

**Study of the effect of selected EU  
environmental legislation on agriculture  
*The Netherlands***



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Utrecht, April 2003

CLM 565-2003

**The study was carried out for the department for the Department Environment, Food and Rural Affairs (DEFRA) and aims to explore the implementation of certain environmental regulations in the Netherlands. Similar studies were carried out in France, Germany, Ireland and Denmark. The areas covered are regulations concerning the handling, use and disposal of the livestock manures and slurry. Second, those concerning the disposal of chemicals such as sheep dip or pesticide washings.**

**Nitrate Directive / enforcement / MINAS / manure transfer contracts / manure application rules / pesticide washings**

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# 1 Introduction

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This national report on the Netherlands is part of a study of the effect of selected EU environmental legislation on agriculture in a number of EU member states.

## 1.1 Background

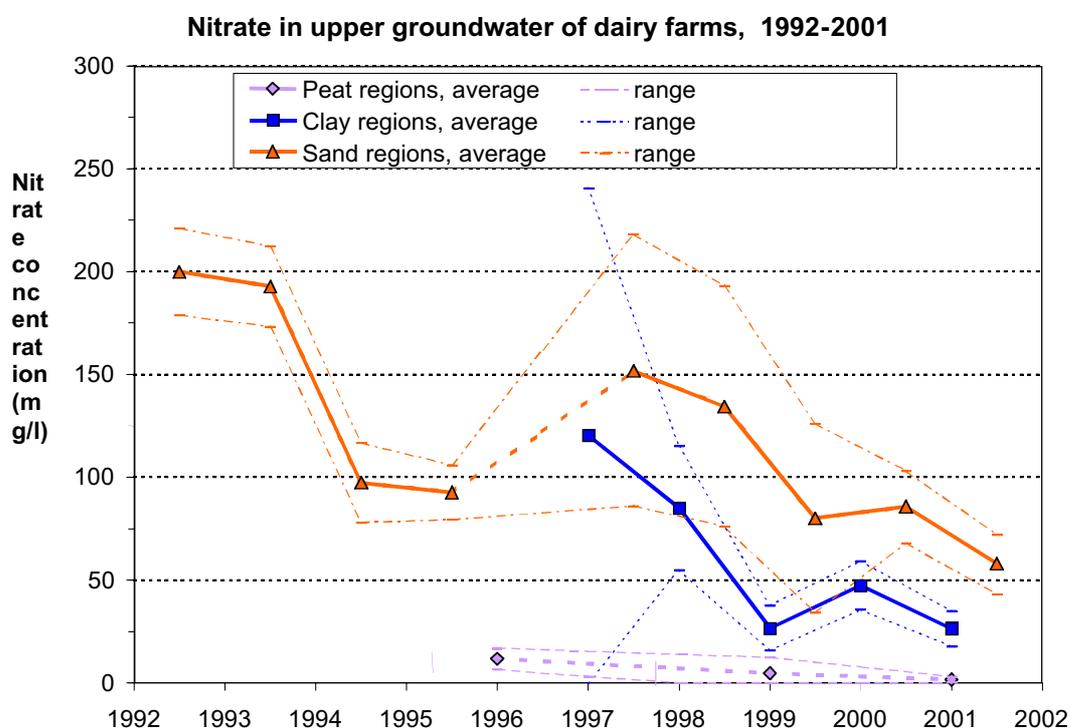
The Netherlands is the most intensively farmed country in the European Union, with high livestock densities (see annex 1) and relatively high figures for mineral and pesticide use. The environmental problems related to it are surface water and ground water pollution with minerals and pesticides, phosphate saturation of soils and ammonia emissions.

### **Share of animal husbandry categories in Nitrogen production in The Netherlands (2001)**

<b>total</b>	<b>100 %</b>
Cattle	61 %
Sheep and goats	3 %
Pigs	23 %
Poultry	11 %

The Netherlands has three different main soil types (sandy, clay and peat) with corresponding land-uses. Regions with intensive animal husbandry (pigs, poultry and veal) have huge excesses of animal manure. These production areas are often located on sandy soils that are relatively vulnerable for groundwater pollution (see figure on nitrate concentrations).

**Figure: Nitrate concentrations (average values and ranges in upper groundwater [sand, peat] or tile drain water [clay]).**



FigCL01v10.xls / FigNO3-rv

Source: National Monitoring Programme for effectiveness of the Minerals Policy (LMM).

In regions with bulb cultures on sandy soils pesticide use create risks for surface waters. In regions with clay soils pesticide use in bulb cultures, arable farming or (on the heavy clay soils) creates less risks for the environment. Dairy farming is one of the main sectors causing ammonia emissions and is spread over the country on peat soils, sandy soils and clay soils. Sheep farming is not a serious activity in the Netherlands. Around 80% of sheep are kept at hobby farms and fattening takes place at arable farms as well. There are low risks for the environment related to sheep farming in The Netherlands.

## 1.2 Objectives of the study

Specific objectives of the study are:

1. To provide a summary, for each Member State, of:

- the controls that apply to the handling of manure and slurry and the disposal of used sheep dip or other chemical wastes such as pesticide washings,
- information on how these controls are enforced;
- how non-compliance is dealt with, including whether financial penalties or fines are imposed;

- whether the controls are required by European or purely by national/regional legislation and if the latter, if this has been introduced to implement specific EU Directives.
2. To determine whether controls that result from European legislation have been supplemented by additional controls within the Member State and, if so, why;
  3. To provide information on whether a universal or targeted approach to implementation of the relevant legislation has been followed and state the reasoning for this;
  4. To give examples of an integrated approach to implementation of relevant legislation, affecting agriculture where it exists.
  5. To establish whether any attempts have been made in the Member State to integrate environmental regulations with other policy objectives, for example, farm Animal Health and Welfare or Health and Safety.
  6. To provide information on other non-regulatory governmental strategies employed to minimise the impact of agricultural practices that are harmful to the environment, for example, the use of voluntary codes, incentive and investment aid schemes, taxation, and comment on the balance between regulation and these other approaches.



