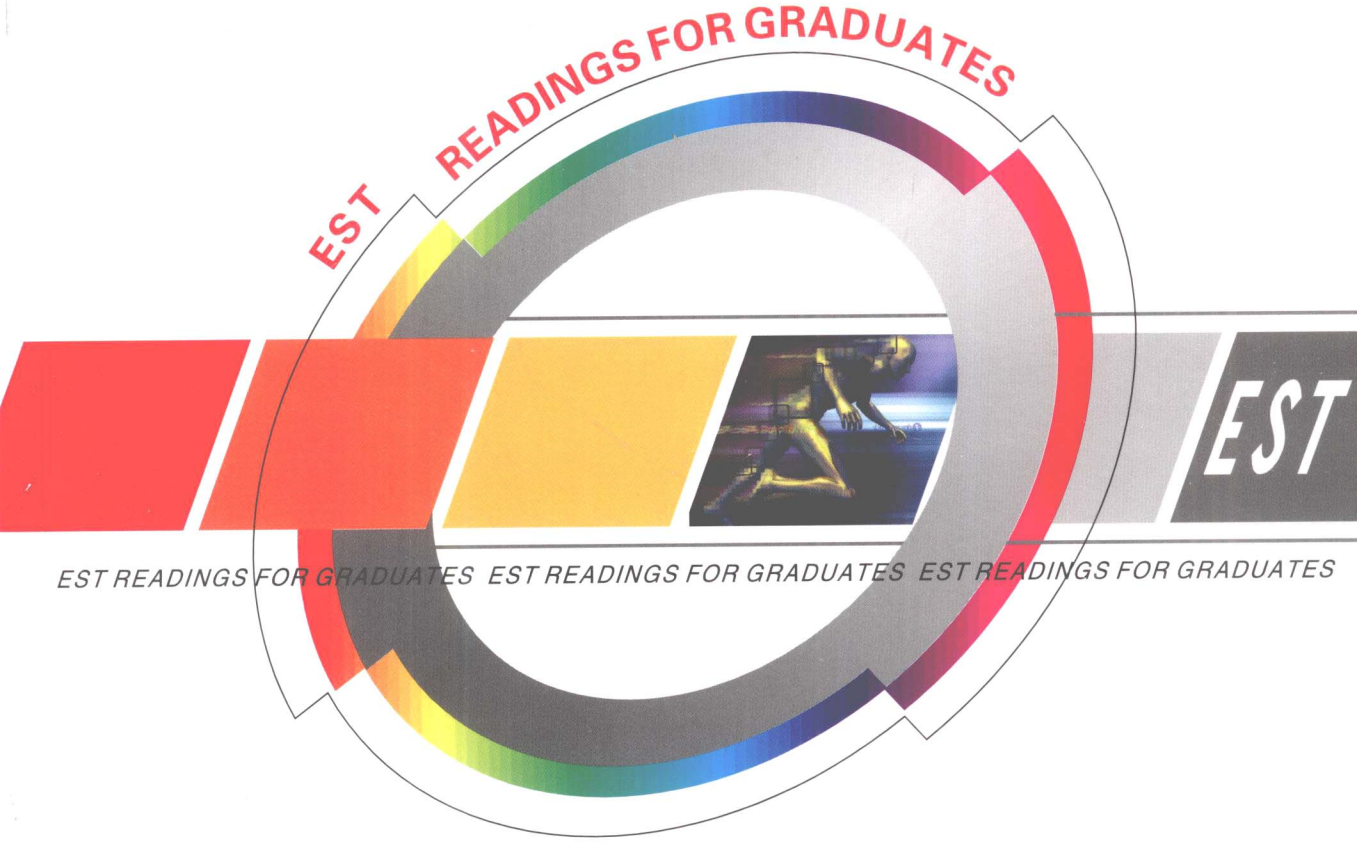
英语丛书

尹丕安



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研究生科技英语阅读

西北工业大学出版社

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研究生科技英语阅读

EST Readings for Graduates

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【内容提要】 本教材包含12个单元，每个单元由A、B两篇主题相近的文章和相关练习构成，A篇(1 000个单词左右)包括课文、注释、词汇表、练习及文体特征等五部分，其中练习部分包括理解与赏析、词汇填空、英汉互译、完形填空等；B篇(1 500个单词左右)为补充阅读，附有阅读理解练习，可供学生课外阅读。

