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NIMBY or how do the rural neighbours respond to genetically modified (GM) crops? An exploration of the structure of reactions by inhabitants in rural communities in The Netherlands to the commercial cultivation of GM crops in their community

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ABSTRACT

The debate on genetic modification (GM) is persistent, polarized and mainly involves organized groups at the national level. With the European Union's new policy of coexistence, commercial cultivation of GM crops is expected by the Dutch Ministry of Agriculture, Nature and Food Quality within the next few years, especially maize (BT) and potato (Phytophthera resistance and starch production). This makes the debate relevant for those directly confronted with this cultivation: the inhabitants of local rural communities. In The Netherlands, stakeholders formulated coexistence rules to prevent problems between conventional, organic and GM farmers that grow their crops in the same limited land area. Little is known, however, regarding the perceptions of the non-farming inhabitants of rural communities ("the neighbours") in the debate. This paper presents the results of a focus group-based argumentative analysis of whether (and how) the GM issues play a decisive role among non-farming inhabitants of four rural communities in the Netherlands. We analysed the arguments in relation to a conceptual model that describes the potential rise and dynamics from a pre-Nimby ambivalence towards an outspoken Nimby position. We observed that the GM debate was given very little priority relative to other national issues on the political agenda and that more social cohesion correlates with fewer arguments in the national debate. It is argued that this mechanism keeps the Nimby ambivalence in an undetermined mode, which in turn diminishes the chances of radical rural-based protest against local GM cultivation of crops.

1. Introduction

Since the introduction of genetically modified (GM) seeds for agricultural crops (i.e. maize, cotton) in the beginning of the 1990s, the societal debate on GM has been loaded with polarized opinions. The discussion is mainly structured by institutionalized organizations like professional NGOs (i.e. Greenpeace, Friends of the Earth), seed companies (i.e. Monsanto, Bayer), and political parties (green).

In Europe the Eurobarometer program, an EU-sponsored program, conducts surveys regularly among citizens of the different member states of the EU, regarding their perception of biotechnological applications and GM food (see the latest Eurobarometer, Gaskell et al., 2006). In addition, there is a large barrage of national polls and social surveys that describe the attitude of the citizens in relation to political decisions regarding issues like market authorization of GM seeds (Zechendorf, 1998), labelling of consumer products containing GM-produced substances, and coexistence rules to guarantee the consumer's free choice (i.e., Gutteling et al., 2006; Marris et al., 2001; MORI, 2003; Poortinga and Pidgeon, 2004). Two main concerns seem to be prevalent: environmental risk and food safety risks. The former concerns outcrossing to non-agricultural plants and nature at large, resulting in unmanageable weeding or impacts on the related ecosystems, including animals, fungi and bacteria. The latter relates to changes in the components of plants that might have detrimental effects on the health of consumers.

The national and international political response was a systematic regulation of these concerns by means of the Convention on Biological Diversity Rio de Janeiro Protocol for Environmental Protection (1992) and the Cartagena Protocol for Biosafety (2000). In the context of the latter, it has been agreed globally (UN) that countries should install scientific biosafety committees to assess the safety of GM organisms and to regulate and organize the control of GM products at each border before they are authorized to enter

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the country. However, the situation of the EU is special. In Europe various governance styles coexist regarding public engagement in policy (Hagendijk and Irwin, 2006). As a consequence, each country exhibits its own social dynamics around governmental decisions to authorize the market introduction of GM crops (e.g. in France aggressive actions by protest groups such as ruining GM maize fields dictated the political decisions, while the farmers of Austria chose for non-GM as a competitive European niche market; Seifert, 2009). In The Netherlands, the typical deliberative governance style grants the government a role as facilitator by engaging institutionalized stakeholders to develop their own coexistence guidelines in a bottom-up way. The project presented here was conducted as an outsourced academic background investigation to assist the government in understanding better the options and pitfalls of democratic deliberative governance in the domain of GM crops.

Since the implementation of directive 2001/18/EC (European Parliament, 2001) in 2002, Europe allows the commercial cultivation of certain GM crops in the member states. At the start of this project in 2007, Spain and France were the only countries that cultivated GM crops on a commercial scale (89% of 109,498 hectares in the EU; USDA, 2008). In The Netherlands, it is expected that farmers will cultivate GM crops, like MON180 maize, on their land in the near future. Coexistence, an important European policy concept to bridge the deadlock between proponents and opponents regarding GM crops, aims to regulate the co-cultivation of GM and non-GM crops, i.e. without one leading to exclusion of the other (European Commission, 2003). On November 2, 2004, the Dutch agricultural sector and the sector of organic farmers jointly presented their coexistence agreement to the Dutch Ministry of Agriculture, Nature and Food Quality. One of the most hotly debated key issues was the minimal isolation distance between GM maize and non-GM maize, which was eventually agreed at 250 m (Coexistence commission, 2004; summary in USDA, 2008).