# 2 Regulations and controls

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This chapter is looking at controls applying to handling of manure and slurry, sheep dip and pesticide washings.

## 2.1 Controls on handling of manure and slurry

In this paragraph we present the main elements of Dutch minerals policy based on three pillars: Manure transfer contracts to limit manure production at the level of 170kg Nitrogen/ha, Minerals accounting system (Minas) to regulate sensible use of manure and chemical fertilisers, and a third pillar of ancillary policy (reconstruction, regulation to buy up manure production rights, regulation termination animal husbandry and law restructuring pig farming).

### 2.1.1 Measures

Below, we list the most important components of Dutch Minerals policy:

- Severe restrictions to prevent the further expansion of the livestock population.
- A compulsory generic reduction of the pig population by 10%.
- Buying up and creaming off schemes for manure production rights to reduce manure production.
- Implementation of a Minerals accounting system, Minas. From 2001, all farms must submit a minerals return stating their annual mineral losses. Minas promotes measurement of real mineral losses as opposed to calculated estimates.
- Obligatory manure transfer contracts for farmers who produce too much livestock manure. Farmers who are unable to dispose of their manure safely will have to reduce their livestock numbers. Farmers are not obliged to have storage capacity for a certain number of slurry. But intermediaries and arable farmers who do store manure have to register their storage capacity and are bound to minimum volumes (250 cubic meters for slurry and 125 square meters for manure).
- Strict manure application rules including:
  - a ban on applying animal manure and artificial chemical fertiliser on land from 1 September to 1 February and on frozen soil and steep slopes (> 7%).
  - Compulsory use of injection method for applying animal manure in order to minimise ammonia emissions.
  - Compulsory covering of manure silos and storage tanks.
- Stricter requirements for ammonia emission from intensive livestock housing. Applications for environmental permits for existing or new farms are assessed largely on the existence of ammonia reducing measures.
- Strict requirements for the quality of household compost, sewage sludge and other organic fertilisers to minimize contamination of the soil with heavy metals.
- Incentives and extension programmes to stimulate good agricultural practice. There are several successful projects.

There is no specific regulation in relation to spreading close to water sources.

### **2.1.2 The Minerals accounting system (Minas)**

In 1998 the Dutch government introduced an input/output accounting system to reduce the country's manure surplus. This system is called the Minerals accounting system, or Minas. Participation in Minas has been compulsory for all farmers since 2001. Minas will have consequences for farm management. Restrictively high levies stimulate farmers to take a pro-active attitude towards reducing their minerals surpluses. Under Minas, farmers must keep an accurate record of mineral inputs and outputs on their farm. A minerals return, stating real phosphate and nitrogen surpluses, must be submitted annually. A fine will be raised if the surplus is too high or if the Minas bookkeeping is not sent back to the Agricultural Levies Office.

Minas effectively redresses some of the shortcomings of earlier mineral policy (based on forfaitaire utilisation standards) by stimulating good mineral management, a completely new approach of the manure policy:

- Policy is no longer focused on phosphate alone; but explicitly includes nitrogen.
- Policy addresses mineral surpluses as the true problem, and measures therefore apply to animal manure, chemical fertilisers and other organic fertilisers, such as compost, alike.
- The focus of policy has shifted from specifying measures to setting targets, in this case reducing the minerals surplus. Farmers are free to decide which measures to use to reach this target, provided certain criteria are complied with of course. For example, there are rules establishing when and how animal manure may be applied on land.

The system allows for high mineral input on a farm on the condition that also the mineral output is high. The system encourages farmers' innovation in reducing mineral loss, e.g. through reduction of minerals in fodder and concentrate.

#### **The Minas principle**

Nitrogen and phosphate are components of nearly all farm products (manure, feed, crops, milk, meat and so on). Under Minas, a farmer records exactly how much nitrogen and phosphate enter his farm (are inputted) and how much leaves the farm (are outputted). The difference between mineral inputs and outputs is the farm's mineral loss, or surplus, which leaches to the environment. Each year, a farmer must complete a minerals return stating his minerals surplus.

A certain quantity of minerals is always lost when manure is applied on land or when livestock is fed. The loss standards in Minas take into account these inevitable losses. Loss standards are expressed as kilograms of nitrogen and phosphate per hectare. If a farm's mineral surplus is higher than the loss standard, the farmer will be charged a prohibitive levy over the difference. It is more economical for a farmer to take measures to reduce the mineral surplus than to pay the levies each year. In this way, Minas stimulates farmers to reduce their mineral surpluses. Loss standards are being tightened down to their final level in 2004 to comply with the norm of 50mg Nitrate in groundwater regardless of soil type.

Minas is not just a returns system. It can also be used as an aid by farmers in fine-tuning their minerals management, using those methods which best suit their own style of farm management and specific farm conditions.

#### **Input and output categories**

Farmers must report on all of the input and output categories on their annual minerals return form. Input and output categories refer to all inputs at the farmgate.