本教材课文语言规范，符合科技英语文体特征，选材新颖多样，涉及诸多科技领域的热门话题，如转基因食品、肤色生物学、环境污染、时间旅行、电子通信、手机安全、地球断层、肥胖症、不明飞行物、视频游戏与梦、触摸科技及虚拟现实等，具有很强的趣味性、可读性和启发性，适合研究生英语教学过程中的学习和讨论。

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前　言

《研究生科技英语阅读》是按照教育部《非英语专业研究生英语(第一外语)教学大纲》所制定的教学目标，着眼于培养学生语言综合能力和语言应用能力而编写的。

本教材包含12个单元，每个单元由A、B两篇主题相近的文章和相关练习构成，A篇(1 000个单词左右)包括课文、注释、词汇表、练习及文体特征等五部分，其中练习部分包括理解与赏析、词汇填空、英汉互译、完形填空等；B篇(1 500个单词左右)为补充阅读，附有阅读理解练习，可供学生课外阅读。每个单元不同类型的练习始终围绕课文内容设计和编写，以强化学生对所学语言知识的记忆、掌握和运用，同时通过练习掌握英语学习方法，从而达到培养学生语言综合能力，语言应用能力和自主学习能力的目的。

本教材的课文均选自科普类英美报刊和网络，不仅通俗易懂，可读性强，而且符合科技英语表达习惯和规范，具有鲜明的科技英语文体特征；课文选材新颖多样，涉及诸多科技领域的热门话题，如转基因食品、肤色生物学、环境污染、时间旅行、电子通信、手机安全、地球断层、肥胖症、不明飞行物、视频游戏与梦、触摸科技及虚拟现实等，反映了科技领域最新的探索和研究状况，因而具有很强的趣味性，有助于激发学生学习兴趣，也有助于拓宽学生视野和思维。

本教材作者编写分工如下：

贾立平编写第一、二、三单元Text A部分；尚华编写第四、五、六单元Text A部分；王巧宁编写第七、八单元Text A部分；管晓蕾编写第九、十单元Text A部分；于强福编写第十一、十二单元Text A部分；王冕编写第七、八、九、十、十一、十二单元Text B部分；汪漪编写第一、二、三、四、五、六单元Text B部分。

本教材可供非英语专业硕士研究生的英语教学使用。

本教材在编写过程中，西北工业大学出版社的编辑同志也提出了许多宝贵意见，在这里对他们表示诚挚的谢意。

编　者

2011年6月

CONTENTS

Unit 1

He who does not mind his belly will hardly mind anything else.

— Samuel Johnson

Text A

Genetically Modified Foods — Feed the World?

by Bill Gates

If you want to spark a heated debate at a dinner party, bring up the topic of genetically modified foods. For many people, the concept of genetically altered, high-tech crop production raises all kinds of environmental, health, safety and ethical questions. Particularly in countries with long agrarian traditions — and vocal green lobbies — the idea seems against nature.

In fact, genetically modified foods are already very much a part of our lives. A third of the corn and more than half the soybeans and cotton grown in the US last year were the product of biotechnology, according to the Department of Agriculture. More than 65 million acres of genetically modified crops will be planted in the US this year. The genetic is out of the bottle.

Yet there are clearly some very real issues that need to be resolved. Like any new product entering the food chain, genetically modified foods must be subjected to rigorous testing. In wealthy countries, the debate about biotech is tempered by the fact that we have a rich array of foods to choose from — and a supply that far exceeds our needs. In developing

countries desperate to feed fast-growing and underfed populations; the issue is simpler and much more urgent: Do the benefits of biotech outweigh the risks?

The statistics on population growth and hunger are disturbing. Last year the world's population reached 6 billion. And by 2050, the UN estimates, it will probably near 9 billion. Almost all that growth will occur in developing countries. At the same time, the world's available cultivable land per person is declining. Arable land has declined steadily since 1960 and will decease by half over the next 50 years, according to the International Service for the Acquisition of Agri-Biotech Applications (ISAAA).

The UN estimates that nearly 800 million people around the world are undernourished. The effects are devastating. About 400 million women of childbearing age are iron deficient, which means their babies are exposed to various birth defects. As many as 100 million children suffer from vitamin A deficiency, a leading cause of blindness. Tens of millions of people suffer from other major ailments and nutritional deficiencies caused by lack of food.

