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## **The Financial Cost to Corn Growers of Italy's Ban on Biotechnology**

**Report Categories:**

Biotechnology

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**Report Highlights:**

Italian conventional corn growers lose an estimated €175 to €400 per hectare because they are not allowed to grow *Bt* corn, resulting in total annual losses of €150 million to €350 million. Since 1998 the total loss to Italian farmers due to the prohibition on Bt corn alone is estimated at €2.4 and €5.1 billion. Farmers of conventional crops have lower profits because of higher pesticide costs and lower yields due to pest damage.

**General Information:**

The Council of State's recent ruling in favor of Futuragra, the pro-biotech farmers' association that brought the Ministry of Agriculture to court over its ban on the cultivation of biotech crops in Italy, threw into relief the financial implications of prohibiting biotechnology. [1] By using conventional seeds, Italian farmers lose millions each year from unnecessary pesticide costs and crop damage.

After the Council of State ordered the Ministry of Agriculture to permit biotech cultivation, observers feared that Minister of Agriculture Luca Zaia would defy the ruling and maintain Italy's prohibition on biotech crops. Should the Ministry of Agriculture do so, Futuragra pledged to file a class-action lawsuit demanding that compensation be given for the attacks of pests that biotech seeds could prevent. Futuragra estimates that pest damage costs Italian farmers €400 per hectare annually. The association would demand compensation for the 400 farmers who appealed to the Ministry of Agriculture, for a total planting area of 20,000 hectares and a liability of €8 million.

Italy's potential liability is far greater. If all of Friuli-Venezia Giulia's corn growers demanded compensation, the state would be liable for €29.17 million in losses. [2] However, the corn growers of Friuli-Venezia Giulia are only the tip of the iceberg. In October 2007, 67 percent of corn farmers in Lombardy said they would grow biotech corn if allowed by Italian law, totaling 216,900 hectares – or, an additional liability of €86.76 million.

If Futuragra's estimates are correct and Italian farmers lose €400 per hectare for growing conventional varieties, then Italy's corn growers lose €342.9 million annually. [3] *Bt* corn is just one example in a growing trend of biotech cultivation that stands to benefit producers and consumers alike, should Italy take advantage of the new technology.

Conventional corn is less profitable for two main reasons. First, conventional corn has higher input costs than *Bt* corn because the latter naturally repels pests that, for conventional corn, must be countered with expensive pesticides. Second, conventional corn has lower yields than *Bt* corn because it is more susceptible to the European corn borer. Compounding both problems is the fact that the European corn borer is the main corn pest in central and especially in southern Europe due to its Mediterranean climate. Pesticide use in Italy is reportedly some of the highest in Europe. Italy's potential health and economic gains from *Bt* corn are therefore particularly high, and consumers as well as producers stand to benefit from this new technology.

A 2008 joint-study by the European Commission and the University of Córdoba found that in Spain (where *Bt* corn is widely commercialized), pesticide usage was much lower for *Bt* corn than conventional corn. On average, farmers of conventional corn applied 0.86 treatments per year from 2002 to 2004, compared to 0.32 treatments per year for *Bt* corn. Of all *Bt* corn growers, 70 percent did not apply any pesticides, compared to 42 percent of conventional corn growers.

The same 2008 study also found consistently higher yields for *Bt* corn that directly translated into higher revenues, since there was no difference in the average price paid for conventional and *Bt* corn. Some Spanish *Bt* corn farmers made as much as €135 per hectare more than farmers of conventional corn. Higher revenues ranged from €3.17 to €135.08 per hectare, depending on the extent to which the European corn borer plagued the region and decreased yields of conventional farmers. A 2005 study in South Africa found a similar profit range for farmers who adopted *Bt* corn, with a benefit varying from €19.2 to €119 per hectare.

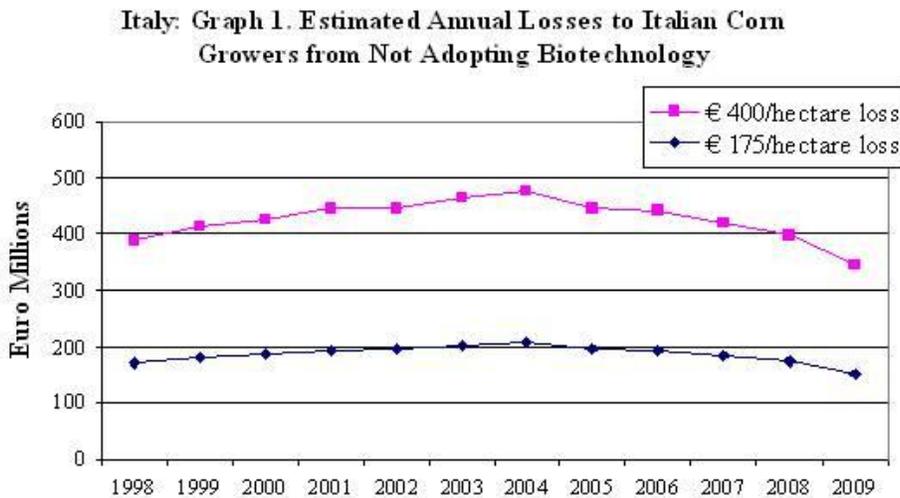
These results for Spanish and South African corn growers are similar to an Italian study of *Bt* and conventional corn grown at a farm owned by the University of Milan. In 2006 the National Institution of Food and Nutrition Research (INRAN) grew two *Bt* corn varieties, P67 and Elgina, next to two non-biotech varieties, P66 and Cecilia, in northern Italy. The conventional varieties produced between 11

and 11.1 tons of grain per hectare while the biotech varieties yielded between 14.1 and 15.9 tons per hectare. The biotech varieties therefore increased yields by 28 to 43 percent.

According to President Marco Aurelio Pasti of the Association of Italian Corn Farmers (AMI), Italian corn growers lose between €150 and €200 million annually (€175 to €233 per hectare) by growing conventional rather than biotech varieties, based on the 2006 INRAN study. Using data from the same study, other analysts estimate Italian losses to be between €300 million and €1 billion annually (€250 to €900 per hectare) taking into account yield differences, corn prices, and pest pressures.

A similar analysis by Confagricoltura, a leading Italian farmers' organization, estimates the loss to be €266 per hectare, creating an annual loss of €280 million. Confagricoltura explained that larger profits would come from higher yields and lower pesticide costs, with an estimated yield increase of 30 percent and pesticide savings of €120 per hectare. Veneto, Lombardy, Piedmont, Emilia-Romagna, and Friuli-Venezia Giulia stand to gain the most annually, with €80 million, €72 million, €53.5 million, €31.5 million, and €25.5 million respectively in higher profits.

*Bt* corn has been grown in the EU since 1998. Taking a reasonable range for potential profit increases for *Bt* corn (€175 to €400 per hectare), Italian corn farmers lost a total of between €2.4 and €5.1 billion since 1998 by not using biotechnology. Graph 1 shows the losses to corn growers from 1998 to 2009, based on annual harvested corn acreage.



Italy is heavily dependent on imports of grain and feed. If the country's corn growers adopted biotechnology, higher yields would benefit not just farmers but food processors as well, who currently depend on imports to manufacture polenta, prosciutto, and many other corn-dependent, typically Italian products.

<sup>[1]</sup> For more information on the recent decision, see GAIN IT1008: Italy One Step Closer to Biotech Cultivation.

<sup>[2]</sup> In 2009 there were 72,935 hectares of planted corn in Friuli-Venezia Giulia.

<sup>[3]</sup> In 2009 there were 857,239 hectares of planted corn in Italy.

