**IOBC**
**OILB**

*International Organisation for Biological and Integrated Control of Noxious Animals and Plants*
*Organisation Internationale de Lutte Biologique et Integrée contre les Animaux et les Plantes Nuisibles*

***WPRS / SROP*** *West Palaearctic Regional Section /Section Régionale Ouest Paléarctique*

IOBC/WPRS Commission "IP Guidelines and Endorsement"
08.04.1998

## Crop specific evaluation scheme for regional guidelines

# Arable Crops

### Objectives and Procedures

Having passed the first evaluation by the Commission (evaluation scheme for the general fulfilment of the requirements of IOBC guidelines I and II) the documents submitted by the applying regional organisation are evaluated in detail for conformity with guidelines III by 2 specialists (referees) nominated by the respective crop specific IOBC working group. One of the referees will be located, whenever possible, in the same country of the applying organisation and should be knowledgeable in the specific legal and agronomic conditions of the region concerned. The second referee will be located in another country.

This evaluation scheme has the objective to allow a standardised evaluation and hence to make the evaluation process transparent for all parties involved. Referees are free to incorporate additional evaluation criteria if necessary.

### Synoptic Statement of Referee

| | |
|---|---|
| IOBC no. | |
| Name and country of applying organisation | |
| Referee | Date of evaluation |

I recommend

- ☐ Acceptance without alterations
- ☐ Rejection based on points no.
- ☐ Acceptance with the following proposed alterations to be suggested to the applying organisation (separate page)

Date and signature of referee

_____

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# I. OBJECTIVES

Do the guidelines clearly define the objectives of Integrated Production concerning

a) the promotion of production systems which respect environment, are economically viable und sustain the multiple functions of agriculture?

| 3 | yes | -3 | partly | U | no |
|---|---|---|---|---|---|

b) the securation of sustainable production of healthy, high quality crops whilst minimising pesticide residues?

| 3 | yes | -3 | partly | U | no |
|---|---|---|---|---|---|

c) the protection of farmers` health while handling agrochemicals?

| 3 | yes | -3 | partly | U | no |
|---|---|---|---|---|---|

d) the promotion and maintenance of a high biological diversity in the agro-ecosystems and their surroundings?

| 3 | yes | -3 | partly | U | no |
|---|---|---|---|---|---|

e) the priority of employing natural regulation mechanisms?

| 3 | yes | -3 | partly | U | no |
|---|---|---|---|---|---|

f) the preservation and promotion of long-term soil fertility?

| 3 | yes | -3 | partly | U | no |
|---|---|---|---|---|---|

g) the minimisation of water, soil and air pollution?

| 3 | yes | -3 | partly | U | no |
|---|---|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 21 |
| Number of points achieved | |
| Number of unacceptable points | |

# II. REQUIREMENTS

### 1. COMMITMENT OF THE FARMER

The farmer/farm manager has to

a) be professionally qualified and educated to manage the farm according to IP-principles;

| 0 | yes | U | no |
|---|---|---|---|

b) participate in basic training courses and participate actively in regular updating courses offered by IP organisations/ or official extension services;

| 0 | yes | U | no |
|---|---|---|---|

c) be member of an officially recognised IP association;

| 0 | yes | U | no |
|---|---|---|---|

d) make available for inspections his complete farm records on the essential farm operations, such as fertilisation, pesticide application, soil management, irrigation, according to the rules of the IP association;

| 0 | yes | U | no |
|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 0 |
| Number of points achieved | |
| Number of unacceptable points | |

### 2. GENERAL REQUIREMENTS FOR ARABLE CROPS

#### a) Biodiversity and ecological infrastructures

The guidelines require that from the entire farm surface (excluding forests) ecological farm infrastructures (ecological compensation areas) cover

| 3 | more than 5 % | 0 | 5 % | U | less than 5% /not mentioned |
|---|---|---|---|---|---|

The establishment of flowering field margins as reservoirs for beneficial organisms is

| 5 | required | 1 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

It is recommended that linear and non-linear ecological farm structures being present on the farm shall be linked to enhance and maintain faunistic diversity (spatial and temporal continuity).

| 3 | yes | -1 | partly | U | no |
|---|---|---|---|---|---|

**b) Choice of cultivars**

The guidelines require that if available the cultivars grown show a good general health status and are resistant/tolerant at least to one of the major diseases.

| 0 | yes | U | no |
|---|---|---|---|

**c) Crop rotation**

Note: If other crops than the ones mentioned in the guidelines have to be considered this evaluation scheme must be modified! Existing criteria for crops covered in these guidelines have to be applied as far as possible.

The guidelines require fields with crops for seed production to be excluded from the IP program (but taken into account in the crop rotation) if the specific demands for seed production violate the requirements of IP.

| 0 | yes | U | no |
|---|---|---|---|

It is required that the share of cereal crops in the rotation is not higher than 67%.

| 0 | yes | U | no |
|---|---|---|---|

It is required that soybean, oilseed rape and sunflowers must not be grown in direct succession.

| 0 | yes | U | no |
|---|---|---|---|

The guidelines state that each year of fodder crops within the rotation counts as one crop.

| 0 | yes | U | no |
|---|---|---|---|

The alternation of winter and spring crops in humid areas to achieve better pest, disease and weed management and to minimize nitrate leaching is

| 3 | required | 1 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

**d) Irrigation**

In order to prevent negative effects (water overuse, leaching, erosion and salinity) the guidelines set out clear irrigation rules on regional levels including maximum water quantities to be applied.