Minas disregards the mineral flows within the farm system, such as the application of animal manure on land for fodder crops which are later fed to one's own herd. The purpose of Minas is to obtain an accurate record of phosphate and nitrogen inputs and outputs on each farm. In the case of chemical fertiliser, other organic fertiliser and concentrates, data on the actual minerals content per unit of product is provided by suppliers. In the case of livestock manure, samples are analysed by an authorised laboratory to determine actual minerals content. This is a labour-intensive task as each shipment of manure must be weighed, sampled and analysed. The mineral amounts for inputs and outputs of animals and animal products are based on given standards per animal or product unit. The minerals content of vegetable products (roughage) and crop yields (other crops) are also calculated on the basis of given standards per hectare.

### **2.1.3 Manure transfer contracts**

Since 1 January 2002 farmers who produce too much livestock manure have to dispose of their surpluses by entering into contracts with arable farmers or manure processors. Farmers who are unable to dispose of their manure will have to reduce their livestock numbers.

Before entering into a manure contract, a farmer must calculate how much nitrogen is produced per animal. This calculation is based on the number of animals and a statutory fixed rate of nitrogen production per animal species. These statutory rates are laid down in the regulation which came into force on 1 January 2002. The farmer must work out how much manure can be deposited on his own land and how much he has to sell to third parties. Some of the surplus manure might be applied on a neighbouring arable farmer's land; but contracts may also be signed with authorized manure processing plants.

The following example clearly illustrates the manure transfer contracts system. In 2003 a farmer keeps 2000 pork pigs on a yearly average. The standard manure production per pork pig is 7.9 kg N. This means that the farm as a whole produces 15,800 kg N per year. The pig farmer has 10 hectares of land under maize, on which he may deposit 1700 kg N (10x170 kg N per hectare). The remaining 14,100 kg nitrogen will have to be disposed of elsewhere, for example on an arable farm with a manure shortage. The arable farmer, too, may only use 170 kg N per hectare. He therefore needs 82.9 ha of arable land.

#### **Efficient distribution of manure**

The system of manure transfer contracts will realise a more efficient distribution of manure in the Netherlands. Livestock farms with little to no land - usually pig and poultry farms or intensive dairy farms - sell their manure to farmers who produce little to no manure (arable farms or extensive dairy farms). At a national level, the system effectively ties livestock production to the land.

The system will ultimately create a balance in the supply and demand of manure, which will reduce fraudulent minerals accounting by livestock farmers desperate to get rid of manure.

#### **Registration of plots**

To monitor compliance with the new system the Levies Office has established a central registration bureau, which also records information on land. Farmers have to send data regarding their plots to this bureau every year. Only registered plots can be used in manure disposal contracts. The land registry will also aid the enforcement of nitrogen and phosphate surplus reductions on farms.

#### **2.1.4 Preventing Ammonia emissions**

Ammonia emissions from manure are harmful for the environment, as they cause acidification and eutrophication. The primary aim of ammonia policy is to reduce ammonia emissions during the application of manure on land and emissions from manure storage tanks. Stricter requirements with respect to ammonia emissions and livestock housing for intensive production are also being drawn up and will probably come into effect in 2002. Until then, the building of low-emission housing is stimulated with incentives. In the Netherlands, local authorities are responsible for drawing up zoning plans establishing where livestock housing is allowed. By extension, these local authorities also set the environmental criteria that livestock housing in their municipality must meet.

##### **Two-track policy**

The objectives of Dutch ammonia policy are pursued along two tracks. There are general rules on manure storage and on allowed methods and periods for manure application, which aim to reduce the average ammonia concentration in the air. And there are rules addressing specific farm situations. The latter ensure that the best measures are taken in view of local circumstances. For example, when assessing environmental permit applications, local authorities must consider the desirability that a farm exists or is expanded at a particular location.

##### **Reducing emissions during manure application**

Farmers may not spread livestock manure on top of the soil, because this method is linked to unacceptably high emission levels. The Decree on the Use of Livestock Manure prescribes application methods that minimise emissions. On grassland, farmers must inject manure into the ground. On arable land, farmers must inject manure into the ground or plough it in right away.

##### **Reducing emissions from manure storage**

Livestock manure may only be applied on land during a relatively brief period, roughly in spring and summer. Farmers must have sufficient storage capacity to store manure during the rest of the year. Storing manure next to livestock housing, rather than under it, goes hand in hand with higher ammonia emissions. Outdoor storage is therefore only allowed if the manure stores concerned are covered.

##### **Reducing ammonia from housing**

The development of low-emission housing has been encouraged in recent years with the introduction of the quality mark. The government plans to make low-emission housing compulsory in the course of 2002. In addition there will be tax incentives to encourage the use of even cleaner animal-friendly housing. Requirements for ammonia emission apply per animal housed based on the ALARA principle (As Low As Reasonably Achievable) which balances economic costs and environmental interests. In 2008 low-emission housing will be compulsory for all pig and poultry holdings. Stricter requirements are being drawn up for holdings near sensitive nature areas.

## 2.2 Controls on sheep dip

*What controls apply to sheep dip?*

### **Sheep dip**

Sheep dip is not commonly used in The Netherlands. The most common treatment against especially Miasis is precautionary vaccination or atomization. More common, but not regularly used are footbaths against footrot. The water with chemicals that need to be disposed of is not allowed to be drained into surface water. Mostly it will be drained into the slurry pit.

80% of Dutch farms with sheep are registered as hobby farms or as farms with another main activity and are exempted from environmental regulations (e.g. concerning sheep dip disposal). These farms are not supposed to use sheep dip. Farms with sheep as a serious activity are obliged to have an environmental permit for disposal of rinse water and wastewater.

The hygiene rules for transport of sheep include the obligatory washing of the truck after delivery of sheep at a determined washing spot, which avoids drainage in to surface water.

