Employee Training Plan	An individual employee training plan must be in place and reviewed annually with training needs identified and actioned.	Explanation: A well trained workforce is a skilled and responsible workforce. Demonstration / Documentation: Audit records, employee certificates and evidence of training budget where applicable.	NR	✓		
	Refresher courses where appropriate must be made available.		NR *	✓		
	IFM practitioners must use training schemes which have nationally recognised standards (if available).	Explanation: Discussion groups are a different form of training but provide invaluable knowledge transfer. Listening to some of the comments of others in society creates a higher social capital in farmers and helps them to be more aware of the benefits of engaging with the public. Opportunities to invite the public to visit a farm should not be missed out on.	NR *	✓		
	Encourage attendance of local discussion groups.		NR			✓

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* = issues currently (summer 2009) discussed with regard to National Action Plans (NAPs)

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
II.1.2: Staff meetings	Staff meetings must be scheduled on a regular basis as a forum for discussing and resolving issues (training, information exchange, awareness, sensible zones etc.)	<p>Explanation: Inform staff about management decisions and according reasons, provide information / delegate to training courses, ask for suggestions (management practices, sensible areas, neighbourhood problems etc.) and establish regular and open exchange.</p> <p>Demonstration / Documentation: Written “keyword-minutes”.</p>	NR	✓		
II.1.3: Staff awareness of hygiene importance	Staff must notify of any transferable disease which may make them unfit to work around produce destined for human consumption.	<p>Explanation: Check relevant food safety regulations for details.</p> <p>Demonstration / Documentation: Interview with staff, health check certificates where applicable.</p>	R	✓		
II.1.4: Working hours	Avoid extended working hours when possible.	<p>Explanation: Outside work peaks such as harvest, avoid staff working overtime. Discuss overtime and working hours with staff and try to avoid stress, as sensible working hours reduce accidents on farm. Having time off is important for hobbies, local friendships and stress relief (see also item II.2.5).</p> <p>Demonstration / Documentation: Interview with staff.</p>	NR		✓	
II.1.5: Information on site specific management practices	Encourage staff to invest in knowledge of land for improved management purposes.	<p>Explanation: Encourage staff to report wildlife observations to next staff meeting; ask for involvement of staff in farm environment plan.</p> <p>Demonstration / Documentation: Interview with staff, evidence of training records and relevant information.</p>	NR		✓	

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II.2: Fair employment practices for regular as well as seasonal workers

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
II.2.1: Labour conditions	<p>Provide employment practice in line with regulations for both permanent and temporary workers (ILO Convention etc.).</p> <p>Specifically:</p> <p>a. A cordial and pleasant working environment free of any type of discrimination and free of disciplinary practices.</p> <p>b. Recognised employment relationship established through national law and practice.</p> <p>c. Working hours must comply with national and local laws.</p>	<p>Explanation:</p> <p>Discrimination on the basis of ethnic groups, national origin, religion, disability, gender, sexual orientation, worker organisations or political affiliation with regard to contracts, compensation, training, promotion, dismissal or retirement of its personnel should be strictly prevented. Same rights and obligations should be conceded to women and men. Behaviour, including gestures, language, and physical contact that is of a sexually abusive, coercive and threatening nature must be prevented. Decent working conditions and dignity must be provided to all workers regardless of their employment status.</p> <p>Other points to consider here are: Shelter during working hours away from sun, wind, rain for workers breaks. Also to consider allowing time during the working day for seasonal workers to access banks for money transfer.</p> <p>Workers should be encouraged to know their status and, consequently, their respective rights and obligations under law. Working contracts or other appropriate working relationships must be established in accordance with national law.</p> <p>At least one day of rest for every six working days. Overtime work only in exceptional circumstances over a short-term period, notably during the harvest season, to be compensated adequately (see also item II.2.5).</p>	R/NR	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
II.2.1 Labour conditions (cont.)	<p>d. Wages and benefits received by workers must comply as a minimum with local and national legislation.</p> <p>e. All forms of forced labour are prohibited.</p> <p>f. Access to drinking water, suitable sanitary, housing and transportation infrastructures and services.</p> <p>g. Workers must be free to form and join associations of their choice as well as to bargain collectively.</p> <p>h. Child labour, with limits defined by national laws, is prohibited.</p>	<p>Clear information about the payment; remuneration in accordance with tasks and abilities; equal work opportunities; wages to be paid in legal tender / currency; compensation with merchandise, vouchers or any other symbolic means may be agreed upon with the worker without creating any form of dependency. No deductions from wages for disciplinary purposes (see also items II.2.3, II.2.4 and II.2.6).</p> <p>No forced labour of any type.</p> <p>Access for farm workers and their families (if applicable) to drinking water, nutrition, medical treatment, and accommodation; suitable and hygienic facilities for the preparation, storage and consumption of food.</p> <p>Employees and workers must have the right to form and join associations of their own choice without previous authorisation or subsequent discrimination. Allow for collective bargaining and activities of labour organisations if employees and workers wish so.</p> <p>Farmers must monitor carefully the individual situation of each child permanently living on the farm who is under work minimum age referred by national laws. It must be ensured that they are not forced to work, do not work long hours and are not exposed to hazardous or heavy work.</p> <p>In addition, farmers must be committed to support ILO convention 138 ensuring their own and their workers' children do have access to adequate schooling up to the age for finishing compulsory schooling, which is generally 15.</p>				

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
II.2.2: Housing	Tied housing must meet accepted standards of quality and suitability.	Demonstration / Documentation: Housing records, visual control.	R	✓		
II.2.3: Wages and social security	Set according to relevant employment laws.	Explanation: For up to date information check with authorities. Demonstration / Documentation: Employment records.	R	✓		
II.2.4: Pension	Pension provision must be provided according to relevant employment laws.	Explanation: For up to date information check with authorities. Demonstration / Documentation: Employment records.	R	✓		
II.2.5: Holiday	Paid entitlement with recognition of public holidays.	Explanation: For up to date information check with authorities. Demonstration / Documentation: Employment records.	R	✓		
II.2.6: Sick leave	Sick leave must be paid.	Explanation: For up to date information check with authorities. Demonstration / Documentation: Employment records.	R	✓		

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II.3: Workers' health and safety

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
II.3.1: Risk assessment to form an action plan to promote health and safety	<p>Health and safety must be promoted and every measure taken to ensure that staff are properly safe within their surroundings. The risk assessment should be documented.</p> <p>A health & Safety risk assessment must identify potential hazards and therefore the management options to reduce the risk potential hazards e.g.:</p> <ul style="list-style-type: none"> a. Machinery b. Hand tools c. Working at heights (ladders) d. Workshops e. Electrical safety f. Fire g. Transport h. Pesticides i. Fertilisers j. Allergies k. Medication (e.g. blood thinners & the impact this has in an emergency) 	<p>Demonstration / Documentation:</p> <p>Working conditions must comply with applicable laws as well as international Conventions and Recommendations related to occupational health and safety as per the ILO Encyclopedia on Health and Safety.</p> <p>Risk assessment and safety concept: Actions should be promoted on the farm, which help prevent accidents and injuries of farm employees and workers during their duties as well as their family members living on farm (if applicable). Protective equipment where necessary must be available and used by the farm staff and be in compliance with legislation. First-aid boxes must be available. Access should be guaranteed to hygienic bathrooms and potable water for all employees and workers. Registered employees and their families should be members of the national health insurance, if it exists. Adequate basic health services should always be possible either through assuring access to existing facilities or through providing equivalent facilities at the site. Activities should be promoted for the prevention of diseases, like vaccination, orientation in aspects of personal hygiene and nutrition campaigns.</p>	R	✓		
II.3.2: First aid	<p>Records should be held of training qualifications. A member of staff trained in first aid must be available on site.</p>	<p>Demonstration / Documentation:</p> <p>Check training records.</p>	NR	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
II.3.3: Health and safety	Farm managers, family hands and all other members of staff should at least once follow a work health and safety training course.	Explanation: Awareness of health and safety precautions is a key for safety on farm. Demonstration / Documentation: Attendance records.	NR		✓	
	List of workers allergies and blood groups should be available in the chemical store and the office.	Explanation: In case of a staff accident, having basic information will help quicker diagnosis and treatment. Demonstration / Documentation: Visual evidence.	NR		✓	
II.3.4: Accident and emergency systems	Accident and emergency plan must be in place in line with health and safety risk assessment and first aid boxes located at each site. Warning signs must be displayed clearly in all permanent sites.	Demonstration / Documentation: Visual evidence.	R	✓		
II.3.5: Annual health checks for staff	Regular checks to form part of the worker health, safety and welfare management.	Demonstration / Documentation: Health and safety records.	NR	✓		

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II.4: Public image and community involvement

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
II.4.1: Marketing possibilities with a focus on local marketing if possible	Work on creating added value by understanding needs of customer and supplier. Customers or suppliers can be local or distal.	<p>Explanation: Input through ideas and employment, and expanding farm business into local and global food and marketing, creates interest and potential sales increase. There are also environmental and social benefits through increasing awareness of sustainable consumption. Besides other potential local effects, local marketing may help to reduce food miles. Without seeking regular meetings with your customers, there is a risk that future requirements will not be met.</p> <p>Demonstration / Documentation: Local marketing and sales activities.</p>	NR		✓	
II.4.2: Demonstration farms	Take every opportunity to communicate the IF message. Build on customer and community relations to encourage the consumer to value quality and price.	<p>Explanation: Communication of the positive farming message of how farmers are managing the countryside is invaluable. Footpath notice-boards are attractive measures to inform passing cyclists and walkers. In some cases new communities can be created through visitors responding to each others comments about their visit to the farm.</p> <p>Demonstration / Documentation: Information by farmer, farm visitors book if applicable.</p>	NR		✓	
II.4.3: Active communication on Farm Environmental Policy	Environmental efforts, strategies and successes should be communicated (see item I.2.11).	<p>Explanation: Communicating strategies as well as successes to environmental and social groups (such as teachers, school children, media, local politicians, etc.) will help to create understanding and acceptance.</p> <p>Demonstration / Documentation: Farm walks, feedback from visitors etc.</p>	NR		✓	

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Chapter III: Energy Efficiency

Integrated Farming is committed to the efficient use of fuels and all other kinds of energy. The improvement of the on-farm energy balance is a key asset for both environmental and economic reasons.

Integrated Farming can improve the balance of energy, thereby ensuring that there is more coming out than going in, through identifying principal areas of energy use on farm, identifying key procedures to enhance energy efficiency, calculating energy use and understanding energy opportunities for the future.

IF and GAP key difference: Awareness and commitment to improving energy efficiency.

Part III.1: General considerations

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
III.1.1: Whole Farm Management Plan for Energy Use	A management plan covering fuel, heating and lighting use should be set up including the identification of possible strategies to reduce dependency on non-renewable energy sources (see item III.4.2 and chapter V).	<p>Explanation: The management plan should include all energy usage on the farm, if possible detailing each enterprise. It should cover the whole farm including farm buildings. Awareness in domestic should also be included:</p> <ul style="list-style-type: none"> • total energy requirements, • efficiency, • environmental aspects on farm, • renewable resources and • storage of fuels and treatment of oil residues (see chapter XI). <p>To identify possible action to be taken on energy efficiency, usage should be benchmarked against previous years and / or industry standards. The monitoring should be based on all energy use both by physical units of consumption, and by cost. (See also “Life Cycle Assessment” in item V.1.1).</p> <p>Demonstration / Documentation: Management plan.</p>	NR		✓	

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Part III.2: Agricultural practices

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
III.2.1: Energy use for cropping	Maintain records on direct energy use for cropping including drying and storage of produce (see also chapter V).	<p>Explanation: A considerable part of the energy input is made up by fuel. Different cultivation techniques have different fuel requirements, and when crops are irrigated, this also leads to rising energy requirements. On farm transportation should be minimized. Reduced tillage can lower energy input in both machinery and fuel on clay soils by at least 20 %.</p> <p>Demonstration / Documentation: Records of direct energy use in cropping, information on technical solutions from magazines etc.</p> <ul style="list-style-type: none"> • l of diesel / ha of arable land, • energy use per % water content and tonne of seed, • energy use per mm of irrigation water. 	NR		✓	
III.2.2: Energy use in animal husbandry	Maintain records on direct energy use in animal husbandry.	<p>Explanation: Ventilation, warming (pig and chicken) and lighting of stables as well as transport and mixing of feed stuff account for considerable direct energy inputs in animal husbandry. Whilst taking adequate care of animal requirements, use efficiency should be monitored and improved where possible, using energy-saving bulbs and comparable technical equipment when appropriate. Consider possible recycling of heat from one unit to another (e.g. heat from milk cooling to warming water for cleaning).</p> <p>Demonstration / Documentation: Records of direct energy use in animal husbandry, information on technical solutions from magazines etc.</p>	NR		✓	✓

