

食物安全焦點

Food Safety Focus



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Centre for Food Safety

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懷疑“假米”的真偽 The Authenticity of Alleged “Fake” Rice

食物安全中心

風險評估組

研究主任黎礎程女士報告

Reported by Ms. Constance LAI, Research Officer,
Risk Assessment Section,
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上月，食物安全中心(中心)接獲懷疑兩間本地食肆使用“假米”的投訴。社交媒體更有一些短片展示揉搓“假米”可令米粒變長。為此，香港海關及中心檢取涉事剩餘食物樣本及從有關食肆另外抽取米樣本進行檢測。結果顯示所有樣本皆為大米及通過化學檢測。

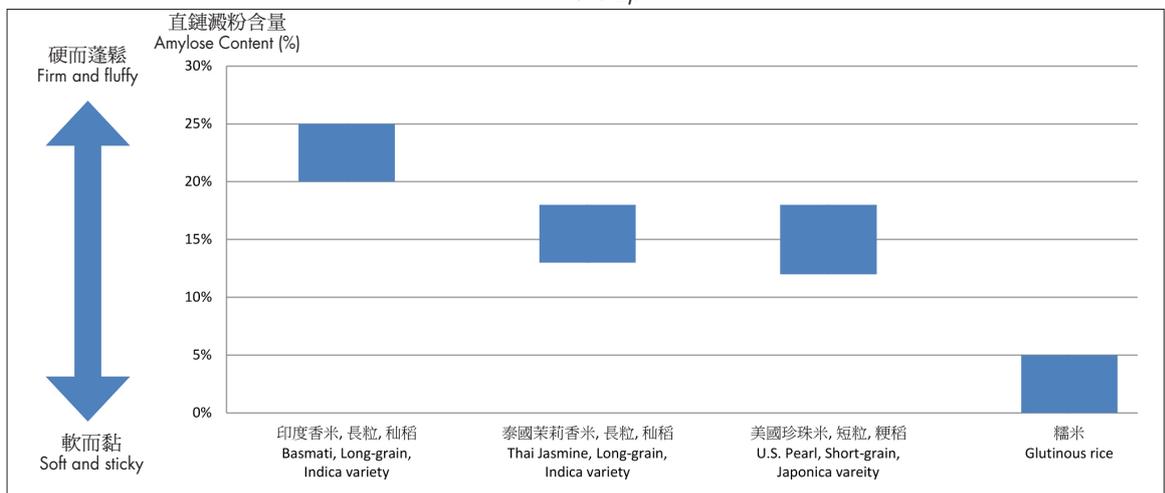
近年，也曾有傳媒報道聲稱有塑膠米可能從中國出口到一些東南亞及非洲國家。不過，沒有一個國家確認有關指稱屬實。早前中國內地商務部亦曾就此申明，傳聞中的“假米”與中國大米出口商毫無關係。

大米在香港是主要食糧

大米是膳食中的主要熱量來源。根據全港首個食物消費量調查，香港成人每日平均進食約300克飯，佔所有穀類食物超過60%。工業貿易署的數據顯示，二零一六年約有90%進口大米是來自泰國及越南的香米。

為何一些飯粒可以“在揉搓後不會斷裂”但另一些卻不能？

大米含90%澱粉。米澱粉分為直鏈分子(直鏈澱粉)及支鏈分子(支鏈澱粉)兩類。大米的直鏈澱粉與支鏈澱粉比例及兩者的微結構對其烹調及食用品質大有影響。一般而言，長粒米的直鏈澱粉含量較高，煮熟後質感硬而蓬鬆，飯粒顆粒分明；而短粒米的直鏈澱粉含量較低，在煮熟後會變得軟而黏，飯粒黏結在一起。然而，由於生產商不斷改善大米品質，故大米(特別是亞洲品種的大米)長度與直鏈澱粉含量的關係愈見模糊(見圖一及二)。



圖一: 一些常見大米品種的直鏈澱粉含量幅度(根據聯合國糧食及農業組織, 大米的直鏈澱粉含量(%)可分為: 糯性0-5%、非常低 5.1-12.0%、低12.1-20.0%、中20.1-25.0%、高>25.0%)。

Figure 1: General range of amylose content of some common rice varieties (According to the Food and Agriculture Organization of the United Nations, amylose content of rice can be classified as: waxy 0-5%, very low 5.1-12.0%, low 12.1-20.0%, intermediate 20.1-25.0%, high >25.0%).