| 0 | yes | U | no |
|---|---|---|---|

**e) Soil protection**

The guidelines require an appropriate soil cover (during winter) before spring crops to minimise leaching in areas with high risk.

| 0 | yes | U | no |
|---|---|---|---|

The use of contour cultivation and/or terraces to reduce erosion and leaching risk in very slope areas is

| 3 | required | 1 | recommended | 0 | not mentioned |
|---|---|---|---|---|---|

In irrigated areas an appropriate soil cover during winter thus reducing erosion and leaching is

| 3 | required | 1 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

Low intensity cultivation is

| 3 | required | 1 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

Deep ploughing (deeper than 25-30 cm) is restricted to exceptional cases.

| 0 | yes | U | no |
|---|---|---|---|

Farm machinery is recommended to be chosen in order to avoid soil compaction, improve effectiveness of control measures and minimise fuel consumption.

| 1 | yes | -1 | no |
|---|---|---|---|

**f) Nutrient management**

For the major nutrients (except Nitrogen) the guidelines require data from soil analyses carried out at regular intervals of

| 3 | up to 3 years | 0 | 4 or 5 years | U | longer periods / not mentioned |
|---|---|---|---|---|---|

Analytical methods are clearly defined and optimal soil nutrient (see above) contents that have to be maintained are listed.

| 0 | yes | U | no |
|---|---|---|---|

The guidelines specify analytical methods according to which the Nitrogen available for plant nutrition is quantified.

| 0 | yes | U | no |
|---|---|---|---|

The guidelines specify scientifically accepted methods to determine the crop - specific Nitrogen demand.

| 0 | yes | U | no |
|---|---|---|---|

A maximum quantity of Nitrogen to be applied and periods of fertilizer application are defined in the guidelines.

| 0 | yes | U | no |
|---|---|---|---|

**g) Crop Protection**

Priority is given to crop rotation as the major measure to achieve an optimal weed control and reduction of pest and diseases.

[1] yes [-1] partly [-3] no

The guidelines list the key pests, diseases and weeds for each crop.

[0] yes [U] no

The guidelines specify at least two antagonists in each crop that shall be protected and promoted during the whole rotation.

[0] yes [U] no

The guidelines list the preventive (indirect) and curative (direct) measures that are permitted within the IP program.

[0] yes [U] no

***Risk assessment***

The guidelines oblige the farmer to take the official forecast of pest/diseases risks (warning services) into consideration

[0] yes [U] no

The guidelines recommend the use of varietal susceptibility as far as possible for risk assessment.

[1] yes [-1] no

The application of proven regional thresholds values is required.

[0] yes [U] no

The use of existing and validated forecasting models is

[3] required [-1] recommended [U] not mentioned

The regular monitoring of key pests, diseases and weeds is mandatory

[0] yes [U] no

***Plant protection methods***

The guidelines give priority to biological, biotechnical, physical or agronomical plant protection methods if they provide suffcient control, thus minimizing agrochemical input.

[0] yes [U] no

The guidelines require the agrochemicals to be chosen according to the toxicity to humans, risk of resistance development, unintended side effects on beneficials and pollution potential for the environment.

[0] yes [U] no

The guidelines include a list of pesticides permitted without restrictions and of plant protection products permitted with restrictions limiting the use of products within the IP program to these products.

| 0 | yes | | U | no |
|---|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 32 |
| Number of points achieved | |
| Number of unacceptable points | |

# III. Specific Crop Guidelines For Integrated Production

### 1. WINTER CEREALS (wheat, barley, rye, triticale)

#### 1.1 Rotation

The guidelines require that a winter cereal crop must follow a non-host break crop for cereal pathogens.*)

| | | | |
|---|---|---|---|
| 0 | yes | U | no |

*) Exceptions see guideline text.

The guidelines include recommendations for crop rotations in which pathogens and weed selection are limited and nutrient uptake is balanced.

| | | | | | |
|---|---|---|---|---|---|
| 3 | yes | 1 | partly | -3 | no |

#### 1.2 Cultivars

Cultivars which combine resistance to main diseases with quality and yield requirements are necessary in Integrated Production. The exclusion of cultivars with high susceptibilities is.

| | | | | | |
|---|---|---|---|---|---|
| 3 | required | 0 | recommended | -3 | not mentioned |

Variety mixtures to restrict epidemies of key diseases are

| | | | |
|---|---|---|---|
| 1 | recommended | -1 | not mentioned |

#### 1.3 Cultivation

Tillage operations must meet erosion control requirements and have to be timed correctly. The guidelines specify circumstances and requirements.

| | | | |
|---|---|---|---|
| 0 | yes | U | no |

Reduced tillage intensity or combined applications to reduce tillage frequency are recommended.

| | | | |
|---|---|---|---|
| 2 | yes | -2 | no |

The recommendation that soil cultivation systems leave plant residues on soil surface is given

| | | | |
|---|---|---|---|
| 2 | yes | -2 | no |

**1.4 Sowing aspects**

Sowing within a clearly defined sowing period (dates) adopted to regional conditions is

| 0 | required | -3 | recommended | U | not mentioned |
|---|---|---|---|---|---|