## 2.3 Controls on pesticide washings

*What controls apply to pesticide washing? A mix of pesticide residues and water, which result from cleaning pesticide sprayers and other related machinery also need to be disposed of safely and should be considered here.*

### **Controls on pesticide washings**

Pesticide washings are just one way that pesticides accidentally discharge into the surface water system. Targets therefore are related to a minimum concentration of specific pesticide related chemicals in the surface water system in the short term (MTR-values, Maximum Permitted Risk Values) and attempted concentrations in the long term (2010). In the '4th Note on Water Management' (4e nota water-huishouding, 1998) water management for the period 1998-2006 is regulated within the relevant legal framework (see legal basis for controls below) and it gives all the relevant MTR-values and attempted concentrations. It has been observed that the short term concentrations (MTR-values) of pesticides in the surface water system are hardly reached, the attempted concentrations are not even in sight yet. The 4th Note on Water management states that priority should be given to those water bodies where proper water quality in the short term is important. Each province has a Regional Water Management Plan in which the province states its priorities on dealing with discharge of pesticides in. Priority will be given to those chemicals with mostly higher concentrations than the MTR-values in the surface water system. These Regional Water Management Plans take the effects on downstream situated areas into account. The Regional Water Boards within the provinces will incorporate the guidelines from the Regional Water Management Plan in their implementation strategy.

Since discharge of pesticide wastes is diffuse and therefore hard to localise, controls are related to execution of pesticide washings on individual farms, rather than to concentrations of the relevant chemicals in the surface water system.

The main target of the government and the agricultural sector is to reduce use of pesticides with 90 % (MJP-Gewasbescherming, 1993).

## 2.4 Legal basis for controls

*Are the controls identified required by EU or national legislation? State which legislation is involved. Does national legislation relate to EU Directives and if so which ones and how? Is manure/slurry classified as a waste under the EU Waste framework Directive?*

### **Manure a waste?**

Manure/slurry is not classified as a waste but as a useful resource for agricultural production. The Waste Framework Directive has no implications for agriculture in The Netherlands. Because in Germany manures and slurry are classified as waste, exports to Germany has constrained by the Waste Framework Directive. There has been some debate on putting pig and poultry manure in the Waste Framework Directive.

### **European Nitrate Directive**

Dutch environmental policy related to minerals has been strongly influenced by the European Nitrates Directive since 1991.

The European Union has recently introduced legislation to restrict ammonia emission and other forms of eutrophication, the so-called NEC Directive.

The Netherlands is also party to various binding international environmental agreements, such as the 1985 North Sea treaty laying down a 50% reduction in nitrogen and phosphate leaching to the North Sea.

### **Dutch legislation on pesticide washings**

Adequate care for the environment is a legal obligation for anyone, considering the Law on Environment Management (1979). Negative environmental effects of any activity need to be minimised if not prevented for. More specific the Law on Surface Water Pollution (1969) forbids discharge of any waste product, polluting product or other harmful product for the environment on into the surface water, including pesticides. In this perspective the Law on Pesticides (1962) states that accuracy with pesticides is required any time to prevent for harmful circumstances for or damage on humans, animals, plants, soil and water. The Law on Pesticides states that the elimination of pesticide wastes, such pesticide washings, is regulated in additional legislation ('AMVB, Algemene Maatregel Van Bestuur'). This was merely clarified in The Decision on Pesticides (1964), which forbids discharge of pesticide wastes on surface waters or into the soil of a 'groundwater protected area' (groundwater abstraction for production of drinking water). Exceptions on this last restriction were made for wastes of permitted pesticides in these specific areas and for pesticide washings of related machinery, as long as they were sprayed onto agricultural production grounds. In addition the Decision for Crop Farming Environment Management (1994), the Decision for Dairy Farming Environment Management (1991) and the Decision on Glasshouse Culture (2002) forbid unpurified pesticide washings to be discharged into the sewerage.

Only recently more detailed legislation on cleaning activities of pesticide sprayers and other related machinery has been formulated for field production of vegetables and other crops and cattle farming in the Decision on Discharge Field Production and Cattle Farming (2000, 'Lozingenbesluit Open Teelt en Veehouderij).

Cleaning activities of pesticide sprayers and other related machinery on a paved surface must be performed at a minimum distance of 40 metres from the sewerage. Resulting pesticide washings must be stored separately from other waste waters. Cleaning activities on unpaved surfaces (agricultural production field) must be at least 5 metres away from the incline of a water bearing ditch. Infiltration of the pesticide washings into the soil of the agricultural production field under these circumstances is allowed. This can be performed when a 'clean-water-tank' is installed on the pesticide sprayer.

Discharge or mixing of stored pesticide washings resulting from cleaning activities on paved surfaces with other waste waters is only then permitted when adequate analysis of quality has been applied. The regional water quality manager can add additional demands on the execution of the analysis of quality. If permission is refused the pesticide washings must be removed separately. In practice the stored pesticide washings need to be purified. Discharging this purified water on the surface water system requires a permit from the regional water board. Discharge of the purified water into the sewerage needs a permit from the local government.

#### **National emission ceiling for ammonia**

The Dutch emission ceiling for ammonia is 128 kilotonnes a year, to be achieved in 2010.

## **2.5 Permit for new livestock farms**

*Is a permit required to start a new livestock farm?*

#### **Environmental licences**

In the Netherlands, a farmer keeping livestock must apply for an environmental licence from the municipality where the farm is established. Licences are granted on condition that the farm satisfies all environmental criteria set by the local authorities, including criteria about ammonia emissions. These criteria are related to ammonia emissions (national legislation), physical planning rules, noise pollution, stench pollution and fire safety. The environmental licences are given for a period of five to ten years.