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
III.2.3: Two crop system	When growing energy crops for biogas plants for example, consider early harvest and ensiling of first crop and planting of a second crop in early summer.	<p>Explanation: Grain harvested before maturity allows for good silage which can be fed into biogas plants. Precipitation permitting, a second crop can then be grown and also used for feeding the biogas plant, hence increasing considerably the amount of energy produced per hectare.</p> <p>Demonstration / Documentation: Visual inspection, field records.</p>	NR			✓

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Part III.3: Particular environmental practices

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
III.3.1: Use of products with high energy input behind	Recycle / re-use packing material in order to conserve / re-use energy where possible.	<p>Explanation: Packing materials are needed for efficient handling of various products and are to be disposed of in accordance with waste management regulations. Re-use whenever possible or recycle such material through approved waste management contractors or other outlets such as controlled energy plants. (See also chapter XI).</p> <p>Demonstration / Documentation: Receipts from authorised collection / recycling sites.</p>	NR	✓		
III.3.2: Use of renewable fuels	Use renewable fuels such as RME (bio-diesel), ethanol and other products grown on the farm and also offer renewable energy to local communities when possible.	<p>Explanation: Using renewable energy sources such as bio-fuels is CO₂-neutral and can help keeping part of the value-adding chain within rural and local communities.</p> <p>Demonstration / Documentation: Receipts and other evidence on farm.</p>	NR		✓	
II.3.3: Energy production from biomass and liquid manure	Check for possibilities to grow and use energy crops / biomass / liquid manure for on-farm energy production in biogas plants etc.	<p>Explanation: There is a vast potential to produce energy environmentally friendly on farm which, in case of modern biogas plants for example, will generate electric power to be fed into regional electric power lines and heat to be either used on farm or to be sold locally.</p> <p>Demonstration / Documentation: Whole Farm Management Plan for Energy, visual inspection.</p>	NR			✓

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Part III.4: Evaluation

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
III.4.1: Regular check of present state and performance	The overall energy use of the farm should be checked and benchmarked against previous years' results and the results of comparable businesses.	<p>Explanation: Comparing older and external data (industry standards) with present performance gives evidence of potential weak spots. Up-to-date information can be obtained from publications, guidelines and / or the internet.</p> <p>Demonstration / Documentation: Comparisons / benchmarking, sources of external information.</p>	NR		✓	
III.4.2: Targets and measures for improvement of efficiency, safety and performance for next management plan	Using the results of comparisons, benchmarking and external information, the Energy Management Plan should be reviewed on a regular basis.	<p>Explanation: Whenever weak spots or more efficient ways have been identified, and in order to continuously improve the environmental and economic performance, the Energy Management Plans should be reviewed.</p> <p>Demonstration / Documentation: Updated Energy Management Plan.</p>	NR		✓	

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Chapter IV: Water Use & Protection

Water is an essential resource for all life on the earth. Agriculture, on the one hand, strongly depends on this resource and its availability. On the other hand, agriculture may have potentially negative impacts on water quality due to diffuse pollution for example, which must be avoided to the greatest possible extent. The protection of water and its efficient use are extremely important. Using water wisely on the farm also helps farmers to reduce costs and increase profit margins. Integrated Farming ensures that efficient use of resources minimises the impact of farm practices on water quality and ecological status whilst at the same time ensuring effective planning of water use across the whole farm.

IF and GAP key difference: Awareness of and tools for the protection and efficient use of water resources.

IV.1: General considerations

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IV.1.1: Water Management Plan	A Water Management Plan should be set up to plan efficient water use on farm and at the same time effective water protection.	<p>Explanation: The Water Management Plan should be part of the Farm Environmental Policy (see item I.2.11). In order to develop a Water Management Plan, five simple steps need to be followed:</p> <ul style="list-style-type: none"> • Identify amount of water used and its cost. • Carry out a water-use inventory. • Calculate how much water is really needed. • Identify and compare water efficiency activities to reduce water-use. • Set up and review the Water Management Plan regularly. <p>Demonstration / Documentation: Water Management Plan.</p>	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IV.1.2: Water protection	Water and water bodies must be protected to the greatest possible extent at all times.	<p>Explanation: Ground and surface water are irreplaceable resources. All farming practices must be carried out in a way which affects water resources as little as possible. Integrated Farming ensures good attention to detail in all practices minimising the potential impact on air, soil and water quality.</p> <p>Demonstration / Documentation: Visual inspection, Crop Nutrient Management Plan and Crop Protection Management Plan.</p>	R	✓		
IV.1.3: Efficiency of water use	Water should be saved and used as efficiently as possible.	<p>Explanation: When water is used for feeding cattle, irrigation of crops or cleaning purposes, measures should be in place to plan water requirements and ensure efficient usage (i.e. avoid leakage etc.).</p> <p>Demonstration / Documentation: Visual inspection, Farm Environmental Policy including Water Management Plan.</p>	NR		✓	

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IV.2: Agricultural practices

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IV.2.1: Water use compliance	If water uptake is subject to a system of authorisation, such authorisation must be obtained.	Demonstration / Documentation: Copy of the request dossier.	R	✓		
	If water uptake is based on a system of declaration, the receipts for all declarations made must be retained.	Copies of receipts.	R	✓		
IV.2.2: Water output control	All water pumping systems on the farm must be equipped with volume counters. Details of volumes used must be recorded in compliance with collective management approaches where applicable, and at least once a month in all other cases.	Demonstration / Documentation: Visual inspection and records.	R	✓		
IV.2.3: Water use records	Irrigation used for each crop and water used for livestock should be recorded.	Explanation: Keeping records of the factors which triggered the irrigation process (captors, meteorological info, water balance reports, farmers' warnings) and water use for livestock may be helpful for communication with authorities and the public. Demonstration / Documentation: Water use records.	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IV.2.4: Monitoring of ditches and watercourses	Monitor visually to identify significant run-off of organic fertilisers, i.e. slurry or liquid manure for example, which can have acute affects on aquatic insects and fish.	Explanation: Unusual discolouration, excessive growth of algae, and odour in receiving ditches and watercourses and scorching of herbage near to watercourses indicates a problem. Following the procedures set out in the Waste Management Plan (see chapter XI) will reduce potential risks. Demonstration / Documentation: Records of visual monitoring.	NR		✓	
IV.2.5: Maps of drains in fields and yards	Location of drainage schemes should be documented on field plans to help maintain field drainage. Maps of yard schemes should be available in the event of a pollution incident to control the run-off water.	Demonstration / Documentation: Contractors' certified maps of completed schemes or good plans with outfalls.	NR		✓	
IV.2.6: Records of new land drainage and identification of outlets	Where new drainage work has been completed, maps should be kept and all outlets identified on the plans and in the field.	Demonstration / Documentation: Drainage plans.	NR		✓	
IV.2.7: Water usage for irrigation	Irrigation should be triggered by appropriate forecasting and by technical equipment allowing for efficient use of irrigation water.	Explanation: Crops should only be irrigated if soil moisture and precipitation are insufficient for crop growth. If possible, irrigation should mainly take place during night hours. Demonstration / Documentation: Visual monitoring and records.	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IV.2.8: Water efficient equipment	When buying new equipment such as irrigation plants, sprayers, drinking troughs and drinking nipples for animals, leakage prevention and water use efficiency should be decisive features.	<p>Explanation: Right choice of equipment can cut down water use and hence decrease environmental effects and cost.</p> <p>Demonstration / Documentation: Farm Environmental Policy, visual inspection.</p>	NR		✓	
IV.2.9: Water efficient lines and varieties	When planning crop rotation and choice of varieties, consider also water efficiency of individual varieties and / or lines (see also item III.2.3).	<p>Explanation: Climate change might affect availability of soil water. Accordingly, the choice of water efficient varieties and or lines might increasingly help to produce high yielding crops and according amounts of dry matter per hectare without wasting water.</p> <p>Demonstration / Documentation: Visual inspection, field records, seed purchase records etc.</p>	NR			✓

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IV.3: Particular environmental aspects

Item	Guideline	Additional Explanation and Suggested Demonstration/Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IV.3.1: Separate collection of rain water	Rain water should be collected separately where appropriate (see also item IX.5.10).	Explanation: Rain water – if collected separately – can be used for irrigation, cleaning purposes etc. This helps to cut down on fresh water use, environmental impact and costs. Demonstration / Documentation: Visual inspection.	NR		✓	
IV.3.2: Run-off control	Run-off must be avoided to the greatest possible extent (see also item IV.2.4).	Explanation: Run-off – particularly after spreading organic and / or mineral fertilisers – poses environmental hazards to adjacent water bodies and means financial losses for the farmer. In sloping areas, contour cropping and conservation tillage can reduce run-off significantly. Demonstration / Documentation: Visual inspection.	R	✓		
IV.3.3: Parlour washing, dirty water and silage effluent	See item IX.5.11					
IV.3.4: Poaching	See item IX.5.1					
IV.3.5: Holding capacity for manure and slurry	See item IX.5.3					
IV.3.6: Environmentally sensitive areas	See item IX.5.6					

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IV.3.7: Mixing and filling of crop protection products	See item VIII.4.3					
IV.3.8: Applications of fertilisers and crop protection products to field boundaries and margins	See item X.2.6					
IV.3.9: Cleaning of sprayers for crop protection products	Spraying equipment has to be properly cleaned. Leaking of cleaning water into water bodies and / or public waste water systems must be avoided.	<p>Explanation: Leakage of cleaning water into water bodies and / or public waste water systems can cause environmental damage. Spraying equipment must be either cleaned on field or on particularly designed places such as bio-beds.</p> <p>Demonstration / Documentation: Visual inspection and Crop Protection Management Plan as well as Farm Environmental Policy.</p>	R	✓		
IV.3.10: Storage of diesel fuel close to / for in-field irrigation pumps	In case in-field irrigation pumps are powered by diesel engines, the fuel tanks must comply with national regulations to avoid environmental damage.	<p>Explanation: Sometimes in-field irrigation pumps are not operated with electric power but with diesel engines. Fuel tanks of these engines must be designed and built to avoid leakage.</p> <p>Demonstration / Documentation: Visual inspection.</p>	R	✓		

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IV.4: Evaluation of measures

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IV.4.1: Evaluation of practices and equipment	Current practices and farming equipment should be evaluated on a regular basis to check for possible inefficient water use.	<p>Explanation: Agricultural and technical magazines can provide additional information for benchmarking the own performance against industry standards.</p> <p>Demonstration / Documentation: Information on technical developments / standards.</p>	NR		✓	
IV.4.2: Reviewing of Water Management Plan	On the basis of the evaluation of practices and results, the Water Management Plan should be reviewed on a regular basis.	<p>Demonstration / Documentation: Reviewed Water Management Plan.</p>	NR		✓	

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Chapter V: Climate Change & Air Quality

There is a clear and direct link between agricultural practices and air protection, and agriculture contributes about 10 % of the EU's CO_{2eq} emissions. The most significant impact on CO₂ removals and emissions in agriculture occurs when land use and soil management are changed, e.g. when permanent pasture is converted to arable land, for example.

Among pollutants emitted from agriculture, there are greenhouse gases such as CH₄, CO₂, N₂O and NH₃, volatile organic components, as well as dust and particles. Being aware of different on-farm sources of emissions – such as stables, storing and handling of manure as well as using fossil energy, for example – is an important element to reduce such emissions to the greatest possible extent and hence keep farming environmentally friendly.

IF and GAP key difference: Awareness of potential air pollutants and pollution processes and according strategies to reduce or avoid emissions where possible.