Recommendations for equipment calibration, seed rates, placement and depth of seeds are given

| 1 | yes | -3 | no |
|---|---|---|---|

**1.5. Nutrient management**

Nitrogen fertilizer application*) in autumn (danger of leaching) is

| 0 | not permitted | U | permitted |
|---|---|---|---|

*) Exception: in Mediterranean areas, where climatic conditions require it, the application of organo-mineral fertilizer is permitted

| 0 | up to a limit of 50 kg/ha N | U | without a limit or with a limit >50 kg/ha N |
|---|---|---|---|

*) The guidelines specify the application period and the Nitrogen type to be applied

| 0 | yes | U | no |
|---|---|---|---|

Fertilizer application to maintain optimal soil nutrient status at recommended levels and to meet rotational demands is

| 5 | required | 1 | recommended | -5 | not mentioned |
|---|---|---|---|---|---|

**1.6. Crop protection**

1.6.1. The use of plant growth regulators is prohibited

| 0 | yes | U | no |
|---|---|---|---|

1.6.2. Herbicide application based on damage thresholds or risk prediction criteria is

| 0 | required | -2 | recommended | U | not mentioned |
|---|---|---|---|---|---|

Mechanical control measures are

| 3 | required | 1 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

It is stated that (except for specific weeds, e.g. Galium aparine or Alopecurus myosuroides, control efficacies exceeding 80% are not required.

| 1 | yes | -1 | no |
|---|---|---|---|

Herbicide recommendations to limit herbicide use to key problem weeds are given

| 1 | yes | -1 | no |
|---|---|---|---|

A preference for post-emergence herbicides is

| 3 | required | 0 | recommended | -1 | not mentioned |
|---|---|---|---|---|---|

1.6.3. Major pests are named and appropriate strategies for their control where pesticide application is the lasr resort are recommended

| 0 | yes | U | no |
|---|---|---|---|

Justification for pesticide application take into consideration value and loss probability over the whole crop rotation

| 1 | yes | -1 | no |
|---|---|---|---|

1.6.4. The guidelines require that fungicides may only be applied in accordance with models/forecasting systems or if proven thresholds are overridden.

| 0 | yes | U | no |
|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 26 |
| Number of points achieved | |
| Number of unacceptable points | |

**2. SPRING CEREALS**

**2.1 Rotation**

The guidelines require that a cereal crop must follow a non-host break crop for cereal pathogens.*)

| 0 | yes | U | no |
|---|---|---|---|

*) Exceptions see guideline text.

The guidelines include recommendations for crop rotations in which pathogens and weed selection are limited and nutrient uptake is balanced.

| 3 | yes | 1 | partly | -3 | no |
|---|---|---|---|---|---|

**2.2 Cultivars**

Cultivars which combine resistance to main diseases with quality and yield requirements are necessary in Integrated Production. The exclusion of cultivars with high susceptibilities is.

| 3 | required | 0 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

Variety mixtures to restrict epidemies of key diseases are

| 1 | recommended | -1 | not mentioned |
|---|---|---|---|

**2.3 Cultivation**

Tillage operations must meet erosion control requirements and have to be timed correctly. The guidelines specify circumstances and requirements.

| 0 | yes | U | no |
|---|---|---|---|

Reduced tillage intensity or combined applications to reduce tillage frequency are recommended.

| 2 | yes | -2 | no |
|---|---|---|---|

The recommendation that soil cultivation systems leave plant residues on soil surface is given

| 2 | yes | -2 | no |
|---|---|---|---|

**2.4 Sowing aspects**

Sowing within a clearly defined sowing period (dates) adopted to regional conditions is

| 0 | required | -3 | recommended | U | not mentioned |
|---|---|---|---|---|---|

Recommendations for equipment calibration, seed rates, placement and depth of seeds are given

| 1 | yes | -3 | no |
|---|---|---|---|

**2.5. Nutrient management**

Fertilizer application to maintain optimal soil nutrient status at recommended levels and to meet rotational demands is

| 5 | required | 1 | recommended | -5 | not mentioned |
|---|---|---|---|---|---|

An appropriate autumn green cover or catch crop prior to the spring cereal crop to minimise nitrate leaching and erosion is required?

| 0 | yes | U | no |
|---|---|---|---|

**2.6. Crop protection**

2.6.1. The use of plant growth regulators is prohibited

| 0 | yes | U | no |
|---|---|---|---|

2.6.2. Herbicide application based on damage thresholds or risk prediction criteria is

| 0 | required | -2 | recommended | U | not mentioned |
|---|---|---|---|---|---|

Mechanical control measures are

| | | | | | |
|---|---|---|---|---|---|
| 3 | required | 1 | recommended | -3 | not mentioned |

It is stated that (except for specific weeds, e.g. Galium aparine or Alopecurus myosuroides, control efficacies exceeding 80% are not required.

| | | | |
|---|---|---|---|
| 1 | yes | -1 | no |

Herbicide recommendations to limit herbicide use to key problem weeds are given

| | | | |
|---|---|---|---|
| 1 | yes | -1 | no |

A preference for post-emergence herbicides is

| | | | | | |
|---|---|---|---|---|---|
| 3 | required | 0 | recommended | -1 | not mentioned |

2.6.3. Major pests are named and appropriate strategies for their control where pesticide application is the lasr resort are recommended

| | | | |
|---|---|---|---|
| 0 | yes | U | no |

Justification for pesticide application take into consideration value and loss probability over the whole crop rotation

| | | | |
|---|---|---|---|
| 1 | yes | -1 | no |

2.6.4. The guidelines require that fungicides may only be applied in accordance with models/forecasting systems or if proven thresholds are overridden.