## **2.6 Coverage of regulations**

*Do the regulations apply to all farms or do they vary according to farm size, number of livestock, type of farm, location or other variables?*

#### **Phased implementation of Minas**

Compulsory minerals accounting has been introduced in phases. Minas first became compulsory in 1998 for farms with the highest environmental risk: intensive livestock farmers with more than 2.5 livestock units. In practice, this encompassed nearly all Dutch pig and poultry producers and the more intensive cattle holdings. In 2001, Minas became compulsory for all Dutch farmers: arable farmers, flower bulb growers, field vegetable growers and glasshouse growers.

Each year, all farmers should submit a minerals return to the Levies Office of the Ministry of Agriculture, Nature Management and Fisheries on the basis of their own registration of mineral inputs and outputs. The return should be accompanied by documentation recording the inputs and outputs, such as receipts for shipments of

livestock manure and laboratory reports stating the mineral contents found in samples of these shipments.

### Loss standards

The loss standards, that is, the allowable surplus of phosphate and nitrogen, are lowered each year (table 1) until the objectives laid down by the EU Nitrate Directive, including the limit of 50 mg nitrate per liter of groundwater, are met.

**Table 1 Loss standards for phosphate and nitrogen, in kg per ha per year**

Year	Phosphate loss standard		Nitrogen loss standard			
	arable land	grassland	arable land	arable land	grassland	grassland
			clay/peat/rest	dry sand	clay/peat/rest	dry sand
2002	30	25	150	100	220	190
2003	25	20	100	80	180	160
2004>	25	20	100	60	180	140

## 2.7 Enforcement of controls

*How are the controls for manure and sheep dip enforced? Are farms inspected and if so by whom and how often? Is only a sample of farms inspected? How is what farmers are required to do communicated to them? Do farmers require licenses or permits for disposal of certain wastes?*

### Enforcement of Minerals Policy

The Agricultural Levies Office is an agency under the Ministry of Agriculture, Nature Management and Fisheries which carries out the administrative audits required under Dutch minerals policy (Minas and Manure transfer contracts). It also imposes prohibitive levies when loss standards are exceeded (or when Manure transfer contracts are insufficient for safe application of manure). The Levies Office verifies returns of all farms that are obliged to present a Minas account:

- by comparing farm records: one farm's outputs (manure, roughage) are another farm's input;
- by comparing farm records to suppliers' statements;
- by comparing a farm's herd administration with its minerals records.

The audits by the Levies Office take place on an annual basis.

In addition, the Agricultural Ministry's General Inspection Service (AID) carries out scrutiny audits of farms and other establishments in the Minas chain, especially in cases where irregularities were found in the administrative audit. Together with the random checks, farms are likely to be inspected by the AID once every ten years. The AID also enforces the manure production rights. That is the right to produce manure which translates into the right to keep animals. The rights may be tight to the land or not, in case it is a historical right. In the pig and poultry sector manure production rights have been replaced by animal production rights.

Finally the AID enforces the manure application rules together with the police.

### **Enforcement of controls on pesticide washings**

The Regional Water Boards measure different water quality parameters on the surface water system and relate their measurements to the specific MTR-values and attempted concentrations for the long term. As stated above short term MTR-values of pesticides in the surface water system are hardly reached and the attempted concentrations are not even in sight yet. Since discharge of pesticides is diffuse controls are related to comply with regulation as stated in the Decision on Discharge Field Production and Cattle Farming (2000, 'Lozingenbesluit Open Teelt en Veehouderij) for pesticide washings. The Regional Water Boards are permitted to create maintenance policy. Maintenance will be carried out in two ways. Preferably preventive measures like informing farmers on specific legislation will increase compliance. Secondly repressive measures will be used. Individual farms will be visited by the Regional Water Boards and several core aspects will be inspected. Farmers will fill in a registration form prior to a visit. Farmers who didn't register themselves at the water board will be visited prior to those who did. One of the inspected core aspects is the execution of cleaning activities of pesticide sprayers and other related machinery. Several aspects will be checked: situation of the cleaning place, in what way is dealt with the waste water, the possible presence of a cleaning place for common use and the possibility for cleaning on the agricultural production fields with adapted machinery.

## **2.8 Non-compliance**

*How is non-compliance dealt with? Do farmers get a warning and a period of time to respond to the problem? Are fines imposed? Do they have CAP subsidies withheld as a form of cross compliance?*

### **Prohibitive levies in Minerals policy**

Prohibitive levies are set to ensure that farmers from exceed the loss standards for phosphate and nitrogen. The progressively lower standards force farmers to take steps to avoid losses. One possibility is to improve the efficiency of mineral use, so that fewer inputs, such as chemical fertiliser or concentrate feed, are required. Alternatively, a farmer could buy low-minerals feed. The fines are restrictively high, in particular the fine for exceeding the phosphate limit (table 2). If the land available for manure application and the manure transfer contracts are insufficient the consequence is the farmer is forced to sell animals. Violation of the manure application rules is dealt with by the police (charge).

**Table 2 Fines on surpluses exceeding the loss standards, in Euros per kg**

Minerals	Loss standards	Fines
Phosphate	0 - 10 kg/ha	€ 9
	> 10 kg/ha	€ 9
Nitrogen	0 - 40 kg/ha	€ 2.30
	> 40 kg/ha	€ 2.30

### **Non-compliance related to pesticide washings**

When a farmer does not meet the requirements of the relevant legislation the water board can give a warning or make a statement for proceeding on criminal law.