V.1: General considerations

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
V.1.1: Management Concept to Avoid Emissions	A concept should be set up identifying possible air pollutants and sources of emissions on-farm, and giving evidence of reduction potentials / strategies.	<p>Explanation: When animals are kept on farm, machinery and fuels are used and / or Nitrogen applied, emissions will occur. It is important to reduce potential emissions to the greatest possible extent. In cases of doubt and for benchmarking different strategies, products or types of machinery, Life Cycle Assessments (LCA) may provide useful information (see also chapter III).</p> <p>Demonstration / Documentation: Awareness and Management Concept.</p>	NR		✓	

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V.2: Strategies on farm

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
V.2.1: CO₂ emissions from machinery and fuel use	Try to reduce CO ₂ emissions on farm (see also chapter III).	<p>Explanation: Field work, transportation and drying of crops are important sources of CO₂-emissions on farm. Farmers should therefore carefully plan machinery use to avoid unnecessary work or combine single work steps (e.g. tank mix of crop protection products, combined seed-bed preparation and seeding etc.). Reduced tillage systems can offer considerable potentials to reduce energy requirements and hence related CO₂-emissions. Besides, using renewable fuels such as bio-diesel and bio-ethanol allow for working CO₂-neutral.</p> <p>Demonstration / Documentation: Visual inspection.</p>	NR		✓	
V.2.2: NH₃ losses in the stable	Try to reduce NH ₃ losses in stables and during storage of (liquid) manure.	<p>Explanation: Stables, liquid manure channels to storage facilities and storage facilities themselves should be designed as to reduce NH₃ losses to the greatest possible extent. Covering liquid manure storage facilities with floating layers of straw will already reduce emissions considerably.</p> <p>Demonstration / Documentation: Visual inspection:</p>	NR		✓	
V.2.3: NH₃ and N₂O losses on fields	Appropriate choice of application rate, timing and technology, as well as incorporation of (liquid) manure are important measures to reduce emissions during and after application.	<p>Explanation: To limit NH₃ losses due to applications of manure, sewage sludge, biogas digesters or mineral fertilizers that contain a large concentration of ureic or ammonium nitrogen, a rapid incorporation is of particular importance. Spreading (liquid) manure should either take place close to the ground in crop stands using drop hoses or injector shoes or should be followed by rapid incorporation on bare soils.</p> <p>Demonstration / Documentation: Visual inspection, field records.</p>	R/NR	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
V.2.4: Methane emissions from ruminants	Be aware of and try to reduce methane emissions from livestock.	<p>Explanation: Methane is released from ruminants during digestion. Optimum feeding strategies and diets and selection of high-yielding dairy cows for example will help to reduce methane emissions per kg of milk / meat produced. Using methane emissions from liquid manure in biogas plants for energy production should be considered. Publications / the internet may provide useful information.</p> <p>Demonstration / Documentation: Visual inspection, livestock register.</p>	NR		✓	
V.2.5: Aerosol emissions from stables	Aerosols (particulate matters) from stables must be reduced where possible.	<p>Explanation: Aerosols such as dust and germs are released from stables via ventilation systems. Having proper filter technology in place such as bio-filters is particularly important for farms which are located within or close to housing areas.</p> <p>Demonstration / Documentation: Visual inspection.</p>	R/NR	✓		
V.2.6: Aerosol emissions from field work and machinery	Emission of fine soil particles as well as unburned carbon from agricultural machinery during field work should be reduced where possible.	<p>Explanation: Proper maintenance of machinery according to manufacturers' recommendations will help to limit emission of unburned carbon from exhaust systems. Timing of field work, type of tillage chosen and strategies to avoid wind erosion can reduce dust build up considerably (see also chapter VI).</p> <p>Demonstration / Documentation: Visual inspection.</p>	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
V.2.7: Heating of Farm Buildings	Use district heating / own renewable combustion material where possible.	<p>Explanation: Being either connected to local / regional district heating systems or using own renewable resources such as straw or waste heat from biogas plants (on farm or local) helps to reduce emissions from heating considerably.</p> <p>Demonstration /Documentation: Visual inspection of connection to district heating / own power / heat plants on farm.</p>	NR		✓	
V.2.8: Increase sink function on farm	Strive for optimised dry matter production per hectare to increase carbon sequestration (see also item III.2.3).	<p>Explanation: By increasing the input / output ratio and optimising dry matter production per hectare and year, land use efficiency and carbon fixation can be increased, hence increasing the positive environmental effects of farming. This requires monitoring (organic matter in soil analysis, land use management on farm) of Carbon storage on a long term basis. It is necessary to have at least a ten year perspective to get an idea on a farm if there is a Carbon improvement in stocks.</p> <p>Demonstration / Documentation: Visual inspection, field and yield records.</p>	NR		✓	

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V.3: Considerations beyond the farm gate

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
V.3.1: Off-farm transportation	When marketing produce and / or buying supplies, try to reduce transportation needs and related CO ₂ -emissions by selling / buying locally where possible.	Explanation: Local markets allow for short transportation distances and hence for less fuel consumption, emissions, and noise. Demonstration / Documentation: Demonstration of awareness, local business contacts.	NR		✓	
V.3.2: Odour emissions from livestock keeping	Try to reduce odours from stables particularly when the farm is located close to housing areas.	Explanation: Modern bio-filters for example can reduce odour emissions by more than 90 percent. Local neighbourhoods will show more acceptance and will be more supportive in case of plans to enlarge the business. Demonstration / Documentation: Visual inspection.	R/NR	✓		
V.3.3: Indirect energy needs and related emissions	Be aware of indirect / external energy requirements and related CO ₂ -emissions, for instance, with the production of machinery, mineral fertilisers, crop protection products as well as plastic films for silage coating, etc. Consider possibilities to increase efficiency when using external energy inputs and / or external inputs with high energy demands.	Explanation: Many external inputs into the farming business require considerable amounts of energy during production and transportation and hence lead to according CO ₂ -emissions. Awareness of the respective energy needs and efficient use of such inputs will help to avoid unnecessary environmental burdens. For benchmarking different products and / or procedures, Live Cycle Assessments (LCA) may provide valuable information (see item V.1.1). Demonstration / Documentation: Awareness, technical information.	NR		✓	
V.3.4: Dust build-up due to wind erosion	Try to avoid wind erosion and subsequent dust build-up by choosing appropriate tillage practices and timing.	Demonstration / Documentation: Visual inspection.	NR		✓	

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V.4: Evaluation

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
V.4.1: Evaluation of practices and equipment	Current practices, farming equipment and buildings should be evaluated on a regular basis to check for possible weak spots with regard to air pollution to avoid / reduce emissions.	<p>Explanation: Agricultural and technical magazines can provide additional information for improvement.</p> <p>Demonstration / Documentation: Information on technical developments / standards.</p>	NR		✓	
V.4.2: Revision of Management Concept to Avoid Emissions	On the basis of the evaluation, the Management Concept should be revised if necessary.	<p>Demonstration / Documentation: (Revised) Management Concept to Avoid Emissions.</p>	NR		✓	

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Chapter VI: Soil Management

Soil is the basis of all agricultural production, and both the conservation and improvement of this valuable resource are essential elements of Integrated Farming. This allows produce to be grown on healthy and biologically active soil with a satisfactory level of organic matter, a good physical structure and sufficient fertility.

IF and GAP key difference: Farmer awareness of soil indices through mapping and examination as basis for all cropping decisions.

Part VI.1: General considerations

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VI.1.1: Soil mapping	a) A map of the farm soils should be available with the main types of soil identified.	<p>Explanation: Soil characteristics interact with availability of soil elements and plant growth, and therefore are important for the suitability of soils for certain crops, for timing of cultivation, for good crop nutrition management and all other agronomic measures. Therefore, precise information should be available on the soil types which are present on the farm.</p> <p>Demonstration / Documentation: A soil map that identifies the different soil types on the farm.</p>	NR		✓	
	b) Areas at risk on the farm must be defined and recorded.	<p>Explanation: Particular attention should be given to the areas at risk such as:</p> <ul style="list-style-type: none"> - Slopes and high stocking density areas. - Areas prone to compaction, wind and water erosion, slumping and leaching. <p>Demonstration / Documentation: Records / maps showing the different soil series and detailing the areas at risk.</p>	NR	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VI.1.2: Long Term Crop Rotation Plan	The crop rotation should be planned three years in advance.	<p>Explanation: Of course, market forces have an influence on decisions with regard to crop rotation, but biological and soil factors are finally decisive. Crop rotation is probably the most effective indirect method of managing plant health and soil fertility for optimal plant growth.</p> <p>Demonstration / Documentation: A continually updated plan for three years in advance.</p>	NR		✓	
VI.1.3: Soil Management Plan	A Soil Management Plan should be set up that will help with crop establishment decisions. The Soil Management Plan should also cover regular diagnosis (spade test) and (green) soil cover.	<p>Explanation: A Soil Management Plan helps to effect good crop establishment, to minimise compaction and improve soil structure. Measures should include:</p> <ul style="list-style-type: none"> • minimising soil disturbance for crop establishment; • appropriate cultivation according to soil type and condition; • consideration of over-wintered stubbles and spring cropping; • early established seed beds are permissible; • cover / catch crops prior to all spring cropping where soil moisture status allows. This helps to prevent run off and soil erosion. <p>Demonstration / Documentation: Soil Management Plan including the long term Crop Rotation Plan and the policy for organic matter management.</p>	NR		✓	
VI.1.4: Advice and technical recommendations for soil management	Ensure being kept up to date with the latest technical information and advice.	<p>Explanation: Good soil management is vital for plant growth and good crop nutrition. Receiving relevant advice according to site and situation is essential. This should be taken from a qualified agronomist, training courses, farming magazines, and / or the internet.</p> <p>Demonstration / Documentation: Records of sources of information.</p>	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VI.1.5: Organic matter	A policy must be defined regarding the management of organic matter, taking into account crop residue and organic material like manure when available (see also items IV.3.2, XI.1.2 and XI.2.4).	<p>Explanation: Organic matter improves the stability of the soil structure and prevents the risk of erosion, in addition to bringing nutritional elements to the soil. Crop residues, organic based fertilizers and cover crops must provide sufficient fresh organic material to the soil.</p> <p>Demonstration / Documentation: This policy should be part of the Soil Management Plan.</p>	R	✓		

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Part VI.2: Decision making process

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VI.2.1: Monitoring soil quality	A programme of soil analysis must be implemented.	<p>Explanation: In order to follow the evolution of the physicochemical characteristics of cultivated land in relation to the soil type and the farming system used, a soil analysis programme must be put in place (analysis once in the crop rotation, at least every 6 years for chemical analysis and organic content; can be performed in authorised laboratories or following documented methods).</p> <p>Demonstration / Documentation: Programme with analyses of the soil, bulletins with the results of the conducted analyses, long term records on the development of fertility parameters.</p>	R/NR	✓		
VI.2.2: Soil examination	Identification of fields and field areas with greatest risk of soil erosion.	<p>Explanation: A field by field diagnosis after harvesting related to soil status allows for identifying areas of potential structural problems and to remedy soil structure constraints accordingly (subsoiling cultivation, liming, repair of drains, erosion prevention).</p> <p>Demonstration / Documentation: Report concerning soil status in the Soil Management Plan, the map of areas at risk completed accordingly.</p>	NR		✓	
VI.2.3: Assessment of field conditions	Field conditions must be assessed prior to cultivation.	<p>Explanation: Selection of appropriate cultivation technique, equipment and timing of operations are key to maintaining soil structure; assessment prior to cultivation using a spade or digging soil inspection pits. Unexpected field conditions requiring modified and adapted practices or operations should be recorded.</p> <p>Demonstration / Documentation: Report on field conditions prior to cultivation, with records of situations which require adapted practices or operations.</p>	NR	✓		

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Part VI.3: Implementation of measures on farm

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VI.3.1: Record of soil operations	All the soil operations by type of crop, by field or by group of fields should be recorded.	<p>Explanation: To carefully assess crops' performance and have the ability to improve future performance, accurate field records of all operations and applications either by crop type or field should be kept. Grouping of fields is allowed for certain cultivations.</p> <p>Demonstration / Documentation: Records of all soil operations.</p>	NR		✓	
VI.3.2: Soil cover index	A minimum soil cover during winter should be assured.	<p>Explanation: It is essential for soil protection that a minimum rate of 75 % ground cover with trash etc. should be achieved during autumn (high risk leaching period) to reduce soil erosion and minimise emissions and nitrate leaching from bare soil. Ensure this is achieved by surface incorporation / cover from previous crop residues or early established autumn crops or cover crops where possible.</p> <p>Demonstration / Documentation: Records of soil cover during winter.</p>	NR		✓	
VI.3.3: Choice of appropriate soil operations	Use appropriate field operations to improve soil structure, porosity and microbial activity.	<p>Explanation: The maintenance of soil fertility through improvements in soil structure, porosity and soil microbial activity will aid plant growth. The Soil Management Plan completed by the report on field conditions should be used to define most appropriate operations for each field. If soil type, condition and structure are appropriate, consider using minimum tillage / non inversion tillage techniques for crop establishment.</p> <p>Demonstration / Documentation: Records of soil operations in relation to the Soil Management Plan and the report on field conditions.</p>	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VI.3.4: Measures to prevent soil compaction	Soil compaction due to the use of heavy machinery should be avoided to the greatest possible extent.	<p>Explanation: Lowering tire pressure on fields, using larger or dual tires or caterpillars allow for a reduction of pressure applied to the soil.</p> <p>Demonstration / Documentation: Records of all soil operations, visual inspection.</p>	NR		✓	

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Part VI.4: Evaluation of measures

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VI.4.1: Evaluation of Soil Management Plan	To ensure the best results from the Soil Management Plan, this plan should be regularly reviewed.	<p>Explanation: Techniques evolve and good practice can be improved upon. Integrated Farming is a dynamic process, and new measures should be continually considered. Comparisons of own results with advice from regional advisors will be helpful.</p> <p>Demonstration / Documentation: Comments in field work records.</p>	NR		✓	
VI.4.2: Recommendations to take forward	Improvement of performance should be based on analyses of last year's Soil Management Plan.	<p>Explanation: One of the key aspects of an Integrated Farming approach is to continually analyse how practices can be made better for the environment and the economy of the farm. Good soil management is essential to achieve both these objectives. In an after-harvest review, conclusions should be drawn from the measures applied and results achieved and new recommendations should be integrated in the Soil Management Plan when relevant.</p> <p>Demonstration / Documentation: Field work records and recommendations, subsequent update of Soil Management Plan.</p>	NR		✓	

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Chapter VII: Crop Nutrition

A detailed analysis of the farm nutrient status has to be made in order to calculate the crop's requirements for nutrients. The following tools aid decision making:

- Soil sampling for pH, N, P, K, and Mg content
- Fertiliser recommendation software and books, which give guidance on correct application rates and timing of fertilisation.
- Tools to measure nutritional status of crops during growth by either analysing the nutrient concentration or the chlorophyll content (= colour) of the leaves.