| | | | |
|---|---|---|---|
| 0 | yes | U | no |

| | |
|---|---|
| Maximum number of points | 26 |
| Number of points achieved | |
| Number of unacceptable points | |

## 3. WINTER OILSEED RAPE

### 3.1. Rotation

The guidelines require that cruciferous crops (with the exception of nematode reducing cruciferous cover crops) must not be grown more than once in 4 years.

| 0 | yes | U | no |
|---|---|---|---|

### 3.2. Cultivars

The guidelines prohibit the growing of cultivars which are highly susceptible to the most prevalent regional pests and diseases if alternatives are available.

| 0 | yes | U | no |
|---|---|---|---|

Cultivars with resistance to diseases, high branching and compensation capabilities are

| 3 | required | 1 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

### 3.3 Sowing aspects

Recommendations for early sowing dates and appropriate seed rates to avoid too dense canopies are given.

| 1 | yes | -3 | no |
|---|---|---|---|

### 3.4. Nutrient management

Fertilizers must not be applied when soil is at field capacity.

| 0 | yes | U | no |
|---|---|---|---|

The application of Nitrogen fertilizer is recommended to be done on two occasions between early spring and flower-bud stage

| 2 | yes | -2 | no |
|---|---|---|---|

### 3.5. Crop protection

3.5.1. The use of plant growth regulators is prohibited

| 0 | yes | U | no |
|---|---|---|---|

3.5.1. Mechanical weed control between growth stage 19 and early spring is

| 3 | required | 1 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

For the control of grass weeds post-emergence herbicides at early growth stages and according to damage thresholds are

| 3 | required | 1 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

3.5.3. The guidelines require that pesticides are applied only if proven thresholds are overridden.

| 0 | yes | U | no |
|---|---|---|---|

Border strips with early flowering species to attract antagonists and deviate pests are

| 5 | required | 1 | recommended | -1 | not mentioned |
|---|---|---|---|---|---|

3.5.4. It is required that fungicides are applied in accordance with available disease prediction schemes

| 3 | yes | -5 | no |
|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 20 |
| Number of points achieved | |
| Number of unacceptable points | |

**4. SPRING OILSEED RAPE**

**4.1. Rotation**

The guidelines require that cruciferous crops (with the exception of nematode reducing cruciferous cover crops) must not be grown more than once in 4 years.

| 0 | yes | U | no |
|---|---|---|---|

**4.2. Cultivars**

The guidelines prohibit the growing of cultivars which are highly susceptible to the most prevalent regional pests and diseases if alternatives are available.

| 0 | yes | U | no |
|---|---|---|---|

Cultivars with resistance to diseases, high branching and compensation capabilities are

| 3 | required | 1 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

**4.3 Sowing aspects**

Recommendations for early sowing dates and appropriate seed rates to avoid too dense canopies are given.

| 1 | yes | -3 | no |
|---|---|---|---|

**4.4. Nutrient management**

Fertilizers must not be applied when soil is at field capacity.

| 0 | yes | U | no |
|---|---|---|---|

The application of Nitrogen fertilizer is recommended to be done on two occasions between early spring and flower-bud stage

| 2 | yes | -2 | no |
|---|---|---|---|

An appropriate autumn green cover or catch crop prior to the spring cereal crop to minimise nitrate leaching and erosion is required.

| 0 | yes | U | no |
|---|---|---|---|

**4.5. Crop protection**

4.5.1. The use of plant growth regulators is prohibited

| 0 | yes | U | no |
|---|---|---|---|

4.5.1. Mechanical weed control between growth stage 19 and early spring is

| 3 | required | 1 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

For the control of grass weeds post-emergence herbicides at early growth stages and according to damage thresholds are

| 3 | required | 1 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

4.5.3. The guidelines require that pesticides are applied only if proven thresholds are overridden.

| 0 | yes | U | no |
|---|---|---|---|

Border strips with early flowering species to attract antagonists and deviate pests are

| 5 | required | 1 | recommended | -1 | not mentioned |
|---|---|---|---|---|---|

4.5.4. It is required that fungicides are applied in accordance with available disease prediction schemes

| 3 | yes | -5 | no |
|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 20 |
| Number of points achieved | |
| Number of unacceptable points | |

## 5. SUGAR BEET

### 5. 1. Rotation

It is required that sugar beet (or other Chenopodiaceae crops) must not be grown more than once per 4 years or in cases of negative results of nematode analyses once per 3 years.

| 0 | yes | U | no |
|---|---|---|---|

Nematode reducing catch crops are recommended.

| 2 | yes | -2 | no |
|---|---|---|---|

The avoidance of meadows and leys as pre-crop is

| 2 | required | 1 | recommended | -2 | not mentioned |
|---|---|---|---|---|---|

### 5.2.Cultivars

Highly susceptible cultivars and the circumstances under which they must not be grown are specified in the guidelines.

| 0 | yes | U | no |
|---|---|---|---|

The growing of cultivars resistant/tolerant to soilborne diseases or pathogen vectors is recommended.

| 2 | yes | -2 | no |
|---|---|---|---|

### 5.3.Cultivation

Deep ploughing is prohibited (except where leys are pre-crops).

| 0 | yes | U | no |
|---|---|---|---|

In order to minimise erosion in slope areas course seedbeds and mulching are

| 3 | required | 1 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

Shallow ploughing, direct drilling is

| 1 | recommended | -1 | not mentioned |
|---|---|---|---|

The guidelines emphasize that tillage measures and sowing are done when soil moisture is appropriate
.