How can biotech help? Biotechnologists have developed genetically modified rice that is fortified with beta-carotene — which the body converts into vitamin A — and additional iron, and they are working on other kinds of nutritionally improved crops. Biotech can also improve farming productivity in places where food shortages are caused by crop damage attribution to pests, drought, poor soil and crop viruses, bacteria or fungi.

Damage caused by pests is incredible. The European corn borer, for example, destroys 40 million tons of the world's corn crop annually, about 7% of the total. Incorporating pest-resistant genes into seeds can help restore the balance. In trials of pest-resistant cotton in Africa, yields have increased significantly. So far, fears that genetically modified, pest-resistant crops might kill good insects as well as bad appear unfounded.

Viruses often cause massive failure in staple crops in developing countries. Two years age, Africa lost more than half its cassava crop — a key source of calories — to the mosaic virus. Genetically modified, virus-resistant crops can reduce that damage, as can drought-tolerant seeds in regions where water shortages limit the amount of land under cultivation. Biotech can also help solve the problem of soil that contains excess aluminum, which can damage roots and cause many staple-crop failures. A gene that helps neutralize aluminum toxicity in rice has been identified.

Many scientists believe biotech could raise overall crop productivity in developing countries as much as 25% and help prevent the loss of those crops after they are harvested.

Yet for all that promise, biotech is far from being the whole answer. In developing countries, lost crops are only one cause of hunger. Poverty plays the largest role. Today more than 1 billion people around the globe live on less than 1 dollar a day. Making genetically modified crops available will not reduce hunger if farmers cannot afford to grow them or if the local population cannot afford to buy the food those farmers produce.

Nor can biotech overcome the challenge of distributing food in developing countries. Taken as a whole, the world produces enough food to feed everyone — but much of it is simply in the wrong place. Especially in countries with undeveloped transport infrastructures, geography restricts food availability as dramatically as genetics promises to improve it.

Biotech has its own "distribution" problems. Private-sector biotech companies in the rich countries carry out much of the leading-edge research on genetically modified crops. Their products are often too costly for poor farmers in the developing world, and many of those products won't even reach the regions where they are most needed. Biotech firms have a strong financial incentive to target rich markets first in order to help them rapidly recoup the high costs of product development. But some of these companies are responding to needs of poor countries. A London-based company, for example, has announced that it will share with developing countries technology needed to produce vitamin-enriched "golden rice".

More and more biotech research is being carried out in developing countries. But to increase the impact of genetic research on the food production of those countries, there is a need for better collaboration between government agencies — both local and in developed countries — and private biotech firms. The ISAAA, for example, is successfully partnering with the US Agency for International Development, local researches and private biotech companies to find and deliver biotech solutions for farmers in developing countries.

Will "Frankenfoods" feed the world? Biotech is not a panacea, but it does promise to transform agriculture in many developing countries. If that promise is not fulfilled, the real losers will be their people, who could suffer for years to come.

(974 words)

http://www.ywhc.net/article/info_Show.asp? Article ID=799

Notes to the Text

1. **genetically modified foods 转基因食品** genetic modification (GM)转基因技术即运用科学

手段从某种生物中提取所需要的基因，将其转入另一种生物中，使与另一种生物的基因进行重组，从而产生特定的具有优良遗传性状的物质。利用转基因技术可以改变动植物性状，培育出新品种。人们常说的“遗传工程”、“基因工程”、“遗传转化”均为转基因的同义词。经转基因技术修饰的生物体在媒体上常被称为“遗传修饰过的生物体”(Genetically modified organism，简称 GMO)。