IF and GAP key difference: Nutrient Management Plan and Organic Based Fertiliser Management Plan are essential tools for all crop requirement decisions.

Part VII.1: General considerations

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VII.1.1: Crop Nutrient Management Plans	For each crop a Nutrient Management Plan must be set up, covering Nitrogen, Phosphate, Potassium and other necessary nutrients, taking into account all sources of plant nutrients and results of regular soil sampling.	<p>Explanation: To ensure that nutrients are targeted to crop needs and to minimise environmental impact, nutrient requirements for each field must be assessed taking into account all applications to the soil. The Nutrient Management Plans must also integrate the Management Plan for Organic Based Fertilisers and include an assessment of likely crop use and available nutrients from soil, manures and crop residues. In inhomogeneous fields, also take care of variation within fields.</p> <p>Demonstration / Documentation: Crop Nutrition Management Plans field by field for Nitrogen, Phosphate and Potassium.</p>	R/NR	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VII.1.2: Organic Based Fertiliser Management Plan	A Management Plan for livestock manure, effluents and all other organic matter must be set up (see also items XI.1.2 and XI.2.4). Farm and field limits specific to national legislation must be observed. The Organic Based Fertiliser Management Plan must also take account of closed periods, distances to water courses, rules for in-field storage of manure etc. according to national legislation.	<p>Explanation: This plan must balance the production, storage and storage capacities as well as opportunities of proper use of manure / slurries and all types of organic inputs (e.g. treated sludge, composts) available on the farm. The quantities of all organic matter and their nutrient contents must be evaluated. Regulatory limits for kg Nitrogen per hectare from organic origin and other respective legislation must be respected as given on the national level.</p> <p>Demonstration / Documentation: Management Plan for Organic Based Fertilisers.</p>	R	✓		
VII.1.3: Training for spreading	Operators and / or contractors should have appropriate training for correct spreading of nutrients (see also item II.1.1).	<p>Explanation: Uniform distribution should be secured, particular attention should be paid in respect to the environment. Awareness of sensitive areas and needs of safety distances on the farm is important. Internal training and experience are accepted but should be recorded.</p> <p>Demonstration / Documentation: Records of training sessions or training certificates when available.</p>	NR		✓	
VII.1.4: Advice and technical recommendations	Regular technical information and advice should be ensured.	<p>Explanation: The efficient use of crop nutrients is vital for economic and environmental reasons. Receiving relevant advice on new developments and for the particular situation, for example, from a qualified agronomist, farming magazines, and / or the Internet, is essential.</p> <p>Demonstration / Documentation: Records of information sources.</p>	NR		✓	

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Part VII.2: Decision making process

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VII.2.1: Calculation of Nitrogen needs	Nitrogen needs must be calculated in order to limit the risk of leaching.	<p>Explanation: To help reduce the risk of leaching, farmers have to make sure that optimum amounts of Nitrogen are used to balance foreseeable Nitrogen requirements of crops, calculated on a realistic target yield, with the estimation of the Nitrogen supply from different sources:</p> <ul style="list-style-type: none"> • initial Nitrogen supply from soil (remainder at the end of winter); • Nitrogen mineralised from soil organic matter and crop residues; • Nitrogen mineralised from manure and other applied organic inputs; • Nitrogen from mineral fertilisers. <p>Greater certainty may be obtained by using established methods measuring soil mineral Nitrogen or Nitrogen of crop tissue, or other methods assessing Nitrogen needs shown by the crops.</p> <p>Precision farming methods should be considered to better assess varying crop Nitrogen requirements within fields, and may lead to adjustments of the calculated Nitrogen needs during the crop cycle.</p> <p>Demonstration / Documentation: Calculation of Nitrogen needs, before and during growth, crop by crop and field by field.</p>	R	✓		
			NR			✓

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VII.2.2: Nitrogen use	The actual Nitrogen supply and harvested yield must be compared with initial calculation of Nitrogen needs.	<p>Explanation: The effective Nitrogen use must be evaluated by crop and per field, taking Nitrogen supply and harvested yield, and the effective use must be compared with the calculated Nitrogen needs by crop. This provides the opportunity to identify mistakes and serves as a long-term indicator on the fertilisation performance by type of crop.</p> <p>Demonstration / Documentation: Comparison of actual Nitrogen supply and harvested yield with calculated Nitrogen needs, by crop, on a field by field basis.</p>	R/NR	✓		
VII.2.3: Phosphate and Potassium balance in the rotation	Phosphate and Potassium balances must be assessed in a crop rotation (applications – amount removed with harvest).	<p>Explanation: Comparisons must be made of inputs of the major nutrients Phosphate and Potassium with removal during a rotation period. This allows for the calculation of the efficiency of nutrient use. Appropriate application rates as well as measures to avoid losses must be adhered to. Maintain, build-up or run down soil fertility levels to target levels.</p> <p>Demonstration / Documentation: Records of Phosphate and Potassium balance by rotation.</p>	R/NR	✓		
VII.2.4: Secondary and micro-nutrient deficiencies	Possible deficiencies in secondary and micro-nutrients in the sensitive crops should be identified.	<p>Explanation: To ensure good plant health, be aware of crops that are prone to secondary or micro-nutrient deficiencies via a risk assessment matrix or, when possible, through analyses of plant tissue and / or soil samples.</p> <p>Demonstration / Documentation Availability of risk analysis for micro-nutrients deficiencies, crop by crop.</p>	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VII.2.5: Soil pH	Check soil pH once during each three year rotation and lime according to identified needs.	<p>Explanation: Soil pH is important in terms of keeping soil life and soil fertility on high levels. When soil pH gets too low, availability of nutrients will decrease and / or micro nutrients might reach toxic levels.</p> <p>Demonstration / Documentation: Results of regular soil testing.</p>	NR		✓	

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Part VII.3: Implementation of measures on farm

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VII.3.1: Records of all nutrient applications	Records of all nutrient applications – mineral as well as organic – must be kept on a field by field basis.	<p>Explanation: Adjustments to the provisional Crop Nutrient Management Plan must be explained.</p> <p>Specific to organic based fertilisers Manure and organic effluents must be applied according to the Organic Based Fertiliser Management Plan. To ensure efficient nutrient use, areas at risk must be identified, spreading rates and timing must be adjusted accordingly. Regulatory limits for kg Nitrogen per hectare from organic origin must be respected where they apply.</p> <p>Demonstration / Documentation: Records of all nutrient applications, with rates and timing, for each field.</p>	R	✓		
VII.3.2: Storage of manures and other organic based fertilisers	Manures and other organic based fertilisers must be stored appropriately, in particular according to National regulations (see also item IX.5.3).	<p>Explanation: Loss of mineral elements during storage or spreading must be minimised to respect the environment and to avoid economic losses. Storage capacities must be adapted to the volume of slurry or manures generated on the farm, and to the opportunities for their proper use around the year. Storage facilities must respect appropriate technical requirements. National regulations must be checked and carefully followed.</p> <p>Demonstration / Documentation: Appropriate storage facilities for organic based fertilisers.</p>	R	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VII.3.3: Storage of mineral fertilisers	Mineral fertilisers must be stored appropriately to ensure safety and maintain product quality.	<p>Explanation: Mineral fertilisers must be stored appropriately, in line with national guidelines, to ensure that safety rules are respected, product quality is maintained, the environment is protected and that there are no economic losses.</p> <p>Demonstration / Documentation: Appropriate storage facilities and records of mineral fertiliser storage.</p>	R	✓		
VII.3.4: Records of import and export of organic materials	Records must be kept of all organic materials imported onto the farm or exported from the farm.	<p>Explanation: Quantities and sources of manures and other organic materials exported from and imported onto the farm must be recorded in line with national guidelines. This information is required to calculate the farm nutrient balance. Product quality data sheets should be available for products imported onto the farm.</p> <p>Demonstration / Documentation: Records of organic material flows and product quality data sheets.</p>	R	✓		
VII.3.5: Maintenance and calibration of spreading equipment	Spreaders for organic and mineral fertilisers should be correctly and regularly maintained and calibrated.	<p>Explanation: Fertilisers should be spread accurately to supply the right amount of nutrients to each plant in the field, and according to the nutrient availability in the soil. Precision farming methods can be considered as a method for targeted and specific application.</p> <p>Demonstration / Documentation: Calibration guide for the spreaders and / or records of calibration tests.</p>	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VII.3.6: Application of fertilisers	Fertilisers must be spread in proper doses and not beyond field borders in order to protect adjacent habitats and water courses etc. With regard to restrictions such as spreading on frozen or water saturated soil, adhere to relevant regulations. (See also item X.2.6)	<p>Explanation: Proper calibration and technical devices such as tracking systems will allow to avoid too high doses and effects on adjacent areas.</p> <p>Demonstration / Documentation: Visual inspection, field records.</p>	R	✓		
VII.3.7: Use of catch crops	Consider integrating catch crops in the cropping sequence to keep Nitrogen in the soil where applicable.	<p>Explanation: Planting catch crops after grain harvest in summer, for example, will allow to conserve Nitrogen in the soil over winter. This should be considered if annual precipitation allows.</p> <p>Demonstration / Documentation: Visual inspection.</p>	NR			✓
VII.3.8: Spring ploughing	Consider leaving stubbles of last crop on soil surface until next spring crop is planted if rainfall does not allow for planting catch crops.	<p>Explanation: Stubbles and plant mulch effectively protect the soil against wind and water erosion and hence reduce nutrient losses with eroding soil.</p> <p>Demonstration / Documentation: Visual inspection.</p>	NR			✓

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Part VII.4: Evaluation of measures

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VII.4.1: Evaluation of results	Following any Crop Nutrient Management Plan, the effectiveness and effects should be checked.	<p>Explanation: Techniques evolve and good practices can be improved: Integrated Farming is therefore a dynamic system and the results of new measures should be evaluated and compared with initial expectations. Comparisons of farm results with results from regional extension stations can be helpful.</p> <p>Demonstration / Documentation: Comparisons of results with the initial Crop Nutrient Management Plan or calculation of nutrient needs.</p>	NR		✓	
VII.4.2: Recommendations for following years	Recommendations for improvement should be made based on the analysis of last years results.	<p>Explanation: One of the key features of Integrated Farming is the continuous integration of site specific knowledge and practical experiences into future management planning and practices. Conclusions should be drawn from the evaluation of results and potential new recommendations integrated in the Crop Nutrient Management Plans when relevant.</p> <p>Demonstration / Documentation Field application records, yield data and related recommendations.</p>	NR		✓	

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Chapter VIII: Crop Health & Protection

IF uses and encourages continuous improvement in pest control measures that reduce or minimise risks to the environment and human health and which promote sustainability and profitability. Within Integrated Pest Management as part of IF, careful consideration is given to all available crop protection methods including appropriate measures that discourage the development of pest populations and keep the use of plant protection products and other forms of interventions to levels that are economically and ecologically justified. Integrated Pest Management emphasises the growth of a healthy crop with the least possible disruption of the agri-ecosystem and encourages natural pest control mechanisms where possible. A well established and subsequently well managed crop within a suitable rotation and crop mosaic will be more competitive against weeds, more resilient to attack from pests and diseases and should require fewer interventions.

IF and GAP key difference: Formulation of individual Crop Protection Management Plans, staff training in pest, disease and weed identification as well as training in environmental care and responsibility, strategies to avoid build-up of resistance.

To Note:

Recently General IPM Principles have been defined in the Framework Directive on the sustainable use of pesticides at the European level. The application of general IPM principles on farm will become common practice in the future, following the national implementation of the Framework Directive in National Action Plans (NAPs). Member States shall ensure that all professional users implement the General IPM Principles by 2014.

At the same time, new rules on the use of pesticides will become effective in the future (obligatory training, obligation of inspection of equipment etc.); so these will become part of GAP.

Last but not least, new rules on the registration of crop protection products will become effective in the near future, leading to more restrictions and a reduced number of chemical products available – including growing problems in resistance management and also growing gaps with regard to appropriate means treatment in minor crops.

The IF Framework tries to foresee and take account of such future legislative changes. However, as the transposition into national legislation will only take place in the years ahead, further adaptations of the Framework may be required.

