O.09 Policy planning and implementation in crop protection; lessons learned in Denmark and The Netherlands

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Abstract

This paper presents the lessons learned from a historical review of national actions plans on pesticide risk reduction in Denmark and The Netherlands. In both countries the risk reduction began with 50% volume reduction and a phasing out of heavy pesticides. In Denmark the next steps included a gradual lowering of the treatment frequency index (TFI). Recent increases in TFI suggest that the support for the TFI policy is decreasing. In The Netherlands the next step included a 95% reduction in environmental impact. By 2006 already 86% of the 95% had been realised. In the next decade food safety and pesticide residues will probably fill the agenda in The Netherlands, which is not surprising for a country where horticulture dominates arable farming.The historical review revealed a series of success factors. Identifying an urgency of national interest is essential to get the policy development process going. Regular interaction between public and private partners is essential for a smooth policy implementation. A good sequence of actions from government agencies, plant scientists, agricultural industry and farmers is essential for meeting the targets of national action plans. Pesticide risk reduction requires a preceding supply of appropriate IPM strategies.

Introduction

This paper gives a historical review of national action plans on pesticide risk reduction in Denmark and The Netherlands. In Denmark the experience with national action plans goes back to 1986 and in The Netherlands to 1990. The objective of the paper is to identify factors and actors for a successful national action plans on pesticide risk reduction.

Method

The historical review of national action plans in Denmark was made by Claire Lamine during an ENDURE mobility stay (1st October – 2nd November 2008) at Foulem research centre. She based her analysis on accessible documentation and a dozen interviews with experts and stakeholders in crop protection. The review of national action plans in The Netherlands was made by Jan Buurma, based on both documentation and memories of his 20 years of active involvement in socio-economic research for policymakers in The Netherlands. In both cases the involvement of stakeholders and the interventions by policymakers were scrutinised to understand the success actors and success factors of the national action plans.

Historical review Denmark

The picture below shows the history of crop protection policy planning and implementation in Denmark, starting from the launch of PAP-I in 1986 to discussions on PAP-III in 2007. Each column successively shows the time frame, the objectives, the actions and the results.

1986 - 1997	1997-1999	2000 - 2004	2005 - 2009
Pesticide Action Plan - I		Pesticide Action Plan - II	Pesticide Action Plan - III
50% volume reduction		2.45 >> TFI >> 2.00	2.00 >> TFI >> 1.70
revision of Chemical Act	B	decision support systems	consultation at farm level
taxation on pesticides	I	experience groups	subsidy on pesticide free
2.67 >> TFI >> 2.45	C	TFI already 2.00 in 2000	TFI again 2.30 in 2006
50% volume reduction	H	willing farmers have	legitimacy in discussion
(via low dose pesticides)	E	reduced pesticide use	big scale farmers
	L		

Between 1986 and today three successive pesticide action plans were established, including specific policy targets for pesticide volume reduction. The issue of groundwater contamination seems to be the major motive. Biodiversity and public health play a role in the background.

The first Pesticide Action Plan was launched in 1986. The objective was a pesticide volume reduction of 50% before 1997. This objective was achieved through the adoption of low dose pesticides. In 1994 the approval procedure for pesticides was revised. This revision made it possible to ban the import, sale and application of “heavy pesticides”. As a result 135 out of the then 213 authorized active substances were banned. In 1996 a taxation system on pesticides was introduced, including 54% tax on insecticides and 33% on herbicides and fungicides. The tax proceeds are invested in crop protection research, warning systems and conversion to organic farming.

Increasing public concerns regarding drinking water in the mid 1990s and a change in government resulted in the constitution of the Bichel Committee in 1997. The Committee brought together researchers, advisors, farmers, chemical industry, green organisations and relevant ministries in a process on a scientific basis. As a result the participants got acquainted and shared the conclusions of their work. The work of the Bichel Committee resulted in the second Pesticide Action Plan. The target of PAP-II (2000-2004) was a Treatment Frequency Index (TFI) of 2.00 in 2004. This target was already achieved in 2000. The advisory service played an important role in this success.

For PAP-III (2004-2009) the target was a Treatment Frequency Index of 1.70 in 2009. This target was (without much debate) adopted from the Bichel Committee recommendations. In the meanwhile the legitimacy of the Treatment Frequency Index was called into question. What is the frame and what are the criteria of pesticide reduction? The quantity of active substances used? Their degree of harmfulness? The effects on the environment? Is TFI a quota and an individual tool to achieve pesticide reduction? Whatever the case may be, in recent years the Treatment Frequency Index has increased to 2.30 again.

Historical review The Netherlands

The picture below shows the history of crop protection policy planning and implementation in the Netherlands, starting from getting a topic in the 1980s to the midterm evaluation in 2006. Each column successively shows the time frame, the objectives, the actions and the results.