2. **the International Service for the Acquisition of Agri-Biotech Applications (ISAAA) 国际农业生物技术应用服务组织** 该组织成立于 1992 年，坐落在美国康奈尔大学，是一个促进生物技术应用的非营利性小规模的国际组织。此外，它在菲律宾和肯尼亚也有研究机构。ISAAA 认为，生物技术的应用，转基因作物的种植，可以帮助发展中国家的农民。它本身也和联合国以及美国政府合作，从事一些帮助发展中国家发展生物科技的项目。该组织每年都发布一份关于全球生物技术状况的报告。
3. **beta-carotene β-胡萝卜素** β-胡萝卜素是维生素 A 的前体，在机体内可转化为维生素 A，主要作用是有助于视觉系统的发育；抗氧化物质，有助于提高免疫力。富含 β-胡萝卜素的食物有绿色蔬菜、水果，如菠菜、苜蓿、番茄、豆苗、扁豆、茄子、胡萝卜、红心薯、杏、葡萄、红枣等。
4. **the US Agency for International Development 美国国际发展署** 该组织成立于 1961 年，总部位于美国华盛顿特区，它长期以来对海外需要帮助的国家施以援助，并致力于这些国家的人民改善生活，摆脱贫困以及灾后重建等。
5. **Frankenfoods 弗兰肯食品** 尽管生物技术公司认为其产品可以食用而且对环境无污染，但操作基因这一想法引起了很多批评。在欧洲，反对者对转基因食品冠以“弗兰肯食品”(frankenfoods)的名称进行攻击。(注：“弗兰肯斯坦”来自小说 Frankenstein，中文译名为《弗兰肯斯坦》，也译为《科学怪人》，作者是英国作家玛丽·雪莱。故事讲述主人公弗兰肯斯坦，一个疯狂的科学家，在用许多碎尸块拼接成一个人形并赋予其生命后，发现这是个严重的错误，随后开始追杀这个怪物。)

New Words

ailment ['eilmənt] *n.* an often persistent bodily disorder or disease 疾病
agrarian [ə'greəriən] *adj.* relating to agricultural or rural matters 农业的，农村的
aluminum [ə'lju:minəm] *n.* 铝
arable ['ærəbl] *adj.* fit for cultivation, as by plowing 可耕作的，适于耕种的
bacteria [bæk'tiəriə] *n.* 细菌
biotechnologist [ˌbaiəutek'nɔlədʒist] *n.* 生物技术学家
biotechnology [ˌbaiəutek'nɔlədʒi] *n.* 生物技术
borer ['bɔ:rə] *n.* 蛀虫

cassava [kə'sɑ:və] *n.* 木薯

collaboration [kəˌlæbə'reiʃən] *n.* act of working jointly 合作

cultivable ['kʌltivəbl] *adj.* capable of undergoing cultivation 可耕种的,可栽培的

deficient [di'fiʃənt] *adj.* inadequate in amount or degree; insufficient 缺乏的,不足的

deficiency [di'fiʃənsi] *n.* a lack or shortage, especially of something essential to health; an insufficiency 缺乏,不足

devastating ['devəsteitiŋ] *adj.* causing complete destruction 破坏性的

exceed [ik'si:d] *v.* to be greater than; surpass 超越,胜过

fortify ['fɔ:tifai] *v.* to add nutrients to 增加营养物

fungi ['fʌŋgai] *n.* 真菌类

genetically [dʒe'netikəli] *adv.* by genetic mechanisms 遗传(基因)方面

incentive [in'sentiv] *n.* a positive motivational influence 刺激,诱因

incorporate [in'kɔ:pəreit] *v.* to make into a whole or make part of a whole 结合,混合

incredible [in'kredəbl] *adj.* beyond understanding 难以置信的

infrastructure ['infrə'strʌktʃə] *n.* the basic structure or features of a system or organization 基础设施

modify ['mɔdifai] *v.* to change in form or character 变更,改变

mosaic virus [mə'zeiik'vaiərəs] *n.* 花叶病毒

neutralize ['nju:trəlaiz] *v.* to make chemically neutral 使中性,中和

nutritional [nju:'triʃənl] *adj.* of or relating to or providing nutrition 营养的

outweigh [aut'wei] *v.* to be more significant than; exceed in value or importance 胜过,超过

panacea [ˌpænə'siə] *n.* hypothetical remedy for all ills or disease, once sought by the alchemists 万灵药,灵丹妙药

pest [pest] *n.* any unwanted and destructive insect or other animal that attacks food or crops or livestock etc 虫害

rigorous ['rigərəs] *adj.* rigidly accurate; allowing no deviation from a standard 严格的,严厉的

resolve [ri'zɔlv] *v.* to find a solution to; solve 解决

spark [spɑ:k] *v.* to set in motion; activate 发动,触发

staple ['steipl] *adj.* produced or stocked in large quantities to meet steady demand 经常需要的

temper ['tempə] *v.* to make more temperate, acceptable, or suitable by adding something else; moderate 缓和,调和

toxicity [tɔk'sisəti] *n.* the quality or condition of being toxic 毒性

undernourished ['ʌndə'nʌriʃt] *adj.* not getting adequate food 营养不良的，半饱状态的

Useful Expressions

bring up 把……引进讨论，提到
be subjected to 使经受，使遭受
be exposed to 遭受，暴露于……
for all 尽管

Exercises

Ⅰ. Comprehension and Appreciation

Answer the following questions according to the text.