Part VIII.1: General considerations

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VIII.1.1: Crop Protection Management Plan (CPMP)	Good crop protection practice is based on understanding the interactions of processes and using this understanding to aid crop protection. In order to communicate intentions to staff / the public, a Crop Protection Management Plan should be developed (see also items V.4.1 and VIII.5.2). Sustainability of crop protection strategies and further reduction of potential risks are key prerequisites.	<p>Explanation: A CPMP should address the farm's crop protection policy, detail water protection measures taken, indicate a commitment to improve standards and consider how the direct and indirect impact of plant protection products on non-target species can be mitigated. This should include: selection of high quality seed varieties and healthy planting material resistant / tolerant to pests and diseases, crop rotation, cultivation techniques (e.g. sowing dates and densities, conservation tillage, pruning and direct sowing), the use of mechanical, biological and biochemical methods of crop protection, the use of decision making tools, the choice of appropriate plant protection products if other methods do not offer sufficiently effective and economically viable alternatives, seed treatments, a resistance management strategy and where possible the use of trap crops and predator host plants to increase natural control. For an example, see: www.voluntaryinitiative.org.uk/Content/CPMPs.asp</p> <p>Demonstration / Documentation: Crop Protection Management Plan – check if known recommendations and guidelines have been used.</p>	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VIII.1.2: Strategies to avoid pest resistance to herbicides, fungicides, and insecticides	A strategy is needed to avoid pest resistance to herbicides, fungicides, and insecticides. This must be stated in the Crop Protection Management Plan and followed through in order to control activities.	Explanation: Plant protection product label recommendations may provide information for alternating modes of action. Demonstration / Documentation: Crop protection records.	R/NR ¹	✓		
VIII.1.3: Skills in the identification of pests, weeds, diseases and crop disorders, environmental care and responsibility	Persons in charge of crop protection decisions must have training on the identification of pests, weeds, diseases and crop disorders thus ensuring knowledge based decisions on crop protection measures. At the same time, this training must cover environmental protection and responsibility.	Explanation: Training courses are provided by authorities and designated bodies. Also, an agricultural adviser when walking the farm may provide training. Information and training material provided in farming magazines and internet may be used. It is essential that these training courses also cover strategies and measures for environmental care and protection. For details with regard to environmental responsibility and protection, see: www.topps-life.org . Demonstration / Documentation: Training records.	NR/R as from 2015	✓		
VIII.1.4: Willingness to improve system and learn	Continuous learning and efforts to improve skills in order to optimise crop protection and minimise external effects. Additional knowledge on environmental mitigation helps to limit impacts on water, soil and biodiversity.	Explanation: For example see VIII.5.2. Demonstration / Documentation: Crop Protection Management Plans (current and previous years), proof of attendance to training seminars and participation in farmers experience groups, use of advisory services etc.	NR/R? ²	✓		

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¹ Only partially regulated in some EU member states, not regulated in others. Information should be sought on the national level. The IPM principles in the EU Framework Directive state that where the risk of resistance is known and where the level of harmful organisms requires repeated applications, available anti-resistance strategies **should** be applied. So there is no legal obligation “must” from this perspective. Discussion on the national implementation of the EU-IPM principles has just started, so at this stage no indication on future national provisions can be given.

² Initial and additional training is foreseen in the SU-Directive. It is open whether Member States will implement refresher training on a voluntary basis or by legal requirements.

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VIII.1.5: Training	Managers and / or operators must be continually trained in Integrated Pest Management including the proper choice and use of any crop protection measures.	<p>Explanation: “Continually” and “continuous” are defined according to national requirements. With regard to chemical crop protection: If a National Register of Sprayer Operators exists to enable users to show continuous professional development, it needs to be available for documentation.</p> <p>Demonstration / Documentation: Training records – updates on a regular basis – certificates, national sprayer register.</p>	NR/ R by 2015 at the latest ³	✓		
VIII.1.6: Disposal of unsprayed diluted solutions and surplus chemicals	The Crop Protection Management Plan must contain the disposal of crop washings and surplus crop protection products in compliance with the national codes of Good Agricultural Practice and TOPPS BMP recommendations.	<p>Explanation: For details of TOPPS, see: http://www.topps-life.org</p> <p>Demonstration / Documentation: Crop Protection Management Plan.</p>	R	✓		
VIII.1.7: Maximum residue levels (MRLs)	Follow label instructions especially with regard to pre-harvest intervals. In addition to label instructions, follow national codes of Good Agricultural Practices.	<p>Demonstration / Documentation: Crop Protection Management Plan and field application records / record keeping.</p>	R	✓		

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³ Training will become obligatory in the future. Training shall cover notions of IPM.

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VIII.1.8: Inspection of spraying equipment	Spraying equipment must be tested regularly by a nationally recognised body / scheme and records kept of the tests. Regular calibration and technical checks of the application equipment, TOPPS BMP recommendations to be followed.	Demonstration / Documentation: Inspection certificates / Record keeping.	R ⁴	✓		
VIII.1.9: Emergency plan	An action plan must be in place to deal with emergencies, accidents, poisoning, spillage, miscalculations, improper handling and use etc., TOPPS BMP recommendations to be followed.	Explanation: Documented procedure on display that informs staff and visitors of whom to alert and notify and what action to take in an event of a spillage. It must also contain all the phone numbers of the relevant authorities that should be notified. Demonstration / Documentation: Crop Protection Management Plan, display of procedures.	R/NR	✓		

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⁴ Exemptions can be provided for some equipment (national legislation).

VIII.2 Prevention and suppression including enhancement of beneficial organisms

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VIII.2.1: Protection and enhancement of important species, beneficial organisms and agricultural biodiversity.	Crop mosaic: Try to distribute different crops around the farm avoiding large blocks of single species and utilise mid-field divisions as well as managed field margins.	<p>Explanation: The objectives are to provide diverse habitats for wildlife and avoid building up of pests and diseases or help suppressing harmful organisms.</p> <p>Demonstration / Documentation: Crop Rotation Plan and seed purchase and field records – visual inspection.</p>	NR		✓	
	Plants / weeds that do not threaten yield throughout the crop rotation should be managed as food for wildlife.		NR		✓	
	Use trap crops and predator host plants to increase natural control when appropriate.		NR		✓	
	Maintain and enhance the diversity of the landscape (hedges, vegetative buffer strips etc.) to support and strengthen habitat function where possible.		NR		✓	
VIII.2.2: Other prevention and management decisions for Integrated Pest Management (weed, pest and disease management)	Have a rotation plan in place; try to avoid growing the same crop in same field in successive years to lessen disease carry-over.	<p>Explanation: Resistant and healthy varieties (seeds and planting material) should be used as the preferred strategy. However, this is also subject to market demands in the first instance.</p> <p>Where preventive and non-chemical measures and methods of crop protection such as crop rotation, crop residue management, healthy seeds / planting material, adequate soil pH, fertilisation according to plant needs, mechanical, biological and biochemical methods etc. offer satisfactory pest control / sufficiently safe protection at economically tolerable cost, these methods are the preferred course of action.</p> <p>Demonstration / Documentation: Field records.</p>	NR		✓	
	Use healthy plants/seeds to avoid spreading of diseases, including where appropriate resistant / tolerant cultivars and standard / certified seed and planting material.		NR	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VIII.2.2: Cont.	Use adequate cultivation techniques (e.g. sowing dates and densities, conservation tillage, pruning and direct sowing).		NR	✓		
	Use of hygiene measures to avoid spreading of pests (e.g. cleaning of machinery and equipment as well as removal / burial of crop residues).		NR		✓	
	Use balanced fertilisation, liming and irrigation / draining practices (please see also chapters IV Water Use and Protection and VII Crop Nutrition).		NR		✓	
	Herbicides should not be used in glasshouses after vegetative growth stage.		NR		✓	

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Part VIII.3: Observation / monitoring and decision making process

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VIII.3.1: Decision making process	To make correct decisions on the use of crop protection measures, pest, disease and weed levels and thresholds must be monitored and recorded. This information must be used in the decision making process. Developments of threshold values have to be checked and adopted when appropriate. Use experience for input in next year's Crop Protection Management Plan (see item VIII.5.2).	<p>Explanation: Qualified agricultural advisers or members of staff can do this on a regular basis. Threshold values where proven and robust are the preferred course of action. For harmful organisms threshold levels defined for the region, specific areas, crops and particular climatic conditions must be taken into account before treatment where feasible. Observation and monitoring: Tools such as decision support systems, forecasting and early diagnosis systems where feasible, monitoring crops, observation in the fields and precision farming techniques can be used.</p> <p>Demonstration / Documentation: Monitoring and decision making process documented in crop protection records, evidence of information on recent developments, monitoring of knowledge growth and according changes of practices.</p>	R/NR	✓		
VIII.3.2: Environmental impact of all crop protection practices	When making decisions on crop protection practices, the use of decision support systems should be considered in order to minimise environmental impact on water, soil, air, and biodiversity.	<p>Explanation: Use advice tools and precision farming techniques where appropriate, record and justify your choice of crop protection practices.</p> <p>Demonstration / Documentation: Crop Protection Management Plan.</p>	NR		✓	
VIII.3.3: Justification of crop protection measures	Prior to carrying out any crop protection operation, a process of justifying the decision should be implemented and recorded.	<p>Demonstration / Documentation: Records of justification for all crop protection measures taken.</p>	NR	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
VIII.3.4: Non-chemical means as first resort	Use non-chemical means and strategies for crop protection as a first resort whenever feasible, efficient and economically justifiable.	Demonstration / Documentation: Crop Protection Management Plan.	NR	✓		
VIII.3.5: Threshold concept	Aim to target economically proportional damaging parts of populations in crops.	Demonstration / Documentation: Crop Protection Management Plan, field application records.	R	✓		
VIII.3.6: Crop protection recommendations	As the proper use of crop protection treatments is vital for economic and environmental reasons, receiving relevant advice for the situation is important.	Explanation: Recommendations should be taken from a recognised / registered and fully qualified agricultural advisor. Demonstration / Documentation: Recommendation records, qualification of advisors.	NR		✓	
VIII.3.7: Determination of crop protection product, rate and timing	Before applying crop protection products, choose the most appropriate product for crop target, site and soil condition. The product shall be as specific as possible for the target. Be aware of the use rate and timing based on growing conditions, infestation levels at the time of application. Read and follow label instructions.	Explanation: The choice of the product being used comprises considerations on the best solution for the specific pest problem, satisfactory pest control and site specific conditions while at the same time considerations need to be given on minimising effects on human health, non-target organisms and the environment. (However, such a comparative assessment may already have been undertaken during the national registration of the formulation for this specific use). Under some circumstances, adapted rates and timings of applications will be appropriate where registration allows. Care should be taken to avoid the build up of resistance to chemicals. The use of recommended adjuvants to reduce rates and low volume spraying on some crops is permissible but only within the statutory regulations. Demonstration / Documentation: Crop Protection Management Plan, monitoring, recommendations and field application records.	R/NR	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VIII.3.8: Minimising undesired effects of any method of crop protection	Steps should be taken to minimise unwanted effects to non-target organisms. User instructions on the labels of chemical products have to be followed.	<p>Explanation: Unwanted effects can be minimised by a number of practices, all combined to reduce the environmental impact of farming operations, e.g. the use of selective products, evidence of predators, buffer strips, minimal cultivations and timing. The potential for unwanted effects from non-chemical methods must equally be considered, such as excessive use of fuel for multiple passes of equipment, risks for soil erosion or fuel to power thermal weed control equipment including increased CO₂ emissions and the disturbance of ground nesting birds during mechanical weeding.</p> <p>Demonstration / Documentation: Crop Protection Management Plan, records of field applications.</p>	R/NR	✓		

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Part VIII.4: Crop protection related practices on farm / application