# 3 European and national legislation

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*This chapter answers the questions related to objective 2. Have controls that result from European legislation been supplemented by additional controls within the Member State, that is, has the Member State gone further than the obligatory EU requirements? If so, why have they done this? Is it in relation to national legislation or accepted good farming practice?*

## 3.1 Minerals policy

### A limit to manure production

A ceiling has been set to the production of animal manure on a farm, fully effective in 2003, which will bring the Netherlands in line with the European Nitrate Directive's input standard of 170 kg N/ha. The Nitrate Directive allows for derogation requests, and the Netherlands has requested a higher input standard of 250 kg nitrogen per hectare of grassland. A farmer must of course have enough land on which to deposit the manure. If manure production however exceeds the input standard the surplus must be brought to a farm with a manure shortage, or be processed or exported. The Netherlands has developed a system of manure transfer contracts for this purpose.

The derogation for grassland is based on several arguments. First of all, grass has a high nitrogen uptake regardless of soil type. And grass grows especially well in the Dutch climate; the growing season here is very long. Farmers can therefore apply more manure on their land without unduly burdening the environment. The standards in the Nitrate Directive can therefore be less strict for Dutch grassland. The Netherlands is still in the process of negotiations with the European Commission with regard to its derogation request.

A second important element of the Nitrate Directive is the prescription not to apply more nitrogen than the crop demand. For this requirement the Netherlands implemented MINAS, which regulates sensible use of nitrogen and phosphate. The Netherlands is negotiating with the European Commission whether MINAS is a solution to implement the Nitrate Directive. A court case of the European Commission against the Netherlands on violation of the Nitrates Directive in 1999 and 2000 is pending at the Luxembourg court.

## 3.2 Pesticide washings

Two EU-directives are relevant for Dutch legislation on pesticide washings. The directive on protection of groundwater (Dir 80/68/EEG) and the directive on protection of the aquatic environment (Dir 76/464/EEG) harmonizes national legislation of EU members on discharge of dangerous wastes in groundwater and aquatic environment. A list of chemicals with priority for water policy has been created. Some of these chemicals are appointed as dangerous (list1), others as chemicals with priority (list 2). Chemicals in pesticides are present in both lists.

The main directive on water policy (Dir 2000/60/EG) will replace both directives around 2013, the lists will be added to this directive. The discharge of chemicals with priority will be reduced gradually, the discharge of dangerous chemicals will ended within 20 years. Before 2009 a management plan for each catchment area must be completed. These plans must comprise measures to prevent for pollution of surface waters and groundwater bodies by discharge of the listed chemicals and to protect, improve and restore their chemical and ecological condition. The targets must be reached within 15 years.

Within the Netherlands the catchment areas are divided in sub-catchment areas. The regional water boards are responsible for water management plans for these sub-catchment areas. The provinces are responsible for the coherence between the plans for the sub-catchment areas. The targets must meet the MTR-values from the 4<sup>th</sup> note on water management.

### **3.3 Overview of Dutch implementation**

The following table provides the overview of international commitments and European legislation.

**Table: International commitments and European Legislation implemented in The Netherlands**

	<b>Implementation in The Netherlands</b>
<b>Air Quality</b>	
Emission Ceiling Directive	Ammonia policy through general rules on manure storage and manure application rules and periods. Environmental licences from the municipality are granted on the condition that the farm satisfies all environmental criteria including criteria about ammonia emissions. Compulsory low-emission housing for intensive production (pigs and poultry) in 2008 and stricter requirements for holdings near sensitive nature areas.
Integrated Pollution Prevention and Control Directive 1996	Integrated environmental licence is compulsory for all farming activities. For improvement of spatial structure in relation to environmental quality in so-called concentration areas reconstruction will be performed. Reconstruction implies the appointment of areas where pig farming can be executed or intensified, areas where pig farming can only be intensified within the environmental demands of other land-use functions (nature, recreation, etc) and areas where pig farming cannot be executed or intensified due to environmental restrictions of other land-use functions.
Waste Incineration Directive	An integrated environmental licence is compulsory for incineration installations in general (agricultural or not). The installations must meet the directives formulated in additional legislation.
<b>Water Quality</b>	
Nitrates Directive 91/676/EC	Through Minerals accounting system (Minas), application rules, manure transfer contracts and manure production rights.
Fresh Water for Fish Directive 78/659/EC	Wet verontreiniging oppervlaktewater 1981 through prohibition of discharge of waste, pollutive or dangerous substances, discharge norms and a system of levies.
Groundwater Directive	Grondwaterwet 1981 Groundwater protection through registration, permission, general rules, compensation and imposition of levies
Bathing Water Directive 76/160/EC	Wet hygiene en veiligheid zwemgelegenheden 1982 through rules for swimming water, showers and toilets, drinking and washing water, waste water, number of visitors, storage of cloths, technical facilities, building materials, first aid in case of accidents.
Shellfish Water Directive 79/923/EC	?
<b>Waste Management</b>	
Waste Framework Directive	Is not implemented in the Netherlands with regard to the agricultural sector because manure and slurry is not classified as a waste.
Landfill Directive	?
<b>Global warming</b>	Manure as source of atmospheric methane (emitted under anaerobic conditions) and nitrous oxide. Through application rules emission of resulting greenhouse gasses must be limited.



# 4 Universal or targeted approach

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*This chapter answers the questions related to objective 3.*

*Has the Member State in question adopted a universal or targeted approach to implementation of various legislation and state the reasoning for this?*

## 4.1 Minerals policy

The Netherlands has brought its entire territory under the Action Programme of the Nitrate Directive. Since the rules of the Nitrate Directive apply therefore for the whole territory, the Netherlands didn't need to designate Nitrate Vulnerable Zones. The reason for this is simple. According to the Nitrates directive the water catchments of the rivers Rijn, Maas and Schelde and all areas that contribute to pollution of the North Sea through nutrients, should be designated as vulnerable area.