焦點個案
Incident in Focus

儘管大米的品種及質感很多元化，但飯粒本身具有一定程度的柔韌性及彈性，故大部分均能揉搓變長。糯米最具彈性(試想想麻糬及年糕的口感)，而直鏈澱粉含量高的米粒則彈性較

低。

在揉搓期間較易斷裂的飯粒可能是煮熟後經過冷藏的飯或隔夜飯。飯粒在冷卻一段時間後，其澱粉會進行稱為「回凝」的過程，即直鏈澱粉及支鏈澱粉分子的直鏈部分自行重新組合，變成較硬及柔韌度較低的結構，令飯粒易碎。

檢測大米的真偽

政府化驗所檢測了涉事剩餘食物樣本和另外抽取的米及飯樣本，確定所有樣本皆為大米。在DNA基因測試中識別出大米的遺傳標記。此外，政府化驗所亦進行了其他食物安全指標的檢測，檢測項目包括塑化劑、黃曲霉毒素及金屬雜質，測試結果顯示全部樣本合格。

恆常大米監察工作

中心一直有在進口、批發及零售層面抽取大米樣本作測試，作為其中一項恆常食物監察工作。中心在二零一六年共抽取超過650個米樣本作食物安全指標的檢測，檢測項目包括除害劑殘餘、染色料及金屬雜質。除了一個來自泰國的黑米樣本被檢出鎘含量超出法定上限外，其他樣本全部合格。

注意要點：

1. 市民可多了解大米的物理特性。
2. 多項因素(例如大米澱粉的特性及烹煮方法)均會影響米飯的物理特性。
3. 有關化驗結果顯示，在港檢測的米樣本皆為大米。

給市民的建議

- 不要輕信傳言。
- 參考官方網站(例如中心的網站)等可靠資料來源。
- 由於檢測結果顯示所有米樣本皆為大米，並通過化學檢測，故市民無需憂慮。

給業界的建議

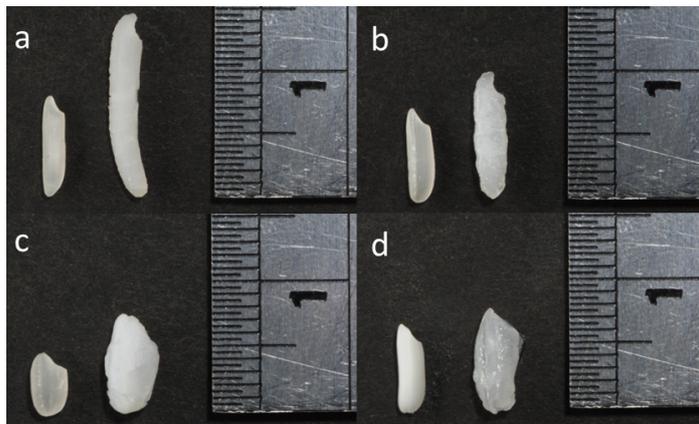
- 從可靠的供應商採購大米，並妥為備存記錄，以備查閱。
- 確保出售或進口的大米適宜供人食用和符合法律標準。

Despite the diversity in varieties and textures, most cooked rice can be rolled and elongated because they all have certain degree of flexibility and elasticity. Glutinous rice has the highest elasticity (think about the texture of Mochi and Chinese New Year pudding) while rice with high amylose content has lower elasticity.

Rice that have been refrigerated or kept overnight after cooking may crack more readily upon rolling. It is because when cooked rice is cooled for a period of time, the starch inside the grain undergoes a process called "retrogradation" when amylose and linear parts of amylopectin molecules rearrange themselves to form a firmer and less flexible structure that makes the rice brittle.

Testing the Authenticity of Rice

The Government Laboratory tested remnants of the incriminated rice and additional samples of cooked and raw rice. All samples were confirmed to be rice—rice specific marker was identified in DNA test. Other food safety parameters, such as plasticisers, aflatoxins and metallic contaminants, were also tested. All the samples have passed the tests.



圖二: a.印度香米、b.泰國茉莉香米、c.珍珠米、d.糯米的米粒(左)及飯粒(右)。尺上所示的數字是指一厘米。

Figure 2: Raw (left) and cooked (right) rice of a. Basmati, b. Jasmine, c. Pearl, d. Glutinous. The number on the ruler represents one centimetre (cm).