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VIII.4.1: Storage of crop protection products	All crop protection products must be securely and separately stored and handled according to regulations and label instructions including wearing protective clothing. TOPPS BMP recommendations to be followed.	<p>Explanation: Only store what is needed on farm, i.e. avoid waste product due to carefully calculated quantities.</p> <p>Demonstration / Documentation: Label recommendations, visual inspection.</p>	R	✓		
VIII.4.2: Environmental protection during mixing and filling of crop protection products	Avoid spillage and contamination during mixing and filling. TOPPS BMP recommendations to be followed.	<p>Explanation: Fill sprayers on yards where drainage is contained for subsequent disposal or where run-off is unlikely to enter watercourses. Avoid yards where drains discharge to watercourses or ditches. Do not mix directly on very permeable soils in areas where groundwater needs protection, consider the use of a biobed and seek regulatory advice.</p> <p>Demonstration / Documentation: Crop Protection Management Plan and visual inspection.</p>	R	✓		
VIII.4.3: Advice on the appropriate mixing area for crop protection products on site	Areas for filling and mixing ideally should be contained. TOOPS BMP recommendations to be followed.	<p>Demonstration / Documentation: Crop Protection Management Plan, letters or report from the appropriate regulatory body.</p>	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VIII.4.4: Observing pre-harvest intervals	Pre-harvest intervals must be observed when using crop protection products.	<p>Explanation: Staff must be enabled to ensure that crop protection products are not applied too early or too late and that harvest does not take place within the pre-harvest interval as stated on the product label. Identify proposed harvest date and the first permissible harvest date after application.</p> <p>Demonstration / Documentation: Crop Protection Management Plan and field application records.</p>	R	✓		
VIII.4.5: Use crop protection products only in the area in which they are required	Precautions must be taken into account to ensure crop protection product use is restricted to the area in which it is required.	<p>Explanation: Adopt techniques such as precision farming, low drift techniques and other innovative ways. Use spray drift reduction nozzles consistent with product label and other technical means available (such as air assisted spraying systems etc.) and apply when weather conditions are favourable.</p> <p>Demonstration / Documentation: Crop Protection Management Plan, application records.</p>	R	✓		
VIII.4.6: Applications to and machinery movement on field boundaries and margins	Appropriate action must be taken into account to avoid adverse effects to hedges, watercourses and other vegetated field boundaries, and also obligatory field margins. Every attempt must be made to minimise machinery movement on the field boundaries according to national legal requirements.	<p>Demonstration / Documentation: Evidence of procedures to ensure that fertilisers, crop protection products and cultivations are not applied or carried out on field margins or permanent boundaries.</p>	R	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VIII.4.7: Post harvest treatments	Only use post-harvest treatments when necessary. All measures must be recorded. In case chemical products are used, label instructions must be followed.	Demonstration / Documentation: Application records.	R	✓		
VIII.4.8: Storage and disposal of empty containers	See item XI.3.8, TOPPS BMP recommendations to be followed.					
VIII.4.9 Storage and disposal of surplus crop protection products	See items XI.3.9 and XI.3.10, TOPPS BMP recommendations to be followed.					
VIII.4.10: Disposal of left over spray mix	Left over spray mix must be disposed of in a manner as to avoid damage to the environment and human health. TOPPS BMP recommendations to be followed.	Explanation: When applying unsprayed diluted remnants over an untreated crop area, the dose must not exceed recommended application. If in doubt, refer to national authorities. Demonstration / Documentation: Application records.	R	✓		
VIII.4.11: Cleaning of sprayers	See item IV.3.9, TOPPS BMP recommendations to be followed.					

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Part VIII.5: Evaluation

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
VIII.5.1: Assessing the results of measures taken	Following any crop protection measure, the effectiveness and results should be assessed.	<p>Explanation: Comparisons of own results with research results or in experience groups. Discussion of results with advisors.</p> <p>Demonstration / Documentation: Comments in field application records.</p>	NR		✓	
VIII.5.2: Next year's Crop Protection Management Plan	Evaluate current practices and results to progress skills and knowledge of Integrated Pest Management, review Crop Protection Management Plan and update if necessary.	<p>Demonstration / Documentation: Field application records and Crop Protection Management Plan.</p>	NR		✓	

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Chapter IX: Animal Husbandry, Health & Welfare

Animal welfare is a source of growing public concern. Integrated Farming employs techniques of livestock management that maintain animals in good health, comfort and low stress, by feeding, handling, housing and transporting them under the conditions that reflect proper care and concern for their welfare. Under IF consideration is given to the way decisions are made on the whole farm. Not only does this include animal welfare, grassland, forage and crop management, but also the attention to detail demanded in order to ensure sound animal husbandry techniques, environmental responsibility and an economically viable farming business.

IF and GAP key differences: A herd health plan produced in conjunction with the vet is important to sustainable livestock production, and IF helps focus on the longer term environmental and economic objectives when considering animal husbandry.

Part IX.1: General considerations

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IX.1.1: General	Ensure the well-being of animals by respecting their physiological characteristics, satisfying their food intake needs, providing ventilated housing and maintaining them in a satisfactory physical state.	<p>Explanation: The well-being of animals under physiological conditions has a crucial impact on their health and performance. A vet can give proper advice.</p> <p>Demonstration / Documentation: Subject to check and vets approval and national guidelines and regulations.</p>	R/NR	✓		
IX.1.2: Livestock identification system and movement records	The livestock identification system in force for each animal species must be complied with.	<p>Explanation: Livestock identification systems are nationally or locally established and regulated. They are an important tool for preventions (e.g. vaccinations), infectious disease control etc.</p> <p>Demonstration / Documentation: Livestock identification documents, animal delivery and removal documents kept for 5 years.</p>	R	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IX.1.3: Grouping	Livestock to be kept in groups in stable compartments must be composed of homogenous animals.	<p>Explanation: The animals should have similar age, weight and development. This kind of grouping supports well-being and performance as fights and flights are reduced.</p> <p>Demonstration / Documentation: Visual control (criteria to be specified on a species-by-species basis).</p>	NR	✓		
IX.1.4: Field access	Provide farm tracks with sufficient space and decent surface.	<p>Explanation: Farm tracks with sufficient space and decent surface are supporting well-being, health and performance of the animals.</p> <p>Demonstration / Documentation: Visual inspection.</p>	NR			✓
IX.1.5: Transport	Any transport of animals must be carried out to ensure appropriate handling, loading, and transport conditions. Feeding intervals are to be kept.	<p>Explanation: To avoid unnecessary stress to animals, sensitive transport is very important. Where possible seek to minimise livestock transport distances.</p> <p>Demonstration / Documentation: Check of transport arrangements.</p>	R/NR	✓		
IX.1.6: Evaluation and improvement	The performance of livestock on the farm and also conditions of housing, feed etc. should be assessed on a regular basis.	<p>Explanation: Assessing practices and performance on your farm will allow for the identification of potential weak spots. Improvements can often be achieved by minor adjustments of practices. Asking your vet, consulting special livestock magazines etc. will be helpful.</p> <p>Demonstration / Documentation: Records of advice, magazines etc.</p>	NR		✓	

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Part IX.2: Housing

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IX.2.1: Protection against adverse weather conditions	Premises must provide protection against adverse weather conditions.	<p>Explanation: Protection of the animals against adverse weather conditions supports well-being and can only maintain general good health if housing conditions (ventilation, temperature, stocking density, etc.) are adequate, which in turn might reduce the likelihood that animals become infected by an infectious disease.</p> <p>Demonstration / Documentation: Visual control (criteria to be specified on a species-by-species basis).</p>	R/NR	✓		
IX.2.2: Ventilation	Premises must be sufficiently ventilated to maintain their minimum and maximum temperature in the animal's comfort zone and to maintain an adequate air quality regarding NH ₃ and other gasses and infectious agents.	<p>Explanation: Sufficient ventilation supports well-being (avoids shivering or sweating) and limits the exposure of the animals to NH₃ and other gases and infectious disease agents that make them less prone to respiratory diseases).</p> <p>Demonstration / Documentation: Visual control (criteria to be specified on a species-by-species basis).</p>	R	✓		
IX.2.3: Space	Premises must provide room to exhibit normal behaviour.	<p>Explanation: Sufficient room for normal behaviour supports well-being, health, and development. Minimum space requirements are nationally / locally regulated.</p> <p>Demonstration / Documentation: Visual control (criteria to be specified on a species-by-species basis).</p>	R	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IX.2.4: Occupation and comfort	Premises should provide appropriate occupational material.	<p>Explanation: Appropriate occupational material supports well-being, health, and development.</p> <p>Demonstration / Documentation: Visual control (criteria to be specified on a species-by-species basis).</p>	NR		✓	
IX.2.5: Stock handling equipment	Special equipment should not only be available for handling animals on the farm, during loading and unloading but also for veterinary diagnostic and treatment procedures in full respect of user safety and animal welfare conditions.	<p>Explanation: Proper handling contributes to animal protection / welfare. For this purpose, permanent stock handling equipment should be available and sited so as to cause minimum environmental damage from run off etc.</p> <p>Demonstration / Documentation: Visual control (criteria to be specified on a species-by-species basis).</p>	NR		✓	

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Part IX.3: Feed and feeding

Item	Guideline	Additional Explanation and Suggested Demonstration/Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IX.3.1: Feed purchase records and feed quality assurance	All purchase records and delivery notes for compound feed and feed materials, including fodder, feed additives and pre-mixtures, used in the preparation of animal feed should be retained. Animal feed should only be purchased from registered / approved suppliers which provide, if relevant, which provide detailed information concerning the ingredients contained in feed and who specify the manufacturing batch number on all invoices, delivery notes, labels, and supports.	Explanation: This documentation underlines the consistency and sustainability of the feeding regime. Demonstration / Documentation: Storage of 5-year purchase records, invoices, delivery notes / other supplier documents for raw material and food and fodder (3 years for poultry).	NR		✓	
IX.3.2: Feeding	Feed and water must be supplied in adequate quantities to meet animal requirements according to age, sex, physiological status, performance and in high quality at all times.	Explanation: Adequate feed and water supply is a prerequisite for well-being, health, and development. Demonstration / Documentation: Feed purchase, grassland management, and forage records.	NR	✓		
IX.3.3: Grazing systems	A clean grazing system should be operated where appropriate.	Explanation: Alternate annual grazing of cattle and sheep or livestock and forage to reduce parasite levels on pastures in accordance with herd health plan can be helpful. Demonstration / Documentation: Check grazing plans and stock records.	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration/Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IX.3.4: Nitrogen excretion	Nitrogen excretion should be minimized through conversion into animal products. This may be achieved in optimizing the dietary protein levels to the requirements of the animals according to sex, physiological status and performance.	<p>Explanation: Excessive protein use can cause intoxications and environmental burdens.</p> <p>Demonstration / Documentation: Avoid excessive protein levels. Check feed records.</p>	NR		✓	
IX.3.5: Methane emissions	See V.4.5.					

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Part IX.4: Animal health

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IX.4.1: Herd Health Plan	A Herd Health Plan (HHP) must be prepared in consultation with the vet and be in operation.	<p>Explanation: A HHP supports optimal health of the animals by continuous care by the vet. A written contract with the vet can be helpful.</p> <p>Demonstration / Documentation: Documents.</p> <p>Note: Because of ongoing specialisation within the veterinary profession, very often there are two or different specialist vets involved in a HHP (e.g. on a dairy farm a specialist vet for calves, another one for mastitis, and a third one for pregnancy, fertility and insemination).</p>	R	✓		
IX.4.2: Disease prevention	Where appropriate and following advice from the vet, participation is advised in additional, non-statutory disease prevention programmes.	<p>Explanation: Regional / local situations could require additional disease prevention programmes. These programmes should be part of the HHP.</p> <p>Demonstration / Documentation: Treatment records.</p>	NR	✓		
IX.4.3: Bio security	Where appropriate, ensure that bio security measures are in place including disinfection of any high risk vehicles and people entering the farm.	<p>Explanation: Infectious disease control of the farm, for example, requires bio security measures. They should be part of the HHP.</p> <p>Demonstration / Documentation: Visual control and record of animal health products, concentration and time applied to the surface.</p>	R	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IX.4.4: Separation	Premises should be made available for separation of all suspected animals / order to minimize contacts with the other animals on the premises whilst awaiting the results of tests pertaining to statutory-controlled diseases. Separate pens should also be available for recovering animals.	<p>Explanation: Separation measurements are an important contribution to minimise / avoid the spread of infectious diseases on the farm and outside.</p> <p>Demonstration / Documentation: Visual control.</p>	NR		✓	
IX.4.5: Preventive treatment	Farmers must ensure that all animals on the farm are subjected to preventive treatment under a national (and local where applicable) plan. Details of treatments must be recorded and subsequent treatment requirements must be scheduled in advance. Preventive treatments must consider approaches to minimise antibiotic use.	<p>Explanation: The preventive treatment and recording programme should be part of the HHP. National and / or local needs have to be considered.</p> <p>Demonstration / Documentation: Treatment records.</p>	R	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IX.4.6: Veterinary medicines	Prescription only medicines may be administered within a controlled programme and must be adapted to each type of animal. The medicine must be approved by national authority i.e. must have a license. Records must be kept of all medicines (treatment date, reason, means of administration, product used, dosage, waiting period, live-stock identification).	Demonstration / Documentation: Records of treatment.	R	✓		
IX.4.7: Information and training	Farmers must get information and training on the application of prescribed medicines by their vet, pharmacist, or other experts according to national law.	Explanation: Continuous information and training by the various experts is absolutely necessary. Demonstration / Documentation: Notes, leaflets and etc.	R	✓		

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Part IX.5: Animal husbandry and environment