| 2 | yes | -2 | no |
|---|---|---|---|

### 5.4. Sowing aspects

Optimal regional sowing dates and seed rates are recommended to reduce bolting risks and to warrant high internal quality.

| 2 | yes | -2 | no |
|---|---|---|---|

**5.5. Nutrient management**

In cases of Nitrogen application rates higher than 50 kg/ha N a splitting into two applications (75% near sowing and the remainder before regionally defined growth stage e.g.6 to 8 leaves) is

| 3 | required | 1 | recommended | -3 | not mentioned |
|---|---|---|---|---|---|

A recommendation for selective fertilizer placement (root area) is given.

| 2 | yes | -2 | no |
|---|---|---|---|

**5.6. Crop protection**

5.6.1. The guidelines require the adoption of a periodic threshold (2-8 weeks post-emergence).

| 0 | yes | U | no |
|---|---|---|---|

Pre-sowing and pre-emergence herbicide use on the entire field surface is restricted to broad-leaf herbicides.

| 0 | yes | U | no |
|---|---|---|---|

A restriction of the herbicide use to the crop row area (and a combination with mechanical weed control measures) is

| 5 | required | 1 | recommended | -2 | not mentioned |
|---|---|---|---|---|---|

For herbicide use on the entire field surface reduced dose rates and low volume spraying (100-200 l/ha) is recommended

| 2 | yes | -2 | no |
|---|---|---|---|

5.6.2. The guideline requires that pesticides are applied only if the damage thresholds are overridden.

| 0 | yes | U | no |
|---|---|---|---|

Insecticide applications to control Collembola are prohibited.

| 0 | yes | U | no |
|---|---|---|---|

Nematicide use is prohibited.

| 0 | yes | U | no |
|---|---|---|---|

5.6.3. It is required that fungal leaf diseases and virus vectors may be controlled chemically only if thresholds are overridden or in accordance with the results of prediction of available forecasting models.

| 0 | yes | U | no |
|---|---|---|---|

On soils infested with Rizomania the use of tolerant/resistant cultivars is required.

| 0 | yes | U | no |
|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 26 |
| Number of points achieved | |
| Number of unacceptable points | |

## 6. POTATOES

### 6.1 Rotation

The guidelines require that potatoes must not be grown more than once in 4 years to limit disease and nematode infestations.

| 0 | yes | U | no |
|---|---|---|---|

### 6.2 Cultivars

It is required that in nematode - infested fields cultivars of high resistance to nematode species and their dominating pathotype are grown.

| 0 | yes | U | no |
|---|---|---|---|

Cultivars with resistance to major virus diseases and less susceptible to late blight are

| 5 | required | 1 | recommended | -2 | not mentioned |
|---|---|---|---|---|---|

### 6.3 Nutrient management

The guideline requires a maximum of 75 % of the total Nitrogen supply to be applicated pre-planting*).

| 0 | yes | U | no |
|---|---|---|---|

*) Exception: In subarctic regions the total amount may be applicated prior to planting

Recommendations are given to synchronize fertilizer application with uptake pattern and tuber development.

| 2 | yes | -2 | no |
|---|---|---|---|

**6.4 Crop protection**

6.4.1 The use of persistent, leachable and broad spectrum herbicides is prohibited.

| 0 | yes | U | no |
|---|---|---|---|

The use of pre-emergence herbicides is prohibited.

| 0 | yes | -5 | no |
|---|---|---|---|

The application of mechanical weed control measures is

| 5 | required | 1 | recommended | -2 | not mentioned |
|---|---|---|---|---|---|

The use of post-emergence herbicides is permitted

| 0 | in exceptional circumstances | -2 | generally |
|---|---|---|---|

6.4.2 The use of nematicides is prohibited.

| 0 | yes | U | no |
|---|---|---|---|

The guidelines require that insecticides to control colorado beetle may be used only if damage thresholds are overidden or in accordance with prediction models.

| 0 | yes | U | no |
|---|---|---|---|

For the control of Colorado beetle biological methods (e.g. Bacillus thuringiensis Kurstaki) are

| 3 | required | 1 | recommended | -2 | not mentioned |
|---|---|---|---|---|---|

The use of slug baits is permitted

| 0 | in exceptional cirumstances | U | generally |
|---|---|---|---|

The use of aphicides is restricted to the products with the least side-effects. They may be applied at 50 % dose rates according to the national/regional recommendations for seed - potatoes.

| 1 | yes | -1 | no |
|---|---|---|---|

6.4.3 The application of fungicides to control late blight must be based on forecasting models.

| 0 | yes | U | no |
|---|---|---|---|

For the control of Rhizoctonia solani a fungicidal seed treatment is restricted to infestation levels higher than 20 % of the tubers.

| 2 | yes | -2 | no |
|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 18 |
| Number of points achieved | |
| Number of unacceptable points | |

## 7. MAIZE

### 7.1 Rotation

The guidelines require that maize must not be grown more than once in two years.

| | | | |
|---|---|---|---|
| 0 | yes | U | no |

In humid areas the share of maize in the rotations is limited to a maximum of 33 %.

| | | | |
|---|---|---|---|
| 3 | yes | -3 | no |

### 7.2 Cultivars

In areas with frit fly occurrence cultivars with rapid seedling emergence are recommended.