……. - 1990	1991 - 2000	2001 - 2010
sector visions	Multi Year Crop Protection Plan	Covenant Crop Protection
	50% volume reduction	
initial situation:	50-90% emission reduction	95% impact reduction
	(compared to 1984-1988)	(compared to 1998)
highest use per ha		
resistance dev’t	restrictions on soil disinfection	buffer zones / better nozzles
pesticide incidents	phasing-out heavy pesticides	introduction safe pesticides
exports at risk	49% volume reduction	2006: 86% impact reduction
	54-79% emission reduction	

The picture shows the reason for starting with pesticide action plans in The Netherlands. In the 1980s the country had the highest pesticide use (measured in kg a.s. per ha) in the world. Both public and private stakeholders feared a loss of important export markets for (especially) horticultural products. Next to that incidents of water pollution and residues in drinking water enhanced the awareness that crop protection was running out of control. Consequently targets were set for volume reduction (50%) and for emission reduction (50-90%).

The targets for volume reduction and emission reduction were met for the greater part. Overall a volume reduction of 49% was realised, thanks to an impressive (and higher than targeted) reduction in nematicides (85%), which used to have a big share in total pesticide volume, the results in emission reduction were also quite satisfactory: 54% for emission to the air, 79% for emission to groundwater and 79% for emission to surface water.

In the course of the Multi Year Crop Protection Plan the conviction grew, that not pesticide use as such is the problem, but the environmental impact of pesticide emissions to the compartments (air, groundwater, surface water) surrounding cultivated land. Consequently targets were set for a drastic environmental impact reduction. According to the midterm evaluation of the Covenant on Sustainable Crop Protection the reduction of environmental impact is on the right track. In 2006 already 86% of the 95% had been realised. Important elements in environmental impact reduction are buffer zones, low spray drift equipment and the introduction of safe pesticides.

It is not yet clear how crop protection policy planning in The Netherlands will go on beyond the year 2010. The first ideas are being developed within the Ministry of Agriculture, but at present (May 2008) all options are still open. Taking the aims and objectives of NGOs and retail companies into account, food safety and pesticide residues will probably become important issues in the next decade.

Reflection on success actors and factors

A similarity in crop protection policy planning between Denmark and The Netherlands is that they both started with 50% volume reduction and phasing-out of heavy pesticides. In both cases a revision of the approval procedure for pesticides and additional regulatory measures resulted in satisfying results with regard to pesticide volume reduction. In all fairness we have to admit that both countries started in periods with peaks in pesticide volumes.

Identifying an urgency of national interest is an important factor to get the policy development process going. In The Netherlands retaining the export position for horticultural products was and is an important trigger to come into action. It was an important motive for the pesticide volume reduction under Multi Year Crop Protection Plan. It is an important motive to comply with the MRL requirements of the supermarket companies in Northwest Europe. In Denmark groundwater contamination seems to be the major motive. The relationship between target setting with Treatment Frequency Index and safeguarding groundwater quality is not clear. This probably explains why the legitimacy of the TFI is called into question now in Denmark.

An important success factor in meeting the targets of the two pesticide actions plans in The Netherlands was a sequence of actions from both government agencies, plant scientists, the agricultural industry and –of course– the farmers involved. The mechanism works as follows. Step 1: policymakers invite plant scientists to develop new varieties, disease suppressive rotations, new application techniques, etc. Step 2: plants scientists transfer their findings to farmers, seed suppliers, equipment suppliers, etc. Step 3: policymakers develop a regulation which enforces the application of new varieties, equipment, etc. In this way chemical soil disinfection largely disappeared and low spray drift nozzles and improved spray equipment became common practice in The Netherlands.

Both Denmark and The Netherlands have a tradition of regular interaction between state agencies and civil society representatives. In Denmark the Bichel Committee turned out to be a success factor in bringing public and private partners together and getting the innovation process running. In The Netherlands the Covenant Crop Protection managed to create a positive atmosphere, in which the

partners learned to not just follow their own interests and strategies, but to create win/win solutions. In all fairness we have to admit that Denmark and The Netherlands are relatively small countries. The relatively small distances make it easier for the actors and stakeholders involved to get in touch with each other.

A similar problem in both Denmark and The Netherlands is the introduction of strategies that substantially increase the intrinsic resistance of cropping systems and consequently reduce the reliance on chemical pesticides. In Denmark researchers admit that variety choice and understanding of mechanical weed control need more attention. Dutch efforts to formulate appropriate targets for reduction of reliance on chemical pesticides failed. In fact we have a common problem: How do we measure the robustness of a cropping system? How can we reduce pest risks? What can we learn in that respect from organic agriculture?

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