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Genetically modified animals: options and issues for traceability and enforcement

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Abstract

The past two decades have witnessed the rise of commercial crops that have been genetically modified for an increased suitability in extensive cultivation. Currently, a substantial body of research is being carried out in order to produce Genetically Modified (GM) animals that may similarly yield improvements in animal breeding, genetics and reproduction. Here, we attempt a comprehensive review of the existing trails at animal modification with commercial applications and aimed at a deliberate release onto the market. In addition, we investigate detection and quantification options within the frame of food/feed control and traceability on the European market.

Keywords: genetically modified animals, transgenic, detection, quantification, traceability, food chain, consumer protection

Introduction

Over the past 30 years, biotechnological developments have allowed scientists to alter the genetic make-up of bacteria, plants, and animals. Initially, these modifications have served the purpose of basic research (the study of gene function and genetic mechanisms), but these techniques quickly became promising tools from agricultural point of view since they allow the addition of novel traits to organisms which may increase their suitability for use in extensive mono-cultures (*e.g.* animals with better neonatal survival, or plants with herbicide resistances and insect tolerances). The first genetically modified organisms (GMOs) for agricultural use were introduced in 1996 and currently, more than 170 million hectares of GM crops are being cultivated worldwide (James, 2010, 2011) and while genetically modified (GM) animals

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