| | | | |
|---|---|---|---|
| 1 | yes | -1 | no |

In areas prone to black rust cultivars tolerant to the disease are recommended.

| | | | |
|---|---|---|---|
| 1 | yes | -1 | no |

### 7.3 Cultivation

In slope areas deep ploughing is prohibited

| | | | |
|---|---|---|---|
| 0 | yes | U | no |

The guideline stresses the preference of no-tillage or reduced tillage-systems.

| | | | |
|---|---|---|---|
| 2 | yes | -2 | no |

### 7.4 Sowing aspects

The guideline requires a well established soil cover during winter before the maize crop.

| | | | |
|---|---|---|---|
| 0 | yes | U | no |

**7.5 Intercropping**

For regions with sufficient precipitation the guidelines recommend intercropping with crops like grass or clover-grass or tolerates non-competitive weeds.

| 2 | yes | -2 | no |
|---|---|---|---|

**7.6 Nutrient management**

The guidelines require liquid manure to be applied with injection or spray hoses in times of high nitrogen uptake (6 leaf stage).

| 0 | yes | U | no |
|---|---|---|---|

Split application of Nitrogen fertilizer (first application of mineral Nitrogen during 4 leaf stage, second at 8 leaf stage) is

| 3 | required | 1 | recommended | -2 | not mentioned |
|---|---|---|---|---|---|

**7.7 Crop protection**

7.7.1 The use of persistent, leachable and broad spectrum herbicides is prohibited.

| 0 | yes | U | no |
|---|---|---|---|

The use of pre-emergence herbicides on the entire field surface is prohibited.

| 0 | yes | U | no |
|---|---|---|---|

A periodical threshold from 2nd to 10th leaf stage 5 is recommended.

| 1 | yes | -1 | no |
|---|---|---|---|

The guidelines recommend row application at reduced dosage rates.

| 1 | yes | -1 | no |
|---|---|---|---|

Mechanical weed control is

| 5 | required | 1 | recommended | -2 | not mentioned |
|---|---|---|---|---|---|

7.7.2 For direct corn borer control only biological agents, such as Trichogramma or Bacillus thuringiensis, or biochemical methods (confusion technique if availabe) or insecticides without detrimental effects on beneficials are required only if threshold values are overidden.

| 0 | yes | U | no |
|---|---|---|---|

It is strongly recommended that in areas with severe corn borer infestations crop residues are minutely chopped and ploughed under before pupae formation

| 1 | yes | -1 | no |
|---|---|---|---|

The chemical control of maize pests other than corn borer is restricted to exceptional circumstances (that clearly have to be defined) when thresholds are overidden.

| 1 | yes | -1 | no |
|---|---|---|---|

The growing of strips with flowering species around maize fields to attract beneficial organisms is

| 5 | required | 1 | recommended | -2 | not mentioned |
|---|---|---|---|---|---|

7.7.3 The use of fungicides is prohibited except for seed dressing

| 0 | yes | U | no |
|---|---|---|---|

| Maximum number of points | 26 |
|---|---|
| Number of points achieved | |
| Number of unacceptable points | |

## 8. DRY PEAS

### 8.1 Rotation

The guidelines require a minimum interval of 6 years between two successive pea crops and a minimum interval of 2 years between two different legume crops

| 0 | yes | U | no |
|---|---|---|---|

### 8.2 Cultivars

Leafless cultivars are recommended.

| 2 | yes | -2 | no |
|---|---|---|---|

### 8.3 Sowing aspects

Recommendations are stated for the earliest sowing date possible in a region and for seed rates of 80 to 100 seeds / $m^2$.

| 2 | yes | -2 | no |
|---|---|---|---|

**8.4 Nutrient management**

The application of Nitrogen fertilizers is prohibited*)

[ 0 ] yes [ U ] no

*) In sub-arctic regions the Nitrogen application rate is limited to a maximum of one quarter of the total Nitrogen uptake of the crop.

[ 0 ] yes [ U ] no

**8.5 Crop protection**

8.5.1 The use of growth regulators is prohibited.

[ 0 ] yes [ U ] no

8.5.2 The guidelines require the avoidance of damage in the following crop if a post-emergence herbicide is applied.

[ 0 ] yes [ U ] no

A preference for the use of post-emergece herbicides is stated.

[ 1 ] yes [ -1 ] no

Mechanical weed control measures until the occurence of tendrils are

[ 5 ] required [ 1 ] recommended [ -2 ] not mentioned

8.5.3 The guidelines require that pest control with selective pesticides is permitted only if thresholds are overidden

[ 0 ] yes [ U ] no

The use of slug baits is permitted

[ 0 ] only in exeptional circumstances [ U ] generally

8.5.4 The application of fungicides is

[ 3 ] prohibited [ 1 ] permitted only for seed dressing [ -2 ] not mentioned

| | |
|---|---|
| Maximum number of points | 13 |
| Number of points achieved | |
| Number of unacceptable points | |

## 9. FABA BEANS

### 9.1 Rotation

The guidelines require a minimum interval of 3 years between two successive Faba bean crops and a minimum interval of two years between two different legume crops.

| 0 | yes | U | no |
|---|---|---|---|

### 9.2 Sowing aspects

Recommendations are stated for the earliest sowing date possible in a region for summer cultivars.