Routine Rice Surveillance

The CFS has all along been taking rice samples at import, wholesale and retail levels for testing as part of food surveillance. In 2016, the CFS took more than 650 rice samples for testing of food safety parameter including pesticide residues, colouring matters and metallic contaminants. Except for one black rice sample from Thailand detected with cadmium level exceeded legal limit, the test results of other samples were all satisfactory.

Key Points to Note:

1. Members of the public are advised to be aware of the physical properties of rice.
2. Various factors, such as the properties of starch and cooking methods, affect the physical properties of cooked rice.
3. As revealed by laboratory testing results, rice tested is genuine in Hong Kong.

Advice to Public

- Not to believe in hearsay too easily.
- Make reference to official websites, e.g. CFS website, as reliable sources of information.
- There is no cause for concern as test results showed that all samples were rice and passed chemical analyses.

Advice to Trade

- Obtain rice from reliable suppliers. Maintain a good recording system for tracing if needed.
- Ensure the rice they sell or import is fit for human consumption and comply with legal standards.

風險傳達 工作一覽 Summary of Risk Communication Work

風險傳達工作一覽 (二零一七年一月) Summary of Risk Communication Work (December 2016)	數目 Number
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蔬果的除害劑殘餘 (第 I 部分) : 過去三十年有關除害劑殘餘的食物中毒風險趨勢

Pesticide Residues in Vegetables and Fruits Part I: Trends in Pesticide Residues Food Poisoning Risk in the Past Three Decades

食物安全中心
風險評估組
科學主任游天頌先生報告

Reported by Mr. Arthur YAU, Scientific Officer,
Risk Assessment Section,
Centre for Food Safety

有些市民對現時食用的蔬果所含的除害劑殘餘水平仍有憂慮，認為除害劑殘餘或會對人體造成不當損害。我們察看與除害劑有關的食物中毒個案，並概述過去三十年有關食物中的除害劑殘餘所帶來的風險。

早年因除害劑殘餘引致大規模爆發食物中毒的事故

早於一九八七年年尾，香港開始出現多次因食用進口蔬菜而引致食物中毒的事故，並在一九八八年達到高峰期，共有303宗確診個案，491人受影響。雖然情況在一九八九及一九九零年期間趨於穩定，但在一九九一至一九九五年期間曾再度出現規模較小的食物中毒事故。在一九九六至二零零五年間，本港只有小規模出現或零星的有關食物中毒個案見(見圖三)。

一九九六年前發生的有關食物中毒事故主要是由除害劑甲胺磷所引致。當年，由於甲胺磷可在市場購得，並能有效控制嘴嚼及吸啜昆蟲，故是進口葉菜的常用除害劑。在當時發生的有關食物中毒個案中，涉事蔬菜約含有百萬分之二百的甲胺磷。這個甲胺磷含量甚高，體重60公斤的成人只需進食3克該除害劑水平的蔬菜便達到急性參考劑量，表示可出現急性徵狀，例如噁心、嘔吐、腹痛、頭暈及目眩。當局遂致力打擊除害劑殘餘達危險水平的蔬菜湧入香港。本港與內地當局緊密聯絡，並採取了多項管制措施，情況才逐漸受控。在邊境設立文錦渡食品管制處以檢出除害劑殘餘含量高的樣本，亦發揮了不可或缺的作用。

香港已與內地當局作出協定，規定所有供港蔬菜均須來自註冊菜場及加工處理廠，並附有所須的出口文件及識別標籤。如經陸路輸港，有關蔬菜須在文錦渡入境。此外，當局亦會到菜場視察，以了解菜場有否遵守安全使用除害劑的規定及良好農業規範。

