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## Portugal

## Biotechnology

## Update

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**Report Highlights:** Portugal is one of the first European Union (EU) Member States to implement a coexistence regulation, to evaluate the effects of that regulation, and to establish rules for declaring biotechnology-free zones. A first-year coexistence compliance monitoring report indicated that currently required buffer zones kept the adventitious gene presence in surrounding corn crops well below the 0.9 percent threshold required to claim biotechnology-free status in Europe. While rootworm-resistant corn is the only agriculture biotechnology crop currently grown in Portugal, many Portuguese farmers are interested in additional biotechnology crops as potential solutions to other production problems.

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## Executive Summary

--Portuguese corn farmers started (780 hectares) planting biotechnology corn in 2005, and have increased to about 4,300 hectares in 2007.

--The Portuguese farmers association (PFA) reportedly believes that herbicide-resistant corn would be far more widely grown in Portugal than present rootworm-resistant varieties, if the EU permitted its introduction.

--Portugal's first annual coexistence monitoring report has just recently been released. The results indicate that the current coexistence rules are sufficient to keep adventitious gene presence below .09 percent.

--Portugal now has rules by which farmer groups and municipalities can declare biotechnology-free zones. The new regulation, which was under advisement for the past year (including EC review) is now law.

--The Portuguese public-sector plant genetics research is concentrated on genomic and molecular biology of model species such as rice, almonds, chestnuts, pine, and wheat. In the future, however, the focus may turn to national specialties such as wine grapes, olives, and cork. Because Portugal is keen to turn its publicly funded research into economic development, biotechnology may also become an appropriate component of their research.

## Biotechnology Production

Within the EU, farmers in seven countries may choose to grow biotechnology crops. In Portugal, the MOA has not completely prohibited biotechnology, and currently a small number of Portuguese farmers grow biotechnology corn on about 4,300 hectares.

**Portugal: Areas Cultivated to Bt Corn**

	2000	2001	2002	2003	2004	2005	2006	2007
Areas (ha)	0	0	0	0	0	780	1,400	4,300

Source: Portuguese AGMIN and Biotech Industry.

While root-worm resistant biotechnology corn production is making its mark, the PFA has indicated that corn farmers would be even more interested in herbicide resistant biotechnology corn, as it could be grown on a wider range of Portugal's tillable acreage.

Farmers are also looking at ethanol production from biotechnology corn, and other crops in response to Portugal's new "bio-fuels" initiative (PO7001). Biotechnology corn could eventually play a part in supplying feedstock for ethanol production.

Other biotechnology crops with potential benefits for Portugal may include:

- Turf grasses with multiple pest resistance, slow growth, herbicide resistance, and drought tolerance to minimize the environmental costs of achieving more ecological tourism.
- Diversified pest resistance and other important sustainability and productivity traits added to existing classic wine varieties and other traditional Portuguese specialty crops (wine, olives, cork) may also have some promise.

## Biotechnology Policy and Regulatory Framework

### Coexistence Policy

The GOP published a coexistence decree in September 2005, establishing the rules for producing agriculture biotechnology crops. As a result, farmers are required to implement 200-meter isolation zones between biotechnology and traditional corn crops, and 300-meter zones between biotechnology and organic corn production. This distance may be replaced by a 24-row conventional-seed buffer zone, or by combining a 50-meter isolation zone with a 28-row conventional-seed buffer zone. In the case of insect resistant varieties, producers need also to create a "refuge" zone equal to 20 percent of field area, which must be populated with conventional corn varieties. The current coexistence decree effectively restricts biotechnology-seed use in most corn growing districts, because of the prevalence of small properties making it difficult, if not impossible, to meet the isolation zone requirements.

The first results of the Portuguese three-year coexistence verification project are in and they appear positive for continuation of biotechnology production, and the possibility of easing buffer-zone restrictions if subsequent reports show similar results. The report, available in English, established that the current buffer zones, in all their configurations, led to an adventitious presence below, and in many cases much below .09 percent. The report has generated optimism that, if subsequent reports verify similar results, the GOP may be in position to relax the current buffer-zone restrictions. While not terribly pertinent to production using pest-resistant corn varieties, relaxed buffer zones would be crucial for the use of herbicide-resistant corn varieties in the north of Portugal where land parcels are much smaller than those where insect-resistant varieties are currently grown.

## Portugal's Biotechnology-Free Zones

Portugal is also one of the first EU Member States to establish rules for declaring biotechnology-free zones. The GOP developed and remitted to Brussels a draft regulation to enable biotechnology-free regions. A "Prefeitura" (municipal zone) may ask the GOP for biotechnology-free status if: 1) a majority of the elected politicians in the prefeitura are supportive of the request; and, 2) if there aren't any farmers in the zone who wish to produce a biotechnology crop. Should the prefeitura become a biotechnology-free zone under the new regulation, and later a farmer decide to produce using biotechnology seed, the prefeitura could no longer claim the previous status.

Certain municipalities are considering biotechnology-free regional status, including the Southern *Odemira* and northern *Ponte da Barca* Councils, and the southern *Algarve* region.

## Capacity Building

### Research Activities

Leading public institutes are the Institute of Chemical and Biological Technology (ITQB), New University of Lisbon; and the Instituto de Ciência Aplicada e Tecnologia (ICAT) Fac. de Ciência, University of Lisbon. The non-profit independent Gulbenkian Institute of Science (IGC) conducts fundamental biological research.

Some strictly private R&D is carried out in Portugal, e.g., the Instituto de Investigação da Florestia e Papel (RAIZ), associated with Soporcel, a major timber and paper company. RAIZ is said to be doing significant work on molecular markers for timber and paper quality. There is some interaction with the public sector, e.g., the 2007 International Union of Forest Research Organizations (IUFRO) Tree Biotechnology Meeting, held in the Azores in June, was co-organized by ITQB and RAIZ.

Public facilities (e.g. lab facilities at ICAT and in the ITQB building) are provided to support public-private joint ventures and private non-profit R&D (e.g. the Instituto de Biologia Experimental e Tecnológica) (IBET), indicating that Portugal is keen to turn its publicly-funded plant genetics research into economic development opportunities, job creation, and public revenue streams.

Portuguese-funded development of biotechnology crops could be an appropriate part of this strategy, but changes in public regulation at the EC and national level will be needed before research becomes feasible.

### U.S. Support Activities—Future and Past

Additional support activities should include continued contact with key Portuguese groups and/or individuals (e.g., ITQB; CiB; IGC), to collaborate in the understanding of the potential of biotechnology.

Past outreach has included the visit of one of the authors of this report, Ann Marie Thro, a CSREES/USDA employee who completed an Embassy Science Fellowship (ESF) at the U.S. Embassy, Lisbon. ESF activities included a presentation and discussion with faculty and students at the Departamento de Agro-Industrias e Agronomia Tropical (DAIAT) of the Instituto Superior de Agronomia; a speech to a Rotary Club on the Algarve holiday coast-- where golf courses are rapidly becoming a high-profile land use--; and a press interview that led to a short but positive national newspaper segment on the new Portuguese national co-existence law.