| 2 | yes | -2 | no |
|---|---|---|---|

### 9.3 Nutrient management

The application of Nitrogen fertilizers is prohibited*)

| 0 | yes | U | no |
|---|---|---|---|

*) In sub-arctic regions the Nitrogen application rate is limited to a maximum of one quarter of the total Nitrogen uptake of the crop.

| 0 | yes | U | no |
|---|---|---|---|

### 9.4 Crop protection

9.4.1 The use of growth regulators is prohibited.

| 0 | yes | U | no |
|---|---|---|---|

9.4.2 The guidelines require the avoidance of damage in the following crop if a post-emergence herbicide is applied.

| 0 | yes | U | no |
|---|---|---|---|

A preference for the use of post-emergece herbicides is stated.

| 1 | yes | -1 | no |
|---|---|---|---|

Mechanical weed control measures are

| 5 | required | 1 | recommended | -2 | not mentioned |
|---|---|---|---|---|---|

9.4.3 It is recommended that aphid control is permitted only exceptionally with selective aphicides and has to be based on forecasting models.

| 2 | yes | -2 | no |
|---|---|---|---|

9.4.4 The application of fungicides is

| 3 | prohibited | 1 | permitted only for seed dressing | -2 | not mentioned |
|---|---|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 13 |
| Number of points achieved | |
| Number of unacceptable points | |

## 10. SOYBEANS

### 10.1 Rotation

The guidelines require a minimum interval of 3 years between two successive soybean crops and a minimum interval of 2 years between legume crops.

[ 0 ] yes [ U ] no

### 10.2 Cultivars and sowing aspects

In heavy soils prone to fungal diseases the guidelines recommend resistant cultivars and late sowing dates.

[ 2 ] yes [ -2 ] no

### 10.3 Cultivars

The guidelines recommend reduced- or non-tillage systems.

[ 2 ] yes [ -2 ] no

### 10.4 Nutrient management

Nitrogen fertilization is prohibited

[ 0 ] yes [ U ] no

### 10.5 Crop protection

10.5.1 The use of growth regulators is prohibited

[ 0 ] yes [ U ] no

10.5.2 For the application of post-emergence herbicides the guidelines recommend reduced dosages and row application.

[ 0 ] yes [ U ] no

Mechanical weed control measures are

[ 5 ] required [ 1 ] recommended [ -2 ] not mentioned

10.5.3 The use of insecticides is prohibited

[ 0 ] yes [ U ] no

10.5.4 The use of fungicides is prohibited except for seed dressing

| 0 | yes | U | no |
|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 9 |
| Number of points achieved | |
| Number of unacceptable points | |

## 11. SORGHUM (grain and fodder)

### 11.1 Rotation

The guidelines require a maximum sorghum share of 50 % in the rotation

| 0 | yes | U | no |
|---|---|---|---|

With the exception of sandy soils it is required that sorghum must not follow a sorghum crop.

| 0 | yes | U | no |
|---|---|---|---|

### 11.2 Cultivars and cultivation

It is recommended not to grow late varieties on heavy soils to avoid damage in soil structure.

| 1 | yes | -1 | no |
|---|---|---|---|

Recommendations are given to apply reduced tillage methods in areas prone to erosion.

| 1 | yes | -1 | no |
|---|---|---|---|

### 11.3 Sowing aspects

The guidelines require appropriate sowing periods and seed rates to optimize emergence and weed suppression.

| 0 | yes | U | no |
|---|---|---|---|

### 11.4 Nutrient management

The guidelines require that liquid manure has to be applied before shooting at peak nitrogen uptake.

| 0 | yes | U | no |
|---|---|---|---|

### 11.5 Crop protection

11.5.1 Recommendations to apply reduced dosage rates of post-emergence herbicides are given

.

| 1 | yes | -1 | no |
|---|---|---|---|

11.5.2 Insecticide applications are prohibited with the exception of at maximum 1 aphicide application per season.

| 0 | yes | U | no |
|---|---|---|---|

11.5.3 The use of fungicides is prohibited except for seed dressing.

| 0 | yes | U | no |
|---|---|---|---|

### 11.6 Irrigation

The guidelines specify the maximum volume of water to be irrigated.

| 0 | yes | U | no |
|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 3 |
| Number of points achieved | |
| Number of unacceptable points | |

## 12. SUNFLOWER

### 12.1 Rotation

The guidelines require that sunflowers are grown not more than once in 4 years.

| 0 | yes | U | no |
|---|---|---|---|

It is recommended that sunflowers are grown once in 5 years.

| 1 | yes | -1 | no |
|---|---|---|---|

### 12.2 Cultivars

Recommendations are given to avoid late ripening cultivars on heavy soils to protect soil structure.

| | | | |
|---|---|---|---|
| 1 | yes | -1 | no |

A preference is stated for cultivars resistant to stem breaking and fungal diseases.

| | | | |
|---|---|---|---|
| 1 | yes | -1 | no |

### 12.3 Cultivation

In areas prone to erosion reduced tillage intensity is

| | | | | | |
|---|---|---|---|---|---|
| 3 | required | 1 | recommended | -2 | not mentioned |

### 12.4 Sowing aspects

The guidelines specifiy regional sowing periods and seed rates to optimise emergence and weed control.

| | | | |
|---|---|---|---|
| 0 | yes | U | no |

Recommendations for row distances of at least 75 cm to facilitate mechanical weed control are given.

| | | | |
|---|---|---|---|
| 1 | yes | -1 | no |

### 12.5 Nutrient management

The guidelines require liquid manure to be applied at time of maximum nitrogen uptake before the 4 leaf stage.