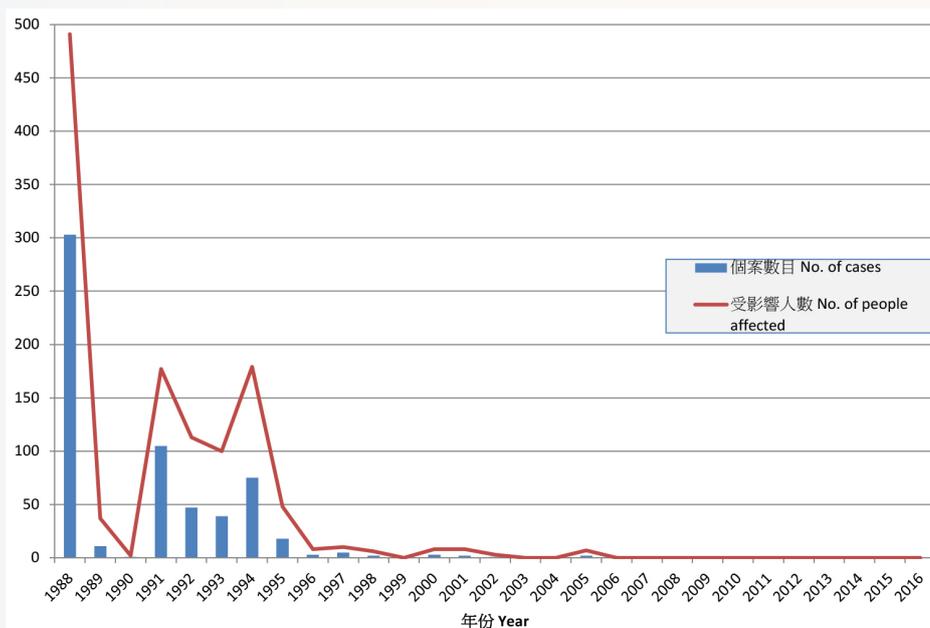
食物中的除害劑殘餘在近年的情況

在過去十年，衛生防護中心並無發現任何由除害劑殘餘所引致的食物中毒確診個案。此外，隨著《食物內除害劑殘餘規例》於二零一四年八月一日實施，當局進一步加強管制。在二零一四年八月一日至二零一六年期間，中心抽取約91 700個食物樣本以進行除害劑殘餘檢測，整體只有0.2%含量超過法定限量(見圖四)，跟歐洲聯盟(二零一四年，在約83 000 個樣本中，3%超過最高殘餘限量)及加拿大(二零零九至二零一零年，在3 078個樣本中，<1%超過最高殘餘限量)的數字相若。在該些只佔少數的不合格(除害劑殘餘含量超過法

Some people are still worried about the current level of pesticide residues in fruits and vegetables they consumed, having an impression that they may cause undue harm to the body. We reviewed pesticide-related food poisoning cases and give an overview of the risk of pesticide residue in food for the past three decades.

Outbreaks of Large-scale Food Poisoning Caused by Pesticide Residues in Early Years

Back in late 1987, a large number of food poisoning outbreaks caused by consumption of imported vegetables began to surface peaking off in 1988 with 303 confirmed cases and affected 491 persons. After a drop in 1989 and 1990, the levels jumped up again in a lesser scale from 1991 to 1995. From 1996 to 2005, there were only sporadic, small scale outbreaks (See Figure 3).



圖三: 一九八八至二零一六年因食用受除害劑污染的蔬菜而引致的食物中毒確診個案宗數和受影響人數(來源: 衛生署衛生防護中心)。
Figure 3: Number of confirmed food poisoning outbreaks and affected persons that were caused by consumption of pesticide-contaminated vegetables, 1988 – 2016 (Source: Centre for Health Protection, Department of Health).

The outbreaks before 1996 were mainly caused by the pesticide methamidophos, which was a popular pesticide used in leafy vegetables imported at that time due to its availability and effectiveness in controlling chewing and sucking insects. The methamidophos levels that were commonly found in food poisoning cases at that time were about 200 ppm, which was so high that consumption of a small amount of the vegetable concerned would cause acute symptoms such as nausea, vomiting, abdominal pain, dizziness and blurred vision. Much effort had been made to curb the influx of vegetables that contained dangerous level of pesticide residues. With close liaison with the Mainland authorities and introduction of various control measures, the situation was gradually under control. The setting up of the Man Kam To Food

Control Point at the border for screening out samples with high pesticide residue levels also played an indispensable role.

Agreements had been made with Mainland authorities that all Mainland vegetables imported have to be sourced from registered farms and processing plants, accompanied with required export documents and identification tags and entered through Man Kam To when enter by land. Furthermore, farm inspections are being made to check for compliance in terms of safe pesticide use and good agriculture practice (GAP).