There is a targeted approach in MINAS (via stricter loss standards) with regard to parcels which have a high leaching potential (dry sandy soils).

## 4.2 Pesticide washings

Guidelines for cleaning activities of pesticide sprayers and other related machinery are given in the Decision on Discharge Field Production and Cattle Farming (2000, 'Lozingenbesluit Open Teelt en Veehouderij). These guidelines are compulsory for any crop farmer or cattle farmer. This universal approach prevents the hassle of single permits for each individual farmer. For glassculture additional legislation has been formulated.



# 5 Integrated approach

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*This chapter answers the questions related to objective 4.*

- *Are there any examples of an integrated approach to implementation in the Member State? For example, the Republic of Ireland has proposed a combined approach to implementing aspects of agricultural waste controls and the Nitrates Directive? Have other countries adopted a similar approach?;*
- *What exactly does the integrated approach consist of and how does it operate?*
- *What benefits are there of this approach?*

## **5.1 Minerals policy**

There have been some experiments such as for example and experiment with combined controls on minerals and animal welfare in pig husbandry. This combination is relatively easy to apply and it has worked well.

In the framework of the Mid-Term Review and the definition of Good farming Practice and obligatory cross compliance the thinking about integrated approaches is developing. There are no clear policy proposals on the table yet.

## **5.2 Pesticide washings**

There are no examples of an integrated approach related to pesticide washings.



# 6 Integration of policy objectives \_\_\_\_\_

*This chapter answers the questions related to objective 5.  
Have any initiatives been made in the Member State to integrate environmental regulations with other policy objectives?*

## **6.1 Minerals policy**

So far the Minerals Policy is separated from other policy objectives. The Ministry of Agriculture, Nature Management and Fisheries is in a process of reorientation of its policies. The first step being set is that present policies are harmonised starting with the harmonisation of definitions used in the different policies. For example, there are a large number of different definitions of a cow or of farming surface.

## **6.2 Pesticide washings**

Policy on pesticide washings has not been integrated with other policy objectives. More general the law on pesticides states that the use of pesticides should be adequate for the purpose of use in coherence with safety and health of humans and animals.



# 7 Non-regulatory governmental strategies

*This chapter answers the questions related to objective 6.*

- *What other non-regulatory governmental strategies have been employed to minimise the impact of agricultural practices that are harmful to the environment, for example, the use of voluntary codes, incentive schemes, taxation?*
- *Is investment aid available to upgrade farm facilities to meet EU pollution standards?*
- *What is the balance between regulation and these other approaches?*

## 7.1 Sectoral differences

Environmental regulations are not particularly stricter in the agricultural sector than in other sectors of the economy. The Netherlands is heavily regulated in all sectors and not just in the agricultural sector. However, environmental regulation in the agricultural sector is painful for farmers who are confronted with diminishing incomes and increasing environmental investments and administrative demands as a result of environmental regulations. The Netherlands had a strategy of putting the environmental standards higher than the European standards. Clearly not related to its mineral policy, but it did so related to the permission of (new) pesticides. The farming organisations resisted this particular policy. The new government has changed the strategy, which implies that environmental ambitions are in line with the European standards. As a result of that strategy change, the policies with regard to the permission of pesticides have become much less strict.

## 7.2 Minerals policy

The Ministry of Agriculture, Nature Management and Fisheries has developed a fiscal incentive to stimulate positive environmental behaviour (DOA). The first test-case was an fiscal incentive for organic farming replacing the conversion subsidies that are being given. The European Commission did not approve the fiscal incentive scheme and the Dutch Ministry stopped the initiative. The reason was that Dutch organic farmers were earning more than conventional farmers, which made the justification for the fiscal incentive too weak.

There is no financial incentive for farmers doing better than the norms, for example in the form of an agri-environment scheme.

A number of Nitrate projects have been implemented partly with met EU co-financing.

There are voluntary codes such as Milieukeur or EUREPGAP that include strict environmental standards. For example Milieukeur has applied the end norms for Nitrogen and Phosphate input long before the government enforced it.

In the 1980 and 1990 investment aid was given to farms investing in manure storage capacity and covering of manure storage facilities. It stopped when the manure storage facilities were built.

### **7.3 Pesticide washings**

A brochure with many tips on cleaning activities of pesticide sprayers has been written to clarify the policy guidelines for farmers. Following the strategy offered in the brochure should suffice the controls. Spraying collected pesticide washings onto agricultural production fields is the only financially acceptable solution for most farmers. Diluting the pesticide washings with enough water and spraying it onto a large area should reduce the concentrations to a minimum. It is sensible to spray the diluted pesticide washings onto an empty parcel to prevent for crop damage (which is even possible at low concentrations). Spraying the pesticide washings at different locations each time also diminishes negative effects. A 'clean-water-tank' must be attached onto the pesticide sprayer to make cleaning in the field possible. Storage of pesticide washings is most safe at an especially adapted cleaning and fill location on the farm. A solution mid-range between cleaning in the field and on a cleaning location is cleaning the machinery by a specialised company. The pesticide washings need to be purified with a Carbo-flow installation or purified by another specialist. This is quite expensive and not all agricultural companies do have the necessary facilities.

A cleaning and fill location on the farm is best situated under a roof, simply because no precipitation will get contaminated. Otherwise this should be added to the pesticide washings. The floor of a cleaning location must be 'fluidproof' to prevent pesticide washings from infiltration. Preferably the pesticide washings are not stored right beneath the cleaning location. Storage beneath the cleaning location can be used for temporary storage. Pesticide washings can be pumped from this temporary storage to a storage at field level. Silt and oil remaining from the cleaning activities must be stored and processed separately. The stored pesticide washings can be sprayed onto the agricultural production fields or can be purified for discharge into the sewerage (permit from local government required) or into the surface water system (permit from water board required).

