

government may insist that Oxitec finish its trials in the Cayman Islands before beginning in Malaysia.

What seems to be clear is that the transgenic mosquito release in the Cayman Islands was viewed as a success. Indeed, William Petrie, director of the MRCU in the Cayman Islands, says the sterile transgenic mosquito release technique is head and shoulders above the population control methods currently in place there. Val Giddings, president of the Silver Spring,

Maryland consultancy PrometheusAB and a former vice president at the Biotechnology Industry Organization (BIO), says that Oxitec's strategy, as a first attempt at using transgenic insects, is beyond reproach. Not only did the company pick a relatively isolated trial site and carry out the trials in collaboration with the government following the necessary protocol, it also used a species-specific technique in which the transgene would be extinguished in following generations.

Alphey says Oxitec is moving ahead with other projects using technological lessons learned from the study itself. Meanwhile, company researchers are preparing their data for peer review and publication. "I think what we've done is reasonable and appropriate," says Alphey, "Few people in the field would disagree with the proposition that new tools are required for dengue, and this is a significant step forward."

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Vatican panel backs GMOs

A panel of scientists convened by the Pontifical Academy of Sciences (PAS) has made a passionate endorsement of genetically modified organisms (GMOs) for global food security and development. The statement, published in 16 languages in the 30 November issue of the journal *New Biotechnology* (<http://www.ask-force.org/web/Vatican-PAS-Statement-FPT-PDF/PAS-Statement-English-FPT.pdf>) is the result of a workshop held in the Vatican in May 2009, involving 7 members of the PAS and 33 outside experts. It states that "there is a moral imperative" to make the benefits of genetic engineering technology "available on a larger scale to poor and vulnerable populations who want them," urging opponents to consider the harm that withholding this technology will inflict on those who need it most.

The panel's key recommendation is to free transgenic varieties "from excessive, unscientific regulation" that hampers agricultural progress by inflating the costs needed for crop R&D. Ingo Potrykus, a member of the panel and co-inventor of Golden Rice, who is at the Swiss Federal Institute of Technology in Zurich, is still waiting for its beta-carotene-enriched seeds to reach the fields and sees that decade-long delay as a bitter lesson for agricultural biotech. "There is lots of high-quality publicly funded research and lots of goodwill for public-private partnerships to use the technology for humanitarian ends, but nobody can invest a comparable amount of funds [to that spent by large agricultural firms]. It will be mandatory to change regulation if we have any interest in using the technology for public good and in the public sector and with nonindustrial crops."

Influential people in developing countries—African bishops included—distrust GMOs as the tools of a plot by multinational corporations to make poor farmers dependent on multinational corporations. A 2009 draft document of the African Synod states that a campaign favoring agbiotech "runs the risk of ruining small landowners, abolishing traditional methods of seeding, and making farmers dependent on companies producing GMOs." But Robert Paarlberg, an agricultural policy analyst at Wellesley College in Massachusetts, who attended the Vatican meeting, believes those wary of GMO varieties should have greater confidence in the capacity of their local political systems to keep intellectual property (IP) issues under control. "They need to understand that patent claims over transgenic seeds made in countries such as the US do not extend to Africa," as Paarlberg argues that "national patent laws in Africa are more restrictive towards claims of IP."

If more is not done to encourage public sector involvement in developing GMO products there is also a risk that transgenic product development might be restricted to those players able to cope with regulatory red tape and fees (that is, multinational companies). "The cause for the 'de facto monopoly' is neither the technology itself, nor the IP involved, nor lack of interest in [it] from the public sector. The only cause is present regulation," says Potrykus.

The panel's statement calls specifically for a revision of the Cartagena Protocol on Biosafety, which deals with international trade in living GMOs. "Groups opposed to the technology used it as a vehicle to persuade governments in Africa to set in place European-style domestic regulatory systems regarding the approval of GMOs," says Paarlberg. But Calestous Juma, professor of the practice of international development at Harvard University, is pessimistic that the Cartagena agreement may be revised to incorporate the Vatican group's recommendations. Juma, who was not involved in the meeting, suggests that communities should create their own treaties to support the advancement of the field. "Little will be gained from seeking to operate under a treaty that is so overtly hostile to innovation," he says.

The group's conclusions do not represent the official Vatican position, the Holy See press office stressed. Yet Gonzalo Miranda, a bioethicist of the Pontifical Athenaeum Regina Apostolorum, believes its scientific authority should carry weight. "The Catholic Church encompasses different sensibilities on GMOs but the trend is toward a cautiously open attitude because evidence of benefits mounts as time goes by and harms don't materialize," he argues. The proceedings of the study week are "an important indication that the Vatican continues to keep the matter under review and to listen to expertise. This is more than many leaders around the world have done and the Vatican should be commended," says Juma.

Anna Meldolesi, *Rome*



The Vatican's Pontifical Academy of Sciences, headquartered at Casina Pio IV shown here, holds a membership roster of the most respected names in 20th century science.