For Discussion on
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Discussion Paper GMO 03/2013

Genetically Modified Organisms (Control of Release) Ordinance Cap. 607 Expert Group

Report on the Survey of GMOs in Hong Kong

Purpose

The purpose of this paper is to report to Members on the findings of the survey conducted during 2012-13 on genetically modified organisms (GMOs) in local markets and farms.

Introduction

2. The Agriculture, Fisheries and Conservation Department (AFCD) regularly conducts surveys on GMOs in Hong Kong, covering various imported and locally grown crops available in local markets and farms. The surveys enable the Administration to closely monitor the status of GMOs in Hong Kong and to serve as a complementary enforcement measure under the Ordinance.

3. Samples are collected according to the GMO survey plans, which are updated every year making reference to the list of GMOs commercialized or being under field trial in overseas countries. The collected samples include crops of different sources and brands as well as other living organisms available from the markets and farms. Up to date, it was found that genetically modified (GM) papayas were popularly grown in local environment. Besides, a small amount of samples which were intended to be used as food, feed or for processing, including soybean, watermelon, radish, wheat and animal feed, were found to be genetically modified or contain genetically modified ingredients. GM zebra fish and GM carnation were also found on sale in the markets.

4. In 2012-13, a total of about 1,000 samples were collected, covering a variety of fruits, vegetables, grains, ornamental flowers and aquarium fish. In response to the recommendation made at the first meeting of the GMOs (Control of Release) Expert Group, additional effort was made on the survey of papayas in the

territory. A total of 349 samples of papayas from imported and local sources were collected this year for GMO testing. Locally grown papayas tested positive for genetic modifications were subject to further testing to identify their variety.

Results

5. A summary of the GMO test results are provided at Annex. Among the 290 samples of locally grown papaya collected, 145 samples (i.e. 50%) were found to be genetically modified. As for the imported papaya fruits/seed, 40 samples out of a total of 59 (i.e. 67%) were found to genetically modified. The survey also found several individuals of zebra fish genetically modified with the green or red fluorescent protein gene. In addition, two samples of animal feed containing a mixture of grains, including maize kernel, rapeseed and sunflower seeds, were found to contain genetically modified ingredients.

6. The tests to identify the variety of GM papayas indicated that, among the 145 samples of locally produced GM papaya, 126 samples were of the Taiwan PRSV resistance variety, 13 samples were Huanong 1, five were hybrid of these two varieties and one was of the variety with the unique identifier code CUH-CP551-8 (i.e. commonly called "Hawaiian Papaya"). As for the 39 imported GM papaya fruits, 31 of which were of the Taiwan PRSV resistance variety and eight were Huanong 1. On the other hand, one papaya seed sample was identified as CUH-CP551-8.

7. We are also keeping track of the development of new GM varieties of papaya. So far, no new GM varieties are commercialized. We will continue to keep an eye on the development of commercialized papaya and its potential presence in local markets.

8. GM zebra fish introduced with fluorescent genes have been known to be used by researchers on genetic studies. They can also be designed to emit fluorescence in the presence of water pollutants and have been employed by a local company to detect water pollution. Apart from laboratory use, such GM fluorescent fish were also sold as aquarium fish. We collected several zebra fish samples from local aquarium shops which appeared or were claimed to be fluorescent. The GM tests found the presence of fluorescent protein genes in several of the collected samples.

9. Under the Ordinance, the use of GM zebra fish for research purpose or in aquarium display may be considered as contained use and do not require prior

approval for their import and use. On the other hand, it is an offence under the Ordinance to knowingly release the GM fish into the environment, such as streams and rivers. AFCD regularly inspects aquarium fish shops selling GM zebra fish to see if appropriate measures are taken to prevent the fish from escaping to the environment. Pamphlets are also distributed to remind people not to release the GM fish into the natural environment. Besides, freshwater habitats are also being closely monitored under AFCD's territory-wide biodiversity survey programme for presence of exotic fish, including the GM zebra fish. So far, no GM zebra fish were found to occur in the local environment.

Advice Sought

10. Members are invited to note the survey results and provide views and comments.

Agriculture, Fisheries and Conservation Department
March 2013

Annex

Summary of GMO Test Results 2012/13

	Number of Tested Samples	Surveyed Species	Number of Positive Samples	Species of Samples with Positive Result
Imported Fruits	107	Apple, Melon, Papaya, Plum, Watermelon	39	Papaya
Imported Vegetables	200	Beetroot, Bell Pepper, Carrot, Gourd, Maize, Pea, Pepper, Potato, Radish, Tomato	0	
Other Imported Food & Feed	93	Black Beans, Black Eyes Beans, Flax, White Kidney Beans, Lentils, Mung Beans, Peanut, Pinto Beans, Pumpkin Seed, Red beans, Red Kidney Beans, Soybean, Sunflower Seeds, Wheat	2	Animal Feed
Seeds	83	Alfalfa, Beetroot, Broccoli, Cauliflower, Flowering Chinese Cabbage, Chinese Kale, Mustard, White Mustard, Pumpkin, Corn, Melon, Papaya, Pepper, Radish, Tomato, Watermelon, Wheat Grass	1	Papaya
Local produce	467	Beetroot, Broccoli, Cabbage, Cauliflower, Chinese Kale, Chinese White Cabbage, Flowering Chinese Cabbage, Mustard, Wong Choi, Eggplant, Papaya, Peanut, Pumpkin, String Bean, Red String Bean, Red Chili, White Radish, Rice, Soybean, Tomato	145	Papaya
Ornamental Flowers and Aquarium Fish	28	Camellia, Carnation, Rose, Angelfish, Zebra Fish	8	Zebra Fish