(1) What is the author's overall position on genetically modified foods? Is he for or against this issue?

(2) Is the topic of GM foods a good one to spark a heated debate? What other things are likely to be touched upon once people start this kind of conversation?

(3) Do you know GM foods are already part of our lives? What kind of GM foods have you had? How does the author support the fact that the genetic is out of the bottle? Have you got any clue of allusion and parody used in the expression "the genetic is out of the bottle"?

(4) Since the entry of GM foods into the food chain raises the debate about biotech in many countries, what is the general attitude of wealthy countries toward this issue? What about the developing countries?

(5) The UN estimates that by 2050, the world's population will probably be near 9 billion. Where all that growth will occur?

(6) What are the effects of the fact that nearly 800 million people around the world are undernourished?

(7) How can biotech help to cure the children with vitamin A deficiency?

(8) How do you like the GM, pest-resistant crops? How does the author support the idea that fears that GM, pest-resistant crops might kill good insects as well as bad appear groundless?

(9) How does biotech help to solve the problem of crop failures due to viruses, droughts and

soils with excess aluminum?

(10) Is biotech the only chance for developing countries to overcome hunger?

Ⅱ. Vocabulary

Fill in the blanks with the words or phrases listed below in their appropriate forms.

alter	devastate	rigor	collaborative	suffer from
recoup	incentive	restrict	subject to	an array of
attribute to	expose to	incorporate into	fortify with	modify

(1) To help slow this process down we need to reduce our rate of fossil fuel consumption, and then find _____ fuels to the earth's natural reserves.

(2) With _____, we might also be able to use the genetic technology against invasive reptiles and birds.

(3) Nevertheless, ethicists argue that the consequences for stakeholders will be _____ if there is not a constant effort to apply ethical and legal principles to the flourishing information technology sector.

(4) It was Seattle's most exclusive school and was noted for its _____ academic demands, a place where even the dumb kids were smart.

(5) The purpose of this feature is to allow you to use web pages to _____ directly with others working on the same documents or workspaces.

(6) Analysts doubt that the Japanese companies will _____ their investments soon.

(7) The group maintains good relations with its employees, providing them competitive packages and _____ schemes as well as various training programmes.

(8) The companies of both sides hope eagerly that the EU would loosen such _____ and abolish this restrictive policy as soon as possible so as to give full play to the potentialities of Sino-EU technological cooperation.

(9) Our powers are given to us by the people and all cadres are their servants who must _____ supervision by the people and the law.

(10) Trade was restricted, for the most part, by an elaborate _____ taxes and prohibitions on imports and exports.

(11) The PE specialists _____ their successes _____ a holistic approach, one that emphasizes not only the physical, but the social skills that children need to work cooperatively.

(12) Most cylinders are designed to vent contents under the condition of _____, typically, _____ elevated temperatures.

(13) Breeders try to _____ resistance genes _____ farm crops to make them disease tolerant.

(14) Multinational food giant Nestle is marketing yoghurt _____ ingredients that rid the body of bacteria such as salmonella.

(15) He who fears to suffer, _____ fear.

Ⅲ. Translation

1. Translate the following English into Chinese.

(1) vocal green lobbies
arable land
vitamin A deficiency
nutritionally improved crops
restore the balance
staple crops
neutralize aluminum toxicity
overall crop productivity
transport infrastructures
target rich markets

(2) Genetically modified (GM) foods are foods derived from genetically modified organisms. Genetically modified organisms have had specific changes introduced into their DNA by genetic engineering techniques. These techniques are much more precise than mutagenesis (mutation breeding) where an organism is exposed to radiation or chemicals to create a non-specific but stable change. Other techniques by which humans modify food organisms include selective breeding (plant breeding and animal breeding), and somaclonal variation.

GM foods were first put on the market in the early 1990s. Typically, genetically modified foods are transgenic plant products: soybean, corn, canola, and cotton seed oil. But animal products have also been developed. In 2006 a pig was controversially engineered to produce omega-3 fatty acids through the expression of a roundworm gene. Researchers have also developed a genetically-modified breed of pigs that are able to absorb plant phosphorus more efficiently, and as a consequence the phosphorus content of their manure is reduced by as much as 60%.