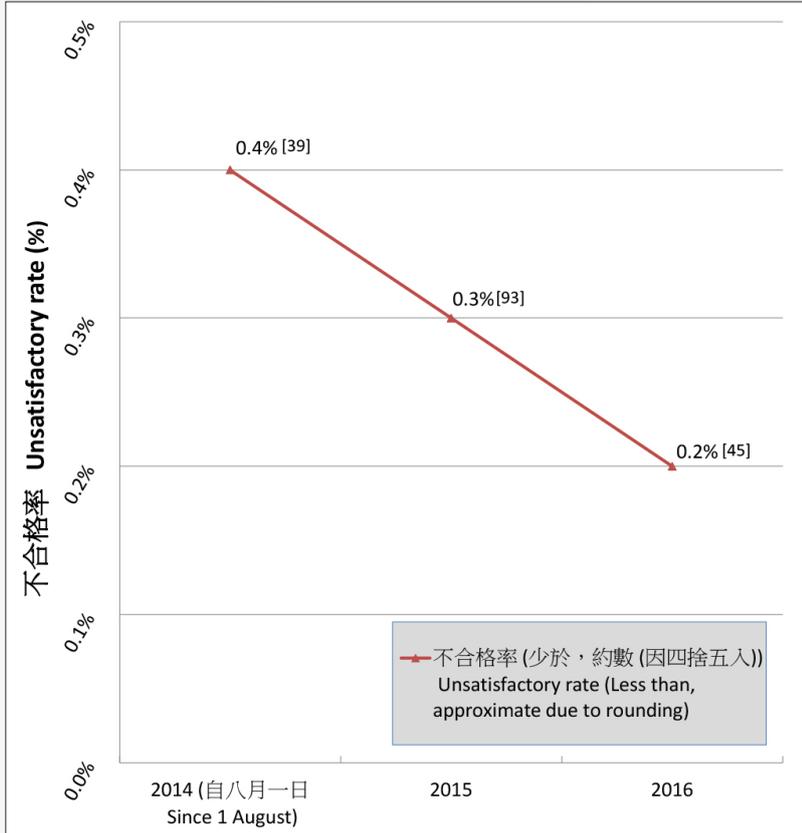
Pesticide Residues in Food in this Decade

In the past decade, the Centre for Health Protection did not identify any confirmed cases of food poisoning caused by pesticide residues. Furthermore, with the enactment of the Pesticide Residues in Food Regulation on 1 August 2014, control was further strengthened. Between 1 August 2014 and 2016, the CFS took about 91 700 food samples for testing of pesticide residues, and overall only 0.2 % was found not complying with legal requirement (See Figure 4). The figures compared well against European Union (83 000 samples, 3% exceeding maximum residue levels (MRLs) in 2014) and Canada (3 078 samples, <1%

定量)樣本之中,消費者如以一般進食模式食用,大部分樣本不會對他們的健康構成任何損害。檢測結果不合格僅反映出良好農業規範並無嚴格遵行。消費者如持續食用一段長時間,亦只有數宗不合格樣本或會對部分消費者引致慢性健康問題。

此外,中心亦從人群風險評估角度探討有關問題。香港首個總膳食研究,涵蓋逾100種除害劑。研究發現市民從膳食中攝入除害劑分量,遠低於提供予消費者的安全參考值。總膳食研究更能反映市民從膳食中攝入除害劑殘餘的情況及實際風險。就研究涉及的除害劑而言,香港市民不大可能透過膳食攝入過量的除害劑殘餘。

一如上文所述,攝入除害劑殘餘不再有迫切的風險。中心二十多年前提供的洗菜建議,是基於大量出現高劑量除害劑污染的蔬菜引致食物中毒的情況所定立。中心現時正檢討有關建議。請密切留意有關本文章下一部分的內容。



圖四：自二零一四年八月一日至二零一六年期間,抽取作除害劑殘餘分析的蔬果樣本不合格率[樣本數目]。
Figure 4: Unsatisfactory rate [number] of fruits and vegetable samples collected for pesticide residue analysis from 1 August 2014 to 2016.

exceeding MRLs in 2009 - 2010). Among those small percentage of samples exceeding the regulatory limits, almost all of them would not cause any harm to the consumers' health under normal consumption. The unsatisfactory results merely reflected that GAP had not been followed closely. Only a handful of the unsatisfactory samples may cause chronic health problems for some consumers if consume continuously over a prolonged period of time.