# 8 Summary

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The Netherlands is the most intensively farmed country in the European Union, with related environmental problems. In the last few years great achievements have been made to reduce nutrient emissions. The standard of the Nitrate Directive of 50 mg nitrate/litre groundwater will be achieved in 2004. However surface water quality and phosphate saturation remains an issue. The problems are biggest in the animal husbandry sectors. The excess use of minerals still leads to surface water pollution and saturation of soils with phosphate and the ammonia reduction commitments as well as global warming ambitions will pose big challenges for animal husbandry in the coming decade.

Pesticide use also leads to surface water pollution especially in the production of fodder maize, (starch) potatoes, horticulture and bulb cultures.

The environmental problems have resulted in a growing amount of regulation that apply directly or indirectly at the farm level. Regulations have gradually become stricter. The Dutch government usually takes an universal approach, with some additional regulation per sector if needed.

Related to minerals the Dutch policy combines the MINAS mineral accounting system, with manure application rules and manure transfer contracts. This policy shows good results in ensuring environmental safe application of nutrients. The important standard of 50 mg Nitrate/litre groundwater will be complied with. However a challenge for the future will be to tackle phosphate saturation and to further improve surface water quality. The old system of manure production rights will end in 2005 if the system of manure disposal contracts can be a successful tool to limit or reduce manure production.

Three different authorities are involved in the enforcement of mineral policy: the Levies office, the Agricultural Inspection Service and the Police. These authorities co-operate well. The sanctions on non-compliance are prohibitive. Farmers are forced to sell animals if they can not ensure compliance.

Related to the use of sheep dip there is not a serious environmental problem in The Netherlands.

Regulations related to pesticide washings have become very strict in the past years because pesticide washings are an important source of surface water pollution. Farmers have to invest in facilities to avoid pollution of surface waters. Regional Water Boards enforce the regulations and co-operate with the police if cases of non-compliance are detected.

The main non-regulatory incentives for compliance with the rules is information and farm advice on good farming practices. There are voluntary codes of good farming practice which put farmers in those schemes in a better position to produce under long-term contracts for quality supermarket chains. The codes hardly lead to premium prices, except for organic labels. An attempt of the Dutch government to develop a fiscal incentive system for farmers produce better than the norms was not accepted by the European Commission.

Integration of policy objectives, integrated enforcement systems and co-operation with private labels are issues in its conception phase. These are seen as a key challenges to diminish the administrative (over)load that is foreseen if the MTR proposals of the European Commission become reality.

## References

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- Ministerie van Verkeer en Waterstaat (1998) Beheersplan voor de Rijkswateren. Programma voor het beheer in de periode 1997 t/m 2000. Den Haag.
- Ministerie van Verkeer en Waterstaat (1998). 4e nota waterhuishouding. Den Haag.
- Ministerie van Verkeer en Waterstaat (1969). Wet verontreiniging Oppervlaktewateren. Den Haag.
- Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer (1979). Wet Milieubeheer Den Haag.
- Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer (1994). Besluit Akkerbouwbedrijven Milieubeheer Den Haag.
- Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer (2002). Besluit Glastuinbouw. Den Haag
- Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer (1991). Besluit Melkrundveebedrijven Milieubeheer Den Haag.
- Ministerie van Landbouw, Natuurbeheer en Visserij (1962). Bestrijdingsmiddelenwet. Den Haag.
- Ministerie van Landbouw, Natuurbeheer en Visserij (1964). Bestrijdingsmiddelenbesluit. Den Haag.
- Ministry of Agriculture, Nature Mangement and Fisheries (2001). Manure and the Environment. The Dutch approach to reduce mineral surplus and ammonia volatilisation. Second edition. Den Haag.
- Ministry of Agriculture, Nature Management and Fisheries (1993) MJP-Gewasbescherming. Den Haag.
- Ministerie van Verkeer en Waterstaat (2000) Lozingenbesluit Open Teelt en Veehouderij. Den Haag.
- EU (1980). Richtlijn 80/68/EEG betreffende de bescherming van het grondwater tegen verontreiniging veroorzaakt door de lozing van bepaalde gevaarlijke stoffen. Brussel.
- EU (1976). Richtlijn 76/464/EEG betreffende de verontreiniging veroorzaakt door bepaalde gevaarlijke stoffen die in het aquatisch milieu van de Gemeenschap worden geloosd. Brussel.
- EU (2000). Richtlijn 2000/60/EEG tot vaststelling van een kader voor communautaire maatregelen betreffende het waterbeleid.



# Annex 1: Dutch farming in figures \_\_\_\_\_

## 1 Figures of Dutch farming

Dutch farming in 2001 in two figures

<b>Farms</b>	<b>Numbers</b>	<b>Area (ha)</b>
<b>Total</b>	<b>78.111</b>	<b>1.930.924</b>
arable farming	10.499	474.197
horticulture and permanent cultures	15.312	103.809
grazing animals (cattle/sheep/goat/horse)	38.429	1.096.742
animals kept inside (pigs/poultry)	6.335	49.095
combinations	7.536	207.081

### **Animal numbers (x 1.000)**

cattle	3.858
pigs	11.648
horses and ponies	121
chicken	101.052
ducks, turkeys and other poultry	2.599
sheep and goats	1.441
rabbits and fur animals	1.006
<b>Total in Animal units</b>	<b>4.944</b>

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