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IX.5.1: Poaching	Protect water courses and riverbanks. Excessive poaching damages soil structure and can increase the risk of soil erosion and polluting run-off to water-courses. Stocking rates and animal movements must be adjusted; supplementary feeders must be positioned accordingly.	<p>Explanation: Poaching of riverbanks damages habitat and causes direct pollution and soil erosion. Use fencing etc. to restrict access for livestock watering. This supports environmental protection and animal welfare.</p> <p>Demonstration / Documentation: Visual inspection of grassland for poaching, overgrazing and feeding areas. Check Whole Farm Conservation Plan for specific advice given on livestock management and environment.</p>	R	✓		
IX.5.2: Nesting birds and forage cutting	Where appropriate ensure that nesting birds and wildlife are protected from forage cutting. This can be achieved by cutting from the middle out, cutting timing and technical devices.	<p>Demonstration / Documentation: Evidence of protection by the direction of cutting i.e. from middle out and the timing of cutting.</p>	NR		✓	
IX.5.3: Holding capacity for manure and slurry	At least 6 months storage for slurry must be available unless the Livestock Manure Management Plan has identified that less is needed. Maintain sufficient freeboard in storage facilities to avoid structural failure or overtopping. Contain run-off from manure on hard-standings or yards where pollution of water is at risk.	<p>Demonstration / Documentation: Check manure and or slurry store for potential over-spill and pollution risk. Check number of days' capacity and run-off from manure on hard standings and yards.</p>	R	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
IX.5.4: Stocking rates	Stocking rates must be in compliance with land availability for nutrient recycling and / or nutrient exports.	Explanation: This supports environmental protection and animal welfare. The term “nutrient exports” also covers manure which is exported from the farm to places where it is used for production of energy and / or fertilisers. Demonstration / Documentation: Calculate livestock units to land available. Contracts for nutrient exports via manure.	R	✓		
IX.5.5: Environmentally sensitive areas	Grazing of environmentally sensitive areas must be managed appropriately to allow the protection of wildlife and water quality. These areas must be identified in the Whole Farm Conservation Plan. Protection must be given to hedges, ponds, ditches, streams, rivers, margins and other habitats identified as environmentally valuable / sensitive.	Demonstration / Documentation: Evidence to be found in the Whole Farm Conservation Plan.	R	✓		
IX.5.6: Nutrient application / crop demand	Storage capacity for organic manures in mixed farms must balance crop requirement / contract exports from the farm. Storage capacity for organic manures must be sufficient to meet the non application period (see also items IX.5.3 and IX.5.4).	Demonstration / Documentation: Crop Nutrition Management Plan. Contracts for nutrient exports via manure.	R/NR	✓		
IX.5.7: Application timing	Manures must not be applied when soil is at field capacity or frozen (see also item VII.3.6).	Explanation: Improper timing can cause environmental burdens. Demonstration / Documentation: Check drains and field conditions before application.	R	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	should	consider
IX.5.8: Incorporation of slurry	Slurry must only be applied to actively growing crops or to bare soil if incorporated immediately after application (see also item V.2.3).	Explanation: If not followed, questionable effect and environmental burden. Demonstration / Documentation: Application records.	R	✓		
IX.5.9: Phosphorus index	Try to maintain Phosphorus equilibrium.	Explanation: Phosphorus and Nitrogen are fertilisers but if not in equilibrium they can be an environmental burden. Demonstration / Documentation: Crop Nutrition Management Plan.	NR		✓	
IX.5.10: Clean water run-off	Try to keep clean water run-off separate from manure drainage.	Explanation: Clean water is rare and expensive and can easily be "recycled". Demonstration / Documentation: Visual control.	NR			✓
IX.5.11: Parlour washing, dirty water and effluents from silos	Ensure that parlour washing, dirty water and silage effluent are collected and contained in adequate structures. Utilise them in accordance with the Livestock Manure Management Plan.	Demonstration / Documentation: Check holding areas and systems of collection and disposal.	NR		✓	

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Chapter X: Landscape & Nature Conservation

Care for the environment is at the core of Integrated Farming, and the demonstration of this care is a living farm landscape that enhances people's experience and enjoyment of the countryside – and where landscapes, food production and wildlife live side by side. Conservation and landscape issues must be totally integrated as they are increasingly important in agriculture as demonstrated by the proliferation of schemes, action plans and initiatives. Landscape and wildlife benefits are achieved by improving the capability of the land and area.

IF and GAP key difference: Protecting and enhancing the wildlife and biodiversity across the whole farm landscape using expert awareness of habitat quality and protection.

Part X.1: General considerations

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
X.1.1: Whole Farm Conservation Plan (also see next page)	A long-term Whole Farm Conservation Plan should be in place. Decisions should be made in relation to agronomic practices, taking account of this Whole Farm Conservation Plan and its long-term objectives to protect and enhance wildlife and landscape on the farm. This plan should include specific actions / targets with regard to endangered species, nesting boxes, additional feedstuff / feeding areas for wildlife, conservation of historic sites and wildlife monitoring.	Explanation: This map-based concept should include the following key environmental features: <ul style="list-style-type: none"> • areas and sites on the farm with national statutory protection, • areas and sites on the farm with international recognition (Ramsar-sites etc.), • areas and sites as such as buffer zones, • lakes, ponds and watercourses, • semi-natural habitats, • linear features and • historical features and public rights of way. Farming and environment are inseparably linked. In order to avoid the risk of environmental damage and deterioration farmers should be able to demonstrate an awareness of the distribution of the key wildlife habitats and key species of conservation and other valuable environmental features on their farms. They should know the farming operations that could damage or have a detrimental effect on these areas / structures.	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
X.1.1: cont.:		Demonstration / Documentation: Map-based concept. The plan should be prepared in consultation with a specialist advisor if needed and be regularly reviewed (compare item X.4.2.).				
X.1.2: Historical features on the farm	Preservation of historical features is not only essential in the preservation of landscape but also may contribute to the preservation of biodiversity as historical features sometimes give home to rare or threatened species like bats and insects that also must be taken into consideration. Therefore, farm activities must not harm any historical features. Known sites and historical features must be marked in farm maps where available.	Explanation: Agricultural / farm activities such as sub-soiling, excavation, land reclamation, drainage, levelling, tipping / in-filling, uncontrolled scrub growth, woodland clearance, tree-planting etc. can damage or destroy historical features. Such damage must be avoided. Demonstration / Documentation: Visual inspection for recent activities / effects during field operations or farm walks.	R	✓		
X.1.3: Minimum of 5 % farm area not to be used for cropping	A minimum of 5 % of the farm area must not be used for cropping.	Explanation: This can include hedges, ditches, ponds as well as uncropped areas managed for wildlife and areas on the farm that are difficult to grow crops, such as awkward corners in fields, stony areas etc. Demonstration / Documentation: National environmental schemes, cropping plans and Whole Farm Conservation Plan.	NR	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
X.1.4: Implementation of the Whole Farm Conservation Plan	Involvement as many staff as possible in the planning and implementation of habitat management and creation / restoration of habitats and also any contractor that may be employed on the farm on a regular basis. Ensure that all of the staff and any contractor employed on the farm are aware of landscape, wildlife and biodiversity values of the farm. Also inform direct farm neighbours on the Whole Farm Conservation Plan and about the management of areas neighbouring to their farm with regard to landscape and biodiversity preservation aspects to avoid any damage.	<p>Explanation: Communication with staff and contractors is a key part of the Whole Farm Conservation Plan. Awareness and awareness-raising of colleagues and neighbours are of extreme importance. This helps to create ownership of nature conservation and environmental improvements and to avoid damage and harm through lack of awareness.</p> <p>Demonstration / Documentation: Communication with staff and contractors.</p>	NR		✓	

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Part X.2: Agricultural practices

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
X.2.1: Field margins	Retain an undisturbed (i.e. uncropped and uncultivated) margin adjacent to all fields over 10 ha. Where a temporary fence / hedge / wall or margin is present, a 1 metre margin between the field margin and the fence should be maintained.	<p>Explanation: Such margins function as buffer strips, wildlife corridors and habitats. Farm tracks can be allowed as part of the margin. National environmental schemes will provide further information.</p> <p>Demonstration / Documentation: Visual inspection.</p>	NR		✓	
X.2.2: Field margin management within the Whole Farm Conservation Plan	Field margins should be managed without fertilisers (organic and inorganic) and crop protection products (apart from spot control of noxious weeds). Margins should be cut in the late summer with the cuttings removed or grazed once every 2-3 years.	<p>Explanation: Newly established grass margins may require regular cutting in the first summer (3-4 times), then once every 2-3 years. Roadside verges are excluded where a hazard for traffic may result. It is proposed that a mixed and stable community of animals and plants should be maintained in field margins. These communities may differ, meaning that different field margins should be planned in different ways in order to best meet the local requirements of the margin community in question and therefore maximise the wildlife conservation potential in the margins. Where the original margin has been damaged and the original diversity lost, a permanent grass strip or a wild grasses and broad leaved plants community may be maintained depending on the local conditions.</p> <p>Demonstration / Documentation: Visual inspection of margins.</p>	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
X.2.3: Cultivations under the canopy of field trees	Soil under the canopy of in-field trees should not be ploughed.	<p>Explanation: Where trees exist in a hedgerow or wood edge, ploughing should never be closer to the trunk than half the distance between the trunk and a line drawn vertically through the outermost canopy, but ploughing may take place under the outer canopy.</p> <p>Demonstration / Documentation: Visual inspection of cultivation close to field trees and hedgerow trees on the farm.</p>	NR		✓	
X.2.4: Native species	Use native species for sowing field margins and similar areas or allow natural regeneration.	<p>Demonstration / Documentation: Records of seeding including seed label(s).</p>	NR		✓	
X.2.5: Field boundaries	Do not destroy or remove any traditional field boundaries (hedges, stone walls etc.) on the farm.	<p>Explanation: An exception can be removal by special derogation or special consent regulations.</p> <p>Demonstration / Documentation: Visual inspection, comparison to Whole Farm Conservation Plan.</p>	R	✓		
X.2.6: Leaving winter stubbles before spring cropping	Winter stubbles and subsequent spring cropping should be considered as part of the rotation where appropriate.	<p>Explanation: Leaving winter stubbles prior to spring cropping can have environmental benefits such as providing food for birds over winter and beneficial habitats for ground nesting birds. However, care should be taken to ensure that certain soil types have surface sealing removed by light cultivation to avoid run-off over winter.</p> <p>Demonstration / Documentation: Check farm records and / or fields for evidence of spring cropping.</p>	NR			✓

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
X.2.7: Applications of fertilisers and crop protection products to field boundaries and margins	Ensure that appropriate action is taken to avoid the contamination of hedge bottoms, watercourses and other vegetated field boundaries, and the field margins. Make every attempt to minimise machinery movement on field boundaries.	<p>Explanation: If the margin is part of an environmental scheme, scheme rules must be adhered to. Carrying out the work thoroughly and the use of technical devices on sprayers and fertiliser spreaders can help to avoid application outside the field boundaries. Avoid the inadvertent use of crop protection products and fertilisers (organic or inorganic) in the boundaries and margins. Manage field boundaries in a way that adjacent habitats are also taken into account. Ditches should be cleared every 2-3 years and in rotation with the cutting of adjacent hedges. These actions should be carried out in the season less disturbing for wild nature and biodiversity.</p> <p>Demonstration / Documentation: Procedures / devices to ensure that fertilisers, crop protection products and cultivations are not applied or carried out on field margins or permanent boundaries.</p>	R	✓		
X.2.8: Field operations and nesting birds	Adjust field operations to avoid disturbing nesting birds where possible. This is particularly important to communicate to those who provide contract services.	<p>Explanation: Field operations can conflict with nesting periods. Monitor activity where you can and factor this into your operations. National environmental schemes should have recommendations.</p> <p>Demonstration / Documentation: Visual inspection, records or evidence of innovative measures the farmer may be using.</p>	NR		✓	

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Part X.3: Particular environmental practices

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
X.3.1: Timing and frequency of hedge cutting	Trimming of hedgerows on the farm must not be carried out between 1 March and 31 July. Hedgerows must be managed in accordance with the Whole Farm Conservation Plan.	Explanation: Avoiding hedgerow trimming during these times is to protect nesting birds. Trimming of hedges by roadsides where the hedgerow is interfering with traffic will be subject to derogation. Demonstration / Documentation: Visual inspection, record checks.	R	✓		
X.3.2: Timing and frequency of ditch clearance	Clearance of ditches on the farm should not be carried out between specified periods depending on location. Only one side of the ditch should be re-profiled or cleared of vegetation in any one year.	Explanation: Clearing only one side of a ditch at a given time leaves part of the natural habitat for wildlife undisturbed. Demonstration / Documentation: Visual inspection during farm walk, record checks.	NR		✓	
X.3.3: Trees	It is not permitted to fell trees on the farm unless for safety reasons or within the Whole Farm Conservation Plan with a necessary felling license.	Explanation: Where recent tree felling is apparent justification is required. For felling trees, advice must be sought from the relevant authority. Demonstration / Documentation: Visual inspection, Whole Farm Conservation Plan and felling licenses.	R	✓		
X.3.4: Conservation headlands	Of the total cropped area, consider selective spraying of 50 % of the outer 6 metres of cereal crops to allow small populations of broad-leaved plants and their associated insects to develop.	Explanation: Summer applied insecticides should not be used in these areas except where potential economic loss can be demonstrated. Demonstration / Documentation: Visual inspection, crop protection records.	NR			✓