| | | | |
|---|---|---|---|
| 0 | yes | U | no |

The localised input of Nitrogen during growing season is recommended.

| | | | |
|---|---|---|---|
| 1 | yes | -1 | no |

### 12.6 Crop protection

12.6.1 It is recommended that post-emergence herbicides are applied with reduced dose rates and as row application (if row distances are > 75 cm) and in combination with mechanical weed control measures.

| | | | |
|---|---|---|---|
| 0 | yes | -3 | no |

12.6.2 The use of insecticides is prohibited

| | | | |
|---|---|---|---|
| 0 | yes | U | no |

12.6.3 The guidelines require that in dry areas fungicides may only be used for seed dressing.

| 0 | yes | U | no |
|---|---|---|---|

### 12.7 Irrigation

The maximum water volume to be irrigated is defined in the guideline on a regional basis.

| 0 | yes | U | no |
|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 8 |
| Number of points achieved | |
| Number of unacceptable points | |

## 13. ALFALA

### 13.1 Rotation

The guidelines require that alfalfa must not be followed by a legume crop

| 0 | yes | U | no |
|---|---|---|---|

The guidelines require that the following crop must have high Nitrogen requirements.

| 0 | yes | U | no |
|---|---|---|---|

### 13.2 Cultivation

The guideline has specified periods when alfalfa breaking must be done to minimise leaching of Nitrogen.

| 0 | yes | U | no |
|---|---|---|---|

### 13.3 Sowing aspects

The guideline requires regional sowing periods and seed rates to warrant an optimal establishment of the alfalfa crop.

| 0 | yes | U | no |
|---|---|---|---|

### 13.4 Nutrient management

Recommendations to apply solid manure before and liquid manure after the establishment of the crop according to its nutrient content are given.

| 2 | yes | -2 | no |
|---|---|---|---|

### 13.5 Crop protection

13.5.1 The guidelines prohibit the use of herbicides except for seed-bed cleaning and Rumex control.

| 0 | yes | U | no |
|---|---|---|---|

13.5.2 The use of insecticides is prohibited.*)

| 0 | yes | U | no |
|---|---|---|---|

*) Regional guidelines may specify well defined exceptions.

13.5.3 The use of fungicides is prohibited.

| 0 | yes | U | no |
|---|---|---|---|

### 13.6 Irrigation

The guidelines require maximum water volumes to be irrigated as well as irrigation periods on a regional level to optimize quality and life-span of the crop.

| 0 | yes | U | no |
|---|---|---|---|

### 13.7 Miscellaneous

Recommendations not to crop the crop on soils with drainage problems are given.

| 1 | yes | -1 | no |
|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 3 |
| Number of points achieved | |
| Number of unacceptable points | |

## 14. FODDER CROPS (legumes, grass, leys)

### 14.1 Rotation

The guidelines require that leys are not followed by a legume crop.

| 0 | yes | | U | no |
|---|---|---|---|---|

### 14.2 Cultivars and crop species

A mixture of grass and perennial legumes to reduce the need for Nitrogen input is

| 5 | required | 1 | recommended | -2 | not mentioned |
|---|---|---|---|---|---|

### 14.3 Cultivation and sward management

The guidelines define periods with low leaching risks in which ley breaking has to be done.

| 0 | yes | | U | no |
|---|---|---|---|---|

Recommendations concerning cutting intensity are given to maintain stable plant communities, high fodder quality and to reduce necessity for concentrate input.

| 2 | yes | | -2 | no |
|---|---|---|---|---|

### 14.4 Sowing aspects

Optimal sowing times are recommended to minimise herbicide input and leaching.

| 2 | yes | | -2 | no |
|---|---|---|---|---|

### 14.5 Nutrient management

The guidelines recommend the application of solid manure before and of liquid manure after the establishment of the crop.

| 2 | yes | | -2 | no |
|---|---|---|---|---|

### 14.6 Crop protection

14.6.1 The use of herbicides is prohibited.*)

| 0 | yes | | U | no |
|---|---|---|---|---|

*) Exceptions have to be well defined on a regional level.

4.6.2 The use of insecticides is prohibited.

| 0 | yes | | U | no |
|---|---|---|---|---|

14.6.3 The use of fungicides is prohibited.

| 0 | yes | | U | no |
|---|---|---|---|---|

| | |
|---|---|
| Maximum number of points | 11 |
| Number of points achieved | |
| Number of unacceptable points | |

**Summary of scores of individual chapters**

| | Maximum points | Points achieved | Unaccep-table | Comments made (x) |
|---|---|---|---|---|
| I. OBJECTIVES | 21 | | | |
| II. REQUIREMENTS<br>1. Commitment of the farmer | 0 | | | |
| 2. General requirements arable crops | 32 | | | |
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| 2. Spring cereals | 26 | | | |
| 3. Winter oilseed rape | 20 | | | |
| 4. Spring oilseed rape | 20 | | | |
| 5. Sugar beet | 26 | | | |
| 6. Patatoes | 18 | | | |
| 7. Maize | 26 | | | |
| 8. Dry peas | 13 | | | |
| 9. Faba beans | 13 | | | |
| 10. Soybeans | 9 | | | |
| 11. Sorghum | 3 | | | |
| 12. Sunflower | 8 | | | |
| 13. Alfalfa | 3 | | | |
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| | | | | |