The CFS also examined the problem from a population risk assessment perspective. The First Hong Kong Total Diet Study (TDS) found that the dietary exposure of consumers to more than 100 varieties of pesticides was much lower than the safety reference values. TDS studies can better reflect the dietary exposure of the population to pesticide residues and their actual risks. Of the pesticides studied, it is very unlikely that the population of Hong Kong will be exposed to excessive amount of pesticide residues through diet.

As reviewed above, exposure to pesticide residues is no longer an imminent risk. The CFS had been reviewing the advice on washing vegetables that was introduced some two decades ago when food poisoning caused by pesticide tainted vegetables was

common. Please stay tuned in the next instalment of this article.

食物事故點滴
Food Incident Highlight

一些產自法國、愛爾蘭及蘇格蘭的生蠔受諾如病毒污染

上月,食物安全中心(中心)公布,由於懷疑受諾如病毒污染,中心已禁止在法國Etang de Thau水域及愛爾蘭Dungarvan Bay水域養殖或捕撈或由蘇格蘭Loch Fyne Oysters Ltd出產的生蠔進口及在港出售。諾如病毒常見於受污染的水中。在污水區生長的蠔隻在濾食時很容易受諾如病毒污染。

不論老幼,人人也可能受諾如病毒感染。諾如病毒俗稱“冬季嘔吐症”,多在冬季爆發,患者一般會出現嘔吐等病徵。市民應注意,無論是在哪個地區的水域捕撈的蠔隻,吃蠔(尤其是生蠔或未徹底煮熟的蠔)存在固有的食物安全風險。高危一族(即長者、幼兒、孕婦及免疫系統較弱的人士)應避免進食生蠔或未徹底煮熟的蠔。業界應向可靠的供應商採購蠔隻,而供應商須附上出口國家有關當局簽發的衛生證明書。

Certain Raw Oysters from France, Ireland and Scotland Contaminated with Norovirus

Last month, the Centre for Food Safety (CFS) has banned the import into and sale within Hong Kong of raw oysters bred or harvested in Etang de Thau, France and Dungarvan Bay, Ireland, or produced by Loch Fyne Oysters Ltd of Scotland due to suspected norovirus contamination. Norovirus is commonly found in sewage. Oysters may be contaminated by norovirus due to filter feeding in sewage-contaminated waters.

Norovirus infection affects people of all age groups, and is commonly known as the “winter vomiting disease”, characterised by high incidence of vomiting, and occurs predominantly during the winter season. The public is reminded that, regardless of the region in which the oysters are harvested, consuming oysters, particularly raw or partially cooked ones, carries an inherent food safety risk. Susceptible populations (elderly, young children, pregnant women and people with weakened immune systems) should avoid eating raw or partially cooked oysters. The trader is advised to obtain oysters from reliable sources with health certificates issued by the relevant authority of the exporting country.

一批本地活豬被檢出含有氯霉素

上月,食物安全中心(中心)公布,從一批本地生產的豬隻抽取的尿液樣本中,檢出禁止在食用動物使用的獸藥殘餘抗生素氯霉素。該批豬共有19隻,其後已被銷毀。

氯霉素可用於治療人類細菌感染。不過,氯霉素對骨髓具有潛在毒性,且有其他替代品可用,故應謹慎使用。

為確保食物安全,中心會對每批送往屠房屠宰的豬隻作尿液檢測,只有通過檢測的豬隻才會被屠宰和送往市場售賣。中心會與有關各方合作跟進此個案,並採取適當行動。

Chloramphenicol Found in a Batch of Local Live Pigs

Last month, the Centre for Food Safety (CFS) announced that the urine samples taken from a batch of locally produced pigs contained veterinary drug residue of chloramphenicol, which is an antibiotic not permitted in food animals. The batch of 19 pigs has subsequently been destroyed.

Chloramphenicol can be used to treat bacterial infections in humans. However, due to its potential toxicity to the bone marrow and the availability of other alternatives, it should be used with caution.

To ensure food safety, urine testing is conducted on every batch of pigs sent for slaughtering at slaughterhouses, and no pigs will be slaughtered and released to the market for sale unless they have passed the test. The CFS will work with relevant parties to follow up on the case and take appropriate action.