Experiments to investigate non-contaminating isolation distances and possible adverse effects with EU-authorized GM crops have been conducted in small field experiments all over Europe (in The Netherlands: Van de Wiel et al., 2008). These experiments were often destroyed by environmental protesters before they flowered (Gray, 2008). Most protest groups use legal means to demonstrate their concerns for the environment, such as demonstrations, info websites and producing "informational" movies, flyers, and reports.

In view of these institutionalized protests, the question remains of how society at large will respond to the legal cultivation of GM crops on a commercial scale. Although the above-mentioned national and international surveys give a detailed insight into the citizens' perceptions, both for and against, the surveys do not pose specific questions on the acceptability of the cultivation of GM crops in the direct vicinity of the informant, right around the corner.

A small number of studies have been published on the reaction of farmers (France, Austria and the UK) to the introduction of GM crops within Europe (Hall, 2007; Oreszczyn, 2005, 2006; Oreszczyn et al., 2007; Seifert, 2009). No study, however, has described the reaction of their 'neighbours', the non-farming inhabitants of rural communities. These inhabitants are the ones who will be confronted physically with the introduction of the technology, without having had the opportunity to have a say in those decisions. Considering the Dutch history of frequent destruction of field trials, the question arose of how the local rural communities will respond to the cultivation of GM crops.

In this study, we investigated which kind of Nimby (Not In My Backyard) response might be expected regarding GM introduction. A Nimby response is characterized by an ambivalent position, i.e., positive (or neutral) attitude towards the technology in general (far away), combined with a negative perception of the technique once it is used nearby (the application). The project was executed in 2007–2008 by the Athena Institute of the Vrije University, Amsterdam, at the invitation of the Ministry of Agriculture, Nature and Food Quality (LNV) and the Ministry of Spatial Planning, Housing and Environmental Affairs (VROM), which are responsible for the biosafety regulations and market authorization. The project has to be understood in the context of the Dutch deliberative governance style, which grants an important role to public input and engagement in national policy development. The Athena Institute is specialised in transdisciplinary research for sustainable innovations in the health and life sciences (e.g., De Cock Buning et al., 2008a). The project consisted of three parts: the formulation of an analytical framework, qualitative research regarding GM crop positions (focus groups and in-depth, semi-structured interviews), and questionnaires regarding the use and handling of information by rural inhabitants. This article focuses on the results of the second part. First, we briefly introduce our definitions and the model used to describe and investigate the possible Nimby responses towards the introduction of GM crops. This is followed by a description of our survey in subsequent steps and related results. We conclude with a discussion of our findings with respect to the Nimby model and the relevance for deliberative governance on the issue of GM crops. The main question addressed in this paper is: What position do rural communities tend to take with regard to the potential cultivation of GM crops: Not in *my* backyard (Nimby), Not in *any* backyard (Niaby) or *Build* in my backyard (Bimby)?

2. Analytical framework: the NIMBY model and research questions

In a pilot as part of a master student project, we interviewed farmers and inhabitants in rural communities. In one of them, farmers who occasionally grew small lots of experimental GM potatoes (for starch, not for food) described that they successfully scared off urban-based activists, who intended to protest against GM crops in their fields, with a joint action of farmers armed with pitchforks. In other communities anti-GM actions seemed to be accepted as a part of the political debate that unluckily targets one of the many farmers permitting a GM trial on their fields. This suggests that rural opposition is not necessarily locally organized, and support for GM farmers seems to be related to social cohesion.

In order to analyze the reactions of inhabitants of rural communities and the differences between the arguments of the local and the national GM debate, we constructed an analytical framework from the literature that was both broad enough to encompass various types of Nimby-like phenomena (in order to cover whatever we might encounter in our field study, being not necessarily Nimby as in the domain of nuclear energy plants), and at the same time concise enough to use in communications outside the scholarly community, specifically within the government.

As we want to answer the question of whether "a" Nimby response might *arise* within the rural communities when GM crops are cultivated by local farmers, a model is needed that distinguishes among the various expressions of Nimby responses and also the mechanisms that generate Nimby behaviour. Below we briefly describe the theoretical model that we developed (see for details, De Cock Buning et al. (submitted for publication)).

2.1. Wide spectrum of Nimby-isms

The best-known reaction to unwanted plans is the 'Not In My BackYard' or 'Nimby' reaction. Nimby behaviour appeared in the literature in the 1980s and seems to have a new revival in last 5 years due to community opposition to siting of wind power mills (see reviews Aitken (2010) and Cass et al. (2010)). The concept