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
X.3.5: Small areas of wildlife seed mixes	Where spring cropping is inappropriate (compare item X.2.7), the sowing of small areas of wildlife seed mixes should be considered on uncropped areas or in field margins.	Demonstration / Documentation: Visual inspection of fields, farm records, building database either by the owner or by experts.	NR			✓
X.3.6: Beetle banks or comparable strips / structures	Consider splitting fields greater than 20 hectares with one beetle bank or a comparable strip / structure, 2 such strips in fields larger than 30 hectares, 3 in fields larger than 40 hectares and 4 in fields larger than 50 hectares.	Explanation: Beetle banks are grass mounds about 2 metres wide. They help to boost numbers of beneficial insects and spiders, and provide habitat for ground-nesting birds and small mammals. They also provide resource protection benefits when positioned across a sloping field. Demonstration / Documentation: Visual inspection, records of environmental schemes and where appropriate farm assurance.	NR			✓

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Part X.4: Evaluation

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
X.4.1: Monitoring wildlife	Monitoring the environment and wildlife provides valuable information for an assessment of current conservation practices.	<p>Explanation: Monitoring wildlife can be performed together with other local stakeholders such as environmentalists, hunters, birdwatchers etc. and will enable farmers to publicly state the effects they are having on their farms by the adoption of Integrated Farming. Listing nests and feeding plots of birds, as well as resting places and islands of migrating species are also of importance.</p> <p>Demonstration / Documentation: Visual inspections during farm walks, monitoring records, building a database either by the owner or by experts.</p>	NR		✓	
X.4.2: Annual re-view for development of Whole Farm Conservation Plan	Regular assessment of status of the farm landscape and biodiversity, conservation practices and achievements, conclusions to be integrated in the Whole Farm Conservation Plan.	<p>Explanation: Integrated Farming is based on a continuous learning process. Assessing previous practices and achievements will allow improvement in future performance. Taking advice from external advisors may help.</p> <p>Demonstration / Documentation: Amendments to Whole Farm Conservation Plan.</p>	NR		✓	

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Chapter XI: Waste Management & Pollution Control

Agriculture is no different from other industries in that nearly every process and practice results in the production of “by-products” or “wastes” and therefore poses a risk of pollution and threat to the environment if not managed responsibly. In many cases farm “wastes” are a valuable resource and their optimum use can result in cost savings and reduced pollution. In particular, materials that have a high Biochemical Oxygen Demand (BOD), e.g. slurries, silage effluent, brewers’ grain effluent, waste from vegetable processing and milk, can result in serious water pollution problems. Proper storage and disposal of hazardous substances is an important part of the IF whole farm approach as well as ensuring that produce on the farm is stored separately to avoid contamination.

IF and GAP key difference: Integrated Farming pays attention to detail on every part of the farm and thus follows a reduce, re-use and recycle approach, ensuring environment and human health are a priority at all times.

Part XI.1: General considerations

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
XI.1.1: Concept for waste handling and waste minimisation	All farms produce some waste. Some such as slurries and manures can be recycled on the farm and are a valuable resource. Others need to be taken off-farm for disposal. Responsible waste handling should strive to minimise the quantities produced. Adequate storage and recycling must be implemented.	<p>Explanation: Responsible waste handling and waste minimisation should include: review of current practices, avoidance of creating waste, reduction of waste, re-use of waste, and recycling of waste. National publications providing advice may be helpful. For example, purchase materials in appropriate quantities to reduce packaging waste and avoid spoilage of materials not being used immediately. Money can be saved on storage, handling, and disposal when waste minimisation opportunities are used. This is all part of an integrated approach to resource management across the whole farm.</p> <p>Demonstration / Documentation: Visual inspection.</p>	NR	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
XI.1.2: Resource Management Plan, integrated with Crop Nutrient Management Plans	Prepare and implement a Resource Management Plan in accordance with National Water Codes. This needs to include any slurry, manure, and industrial waste used on the farm. It will also identify where waste should not be spread. Record the application rate and timing of organic fertiliser applications by field. Land spreading of industrial wastes (other than sewage sludge) need to be registered with the relevant environmental agency.	<p>Explanation: The plan must include any slurry, manure and industrial waste for incorporation.</p> <p>Demonstration / Documentation: Records of field applications. Check for integration with the Manure Management Plan and Crop Nutrient Management Plans.</p>	R/NR	✓		
XI.1.3: Professional advice	For many farmers specialist advice is the best way of identifying what waste and pollution control issues exist on farm, and appropriate ways in which these may be addressed, and incorporated. Seek outside assistance.	<p>Explanation The Water Framework Directive has advice packages available to help farmers address any pollution issues. Contact the relevant environment agency.</p> <p>Demonstration / Documentation: Evidence of written advice and control measures in place.</p>	NR		✓	

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Part XI.2: Implementation of measures on farm

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
XI.2.1: Fuel storage and rest oil	Storage of fuels and used oil must take place without risk of damage or disturbance of surrounding environment and according to national rules.	Explanation: A few drops of fuels and / or lubricants can pollute large quantities of soil, ground or surface water. Handling of fuels and lubricants must take place with great care, and all legal requirements must be fulfilled. All fuel tanks should be inspected and approved annually.	R	✓		
		Fuel tanks, pumps and hoses should be checked for leaks and locked when not in use. Demonstration / Documentation: Visual inspection, certificates / badges of approval.	NR		✓	
XI.2.2: Recycling of waste oil and filters	Return waste oil and used oil filters for recycling.	Explanation: Used oil and oil filters are a valuable resource as well as an environmental hazard if not treated properly. Therefore, used oil and filters must be taken to adequate collection and / or recycling sites. Demonstration / Documentation: Receipts of collection / recycling sites.	R	✓		
XI.2.3: Maintenance of equipment and machinery to avoid spillage and leakage of fuel and oil	To ensure that operations of all types have least impact on the environment, proper and regular maintenance should be carried out. Records should be kept and be available for staff to enable efficient planning and operation when required.	Demonstration / Documentation: Maintenance records and procedures.	NR		✓	

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
XI.2.4: Manure Management Plan	A manure management plan must be drawn up, taking into account all organic inputs, soil analyses, crop residue estimates, catch crops, and estimated nitrate inputs from irrigation water (see also Chapter VII).	<p>Explanation: The plan must ensure inputs of Nitrogen, Phosphorus and Potassium are applied according to crop needs. Nitrogen may only be applied outside closed periods when spreading is allowed and without exceeding authorised limits, see national legislation.</p> <p>Details of slurry spreading must be given and carried out according to rotation and regulation and during the periods which present the lowest risks for water quality (spreadable land must be itemised on the plan).</p> <p>Demonstration / Documentation: Check for integration with the Nutrient Management Plan and Farm Resource Management Plan.</p>	R	✓		
XI.2.5: Action plan to reduce the potential of pollution on the farm	Consider developing an action plan based on the inventory of all possible pollutants and putting into action improvements that can be made to the handling and storage of potential pollutants.	<p>Explanation: Fuel, oil, fertilisers, crop protection products, manure and liquid manure, etc.</p> <p>Demonstration / Documentation: Action plan.</p>	NR			✓

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Part XI.3: Product storage and waste disposal

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
XI.3.1: Liquid fertiliser storage	Liquid fertiliser tanks with a capacity exceeding 100 m ³ must be equipped with a retention tank, the volume of which must be at least equal to the capacity of the largest tank or to 50 % of the total capacity.	Demonstration / Documentation: Visual inspection or capacity records.	R	✓		
XI.3.2: Solid mineral fertiliser storage	Stabilised, covered storage premises for solid mineral fertilisers must be separated from those used for the storage of products used for human or animal food and also away from explosive, inflammable or combustible materials.	Demonstration / Documentation: Visual inspection of storage area.	R	✓		
XI.3.3: Chemical and veterinary product storage	All chemical and veterinary products must be securely stored on impervious surfaces and under lock and key. All label precautions must be observed including safety aspects.	Explanation: Only store what is needed on farm i.e. avoid waste product due to carefully calculated quantities. Demonstration / Documentation: Check label recommendations, visual inspection of storage facilities.	R	✓		
XI.3.4: Fresh produce storage	Fresh produce must be stored separately from fertilisers, crop protection products and fuels etc. and in areas which ensure the best quality possible for the produce.	Explanation: Areas should be disinfected prior to storage with maximum ventilation. The areas should ensure optimum hygiene. Sufficient lighting should be installed. Walls and roofing should be constructed to avoid dust build up. Demonstration / Documentation: Visual inspection of storage facilities.	R/NR	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
XI.3.5: Packaging facilities	Strict hygiene measures should be taken in packing facilities in order to avoid contamination of produce.	<p>Explanation: The pack-house should be free from vermin and reusable crates cleaned. Control measures should be recorded. Field packing product should be removed overnight to avoid contamination. Reusable crates should be re-cleaned where necessary and free from foreign substance with possible danger to human health. Product packing and storage areas should have vermin control measures. Areas for litter and waste disposal should be located to avoid contamination. Workers should have training in handling of fresh produce and not to eat / drink / smoke in the vicinity.</p> <p>Demonstration / Documentation: Check vermin control procedures and records</p>	NR		✓	
XI.3.6: Effluent quantities and storage	The average quantity of effluents produced on the farm must be known. Effluent storage premises must be designed to prevent any risk of run-off into the natural surroundings.	<p>Demonstration / Documentation: Visual inspection.</p>	R	✓		
XI.3.7: Disposal of crop washings	Treat washings as though they were “dirty water” and ensure compliance with the National Codes of Good Agricultural Practice (see also chapters IV and VIII).	<p>Explanation: Crop washings can contain possible pollutants such as soil and residues of crop protection products.</p> <p>Demonstration / Documentation: Visual inspection of systems and procedures.</p>	R	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
XI.3.8: Storage and disposal of empty containers	Empty containers must be disposed of in a manner as to avoid damage to the environment and human health. Where recycling schemes exist, empty containers must be returned to these schemes.	Explanation: Containers must be rinsed. Depending on the collection scheme, they should be pierced to prevent re-use and be fed into the official systems according to their rules. Empty rinsed product packaging must be stored on sheltered premises, ensuring that there is no danger of human or environmental exposure. Demonstration / Documentation: Visual inspection, receipts of approved collection scheme and / or disposal company.	R	✓		
XI.3.9: Storage of crop protection products awaiting disposal	Whilst awaiting disposal, unused or unusable crop protection products must be kept in their original packaging, separate from usable products on specific premises or in a specific storage location.	Explanation: Also items soiled by crop protection products should be stored on sheltered premises, ensuring that there is no danger of human or environmental exposure. Demonstration / Documentation: Visual inspection.	R	✓		
XI.3.10: Disposal of unused / expired crop protection products	Unused and / or expired crop protection products must be disposed of in a manner safe to the environment and human health (see also item VI.2.7).	Explanation: Expired crop protection products must be disposed of through certified chemical waste contractors or be disposed of via recognised schemes. Demonstration / Documentation: Visual inspection of systems and procedures.	R	✓		
XI.3.11: Storage and disposal of other surplus chemicals	Unused and / or expired chemicals other than crop protection products must be stored and disposed of in a manner safe to the environment and human health.	Explanation: Unused and / or expired chemicals must be disposed of through certified chemical waste contractors, be disposed of via recognised schemes or according to relevant regulations. Demonstration / Documentation: Visual inspection of systems and procedures.	R	✓		

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Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
XI.3.12: Plastic waste disposal	Plastic waste must be disposed of in the approved manner. Check on recycling possibilities (see also item III.3.1).	Demonstration / Documentation: Visual inspection, Farm Waste Management Plan.	R	✓		
XI.3.13: Waste products	Waste products such as batteries and / or old machinery must be sorted and cleaned if necessary and stored in one or more different dedicated premises prior to collection or disposal according to relevant regulations.	Demonstration / Documentation: Visual inspection and / or records.	R	✓		
XI.3.14: General waste	General, non-specific waste must be transported to an amenity tip or similar facility, or allocated to a specific collection service or disposed of by household refuse collection channels, on condition that local authorisation has been obtained.	Demonstration / Documentation: Waste collection receipts and copies of local agreements where applicable.	R	✓		

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Part XI.4: Evaluation

Item	Guideline	Additional Explanation and Suggested Demonstration / Documentation	GAP	Integrated Farming Perspective		
				Must	Should	Consider
XI.4.1: Review of current practices	Evaluate current approach and measures and look for potential improvement.	<p>Explanation: External advice and publications can be helpful.</p> <p>Demonstration / Documentation: Leaflets, bulletins and etc.</p>	NR		✓	
XI.4.2: Adjustment of relevant management plans and concepts	Adjust relevant management plans in case better strategies and procedures have been identified.	<p>Demonstration / Documentation: Adjusted Management plans.</p>	NR		✓	

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