Critics have objected to GM foods on several grounds, including theoretical or imagined safety issues, ecological concerns, and economic concerns raised by the fact that these organisms are subject to intellectual property law.

2. Translate the following Chinese into English.

(1) 挑起争论　　转基因食品　　解决问题
食物链　　供大于求　　世界人均耕地

大幅度提高　　罪魁祸首　　从整体上看
尖端研究

(2)_____(发现很难适应那里的气候),he decided to move back to the north.

(3)Over a third of the population was estimated _____(没有机会享受医疗保健服务).

(4)This company plays _____(为……繁荣和发展发挥重要作用) the Chinese catering trade.

(5)Overcrowding in turn, leads inevitably to _____(产量的降低和品质的下降).

(6)Some women _____(本来能够挣一份很好的工资) in a job instead of staying at home, but they decided not to work for the sake of the family.

(7)现代科学技术的价值,无论如何重视也不为过分。

(8)保险公司将就洪水造成的损失给农民们以补偿。

(9)在 SARS 爆发期间,贫困国家医疗设施的缺乏已经给全世界人民带来严重的影响。

(10)这座大学图书馆是中国最大的几座图书馆之一,藏书超过 230 万册,它支持着大学的研究和教学,涵盖所有科目,并提供关于每一科目领域的收藏和服务方面的信息。

(11)经济衰退对中等收入和贫困家庭的打击最大,它扩大了最富裕和最贫困的美国人之间的经济差距,因为裁员的发生使家庭可用开支遭受重创。

(12)中国政府宣布两种转基因水稻可以安全生产和消费,在亚洲数十亿人食用的这种主要粮食作物中使用生物技术迈出了重要一步。中国是世界上最大的稻米生产国和消费国,因此它使用转基因品种很有可能改变稻米的全球供应模式。在使用时常引起争议的转基因技术方面,中国的官员面临的公众压力并没有其他一些国家的同行那么大。中国政府长期以来一直支持农业生物技术的研究,将其作为确保中国粮食能够自给自足的战略的组成部分。

Ⅳ Cloze

Choose an appropriate word from the following list to fill in each of the following blanks. Each word can only be used ONCE. Change the form where necessary.

unrelated	different	predictable	into	produce
nobody	species	risks	approve	humans
obvious	also	apparently	see	insert

Is GM Food Safe to Eat?

Traditional plant breeding involves crossing varieties of the same __1__ in ways they

could cross naturally, for example, disease-resistant varieties of wheat have been crossed with high-yield wheat to combine these properties. This type of natural gene exchange is safe and fairly __2__.

Genetic engineering(GE) involves exchanging genes between __3__ species that cannot naturally exchange genes with each other. GE can involve the exchange of genes between vastly __4__ species — e. g. putting scorpion toxin genes __5__ maize or fish antifreeze genes into tomatoes. It is possible that a scorpion toxin gene, even when it is in maize DNA, will still get the organism to __6__ scorpion toxin — but what other effects may it have in this alien environment? We are already __7__ this problem — adding human growth hormone genes to pigs certainly makes them grow — but it __8__ gives them arthritis and makes them cross-eyed, which was entirely unpredictable.

It will be __9__, for example, that the gene for human intelligence will not have the same effect if __10__ into cabbage DNA as it had in human DNA — but what side-effect would it have? In other words, is GM food safe to eat? The answer is that __11__ knows because long-term tests have not been carried out.

Companies wanting a GM product __12__ in the UK or USA are required to provide regulatory bodies with results of their own safety tests. Monsanto's soya beans were __13__ fed to fish for 10 weeks before being approved. There was no requirement for independent testing, for long-term testing, for testing on __14__ or testing for specific dangers to children or allergic people.

The current position of the UK Government is that "There is no evidence of long-term dangers from GM foods." In US, the American Food and Drug Administration is currently being prosecuted for covering up research that suggested possible __15__ from GM foods.

Stylistic Features

Nominalization

Nominalization, referring to the usage of nouns morphologically related to verbs, adjectives, or adverbials, serves as a conventional and effective approach to express complex meaning involving actions, attributes or states of the subject. It is frequently adopted in STE (Scientific and Technical English) to achieve preciseness, conciseness and objectiveness. For example, the difference between the following two sentences is caused by nominalization.

(1)There is a need for better *collaboration* between government agencies — both local

and in developed countries — and private biotech firms.

(2)Government agencies — both local and in developed countries — and Private biotech firms need to *collaborate* with each other.